BOUCHARD B-120 OIL SPILL
BUZZARDS BAY, MASSACHUSETTS

LOST USE VALUATION REPORT

Cooperatively Prepared by
Bouchard B-120 Oil Spill Lost Use Technical Working Group

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EXECUTIVE SUMMARY

This document presents the results of the Bouchard B-120 Oil Spill Lost Use Assessment. The lost use assessment was part of the Natural Resource Damage Assessment (NRDA) conducted by the Natural Resource Trustees (Trustees) with the cooperation of the Responsible Party and its representatives. The Trustees for the incident include the Commonwealth of Massachusetts, the State of Rhode Island, the Department of the Interior, and the National Oceanic and Atmospheric Administration. ENTRIX, Inc. served as the Responsible Party's consultant for the incident. A Technical Working Group (TWG), which included representatives of the state and federal Trustees and ENTRIX, was formed to focus on assessing injury to the recreational services of natural resources impacted by the spill. The information gathered by the TWG during the assessment indicated the quantity and quality of outdoor recreation in and around Buzzards Bay was reduced because of the spill. Therefore, the public suffered losses due to the decrease in the opportunities for and value of outdoor recreational activities resulting from the spill.

Three categories of recreational activities were assessed: recreational shellfishing, general shoreline use, and recreational boating. The general shoreline use category includes a variety of shoreline and beach related activities, including sunbathing, walking, picnicking, birding, fishing, kayaking, and others. Boating included motor-boating, boat-based recreational fishing, and sailing.

The assessment area included all towns in which recreation was potentially affected by the spill from Narragansett, Rhode Island to Woods Hole, Massachusetts, Block Island, Rhode Island and the Elizabeth Islands, Massachusetts. Based on information collected and analyses performed during the assessment, losses were evaluated for geographic areas specific to each activity. The recreational shellfishing assessment area included the interior of Buzzards Bay from Westport to Woods Hole. The shoreline and boating assessment areas included Little Compton, Rhode Island to Woods Hole plus Block Island. The TWG concluded that no boating or recreational shellfishing losses occurred in Rhode Island, and therefore the only category of losses in Rhode Island was shoreline use. Based on the information collected, it was concluded that the costs of assessing potential losses for the Elizabeth Islands were not warranted given the expected magnitude of potential damages.

The duration of losses was also different for each activity in the assessment. Duration of losses was determined based on information collected and analyses conducted during the assessment. Shellfishing losses were estimated in both 2003 and 2004. General shoreline use losses were estimated from the time of the spill (late April, 2003) through the beginning of September, 2003. Boating losses accrued for approximately one month following the spill.

Losses to recreational activities were evaluated by collecting information on recreation trips affected by the spill. The assessment relied on existing information to the extent possible and gathered additional primary data as necessary. The number of trips affected

by the spill was estimated by comparing "with-spill" and "baseline" trips. "With-spill trips" refers to those trips taken under spill conditions (*i.e.*, those actually taken) and "baseline trips" refers to those trips that would have been taken had the spill not occurred. With-spill trips were estimated using data collected at affected sites following the spill. The estimation of baseline trips utilized data on recreational use in years not affected by the spill and data on recreation in control areas, which are nearby areas with similar recreational activities that were not affected by the spill.

To develop an appropriate dollar value for lost recreation services, the TWG used benefit transfer for shoreline use and boating trips and a primary site-specific study for shellfishing trips. Benefit transfer is the process of taking per-trip values from existing literature and potentially adjusting them to better fit the specifics of the assessment. Multiplying the reduction in trips by the loss per trip yields the estimated total loss to the public in dollars. This approach quantifies changes in "consumer surplus," which is an economic measure of gains or losses associated with changes in goods or services. The evaluation of consumer surplus has been applied extensively to changes in resource quality that affect outdoor recreation. The methods used in this assessment are based on economic principles and methods developed in the economics literature on the valuation of natural resources.

The results of this assessment determine the appropriate compensation to the public for the lost recreational use of natural resources, known as "damages." Compensation will be made through the implementation of restoration projects designed to enhance the value of recreational activities in areas affected by the spill. Damages for the lost use assessment are being estimated using "value-to-cost" scaling. In value-to-cost scaling, restoration projects are selected so that the total cost of the projects is equivalent to the total value of recreational use losses. Damages will be collected and spent on restoration projects that will enhance outdoor recreation in the spill area. Table ES-1 summarizes the results of the assessment.

Table ES-1: Summary of Recreational Use Losses

Activity Category	Reduction in Trips	Reduction in Value (Damages) [a]
Recreational Shellfishing	47,298	$1,406,556
General Shoreline Use	36,441	$1,595,434
Recreational Boating	987	$90,006
Total	84,726	$3,091,996

[a] The reduction in value is expressed as a present value at the end of February 2009.

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BOUCHARD B-120 OIL SPILL BUZZARDS BAY, MASSACHUSETTS
LOST USE VALUATION REPORT

1.0 PURPOSE

This document presents the Bouchard B-120 Oil Spill Lost Recreational Use Assessment. The lost use assessment is a component of the Natural Resource Damage Assessment (NRDA) for the Bouchard B-120 oil spill (referred to as "the incident" or "the spill"). The purpose of the lost use assessment is to quantify the lost interim services to the public associated with the effects of the incident on outdoor recreation. The results of this assessment will be used to determine the appropriate compensation to the public. For lost use, compensation will be made through the implementation of restoration projects designed to enhance the value of recreational activities in areas affected by the spill.

The cost of restoration projects is referred to as "damages" in NRDA. For the lost use assessment, damages are being estimated using "value-to-cost" scaling. In value-to-cost scaling, restoration projects are selected so that the total cost of restoration is equivalent to the total value of recreational losses. This differs from "value-to-value" scaling, in which projects are selected so that the value of restoration is equivalent to the value of the lost recreation services. The Lost Use Technical Working Group (TWG) concluded that value-to-value scaling was not likely to be a cost-effective approach for the lost use assessment. Value-to-value scaling requires evaluating the increase in welfare associated with restoration projects, an effort that requires additional, potentially costly, studies.

This assessment was performed by the TWG, which included state and federal Trustee representatives and personnel of ENTRIX, Inc., an environmental consultant to the Responsible Party (RP), Bouchard Transportation Corp.

Spill-related losses to recreation occurred throughout the Buzzards Bay area on both publicly and privately owned land. In addition, some towns or communities in the area maintain recreational facilities for their residents, which are not open to use by the general public. This assessment evaluates damages resulting from impacts to outdoor recreation for all members of the public, regardless of whether the recreation occurs at public sites, limited-access areas, or on private property.

2.0 INTRODUCTION

The following sections present summaries of the incident, the scope of the assessment, and the methods used to measure lost use damages.

2.1 Summary of the Incident

This section is adapted from the incident Pre-Assessment Data Report (PADR), which is part of the administrative record for the Bouchard B-120 oil spill assessment.

On the afternoon of April 27, 2003, Barge B-120, owned and operated by the Bouchard Transportation Company (Bouchard), grounded on a shoal after entering the western approach to Buzzards Bay from the south. The grounding ruptured the hull of the barge, causing the subsequent release of approximately 22,000 to 98,000 gallons of its No. 6 fuel oil cargo.[1] The actual volume of the spill is unknown, but has been approximated by various investigators using scientific methods that factor in the speed of the vessel at the time of impact, water, temperature, wind and current conditions, etc.

In the days following the release, oil was driven ashore by winds and currents. Oil came ashore in areas throughout the bay including Westport, Dartmouth, New Bedford, Fairhaven, Mattapoisett, Marion, Wareham, Bourne, Falmouth and the Elizabeth Islands (Gosnold) in Massachusetts. Oil also came ashore in Rhode Island in the town of Little Compton and on Block Island. The PADR contains maps of the maximum extent of shoreline oiling (Figures 2-1 to 2-4 in the PADR).

The shoreline of Buzzards Bay is comprised of a mix of different shoreline types including sand and cobble beaches, rocky shores, tidal wetlands and tidal flats under both public and private ownership. Shoreline oiling was unevenly distributed and most heavily concentrated at exposed points and peninsulas (*e.g.*, Barneys Joy Point, Mishaum Point, West Island, Sconticut Neck and Long Island). Based on Shoreline Cleanup Assessment Team (SCAT) records, approximately 100 of the 300 miles of shoreline within the spill area were determined to be oiled to varying degrees. Of the 100 miles oiled, approximately 85 miles were located in Massachusetts and approximately 15 miles were located in Rhode Island. More than two-thirds of the 100 miles of oiled shoreline were classified as having very light or light oiling, while the other third was moderately to heavily oiled.

By the evening of April 27, 2003, state and federal response agencies initiated spill cleanup actions. The state and federal agencies responsible for oil spill response and cleanup included the US Coast Guard (USCG, Federal On-Scene Coordinator), the Massachusetts Department of Environmental Protection (MADEP, State On-Scene

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[1] As reported by Independent Marine Consulting, Ltd. (2003) and USGS (2003).

Coordinator), and the National Oceanic and Atmospheric Administration (NOAA). Gallagher Marine Systems, Inc. (Gallagher), the firm retained by the RP to manage the emergency response on its behalf, also assisted with spill cleanup operations. Recovery and cleanup operations included use of skimming boats for on-water recovery, deployment of boom and sorbent material, power washing and various manual cleanup techniques. The Unified Command, consisting of the USCG, MADEP, and the RP, was established to direct and oversee cleanup operations. NOAA Hazmat, through the Scientific Support Coordinator, served in an advisory role to the Unified Command. NRDA pre-assessment activities were coordinated through the State of Massachusetts, the State of Rhode Island, NOAA and the Department of the Interior acting through the U.S. Fish and Wildlife Service (collectively, the "Trustees"). The Trustees and the RP's representative, ENTRIX, coordinated efforts to collect environmental data and samples necessary for the performance of the NRDA for the incident. All NRDA pre-assessment activities were coordinated with the Unified Command to avoid disruption of spill response and cleanup activities.

Please refer to the PADR for more information regarding cleanup operations and the results of the pre-assessment investigations.

2.2 Scope of the Lost Use Assessment

The lost use assessment was part of the NRDA conducted by the Trustees with the cooperation of the RP and its representatives. The Trustees for the incident include the Commonwealth of Massachusetts, the State of Rhode Island, the Department of the Interior and the National Oceanic and Atmospheric Administration. ENTRIX served as the Responsible Party's consultant for the incident. A TWG, which included representatives of the state and federal Trustees and ENTRIX, was formed to focus on assessing injury to the recreational services of natural resources impacted by the spill.

Initial assessment activities undertaken by the TWG included discussions with parks and recreation personnel, site visits to beaches, marinas, fishing piers and other potentially affected recreational areas, and interviews with members of the public using the potentially affected sites. The purpose of these activities was to identify the types of recreation potentially affected, to identify the geographic scope of any effects, to document any recreational closures or restrictions, and to develop a plan for evaluating potential losses.

The TWG determined that recreational use was affected by the incident. All shellfishing beds within Buzzards Bay were subject to a closure immediately following the spill and in some areas the closure continued into 2004, the following year. Boating restrictions were implemented in several towns. Although there were no documented official closures of shoreline access points, there were times during which access was denied or restricted in some places due to the presence of oil or cleanup activities. The TWG determined that public use of some areas for which access was not denied or restricted may also have been deterred due to concerns over the presence of oil or cleanup activities.

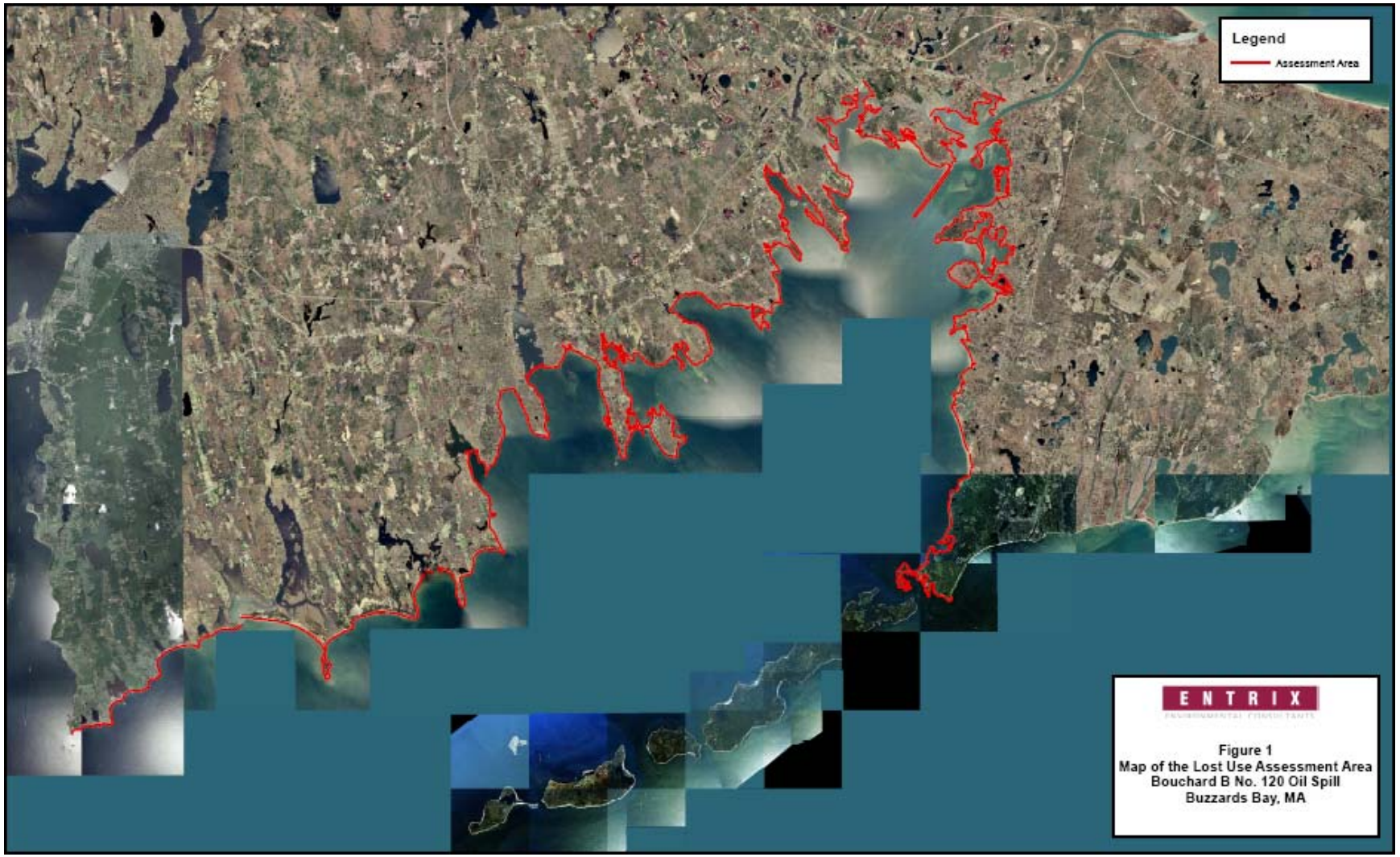
The TWG divided the assessment of recreational use into three categories: recreational shellfishing, recreational boating, and general shoreline use. Shellfishing includes all recreational activities that require a shellfishing license and take place in designated shellfishing harvest areas. Boating includes sailing, boat-based fishing, and general motorized boating. All other activities are addressed in the general shoreline use category, including activities such as sunbathing, walking, fishing from the shoreline, birding, and other shoreline-related activities. Non-motorized boating or "near-shore" boating, such as kayaking and canoeing, is also included in the general shoreline use category. Due to differences in the nature of the activities, the types of effects the incident had on different activities, and the available data, the TWG conducted separate assessments for each of these recreation categories.

The geographic scope of the assessment included all locations where recreational activity was potentially affected by the incident. Based on previous spill assessments, the TWG expected that this area would generally coincide with the geographic extent of oiling, but could be somewhat larger or smaller depending on specific evidence regarding changes in recreation behavior. Although oiling occurred on the Elizabeth Islands, the TWG determined that the cost of assessing recreational losses on the islands would not be justified given the very limited population on the islands and very low levels of recreational activity. The TWG considered the following areas to be potentially affected by the incident:

- The towns surrounding Buzzards Bay in Massachusetts (Westport to Falmouth); and
- Block Island and Little Compton in Rhode Island.

Figure 1 depicts the assessment area.

Figure 1: Map of the Lost Use Assessment Area



Note: excludes Block Island.

2.3 Valuation of Lost Use

This assessment measures lost use as a change in "consumer surplus," which is an economic measure of a change in welfare due to a change in a good's quality or price. In this case, the incident reduced the quality of natural resources and the quality of associated recreational activities, resulting in a reduction in public welfare. Consumer surplus represents an estimate of the change in value of outdoor recreation in dollars suffered by the public as a result of the oil spill.

There are two broad categories of methods used to estimate the change in consumer surplus for recreation. The first, a primary site-specific valuation study, typically involves the collection of primary data via telephone or in-person surveys and subsequent statistical analyses of these data to estimate a site- and event-specific change in consumer surplus. The surplus change can be measured either as a change per person or household, or as a change per trip. Depending on how the surplus change is measured, it is then applied to either the population of interest or the change in the number of trips in order to estimate the total change in consumer surplus.

The second approach is called benefit transfer. As typically applied to oil spill assessments, benefit transfer involves two components: estimating the change in the number of trips taken to recreational sites of interest; and developing a representative change in consumer surplus per trip from existing literature. The surplus change per trip is then applied to the change in the number of trips to estimate the total surplus change. The change in the number of trips taken is typically estimated using primary and/or secondary data, where the secondary data often include public records from resource management agencies. The average trip value is developed from existing economics literature and may be adjusted to better represent site- and event-specific conditions. In general, the cost associated with benefit transfer is significantly lower than that for a primary study.

This assessment relied on benefit transfer for the boating and shoreline use assessments. Both employed average per-trip values from existing literature and estimated the change in the number of trips using primary and secondary data. A site-specific valuation study was conducted to estimate the change in surplus per trip for shellfishing, as no existing studies suitable for benefit transfer were identified by the TWG. The surplus change was applied to an estimated change in the number of trips, which was developed from existing secondary data. The shellfishing valuation study used public records and did not require primary data collection. The TWG determined that the additional costs associated with additional site-specific valuation studies were not warranted given that a reasonable level of precision could be achieved with the available data and methods.

For all activities, the change in the number of trips was calculated by comparing the "with-spill" number of trips to the "baseline" number of trips. The with-spill number of trips refers to the number of trips that were taken under the spill conditions (*i.e.*, those actually taken). The baseline number of trips refers to the number of trips that would have been taken had the spill not occurred. The number of with-spill trips was estimated

based on data collected during the period following the spill. Baseline trips were estimated based on data from before the spill or after the spill effects ended, or using data from control sites (*i.e.*, similar nearby recreational sites).

2.3.1 Types of Effects Considered

There are three types of effects the incident may have had on recreational trips. First, some individuals may have chosen to forego participating in the recreational activity altogether. These trips are called foregone or lost trips. Second, some individuals may have chosen to recreate in a substitute location. These trips are called substitute trips. Third, some individuals may have chosen to recreate in the same locations as they would have had the incident not occurred, but suffered a reduction in the value of the trip due to cleanup activities or the presence or perception of oil. These are called diminished trips. The assessment methods applied in this assessment accounted for these three types of effects.

3.0 RECREATIONAL SHELLFISHING ASSESSMENT

This section presents an overview of the recreational shellfishing assessment. Data, calculations, and details of the mathematical models are provided in Appendix A.

The TWG determined that recreational shellfishing was affected by the incident based on the closure of substantial portions of the Buzzards Bay shellfishing beds available for recreational shellfishing. Figure 2 depicts the shellfishing beds considered in the assessment and the timeline of closure. Figure 3 depicts the timeline of re-openings through the end of 2003. There were three important periods of closures and openings of shellfishing beds related to the spill in 2003. First, the entire bay was closed to recreational shellfishing shortly after the spill (all beds other than the upper-central portion of the bay were closed on April 28, the day after the spill; the upper-central portion was closed on April 30). Second, on May 22, approximately three weeks after the spill, roughly one-half of the areas initially closed were reopened. The closures that were lifted included most beds located in the northeastern and eastern portions of the bay. Closures were also lifted for some beds in the central and western portions of the bay. Third, the majority of the remaining closures were lifted in the fall of 2003 (October and November).

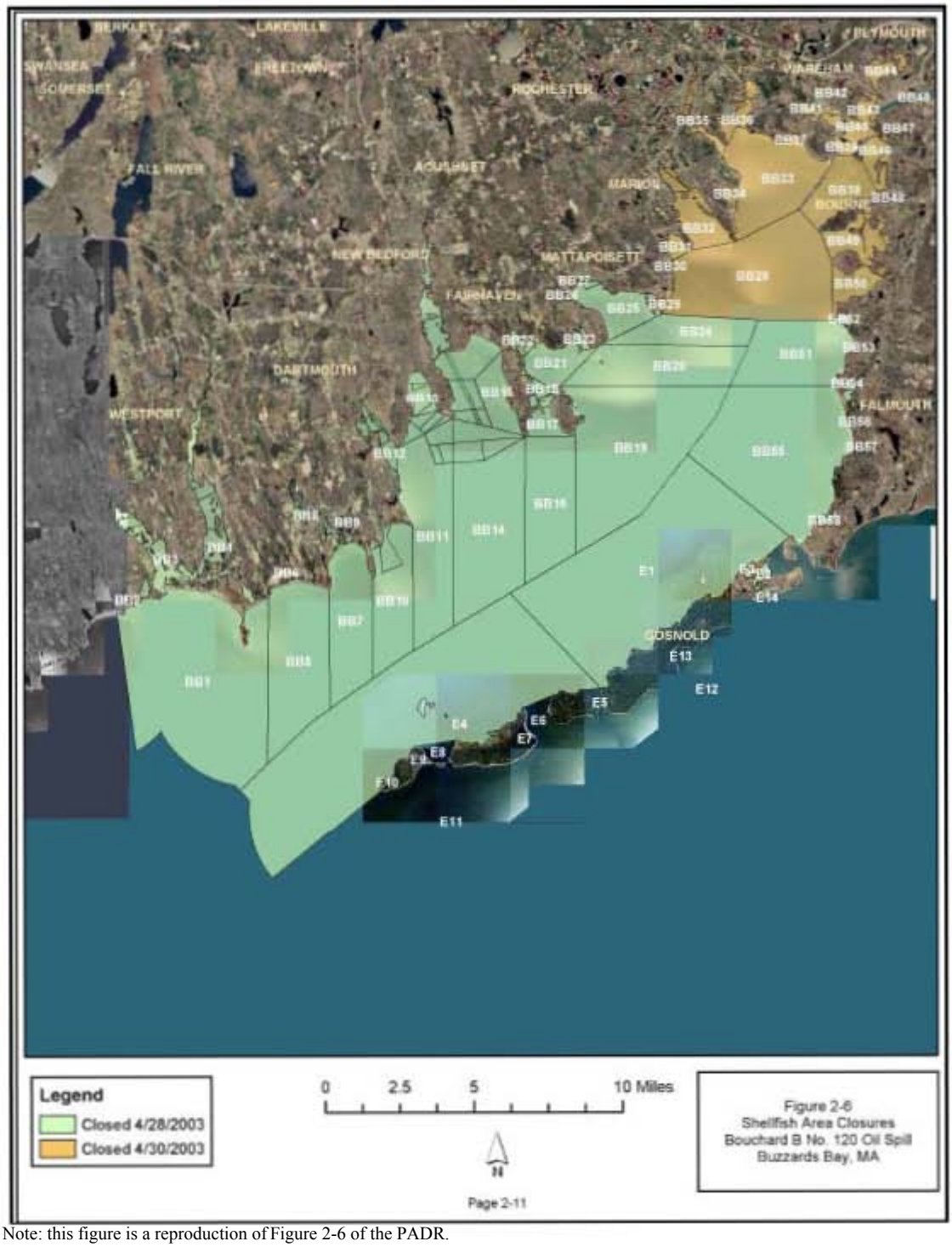
Portions of a few beds remained closed after 2004 (see Figure 4). Based on information on the relative use of different beds in each town (personal communication with the town shellfish constables), the TWG expects baseline use at the beds that remained closed after 2004 to be a relatively small proportion of the total use in those townships. Viable substitute sites for shellfishing exist in these townships, potentially mitigating the reduction in recreational shellfishing trips. The potential amount of loss is small relative to the annual variation in the shellfishing data, making it unlikely that similar methods used to assess losses in 2003 and 2004 could be extended beyond 2004. Thus, the TWG concluded that no practicably measurable reduction in use continued after 2004. As such, shellfishing losses were assessed for 2003 and 2004. Table 1 presents the status of the oil-related closures of shellfishing beds in Buzzards Bay over time. The last change in status occurred on October 15, 2004.

The TWG defined the shellfishing assessment study area to be the towns surrounding Buzzards Bay, from Westport to Woods Hole. No shellfishing closures occurred in Rhode Island and only minimal recreational shellfishing activity occurs off of the Elizabeth Islands.

The TWG considered estimating the change in consumer surplus for shellfishing using benefit transfer, but identified no studies of shellfishing value suitable for benefit transfer in the existing literature. Therefore, the TWG estimated the value of shellfishing trips using a primary study based on Buzzards Bay shellfishing license sales data.

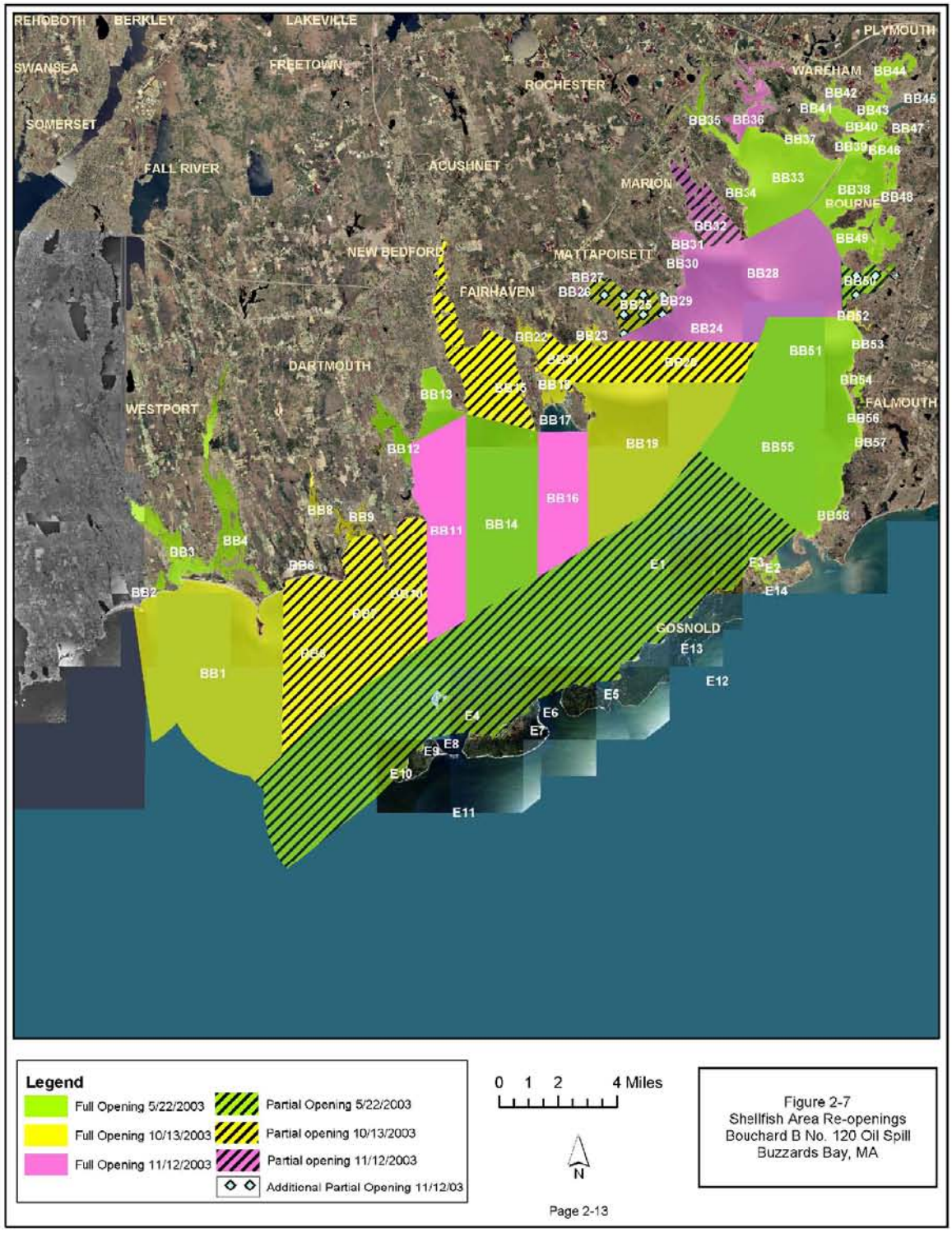
The following sections present the methods used to estimate the reduction in trips due to the incident, the methodology of the trip-valuation model, and the resulting estimate of shellfishing damages.

Figure 2: Shellfishing Beds and Closure Timeline



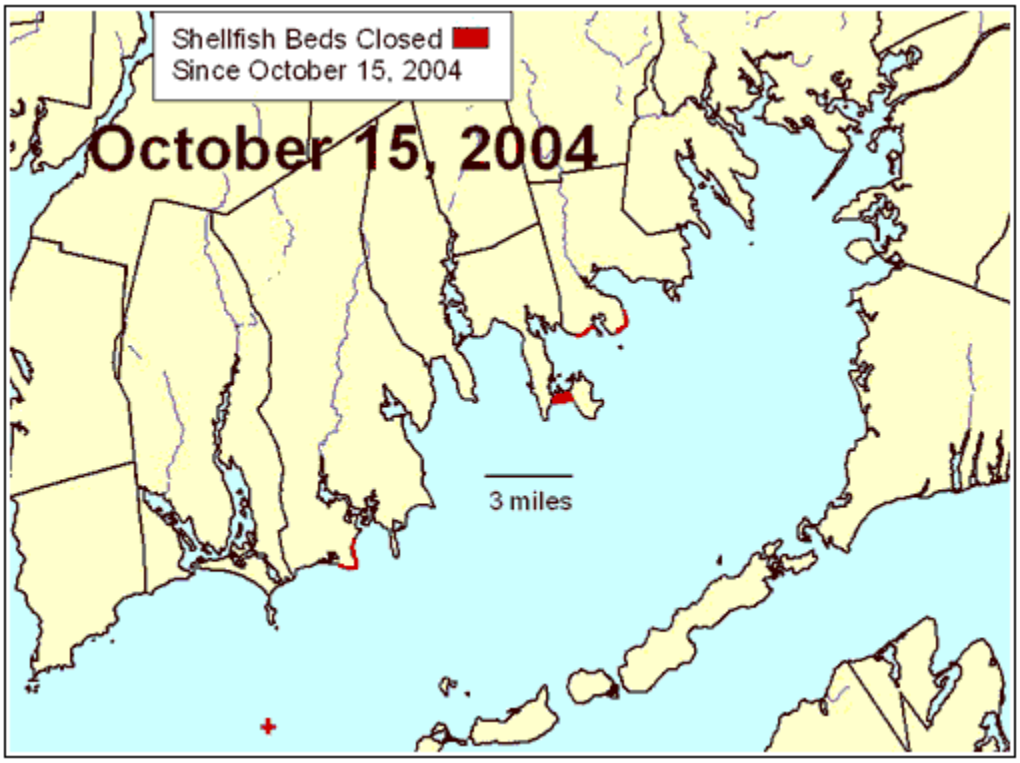
Note: this figure is a reproduction of Figure 2-6 of the PADR.

Figure 3: Timeline of Shellfishing Bed Re-Openings in 2003



Note: this figure is a reproduction of Figure 2-7 of the PADR.

Figure 4: Portions of Shellfishing Beds Remaining Closed After October 15, 2004



Note: Figure obtained from the Buzzards Bay National Estuary Program at http://www.buzzardsbay.org/shellfishimpacts.htm.

Table 1: Timeline of Shellfish Bed Oil-Related Closures and Re-Openings

Shellfish Area	Location	Status						
		4/28/2003	4/30/2003	5/22/2003	10/13/2003	11/12/2003	6/29/2004	10/15/2004
BB-1	Westport - South Coastal	closed	closed	closed	open	open	open	open
BB-3	West Branch - Westport River	closed	closed	open	open	open	open	open
BB-4	East Branch - Westport River	closed	closed	open	open	open	open	open
BB-5	Little Beach Coastal	closed	closed	closed	open*	open*	open*	open*
BB-7	Dartmouth - Center Coastal	closed	closed	closed	open*	open*	open	open
BB-8	Slocums River	closed	closed	closed	open	open	open	open
BB-9	Little River	closed	closed	closed	open	open	open	open
BB-10	Smith Neck - South Coastal	closed	closed	closed	open*	open*	open*	open
BB-11	Dartmouth - East Coastal	closed	closed	closed	closed	open	open	open
BB-12	Apponagansett Bay	closed	closed	open	open	open	open	open
BB-13	Clark Cove	closed	closed	open	open	open	open	open
BB-14	New Bedford - East Coastal	closed	closed	open	open	open	open	open
BB-15	New Bedford/Fairhaven Harbor	closed	closed	closed	open*	open*	open	open
BB-16	Fairhaven - South Coastal	closed	closed	closed	closed	open	open	open
BB-17	West Island South	closed	closed	closed	closed	closed	open*	open*
BB-18	West Island North	closed	closed	closed	open	open	open	open
BB-19	West Island - East Coastal	closed	closed	closed	open	open	open	open
BB-20	Fairhaven - East Coastal	closed	closed	closed	open*	open*	open*	open*
BB-21	Nasketucket Bay	closed	closed	closed	open*	open*	open*	open*
BB-22	Little Bay	closed	closed	closed	open	open	open	open
BB-23	Brandt Island Cove	closed	closed	closed	open	open	open	open
BB-24	Mattapoisett South Coastal	closed	closed	closed	closed	open	open	open
BB-25	Mattapoisett Harbor	closed	closed	closed	open*	open*	open*	open*
BB-26	Mattapoisett River	closed	closed	closed	closed	open	open	open
BB-27	Eel Pond	closed	closed	closed	closed	open	open	open
BB-28	North Buzzards Bay	open	closed	closed	closed	open	open	open
BB-29	Point Connett	open	closed	closed	closed	open	open	open
BB-30	Hiller Cove	open	closed	closed	closed	open	open	open

Table 1: Timeline of Shellfish Bed Oil-Related Closures and Re-Openings (continued)

Shellfish Area	Location	Status						
		4/28/2003	4/30/2003	5/22/2003	10/13/2003	11/12/2003	6/29/2004	10/15/2004
BB-31	Aucoot Cove	open	closed	closed	closed	open	open	open
BB-32	Sippican Harbor	open	closed	closed	closed	open*	open	open
BB-33	Stony Point Dike	open	closed	open	open	open	open	open
BB-34	Wings Cove	open	closed	open	open	open	open	open
BB-35	Weweantic River	open	closed	open	open	open	open	open
BB-36	Wareham River	open	closed	closed	closed	open	open	open
BB-37	Little Harbor - Bourne Cove	open	closed	open	open	open	open	open
BB-38	Wings Neck North	open	closed	open	open	open	open	open
BB-39	Widow Cove	open	closed	open	open	open	open	open
BB-40	Onset Bay	open	closed	open	open	open	open	open
BB-41	Sunset Cove	open	closed	open	open	open	open	open
BB-42	East River System	open	closed	open	open	open	open	open
BB-43	Fisherman Cove	open	closed	open	open	open	open	open
BB-44	Buttermilk Bay	open	closed	open	open	open	open	open
BB-46	Phinneys Harbor	open	closed	open	open	open	open	open
BB-47	Back River/Eel Pond	open	closed	open	open	open	open	open
BB-48	Pocasset River	open	closed	open	open	open	open	open
BB-49	Pocasset And Red Brook Harbors	open	closed	open	open	open	open	open
BB-50	Megansett Harbor	open	closed	open*	open*	open*	open*	open
BB-51	North Falmouth - Outer Harbor	closed	closed	open	open	open	open	open
BB-52	Wild Harbor - Wild Harbor River	closed	closed	closed	open	open	open	open
BB-53	Herring Brook	closed	closed	open	open	open	open	open
BB-54	West Falmouth Harbor	closed	closed	open	open	open	open	open
BB-55	Falmouth West Coastal	closed	closed	open	open	open	open	open
BB-56	Great Sippiwisset Marsh	closed	closed	open	open	open	open	open
BB-57	Little Sippiwisset Marsh	closed	closed	open	open	open	open	open

Table 1: Timeline of Shellfish Bed Oil-Related Closures and Re-Openings (continued)

Shellfish Area	Location	Status						
		4/28/2003	4/30/2003	5/22/2003	10/13/2003	11/12/2003	6/29/2004	10/15/2004
BB-58	Quissett Harbor	closed	closed	open	open	open	open	open
E-1	Naushon Island West Coastal	closed	closed	open*	open*	open*	open	open
E-2	Hadleys Harbor	closed	closed	open	open	open	open	open
E-3	Northwest Gutter	closed	closed	open	open	open	open	open
E-4	Gosnold West Coastal	closed	closed	open*	open*	open*	open	open
E-10	Westend Pond	closed	closed	open	open	open	open	open

* A portion of the bed remained closed.

3.1 Summary of Recreational Shellfishing and Scope of the Assessment

Shellfishing generally takes place in intertidal areas and involves digging through the sediment to find shellfish. Access to shellfishing in Buzzards Bay is granted by annual licenses sold in each of the towns adjacent to the bay. Approximately 10,000 recreational shellfishing licenses are sold for Buzzards Bay areas each year. Data available from the Massachusetts Division of Marine Fisheries (MADMF) indicates that on average license holders take fewer than ten trips per year.

Shellfishing is regulated at both the state and local level. MADMF is responsible for monitoring the safety of shellfishing harvest areas and may impose closures on shellfish areas due to bacteria, pollution, or other causes. The closures may be seasonal, temporary, or permanent. Local municipalities also oversee certain aspects of shellfishing, such as setting restrictions on shellfish harvest. Harvest restrictions may include seasonal closures of certain areas, individual harvest limits, and size limits.

The assessment focused on five types of shellfish that comprise almost the entire recreational harvest in Buzzards Bay: quahogs, soft shell clams, surf clams, oysters, and scallops. Quahogs comprise the majority of shellfish harvested throughout the bay. Though data available for this assessment is sometimes distinguished between three types of quahogs (littlenecks, cherrystone, and chowders), the analysis of lost shellfishing trips grouped all quahogs into a single category.

3.2 Reduction in Shellfishing Trips

No sources of data regarding the number of shellfishing trips in Buzzards Bay were identified. MADMF maintains records of recreational harvest (in weight) and the number of shellfishing licenses purchased for each town in Buzzards Bay. As discussed below, the towns assist the MADMF in collecting these data.

The TWG considered several approaches to estimate the reduction in trips due to the spill and decided that analysis of the harvest and license data was the most appropriate method. The harvest and license data were used to estimate trips taken from 1998 to 2004. The analysis consisted of comparing estimates of trips taken in 2003 and 2004 to a pre-spill short term average of trips taken based on the five years from 1998 to 2002. The decline in trips in the post-spill years compared to the five-year pre-spill average represented the estimate of foregone trips. This approach uses the pre-spill average as an estimate of baseline conditions for 2003 and 2004 and relies on the assumption that any factors influencing shellfish harvest and license purchases other than the spill incident were constant across these years. The TWG investigated the possibility of controlling for differences across years in factors such as weather or an upward or downward trend in shellfishing activity. The TWG did not identify any significant factors to be controlled for in the analysis.

Some portions of the shellfish beds in the assessment area would have been closed during the 2003-2004 assessment period under baseline conditions due to the presence of

bacteria or for other reasons. Beds that would have been closed under baseline conditions would not be associated with spill-related losses because they provided no shellfishing services under baseline conditions. The methods used by the TWG to assess shellfishing losses account for such baseline bed closures. If closures in the pre-spill and spill years were similar to baseline closures during the assessment period, the data and methods outlined above would implicitly account for the baseline closures. The TWG investigated the pattern of non-spill closures throughout the 1998 to 2004 period and determined that they were reasonably consistent over time.

3.2.1 Description of the Harvest and License Data

Harvest Data

The harvest data consisted of estimates of harvest of different types of shellfish in each town. The harvests are first estimated within each town by the town shellfishing constables. The constables report the data to MADMF annually, and MADMF maintains the data in an electronic database. The TWG discussed the data collection methods with MADMF and the town constables. Though the methods vary somewhat by town, the constables generally observed the number of people shellfishing throughout the year, estimated the number of bushels harvested based on the number of people observed, and then estimated harvest (in weight) based on the estimated number of bushels.

The data received by the TWG only included the resulting estimate of pounds of shellfish harvested, and the initial records of the number of people observed shellfishing were unavailable. In order to estimate shellfishing trips from the harvest data, the steps discussed above were applied in reverse order. Town- and shellfish-specific figures for pounds of shellfish per bushel were used to convert the reported pounds of harvest into bushels. When determining bushels harvested, shellfish constables typically assume that observed shellfishers fish until they harvest the allowed limit on each trip for their target shellfish type. Therefore, bushels harvested in a given town for a given type of shellfish may be converted to trips by dividing the reported harvest by town- and shellfish-specific catch limits. Summing across shellfish by type yields the total number of shellfishing trips taken in each town. Note that the calculations described correctly recover the original observations of shellfishing trips regardless of whether shellfishers actually catch the limit on each trip.

License Data

The license data consisted of the number of shellfishing licenses purchased during each year in each town. Typically, resident, non-resident, and senior licenses are recorded separately. Resident licenses are available to persons who reside in a given town. Non-resident licenses are available to persons who do not reside in a given town, and are subject to a higher fee. Senior residents over the age of 65 who reside in a shellfishing town may purchase licenses at a reduced fee.

Data Validation and Interpretation

As noted above, conversion factors such as weight per bushel are used by the towns when estimating harvest. In some cases, the MADMF used different factors than the towns in order to maintain data comparability over time. However, for the purposes of recovering an estimate of shellfishing trips from the harvest data, it was appropriate to use the same conversion factors that were used by each town in developing the harvest data. Therefore, the TWG obtained data from both the MADMF and each town, and reconciled the data so that the best estimates of trips could be constructed. Appendix A1 contains the data used by the TWG in this assessment.

The TWG considered the use of both harvest data and license data to calculate the reduction in trips in each year. License data can be used to calculate the decline in trips by the decline in licenses sold by an estimate of average trips per license. The license data could be considered a more appropriate measure of the decline in shellfishing activity because they represented a complete and accurate count of shellfishing participants and were not subject to measurement error associated with the process of observing shellfishing trips and harvest. However, the harvest data could be considered a more accurate estimate of shellfishing activity because they would be able to capture a decline in activity associated with a reduction in trips per participant in addition to losses associated with a decline in the number of participants.

The judgment of the TWG was that it would not be appropriate to use license data to estimate losses in 2003 using license purchases. This is because many people could have purchased their shellfishing license prior to the occurrence of the spill in late April and the use of license sales to estimate losses could result in a downward bias in estimated losses. The assessment therefore relies on the harvest data to determine the decline in shellfish trips in 2003.

A similar issue would apply in 2004, since some people might refrain from shellfishing in the early part of the year and then purchase a license later in the year if their concerns about the spill were diminished. However, the shellfish license data for 2004 identified a distinct decline in activity that was less apparent in the harvest data. The lack of a distinct trend in the harvest data is consistent with the high degree of variance in the data over the period for which data was available. Therefore, the license data were used to estimate losses in 2004. This approach should represent a lower-bound estimate of decline in activity in 2004.

3.2.2 Reduction in Trips – 2003

The reduction in shellfishing trips in 2003 was estimated from data on the recreational shellfish harvest. First, trips in each year of data (1998 to 2003) were estimated from the harvest data as described above. This calculation yielded trips per shellfish type per town for each year. Second, the total trips in each town and year were calculated by summing trips across shellfish types, yielding trips by town per year. The 2003 baseline trips in each town were calculated by averaging across the trips per year from 1998 to 2002. The 2003 with-spill trips (*i.e.*, the number of trips estimated to have been taken in 2003) were

then subtracted from the estimated 2003 baseline trips to yield the reduction in trips in each town due to the spill.

Utilizing best professional judgment, the TWG made adjustments to the calculations of shellfishing trip reductions for two towns, Fairhaven and Dartmouth, due to unexplainable data inconsistencies in the harvest data for these two towns. Further explanation of these adjustments is presented below.

Adjustment to Fairhaven Harvest Data

The average annual quahog harvest in Fairhaven increased by 148% between the periods 1998 to 1999 and 2000 to 2002. However, licenses increased only 7% during these periods, indicating that the increase in harvest was not due to an increase in the number of licenses. The data for the other towns did not exhibit a similar increase in harvest per license, indicating that the increase in the Fairhaven data was not consistent with trends in other towns throughout Buzzards Bay.

The Fairhaven data implied that the average number of trips per license in the period 2000 to 2002 was 55.2, more than 1 trip per week for each license holder for the entire year. This result was not consistent with the TWG's understanding of shellfishing activity in Buzzards Bay, with data on the number of trips per license in other towns, or with Fairhaven data for previous years. The average number of trips per license per year in other towns averaged 5.1 during the period 1998 to 2002, and the trips per license per year in Fairhaven averaged 24.5 during the period 1998 to 1999. The TWG consulted with officials but could not identify any reason why the data for Fairhaven would be so high relative to nearby towns and past years in Fairhaven. Therefore, the TWG decided that it would be more appropriate to estimate 2000 to 2002 baseline trips in Fairhaven rather than relying on the questionable data for those years.

The 2000 to 2002 baseline trips in Fairhaven were estimated using 1998 to 1999 Fairhaven data and data from the other towns. The ratio of the average annual trips per license in Fairhaven in 1998 and 1999 to the average annual trips per license in 1998 and 1999 in the other towns was multiplied by the average annual trips per license in 2000 to 2002 in the other towns. This method relies on the 1998 to 1999 Fairhaven data on trips per license relative to the other towns, and thus maintains the observed relationship that Fairhaven has a higher number of trips per license than the other towns. The other towns' data were used only to approximate the temporal trend in harvest per license in the adjustment. This method requires the assumption that the trend in the harvest per license would be similar in Fairhaven as it was in the other towns. Based on knowledge acquired during the course of the assessment and consultation with local and state officials, the TWG judged that this was a reasonable assumption.

The TWG assumed that this unexplained increase in the estimated harvest during 2000 to 2002 also occurred during collection of the 2003 data (the actual with-spill data). Therefore, the TWG also applied an adjustment to the 2003 data. The adjustment was different than that for the 2000 to 2002 because the 2003 data represented with-spill conditions, and therefore could not be adjusted in the same manner. The 2003 with-spill

data were estimated by multiplying the observed trips per license in the 2003 Fairhaven data by the ratio of the Fairhaven trips per license in the period 1998 to 1999 to the trips per license in the period 2000 to 2002 (*i.e.*, the ratio acts an estimate of the unexplained deviation in the 2000 to 2002 and 2003 data compared to earlier data).

Additional details and the calculations of the adjustments to the 2000 to 2003 Fairhaven data are presented in Appendix A2.

Adjustment to the Dartmouth Calculations

The second adjustment was made to the Dartmouth calculations. The harvest was slightly higher in 2003 than the 1998 to 2002 average, and therefore indicated an increase in the spill year of 135 trips (4%) compared to baseline. Since some shellfishing beds in Dartmouth were closed because of the spill, and because surrounding towns with a similar timeline of closures generally indicated spill losses, the TWG determined that Dartmouth likely had a reduction in trips taken because of the spill. Based on knowledge acquired during the assessment and consultation with local and state officials, the TWG judged that the rate of losses in Dartmouth were likely to be similar to the rates of losses in surrounding towns. Based on this assumption, the TWG applied a rate of loss of 20% in Dartmouth due to the spill. Additional details and the calculations of the adjustment to the Dartmouth calculations are presented in Appendix A2.

3.2.3 Reduction in Trips - 2003

The severity of the estimated losses in 2003 generally coincided with the pattern of oiling and the extent and duration of shellfish bed closures. The TWG estimated a 97% reduction of the combined baseline trips in Fairhaven, Mattapoisett, and Marion due to the spill, and a 39% reduction of baseline trips in the other towns combined. Overall, a 59% reduction in trips compared to the 2003 baseline was estimated. In total, the change in shellfishing trips in 2003 because of the incident was estimated to be 39,754 trips.

3.2.4 Reduction in Trips – 2004

As discussed above, the reduction in shellfishing trips in 2004 was estimated from data on shellfish licenses. The number of licenses sold in each town in 2004 was compared to the average number of licenses sold in each town from 1998 to 2002. Based on the license data, six of the nine towns had continuing losses in 2004.[2] In order to change the reduction in licenses to a reduction in trips, the TWG multiplied the decline in license sales by the number of baseline trips per license estimated for the 2003 calculations. The TWG estimated a reduction of 7,544 trips in 2004, which is equivalent to 11% of baseline use.

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[2] Based on the analysis, Bourne, Falmouth, and New Bedford did not have spill-related losses in 2004.

Due to the level of recovery between 2003 and 2004, the TWG determined that shellfishing losses in 2005, if any, were likely to be small and determined that the costs of assessing any such damages were not warranted. Therefore, no potential losses after 2004 were considered.

3.2.5 Results – Reduction in Trips

Table 2 presents the estimated reduction in trips for the nine affected Buzzards Bay towns during 2003 and 2004.

Table 2: Estimated Reduction in Shellfishing Trips

Town	2003	2004	Total
Bourne	7,976	0	7,976
Fairhaven	16,707	2,981	19,688
Mattapoisett	3,973	295	4,268
Marion	1,288	571	1,859
Wareham	6,808	2,998	9,806
Falmouth	1,527	0	1,527
Westport	594	305	899
New Bedford	194	0	194
Dartmouth	688	395	1,083
Total	39,754	7,544	47,298

3.3 Shellfishing Trip Value

The TWG performed a literature search for shellfishing values but found no applicable studies. Therefore, the TWG performed a primary analysis to estimate the value of shellfishing trips in Buzzards Bay. The study utilized data on license purchases rather than data on individuals' trip taking behavior, thus avoiding the costly survey methods typically required for primary valuation studies.

The value of a trip is often estimated using travel cost models. Travel cost models are based on the distances that individuals travel to participate in recreational activities and the number of trips they take during a year. The cost of visiting a site, including but not limited to the cost of fuel, entrance fees, and the value of time spent in travel, serve as a price for participating in the activity. The value of a trip can be estimated through statistical analysis of these data.

A standard travel cost model based on individuals' shellfishing trips throughout the year could not be applied to shellfishing in Massachusetts because of the wide variation in license fees across coastal towns where shellfishing is available. In addition, the required data on trips from different distances are not readily available, and would have required a costly survey. However, data on license purchases were readily available from officials in coastal towns along Buzzards Bay and in nearby shellfishing areas. A model of license demand was developed that estimated the value of shellfishing trips based on the observed demand for shellfishing licenses.

As is customary for travel cost models, the shellfishing study analyzed recreation choices for residents of a defined region that included the sites of interest and any reasonable substitutes. For the study of Buzzards Bay shellfishing, the defined region included all Massachusetts shellfishing destinations south of Boston, excluding Cape Cod, and the state of Rhode Island was also included as a substitute destination. Cape Cod was excluded from the analysis because it is geographically distinct from the mainland and travel times to reach Cape Cod shellfishing sites may be significant for many people who purchased licenses for mainland shellfishing sites. If a significant number of people who did not purchase a license in Buzzards Bay because of the spill instead switched to sites on Cape Cod, excluding Cape Cod from the model could lead to an upward bias in the estimated value of trips.

To develop the shellfishing model, data were collected on license purchases in 2004 for ten towns in southeastern Massachusetts from Scituate to Westport. Scituate is the first town south of Boston in which recreational shellfishing is permitted, and Westport is located on the Rhode Island border. Data were also collected regarding license purchases by Massachusetts residents for shellfishing in Rhode Island.

The town of residence for each person that purchased a license at 1 of the 11 sites (ten Massachusetts towns plus Rhode Island) is included in the data. The data also describe the shellfishing license fees, which vary according to whether the license is purchased by a resident of the shellfishing town, a nonresident, or a senior resident over the age of 65. The license data were supplemented by information from the U.S. Census regarding the population and average demographic variables for all towns in southeastern Massachusetts. A matrix of travel distances from each town in the region to each of the 11 coastal shellfishing destinations was used to calculate travel costs for shellfishing trips throughout the region using methods commonly used in the travel cost models. See Appendix A3 for details.

The shellfishing model estimates the value of recreational shellfishing based on residents' willingness to pay for a shellfishing license. Factors that affect the value of a license include the characteristics of each shellfishing site, travel costs, and demographic characteristics such as income and age, as represented by aggregate variables for each town of residence. The model also estimates the expected trips demand for individuals who purchased a license. Total willingness to pay for licenses was divided by the total expected demand for trips to arrive at the average value of a shellfishing trip. While total willingness to pay could also be divided by the estimated number of shellfishing trips derived from harvest data, the TWG determined that using estimates of both value and trip demand derived from the same model would be the most valid approach.

Two variations of the shellfishing model were estimated to test the sensitivity of the value of a shellfishing trip to alternative assumptions regarding preferences for shellfishing. In the first variation, it was assumed that preferences for shellfishing were approximately the same across people (homogeneous) throughout southeastern Massachusetts. This assumption would apply if most people choose their location of residence based on jobs, schools, family considerations, or other factors unrelated to shellfishing. In the second model, it was assumed that preferences for shellfishing vary systematically according to

geographic location. This assumption would be true if many people choose where to live based on their desire to live close to the coast so that they could take part in marine recreational activities, including shellfishing. Both models account for the fact that people living close to the shore have easier access to coastal resources and are therefore more likely to participate in activities such as shellfishing.

The first variation of the model estimated an average value of $24.09 per trip for a full closure of all sites in southeastern Massachusetts (including areas not affected by the spill). The second variation of the model estimated a per-trip value of $20.30. The average of these two figures, $22.20, was determined to be an appropriate estimate of the value of a shellfishing trip in the region.

This value was then adjusted to account for two factors. First, the estimated trip value was adjusted to account for the fact that only Buzzards Bay towns were affected, while other towns in the region available as substitute shellfishing sites were not affected by the spill. Second, the trip value was adjusted to account for a partial reduction in trips rather than a full closure. Although most towns affected by the incident had temporary closures, at least some of the beds within each town were generally available for most of the year. Therefore, the TWG determined that an adjustment to the values to represent partial loss conditions rather than closure conditions was appropriate.

The resulting trip values were $21.82 in 2003 and $23.06 in 2004. The differences in the years' values are due to the different percent reductions in trips in the two years leading to different adjustments for the partial reduction in trips in the two years. The values were updated to February 2009 dollars (see Section 7.0). The final resulting values are $25.16 for 2003 and $25.90 for 2004.

3.4 Results – Shellfishing Losses

The reduction in trips was multiplied by the trip value. As is standard in NRDAs, a 3% annual discount rate was applied to account for the delay between the time when losses occurred and the time of compensation. Discounting was performed to the end of February 2009 (see Section 7.0). Table 3 presents the estimated shellfishing losses.

Table 3: Estimated Shellfishing Losses

Year	Reduction in Trips	Trip Value	Discount Factor	Reduction in Value (Damages)[a]
2003	39,754	$25.16	1.182	$1,182,249
2004	7,544	$25.90	1.148	$224,307
Total	47,298			$1,406,556

[a] Reduction in Value = Reduction in Trips • Trip Value • Discount Factor.
The reduction in value is expressed as a present value at the end of February 2009.

4.0 GENERAL SHORELINE USE ASSESSMENT

This section presents an overview of the general shoreline use assessment. Data, calculations, and details of the mathematical models are provided in Appendix B.

The general shoreline use assessment is intended to address losses for all recreational activities potentially affected by the incident that are not included in the shellfishing and boating assessments. The activities in this category include fishing from the shoreline, non-motorized near-shore boating such as canoeing and kayaking, and a wide variety of general shoreline or beach activities including sunbathing, swimming, walking, birding, and picnicking. These activities were grouped into the shoreline category due to similarities in the nature of the activities and the sites where they take place, similarity in the expected effects of the spill on such activities, and the ability to collect data concurrently on the several types of shoreline activities.

During initial assessment activities, the TWG determined that shoreline use was affected by the incident based on observed interruptions in access at some locations and the presence of oiling in locations known to support general shoreline uses. Informal interviews conducted with members of the public indicated that people had changed their recreational behavior and that they had noticed a decline in total use compared to normal conditions.

Based on an analysis of state park attendance data that indicated daily visitation at state parks in the assessment area had returned to baseline at or before they passed Immediate Response Action Criteria (IRAC) inspections (discussed further below), the TWG concluded that shoreline use in any given area had returned to baseline by the time the area had passed IRAC inspection. The shoreline locations throughout Buzzards Bay that comprise the vast majority of shoreline use passed IRAC inspections during 2003. Thus, the TWG concluded that shoreline use had likely returned to baseline during 2003. The TWG notes that some discrete areas of residual oiling may have remained after 2003. However, the TWG judged that any residual oiling remaining after 2003 would not likely have resulted in any practicably measurable reduction in shoreline use after 2003. Therefore, shoreline losses are calculated only for 2003. The TWG defined the general shoreline use study area to include all towns where shoreline oiling occurred, including all coastal towns from Little Compton, RI to Woods Hole, MA. The assessment also included Block Island, RI, where oil came ashore in the weeks following the spill. As previously noted, the Elizabeth Islands were excluded from the lost use assessment due to the low level of recreational activity that typically takes place there.

The benefit transfer approach was used for the general shoreline use assessment. The reduction in shoreline trips was estimated and an appropriate trip value was applied to the lost trips. The following sections present the methods used to estimate the reduction in trips because of the incident, the benefit transfer process, and the resulting estimate of general shoreline use losses.

4.1 Summary of Shoreline Use and Scope of the Assessment

Shoreline use occurs on public and private land throughout the assessment area. Much of the use is concentrated in defined public access points, such as state parks and town beaches. Shoreline use also occurs along private and semi-private shorelines, such as beaches adjoining private property, individual residences, or private communities. This assessment includes losses for all shoreline recreation, whether occurring on public or private shoreline. For the purposes of this assessment, shoreline use refers to activities that may occur on, along, or adjacent to public, private, and semi-private property throughout the assessment area such as beaches adjoining public or private property, state parks, individual residences, or private communities. Much of the use is concentrated in defined public access points, such as state parks and beaches. Some shoreline use does not take place directly on the shoreline but occurs on public or private property adjacent to the shoreline. Examples of this type of shoreline use include sunbathing or picnicking on a portion of a state waterfront park or private property that is adjacent to the shoreline. These activities are included in the assessment because a portion of the value of such activities derives from the aesthetic quality of the shoreline environment, which may have been negatively affected by the incident. Thus, this injury assessment considered use occurring on, along, or adjacent to the shoreline on public, semi-private, and private property. Appendix B1 presents a map of the shoreline included in the general shoreline use assessment.

As previously discussed, shoreline use losses were estimated using benefit transfer, in which the reduction in the number of baseline trips attributable to the spill was estimated and a value per trip based on existing literature was developed and applied. Section 4.2 presents the estimation of the reduction in shoreline trips. Section 4.3 presents the derivation of an appropriate per-trip value.

4.2 Reduction in Shoreline Trips

The reduction in trips included two components. First, the reduction in trips was estimated as a proportional reduction from baseline (*e.g.*, X% of baseline trips were not taken). Second, the proportional reduction was multiplied by an estimate of the baseline number of trips to yield the reduction in the numbers of trips (as a number rather than a percentage). The following sections present the estimation of the proportional reduction in shoreline trips from baseline. Section 4.2.3 presents the estimation of baseline trips.

For a few months following the spill, the effect of oiling on shoreline use was determined to be widespread throughout the assessment area. However, substantial cleanup activities and an increase in shoreline use were observed over time. For example, prior to the Memorial Day weekend, many areas were assigned a "maintenance" designation, which indicated those areas that had been cleaned of gross oiling but required periodic surveys to confirm that no additional cleanup was required. State park data indicated that substantial recovery of shoreline use occurred during the time that many segments were considered to be in maintenance.

Some segments that were considered to be in maintenance were subject to periodic or occasional cleanup because of relatively light re-oiling by small tarballs that were washed ashore during high tides or storms. Other than these occasional scattered tarballs, these beaches would often have had little or no other evidence of oiling. Most of the heavily used shoreline areas and many areas of modest use were given the maintenance designation prior to Memorial Day weekend. By the end of June, 2003, significant portions of the assessment area had been designated "clean" after cleanup activities by state and federal officials involved in the oil spill response, including the majority of the most heavily used shoreline areas (*e.g.*, state parks) and many areas of moderate use.

The TWG investigated whether shoreline use had returned to baseline levels for segments that had been designated as clean. The TWG performed an analysis of daily attendance data for three state parks in the assessment area: Horseneck Beach State Park, Demarest Lloyd State Park, and Fort Phoenix State Park. South Cape Beach State Park, located in Falmouth, east of Woods Hole, was used as a control. The analysis indicated that the three state parks in the assessment area had returned to baseline by the end of June, 2003, around the same time that they passed IRAC inspections and were determined to be clean. Details of the analysis are presented in Appendix B2.

Based on this analysis, the TWG concluded that shoreline use had returned to baseline levels in a substantial portion of the assessment area by the end of June, 2003. However, other portions of the bay had remaining oil and ongoing cleanup operations. These areas were expected to have continuing reductions in shoreline use. Therefore, the TWG divided the estimation of the reduction in shoreline trips into two periods.

The first assessment period began on the day of the spill, April 27, 2003. As discussed further below, the last helicopter count of shoreline use in 2003 was conducted on June 26. As this date corresponded with the timeframe that the TWG concluded marked the end of widespread shoreline losses, the TWG used June 26 as the end of the first assessment period. As discussed further below, the helicopter counts of shoreline use were used to estimate the proportional reduction in shoreline trips during Period 1 (Appendix B3).

As the effects on shoreline use were less widespread after Period 1, the TWG did not conduct aerial counts of the entire bay after Period 1 and instead utilized the results of the IRAC inspections. As previously discussed, the TWG determined that segments likely had returned to baseline shoreline use if they had passed IRAC inspections, making these data a suitable indicator of whether segments likely had ongoing shoreline losses after Period 1. Almost all segments had completed IRAC inspections by September 3, 2003. Based on an analysis of IRAC inspection data and other factors (Appendix B4), the TWG concluded that September 3, 2003 marked the end of any practicably measurable reduction in shoreline use. Therefore, the TWG defined the second assessment period as June 27 to September 3, 2003.

4.2.1 Reduction in Shoreline Trips during Period 1

The proportional reduction in shoreline trips during Period 1 (April 27, 2003 to June 26, 2003) was estimated using a statistical model that compared shoreline use data collected during the spill with similar data collected the year following the spill. The counts were performed from early May to late June in both years. As previously discussed, shoreline use was considered to have returned to baseline during 2003; therefore, the 2004 data represents baseline conditions in the analysis.

The shoreline use data analyzed for this component consisted of aerial counts performed by the TWG, which allowed a complete count of shoreline use throughout the assessment area on several days. The counts covered the entire area of oiling along the shoreline of Buzzards Bay from Little Compton, RI around the perimeter of Buzzards Bay to Woods Hole, MA. The counts also included a control area on the south shore of Cape Cod in Falmouth and Mashpee, MA. Block Island, RI was included in the assessment but was counted in only one of the aerial surveys due to the added expense of reaching the area by helicopter.

There were five aerial counts in 2003 following the incident, and five counts in 2004 conducted on approximately the same dates. Most counts were performed on weekends to capture the period of highest use, but some counts were performed on weekdays to obtain a sample that was reasonably representative of use throughout the week.

To conduct the shoreline use counts, the shoreline was divided into 24 segments based on landmarks that could be easily identified from the air. A map of the segments is provided in Appendix B1. During the aerial surveys, the TWG recorded the number of people engaged in recreation along the shoreline, and in public, private, and semi-private areas adjacent to the shoreline, in all segments along the shoreline. The type of activity, the segment, and the time were also recorded.

A statistical model was used to analyze the data. The use of a control site allowed the model to account for factors that might influence differences in shoreline use on different days. The control accounted for factors such as weather, the time of day when use in each segment was observed, and potential seasonal effects associated with modest differences in the dates when the counts occurred. After controlling for these non-spill effects, the difference in use between 2003 and 2004 counts were attributed to effects of the incident.

The model estimated that the Period 1 reduction in trips was 9.24% of the baseline trips taken in segments affected by the incident. This is an average reduction over the entire duration of Period 1 for the entire assessment area from Little Compton, Rhode Island, to Woods Hole Massachusetts. Appendix B3 contains the data and the details of the model.

4.2.2 Reduction in Shoreline Trips during Period 2

As discussed above, the TWG utilized the IRAC inspections results for estimating the proportional reduction in trips from baseline in Period 2. Pursuant to the Massachusetts

Contingency Plan (MCP), the IRAC process began in early June, 2003. During the IRAC inspections, shoreline areas were inspected and given one of three designations: (1) passed (no visible oil present); (2) failed (residual oil present) with additional cleanup possible; or (3) failed with no additional cleanup possible. Some of the areas most important to shoreline use, such as state parks in the area, were inspected relatively early in the IRAC process. For example, Horseneck Beach State Park, Demarest Lloyd State Park, and Fort Phoenix State Park all passed IRAC inspections between June 10 and June 27.

The TWG concluded that it was reasonable to identify areas that had likely returned to baseline use based on being designated as clean (*i.e.*, passing IRAC inspections). The TWG further concluded that it was reasonable to identify segments that had ongoing shoreline use losses in Period 2 based on the IRAC inspection results. The IRAC surveys provided time series data regarding the ongoing presence of residual oil in shoreline areas throughout the assessment area. In general, the extent of losses to recreational use was assumed to decline in proportion to the presence of residual oil on the shoreline and, specifically, in proportion to the number and length of segments that failed IRAC inspection.[3]

The TWG first examined the timing of IRAC inspections. In some cases, the first IRAC inspection for a segment was performed later in the season (*e.g.*, August). If the segment was designated as clean at that time, it was unclear on what date the segment might have initially been free of oil. In most of these cases, the timing of impacts could be inferred from data regarding the surrounding segments. In general, the areas that were included in the estimate of Period 2 losses corresponded to the areas that were most heavily oiled, including portions of Fairhaven, Mattapoisett, and Marion. Nyes Neck, just north of Old Silver Beach on the eastern shoreline of Buzzards Bay, was moderately to heavily oiled and was also included in the Period 2 losses. In addition, there were several isolated segments throughout the assessment area included in Period 2 losses that had only modest oiling. In most cases, impacts to shoreline use were assumed to continue in a given segment until the segment passed the IRAC inspection.

Segments designated as impacted during Period 2 were assumed to have an ongoing decline in activity of 9.2%, the average loss for the entire assessment area during Period 1. While the rate of losses throughout the assessment area would be expected to decline over time, the selected methodology would capture this trend in the declining number of segments included in the Period 2 calculations. The TWG determined that it was reasonable to assume that losses in areas specifically affected during Period 2 were equivalent to average losses over all areas during Period 1. Appendix B4 contains the data and the details of the model.

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[3] Other information, such as the extent and/or location of residual oiling that resulted in a segment failing IRAC inspection (recorded on the inspection sheets) and information regarding the baseline level of human use occurring on different segments, was also considered as the TWG determined areas that likely had reduced shoreline use.

4.2.3 Baseline Trips

The percentage decline in trips during Periods 1 and 2 were multiplied by estimates of baseline activity in each period, respectively. The estimates of total baseline activity were developed by combining information from the overflight counts with state park visitation data. The overflight counts recorded the number of trips throughout the entire assessment area on selected days, and the state park daily visitation data recorded the number of trips at selected locations throughout the season. A regression model relating total trips in the assessment area to trips taken at the state parks was estimated. The model was then used to estimate total trips in the assessment area from the state park data for each day throughout the season.

The overflight counts are instantaneous measures of the number of people using a site at a particular point in time on a particular day. These figures were converted into the number of trips taken throughout the entire day using estimates of total user-hours per day and the average number of hours per trip. Total user-hours per day, which is the total numbers of recreation hours spent at a shoreline site during a day, were estimated from the model of overflight counts discussed above. The model estimated the level of shoreline use during each hour of the day. Summing the number of people using the shoreline each hour over the day yields the total user-hours per day.

Dividing the total user-hours per day by the average trip duration (hours per trip) yields the number of trips on a given day. The number of hours per trip was estimated using a survey of shoreline users at several shoreline sites in the assessment area. The TWG recorded the expected duration of recreation trips on a weekend day, Saturday, August 14. The harmonic mean of sampled trip durations gives the average hours per trip. Use of the harmonic mean adjusts for the tendency of intercept surveys to over sample those who take longer trips.

4.2.4 Reduction in Trips on Block Island, RI

Due to the additional cost of reaching Block Island by helicopter, the Block Island shoreline was not surveyed during the overflights conducted during the year of the spill. The TWG performed one aerial count of Block Island, conducted during the June 26, 2004 helicopter flight. The TWG assumed that the pattern of use for Block Island observed that day was representative of Block Island activity relative to the remainder of the assessment area throughout the assessment period. The TWG also assumed that average spill effects throughout the spill assessment area could be appropriately applied to Block Island. On a given day, the number of lost trips estimated for the assessment area was therefore expanded by the ratio of Block Island use to total assessment area use observed on June 26, 2004. This adjustment to lost trips was applied from May 18, 2003, when oil was first observed on Block Island, through the end of the Period 1 shoreline assessment, June 26, 2003. Based on the timing of cleanup operations and degree of oiling, the TWG determined that Block Island had likely returned to baseline conditions by the end of Period 1.

4.2.5 Results –Reduction in Trips

Table 4 presents the estimated reduction in shoreline trips. An estimated 1.8 million shoreline trips took place throughout the assessment area. The TWG estimated a reduction of 36,441 shoreline trips due to the incident. This is approximately 2.1% of total baseline trips. The percent reduction was 9.0% between the time of the incident and late June, and then declined to an average of 0.7% during the remainder of the assessment period.

Table 4: Estimated Reduction in Shoreline Trips

Assessment Period	Baseline Trips	Reduction in Trips	Percent Reduction
Period 1 (4/27 to 6/26)	284,120	25,675	9.0[a]
Period 2 (6/27 to 9/3)	1,486,326	10,766	0.7
Total	1,770,446	36,441	2.1

[a] The percent reduction in Period 1 is slightly less than 9.2 % because losses on Block Island did not occur for the entire period.

4.3 Shoreline Use Trip Value

Losses are estimated by multiplying the decline in shoreline trips by an appropriate value per trip. The appropriate trip value was derived using a recreation valuation model originally developed for a previously published study. This approach involves benefit transfer methods, meaning that the value was based on an existing valuation model for a different geographic location. For this assessment, the model was further developed to account for circumstances specific to the impacts in Buzzards Bay.

In benefit transfer, the "policy site" is the area of interest in the current study. The "transfer site" refers to the area in the literature study that is being applied to the policy site. In this case, the policy site includes the area where shoreline recreation was affected by the spill. The TWG reviewed the existing literature for potentially relevant studies that could be used to determine an appropriate trip value. It was concluded that a study of beach recreation on ocean beaches in Delaware (Parsons *et al.* 2000) was the most applicable study for our purposes. This study was chosen for several reasons. First, the types of recreation included in the study were similar to those in the assessment area. Second, the availability of potential substitute recreation sites could be adapted in the transferred model to reflect substitution possibilities at the policy site. Third, the TWG was able to work with the primary author of the study, facilitating the process of adjusting the results to be appropriate for this assessment.

The Delaware study involved a variety of activities similar to those in the general shoreline use category, including sunbathing, fishing, walking, and birding. Each activity may have different trip values. As long as the mix of activities is similar, the Delaware value would apply to trips in the assessment area without estimating values specific to each type of activity. The TWG judged that the mix of activities was similar and would be applicable to Buzzards Bay shoreline recreation.

In the Delaware study, the focus was on Delaware residents' trips to Delaware ocean beaches. Potential substitutes included ocean beaches in New Jersey and northern Maryland and Virginia. For the areas affected by the incident, the most likely substitute sites were considered to be beaches on Cape Cod, beaches on the eastern shore of Massachusetts north of Cape Cod, and Rhode Island beaches west of Narragansett Bay. The TWG determined that the degree of substitution to these sites from Buzzards Bay would be similar to the degree of substitution from Delaware beaches to New Jersey, Maryland and Virginia beaches. The TWG investigated controlling for potential differences in the spatial distributions of the population relative to the sites in the policy and transfer sites in order to improve the validity of the transfer, but found that the differences were not large enough to result in significant differences in the resulting value. This finding supported the validity of the selected benefit transfer approach.

The transfer study used a random utility model, a widely used recreation valuation model. The published paper did not present a welfare measure applicable to this assessment. Therefore, the TWG contacted Dr. George Parsons at the University of Delaware, who agreed to adapt the model for use in the Buzzards Bay assessment.

The model estimated by Dr. Parsons is described in detail in Appendix B5. Adjustments to the model included the simulation of a 10% decline in trips over an extended area of shoreline with multiple individual sites. This scenario is similar to the spill impacts as determined in the model of overflight counts. The per-trip value was derived by estimating the total loss in value associated with this model simulation and dividing by the decline in the number of trips predicted by the model for the relevant beaches (those for which the decline was simulated). The resulting value per trip was $28.02 in 1997 dollars. The trip value was updated to February 2009 dollars (see Section 7.0). The resulting value is $37.04. It should be noted that this value is not directly comparable to typical per-trip value in the literature, which typically address a complete loss of access to a site rather than a partial decline in activity over a group of sites.

4.4 Results – General Shoreline Use Losses

The reduction in trips was multiplied by the per-trip value. As standard in NRD assessments, a 3% annual discount rate was applied to account for the delay between the time when losses occurred and when restoration is undertaken (see Section 7.0). Table 5 presents the estimated losses to general shoreline use.

Table 5: Estimated General Shoreline Use Losses

Assessment Period	Reduction in Trips	Trip Value	Discount Factor	Reduction in Value (Damages) [a]
Period 1	25,675	$37.04	1.182	$1,124,084
Period 2	10,766	$37.04	1.182	$471,349
Total	36,441			$1,595,434

[a] Reduction in Value = Reduction in Trips • Trip Value • Discount Factor.
The reduction in value is expressed as a present value at the end of February 2009.

Approximate Shoreline Losses by State

The TWG did not attempt to estimate shoreline losses separately for individual states or towns. However, this section presents an approximate division of the losses between Massachusetts and Rhode Island. The division is calculated based on the proportion of predicted baseline use occurring in the human use shoreline segments within each state. The methods used to calculate losses in Period 1 estimated an average proportional rate of loss across the affected area, which was then applied to the baseline use in the affected area. Thus, using this model, lost trips in different areas would be directly proportional to baseline use in different areas. This method correctly estimates the total number of lost trips even if the rates of losses differed in the states. However, the approximate division between the states using predicted baseline trips in the states assumes that the two states had similar rates of losses (*i.e.*, similar proportionate reductions in trips compared to baseline).

Segment 1, approximately one-half of Segment 2, and Block Island are the Rhode Island portions of the shoreline for which shoreline losses were estimated; the remainder of the shoreline is contained within Massachusetts (see Appendix B1 for a map of the human use segments). It was determined that the segments in Rhode Island returned to baseline during Period 1. Based on the information used to assess losses during Period 1 (see Appendix B3), the Rhode Island segments account for 11.5% of the lost trips during Period 1.[4] Therefore, 11.5%t of the monetary losses during Period 1 ($129,270) accrued in Rhode Island. The remainder of the shoreline losses in Period 1 ($994,814) and all of the Period 2 shoreline losses accrued in Massachusetts.

[4] A total of 25,674.81 trips were estimated lost due to the spill in Period 1 (24,016.90 on the mainland and 1,657.91 on Block Island). All of the Block Island losses are attributable to Rhode Island, and some portion of the mainland losses is attributable to Rhode Island. The portion of mainland losses attributable to Rhode Island was estimated as follows. First, the proportion of baseline trips that are taken to mainland Rhode Island was calculated. As noted above, Segment 1 and approximately one-half of Segment 2 comprise the affected portions of mainland Rhode Island. Appendix B Table B3-3 presents the predicted peak baseline use for each segment. For each day, Segment 1 and one-half of Segment 2 comprise approximately 5.36% of the total baseline use of the affected mainland segments (Segments 1 to 21). As shown in Appendix B Table B3-10, 24,016.90 trips were estimated lost from the mainland during Period 1. Applying the proportion of baseline trips in mainland Rhode Island, an estimated 1,287.31 lost trips would have occurred in mainland Rhode Island (24,016.90 * 5.36%), which comprise 5.01% of the total Period 1 lost trips. As shown in Appendix B Table B3-11, 1,657.91 trips were estimated to have been lost on Block Island (all during Period 1). Thus, a total of 2,945.22 trips were lost from RI, including the mainland and Block Island. The proportion of Period 1 lost trips that may have occurred in RI is then approximately 11.5% (2,945.22 / 25,674.81).

5.0 RECREATIONAL BOATING ASSESSMENT

This section presents an overview of the recreational boating assessment. Data, calculations, and details of the mathematical models are provided in Appendix C.

During pre-assessment activities, the TWG determined that recreational boating in and around Buzzards Bay was affected by the spill. Oiling persisted on the surface of the water for several days following the release. Some shoreline oiling and cleanup activities and materials were located near boat launch facilities (*e.g.*, marinas, private homes, boat ramps). In some areas, the placement of absorbent material was located near boating traffic. Local officials instituted restrictions on boating, including closure of harbors to recreational boating and implementing no-wake zones in some areas.

Based on these facts, the TWG defined the boating assessment study area to be the towns from Narragansett, RI to Woods Hole, MA plus Block Island, RI. This area roughly corresponds with the areas where oiling was documented. The harbormaster of Gosnold, MA (the Elizabeth Islands) indicated that boating was not affected by the oil spill, and therefore this area was excluded from the assessment.

5.1 Summary of Recreational Boating and Scope of the Assessment

The boating assessment included recreational boating trips originating from "fixed" locations (*e.g.*, marinas, docks, moorings) and boat ramps. Boating trips originating from both public facilities and private property (*e.g.*, residences and marinas or boating clubs) are included in the assessment. Any losses associated with non-motorized boating such as kayaks or canoes were measured in the shoreline assessment due to similarities in the effects and the sources of available data.

Based on interviews with marina operators and local officials, the TWG determined that the spill affected boating in three primary ways. First, some restrictions on boating were imposed in some towns. Second, some people took fewer trips than they normally would have due to concerns about oil in the water and potential oiling of boats. Third, there were delays in taking boats out of dry storage and mooring them at marinas at the start of the season, leading to lost opportunities for boating.

The majority of trips in the bay are taken from fixed locations, which include marinas, docks, and moorings. These locations are fixed in that the owner can not readily move the boat in order to launch from another location, as one could if they trailer their boat to a public boat ramp. Therefore, substitute trips, in terms of a substitute launch point, were generally not available for the majority of affected trips.

The TWG used benefit transfer for the boating assessment. Unlike the situation discussed for the shoreline assessment, where many trips were taken while the beaches had residual oil and can thus be considered diminished trips, the boating trips that were taken would have likely been at baseline quality. Since oil only persisted on the water for a few days following the release, the effects of the incident on boating related to a

short-term interruption of access followed by a return to baseline conditions. This is similar to the benefit transfer values in the literature, which capture value associated with a loss of access. Therefore the typical benefit transfer process of applying a trip value from the literature to lost trips is appropriate for the boating assessment without additional adjustments.

5.2 Reduction in Boating Trips

The following two sections present the estimation of the reduction in trips from fixed locations and from boat ramps, respectively.

5.2.1 Reduction in Trips from Fixed Locations

The TWG assessed foregone trips by estimating the number of baseline trips and multiplying by an estimate of the proportion of these trips that were foregone over the duration of spill effects on boating. Baseline trips were estimated by applying an estimated daily launch rate to an estimate of the number of boats moored at fixed locations throughout the study area. The launch rate accounted for day of the week (weekday vs. weekend) and was adjusted for differences in weather conditions. The proportion of baseline trips that were forgone due to the spill was developed from interviews with marina personnel and harbormasters in each town of the study area. Each of these elements is discussed in greater detail below. Finally, the duration of spill effects on boating was based on the information provided in the interviews. The duration varied by town, with the most heavily affected town having approximately four weeks of spill effects on boating. Therefore, the assessment period includes the period from the date of the spill (April 27) through May 25, 2003.

Baseline Trips

The following sections summarize the methodology used to estimate baseline trips taken from fixed locations.

Number of Inactive Boats

The TWG counted the number of boats throughout the study area via helicopter on two days. These aerial counts were performed on May 1 and May 21 of 2004, approximately one year after the spill. It is assumed that these data are representative of baseline conditions during 2003. The number of boats in fixed locations was recorded separately for each town.

Because the counts were performed during the day (early afternoon), some boats were being used at the time of the counts and therefore were not counted. The boats present at the time of the counts and therefore included in the data are referred to as "inactive" boats, in that they were not being used at the time of the counts. The analysis below accounts for the fact that the total number of boats available for use on a given day was higher than the number counted during the overflights.

The number of boats in fixed locations was higher in the May 21 count than in the May 1 count, consistent with the fact that many boats are taken out of dry storage and launched into the water during May. The fact that the number of boats available for trips changed throughout the assessment period was incorporated into the assessment. The number of boats in fixed locations and the number of baseline trips were calculated on a daily basis during the assessment period. Days prior to May 1 were assumed to have the May 1 number of inactive boats. The number of inactive boats was then assumed to increase linearly between May 1 and May 25, 2003. Appendix C1 contains the inactive boat data.

Daily Launch Rate (Launches per Inactive Boat)

Baseline boat launches were estimated by applying a daily launch rate to the estimate of the number of boats in fixed locations throughout the study area described above. The launch rate is calculated to correct for the fact that the aerial counts only included inactive boats. The launch rate per inactive boat used in this assessment is calculated by dividing the total number of trips taken on one day at the site by the number of inactive boats at that site during the early afternoon. Thus, the launch rate is really a ratio of total launches taken to the number of inactive boats, those that would be included in the aerial counts.

Launch rates were measured on two days at three locations. The three locations were in Mattapoisett, Marion, and New Bedford. On the first day, Tuesday May 18, 2004, launch rates were estimated based on observations from a single marina in each of the towns. On the second day, Saturday May 22, 2004, launch rates were estimated using observations from the entire harbors of each town. The TWG decided to extend the sampling frames on the second day to include the entire harbors of each township. The second count was performed by observing departures and arrivals from a point located at the seaward edge of the inlet. The data collected on the second day were utilized to estimate launch rates in the same way as the data from the first day; the data for the second day just included additional boats in the sample. Appendix C2 contains the data and results of the marina count study.

The surveyors recorded the number of boats present at the site early in the morning and recorded all boats departing and arriving throughout the day. The total number of trips taken from each site and the number of boats present during the early afternoon were calculated from this data. The corresponding launch rates were then calculated.

The average launch rate was estimated as a weighted average of the launch rate for each town, where the weights were the total number of boats (inactive and active) in each town surveyed. The estimated daily launch rates were 0.08 for May 18 (the weekday estimate) and 0.11 for May 22 (the weekend estimate). As discussed below, since the two days on which these surveys were performed were considered “foul” weather days, days on which weather conditions were expected to reduce recreational activity; these rates were only applied to other foul weather days. The rates were adjusted upward for days where weather was not considered foul.

Day Type and Weather Adjustments

It is expected that the launch rate would be different for weekdays and weekend days, respectively. This factor was accounted for in the estimation of daily baseline trips. The TWG calculated an average launch rate for weekdays and weekend days, where the average was taken across the sites. It is assumed that these rates are representative of other locations within the study area. It is also assumed that the launch rates are constant over the study period.

Weather was incorporated into the assessment by defining "foul" and "non-foul" weather days, an approach used in other assessments of recreational use. A foul day refers to one on which recreational use is reduced because of the weather, and a non-foul day is assumed to have no reduction in use due to weather. As data regarding the influence of weather on boating activity in the study area were not readily available, the TWG used data on general shoreline recreation to derive the weather adjustment used for boating, assuming that boating and shoreline recreation respond to changes in weather in similar proportion.

As part of the shoreline assessment, the TWG gathered existing daily shoreline visitation data for several state parks in the area. These data are described further in Appendix C3. The TWG also obtained weather data from NOAA recorded at the New Bedford airport, which is located centrally in the assessment area. In addition, data on the issuance of small craft advisories in the assessment area were collected. While somewhat overlapping with the NOAA weather data, one component of small craft advisory issuance is expected wave height, an additional consideration important for recreational boating. Based on visual analysis of the state park data and best professional judgment, foul weather days were defined based on cloud cover, precipitation, wind gusts, and small craft advisories.

Regression analysis was used to estimate the effect of foul weather days on recreational use at the state parks. This analysis resulted in estimates of relative use for all combinations of weekend, weekday, and foul and non-foul weather use. The results were similar to weather adjustment factors that have been used in other assessments of recreational use.

The estimated daily launch rates vary from 0.08 for a foul weekday to 0.26 for a non-foul weekend day. These launch rates were multiplied by the number of inactive boats on each day to yield baseline boat launches per day.

Trips per Boat Launch

Applying the methods discussed above results in an estimate of the number of boats launched under baseline conditions. Estimating baseline person-trips required an estimate of the mean number of people per boat. As part of the launch rate data collection discussed above, the surveyors recorded the number of people per boat whenever a count was feasible. The overall mean number of people per boat was

calculated as a weighted average, where the weight was the number of observations in each town. The result was 1.88 people per boat. This figure was applied to both baseline and with-spill estimates.

Proportion of Trips Foregone

The TWG conducted interviews with marina personnel and harbormasters throughout the assessment area. The interviews provided information concerning the duration and extent of spill effects. Detailed results of the interviews are included in Appendix C4. The TWG elicited information concerning two potential types of spill effects:

- Whether the spill caused some persons to delay putting their boats into the water for the season; and

- Whether the spill caused a reduction in the number of trips taken for those whose boats were in the water.

If a respondent indicated that one or both of these spill effects occurred, they were asked approximately how long each type of effect occurred and whether they had any data that might assist in quantifying effects (*e.g.*, records of the number of boats moored at the marina over time). Such data were unavailable, incomplete, or would be difficult and costly to obtain relative to the likely magnitude of damages. Therefore, it was determined that it would be more cost-effective to assign the duration and extent of effects based on the information provided by respondents in each town. The responses generally followed the expected pattern based on the degree of oiling, with the highest effects indicated in towns that had imposed restrictions on boating and had moderate to heavy oiling in locations near concentrations of boats. The spill categories discussed below (*e.g.*, light, moderate) apply only to the relative spill effects for this assessment, and are not necessarily comparable to oiling categories used in other documents in the administrative record for this incident or for assessments for other spills.

Respondents indicated that there were no spill effects in Block Island, RI. No persons could be interviewed in Little Compton, RI. Based on information in Block Island and the relatively minor extent and degree of oiling in Rhode Island, no boating impacts were assessed for locations in Rhode Island.

The interviews indicated that boating trips in the western towns of Buzzards Bay (Westport, Dartmouth, Fairhaven, and New Bedford) were modestly affected. Based on the information provided by respondents, the TWG assumed a "light" spill effect for these areas. The TWG assigned a spill effect of a 20% initial loss of trips followed by linear recovery to baseline in one week.

Respondents in Mattapoisett, MA described specific effects of the spill on boating activity. Accounts of spill effects include both delays in putting boats into the water and foregone trips for those whose boats were in the water. Accounts of the duration of effects ranged from "one or two weekends" to "a month to six weeks," while several indicated the effect lasted up to one month. Based on responses to the TWG interviews,

Mattapoisett was the most heavily affected area. The TWG assumed that Mattapoisett had a 100% loss for one week, recovered linearly to 50% of baseline at the end of two weeks, and had a linear to recovery to baseline at the end of four weeks.

Respondents in Marion, MA indicated that use was severely impaired for roughly a week, but that recovery was relatively quick, with the total impact lasting up to two weeks. Therefore, the TWG assumed that Marion had a 100% loss for one week and recovered linearly to baseline at the end of two weeks.

Respondents did not indicate that there was any spill effect in Wareham, MA. Respondents in Bourne, MA suggested that some boaters may have delayed putting their boats in the water. The TWG assigned a "light" spill effect for these areas, with the same degree of losses as the four lightly oiled towns on the western shore of Buzzards Bay.

Respondents indicated that there was no spill effect in Falmouth, MA or Gosnold, MA (the Elizabeth Islands), and no effect was assessed for these areas.

The responses were generally consistent with expectations. Because the oil washed ashore or dispersed relatively quickly, oil was present on the water's surface for only a few days, and boating losses were shorter in duration than the shellfishing and shoreline losses. In some towns where heavier oiling occurred, the boating effects lasted longer than in other townships, as marinas were oiled or the oiling delayed people from hauling their boats into the water.

Results – Foregone Trips from Fixed Locations

The TWG multiplied baseline trips by the above rate of loss in each town to yield the number of foregone trips in each town. In total, a reduction of 425 boat trips or 799 person-trips from fixed locations was estimated due to the incident. Mattapoisett, MA and Marion, MA, the two towns considered to have moderate to heavy spill effects from a boating perspective, accounted for almost 90% of the foregone trips. Across all segments in the assessment area, a reduction of approximately 6% of baseline trips was estimated during the month following the spill. Appendix C5 contains a detailed calculation of foregone trips from fixed locations.

5.2.2 Trips from Boat Ramps

Recreational boating trips also originate from boat ramps in the assessment area, although the number of trips is estimated to be small compared to trips taken from fixed locations. In terms of assessing foregone trips due to the spill, the main difference in the trips taken from boat ramps and the fixed locations is the method used to estimate baseline trips. Unlike boats in fixed locations, boats launched at boat ramps are observed while they are taking trips, and are not observed otherwise. Thus, the TWG used different methods to estimate baseline trips.

The number of boat launches from boat ramps was estimated by counting "empty trailers" at boat ramps during the helicopter surveys on May 1 and May 21, 2004. Empty

trailers are defined as a vehicle with a trailer parked at a boat ramp. Each empty trailer is presumably associated with a single boat launched in the water.

As noted above, the aerial counts were performed during the peak time of recreational activity (early afternoon). These data are similar to those collected for shoreline use in that a snapshot count of boats was observed during peak activity. This was converted into an estimate of total use throughout the day using a method similar to that used for the shoreline assessment. A ratio was derived comparing total trips occurring on a day to the trips taken at the time of peak activity. Total trips were then calculated by multiplying the peak-time count by the estimated ratio. The TWG determined that it was not cost-effective to develop a boating-specific ratio for the Buzzards Bay assessment, and therefore derived a factor based on previous oil spill assessments. The ratio used was 3.77, meaning that the TWG estimated 3.77 boats are launched in a day for each empty trailer observed at the time of peak use.

Weather conditions and day of the week were assumed to affect trips from boat ramps in the same proportion as those from fixed locations. The TWG accounted for these factors using the same weather and weekday/weekend adjustments described previously. Depending on these factors, baseline boat launches ranged from 68 to 222 per day. As with the calculation of trips from fixed locations, these figures were multiplied by 1.88 people per boat to convert to person-trips.

To estimate forgone trips it was assumed that the rate of trips forgone was the same for boat ramps as it was for marinas and other boats moored at fixed locations. Applying the town-specific rates of loss described above to the estimates of baseline trips from boat ramps yields 188 foregone boating trips. The overall percentage of trips forgone was 3%. This figure is lower than the figure associated with fixed locations because baseline trips from boat ramps were generally associated with areas of modest spill effects. Appendix C6 contains a detailed calculation of foregone trips from boat ramps.

5.3 Recreational Boating Trip Value

The TWG employed the benefit transfer methodology for the boating assessment. The benefit transfer calculation involved multiplying the estimated number of foregone trips by a trip value reflecting lost value per trip.

The TWG performed a literature review to identify potentially relevant studies for the benefit transfer. The studies were selected based on the following considerations:

- Similarity of the recreational boating activities compared to those affected by the incident;
- Applicability of valuation scenarios to the types of losses that occurred due to the incident;
- Geographic proximity; and
- Study methodology.

The boating assessment included boat-based marine fishing, motorized pleasure boating, and sailing. The majority of trips were expected to be day trips as opposed to overnight trips. Finally, it was determined that studies valuing changes in access were more applicable than studies valuing changes in the characteristics of a site. No recent studies valuing changes in access to marine waters in the Northeast were identified; therefore, the TWG considered values for other regions. The TWG relied on the average of values from applicable studies.

An adjustment to the study values was applied to account for differences between the availability of substitutes in the areas studied compared to the spill area. For the boat trips from fixed locations, which represented the majority of lost trips, the ability to substitute away from spill-impacted areas was minimal. Therefore, previous studies that did not account for substitutes were preferred. However, most of the recent literature explicitly includes substitutes. The TWG therefore included an adjustment factor to increase values from studies that included substitute sites rather than excluding these studies. Agnello and Han (1993), in a study of marine fishing on Long Island, NY, found that excluding substitute sites from an analysis increased trip values approximately 18% compared to an analysis that accounts for substitutes. This was used to adjust for the lack of substitution in the assessment area as appropriate.

Values were first determined separately for marine fishing, motorized pleasure boating, and sailing. The values for each activity were converted to February 2009 dollars (see Section 7.0). Finally, a composite value was developed using the average of values for each activity under the assumption that the activities occur in equal proportions. Appendix C7 identifies the studies and describes the relevant values and adjustments. The resulting composite trip value is $77.15.

5.4 Results – Recreational Boating Damages

The reduction in trips was multiplied by the per-trip value. As standard in NRD assessments, a 3% annual discount rate was applied to account for the delay between the time when losses occurred and when restoration is undertaken. Table 6 presents the estimated recreational boating losses.

Table 6: Estimated Recreational Boating Losses

Location	Reduction in Trips	Trip Value	Discount Factor	Reduction in Value (Damages) [a]
Fixed	799	$77.15	1.182	$72,862
Boat Ramps	188	$77.15	1.182	$17,144
Total	987			$90,006

[a] Reduction in Value = Reduction in Trips • Trip Value • Discount Factor.
The reduction in value is expressed as a present value at the end of February 2009.

6.0 CONCLUSIONS

This document presented the lost use assessment for the Bouchard B-120 oil spill. Three categories of recreational activities were assessed: recreational shellfishing, general shoreline use, and recreational boating. The methods used by the TWG to assess the losses to these activities were consistent with established techniques used in recreation valuation. Where appropriate, the use of pre-existing data and previous economic studies was combined with original data collection to develop a valid and cost-effective assessment. Table 7 summarizes the results. The losses to recreation are quantified both as a reduction in recreation trips and as lost value resulting from the incident. Value-to-cost scaling was determined to be appropriate for this assessment, so the reduction in value is also a measure of the cost of appropriate restoration projects and represents the estimate of damages for the assessment of lost recreational use.[5]

Table 7: Summary of Recreational Use Losses

Activity Category	Reduction in Trips	Reduction in Value (Damages)[a]
Recreational Shellfishing	47,298	$1,406,556
General Shoreline Use	36,441	$1,595,434
Recreational Boating	987	$90,006
Total	84,726	$3,091,996

[a] The reduction in value is expressed as a present value at the end of February 2009.

While the TWG did not estimate all losses separately for individual states or towns, the approximate losses accruing to each state was calculated (see Section 4.4). Of the three categories of recreation, only general shoreline use was determined to have been affected in Rhode Island. The losses in Rhode Island are approximately $129,270 (8%) of the total general shoreline losses (Periods 1 and 2). The remainder of the total human use losses ($2,962,726) occurred in Massachusetts.

[5] Value-to-cost scaling is when the cost of the restoration projects equals the value of the losses in dollars.

7.0 DESCRIPTION OF PRESENT VALUE CALCULATIONS

Recreational losses are expressed as a present value in this document. The present value appropriately takes two factors into account. First, the monetary values of recreational trips (consumer surplus values) were adjusted to account for inflation, the change in the nominal value of money over time. Second, damages were adjusted for the time value of money (in real terms) to account for the delay between when damages occurred and the time of payment.

The valuation studies measured the values of recreational trips in past dollars (*e.g.*, the shoreline value per trip was measured in 1997 dollars). The values were updated to 2009 dollars to account for inflation using the Consumer Price Index (CPI), which was obtained from the Bureau of Labor Statistics CPI website (BLS 2009). The time chosen for the present value in this assessment was the most recent CPI value available, which was the end of February 2009. For past years, the average CPI for the year was used. For the present value, February 2009 (CPI = 212.193) was used.

Losses were also adjusted to account for the delay between when damages occurred and the time of payment (for this assessment, assumed to be February 2009). Final settlement will be adjusted based on the date of the actual payment. As is standard practice in NRDA, a real discount rate of 3% was applied to account for the time value of money. The discount factor was calculated using a specific point in time for each year. For the present time (2009), the end of February was used. February 28 is the 59th day of 2009. There are 365 days in 2009, so the end of February is 0.162 of the year (59/365). Therefore, losses are discounted to 2009.162. The midpoints of the years were used to represent 2003 and 2004 (*i.e.*, the losses are discounted from 2003.5 and 2004.5, respectively).[6] The discount factor applied to the 2003 losses is then $1.03^{(2009.162-2003.5)} = 1.182$. Similarly, the discount factor applied to the 2004 losses is $1.03^{(2009.162-2004.5)} = 1.148$.

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[6] The TWG considered employing activity-specific discount rates that would reflect the fact that losses for the different activities were calculated over different time periods. In 2003, the midpoint of the shoreline losses occurred at the middle of the year (2003.50), the midpoint of the shellfishing losses was after the middle of the year (2003.66), and the midpoint of the boating losses were before the middle of the year (2003.36). The average of the three midpoints (2003.51) is very close to the midpoint of the year (2003.5), and the TWG found that using activity-specific discount rates would make little difference in the estimate of total losses compared to using the midpoint of the year. Therefore, the TWG chose to use the same discount rate for all activities in 2003 for simplicity. In 2004, losses were only calculated for shellfishing. Due to the fact that shellfishing losses were estimated based on annual data, the losses are not attributed to any specific time period within the year. Therefore, the midpoint of the year (2004.5) is an appropriate time on which to base the discount factor for the 2004 losses.

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APPENDIX A: DETAILS OF THE RECREATIONAL SHELLFISHING ASSESSMENT

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APPENDIX A1: RECREATIONAL SHELLFISHING DATA

Section 3.2.1 of the report describes the sources of shellfishing data used in this assessment. As noted, some of the sources contained conflicting data, and the TWG constructed a consensus data set based on validating data between the available sources. The data presented in this appendix are the consensus data.

Table A1-1: Recreational Shellfishing Harvest Data

Township	Shellfish Type	Year	Harvest (lbs)
Bourne	Quahog	1998	102,240
Bourne	Quahog	1999	131,606
Bourne	Quahog	2000	215,280
Bourne	Quahog	2001	420,840
Bourne	Quahog	2002	195,000
Bourne	Quahog	2003	86,880
Bourne	SS Clam	1998	39,000
Bourne	SS Clam	1999	36,848
Bourne	SS Clam	2000	12,200
Bourne	SS Clam	2001	10,750
Bourne	SS Clam	2002	13,750
Bourne	SS Clam	2003	31,600
Bourne	Surf Clam	1998	ND
Bourne	Surf Clam	1999	ND
Bourne	Surf Clam	2000	ND
Bourne	Surf Clam	2001	ND
Bourne	Surf Clam	2002	ND
Bourne	Surf Clam	2003	ND
Bourne	Oysters	1998	10,800
Bourne	Oysters	1999	8,975
Bourne	Oysters	2000	10,000
Bourne	Oysters	2001	10,400
Bourne	Oysters	2002	10,950
Bourne	Oysters	2003	7,200
Bourne	Scallops	1998	1,800
Bourne	Scallops	1999	20,025
Bourne	Scallops	2000	400
Bourne	Scallops	2001	6,050
Bourne	Scallops	2002	500
Bourne	Scallops	2003	3,050
Fairhaven	Quahog	1998	306,000
Fairhaven	Quahog	1999	232,300
Fairhaven	Quahog	2000	658,000
Fairhaven	Quahog	2001	700,000
Fairhaven	Quahog	2002	905,000
Fairhaven	Quahog	2003	12,100
Fairhaven	SS Clam	1998	60,000
Fairhaven	SS Clam	1999	2,500
Fairhaven	SS Clam	2000	ND
Fairhaven	SS Clam	2001	1,000
Fairhaven	SS Clam	2002	2,000
Fairhaven	SS Clam	2003	1,500
Fairhaven	Surf Clam	1998	ND
Fairhaven	Surf Clam	1999	ND
Fairhaven	Surf Clam	2000	ND
Fairhaven	Surf Clam	2001	ND
Fairhaven	Surf Clam	2002	ND
Fairhaven	Surf Clam	2003	ND

ND indicates no data, either because that shellfish type is not harvested in that township or because data were not available for that shellfish type-township-year combination.

Table A1-1: Recreational Shellfishing Harvest Data

Township	Shellfish Type	Year	Harvest (lbs)
Fairhaven	Oysters	1998	500
Fairhaven	Oysters	1999	3,500
Fairhaven	Oysters	2000	ND
Fairhaven	Oysters	2001	500
Fairhaven	Oysters	2002	2,000
Fairhaven	Oysters	2003	650
Fairhaven	Scallops	1998	750
Fairhaven	Scallops	1999	8,000
Fairhaven	Scallops	2000	10,000
Fairhaven	Scallops	2001	15,000
Fairhaven	Scallops	2002	10,000
Fairhaven	Scallops	2003	300
Mattapoisett	Quahog	1998	30,600
Mattapoisett	Quahog	1999	104,970
Mattapoisett	Quahog	2000	134,940
Mattapoisett	Quahog	2001	ND
Mattapoisett	Quahog	2002	24,850
Mattapoisett	Quahog	2003	500
Mattapoisett	SS Clam	1998	500
Mattapoisett	SS Clam	1999	750
Mattapoisett	SS Clam	2000	500
Mattapoisett	SS Clam	2001	ND
Mattapoisett	SS Clam	2002	ND
Mattapoisett	SS Clam	2003	100
Mattapoisett	Surf Clam	1998	ND
Mattapoisett	Surf Clam	1999	ND
Mattapoisett	Surf Clam	2000	ND
Mattapoisett	Surf Clam	2001	ND
Mattapoisett	Surf Clam	2002	ND
Mattapoisett	Surf Clam	2003	ND
Mattapoisett	Oysters	1998	250
Mattapoisett	Oysters	1999	500
Mattapoisett	Oysters	2000	ND
Mattapoisett	Oysters	2001	ND
Mattapoisett	Oysters	2002	300
Mattapoisett	Oysters	2003	50
Mattapoisett	Scallops	1998	4,700
Mattapoisett	Scallops	1999	1,750
Mattapoisett	Scallops	2000	2,500
Mattapoisett	Scallops	2001	ND
Mattapoisett	Scallops	2002	1,300
Mattapoisett	Scallops	2003	300
Marion	Quahog	1998	25,800
Marion	Quahog	1999	31,920
Marion	Quahog	2000	19,434
Marion	Quahog	2001	23,250
Marion	Quahog	2002	18,900
Marion	Quahog	2003	4,500

ND indicates no data, either because that shellfish type is not harvested in that township or because data were not available for that shellfish type-township-year combination.

Table A1-1: Recreational Shellfishing Harvest Data

Township	Shellfish Type	Year	Harvest (lbs)
Marion	SS Clam	1998	4,500
Marion	SS Clam	1999	2,550
Marion	SS Clam	2000	1,600
Marion	SS Clam	2001	2,200
Marion	SS Clam	2002	2,000
Marion	SS Clam	2003	700
Marion	Surf Clam	1998	ND
Marion	Surf Clam	1999	ND
Marion	Surf Clam	2000	ND
Marion	Surf Clam	2001	ND
Marion	Surf Clam	2002	ND
Marion	Surf Clam	2003	ND
Marion	Oysters	1998	1,500
Marion	Oysters	1999	2,000
Marion	Oysters	2000	1,725
Marion	Oysters	2001	3,575
Marion	Oysters	2002	3,050
Marion	Oysters	2003	1,100
Marion	Scallops	1998	3,400
Marion	Scallops	1999	900
Marion	Scallops	2000	100
Marion	Scallops	2001	6,100
Marion	Scallops	2002	3,750
Marion	Scallops	2003	150
Wareham	Quahog	1998	226,200
Wareham	Quahog	1999	179,100
Wareham	Quahog	2000	170,580
Wareham	Quahog	2001	179,640
Wareham	Quahog	2002	194,880
Wareham	Quahog	2003	143,760
Wareham	SS Clam	1998	141,600
Wareham	SS Clam	1999	49,750
Wareham	SS Clam	2000	47,400
Wareham	SS Clam	2001	49,900
Wareham	SS Clam	2002	81,200
Wareham	SS Clam	2003	29,950
Wareham	Surf Clam	1998	ND
Wareham	Surf Clam	1999	ND
Wareham	Surf Clam	2000	ND
Wareham	Surf Clam	2001	ND
Wareham	Surf Clam	2002	ND
Wareham	Surf Clam	2003	ND
Wareham	Oysters	1998	7,500
Wareham	Oysters	1999	7,500
Wareham	Oysters	2000	7,500
Wareham	Oysters	2001	12,500
Wareham	Oysters	2002	13,500
Wareham	Oysters	2003	7,450

ND indicates no data, either because that shellfish type is not harvested in that township or because data were not available for that shellfish type-township-year combination.

Table A1-1: Recreational Shellfishing Harvest Data

Township	Shellfish Type	Year	Harvest (lbs)
Wareham	Scallops	1998	500
Wareham	Scallops	1999	1,000
Wareham	Scallops	2000	1,000
Wareham	Scallops	2001	1,000
Wareham	Scallops	2002	1,000
Wareham	Scallops	2003	ND
Falmouth	Quahog	1998	33,280
Falmouth	Quahog	1999	73,280
Falmouth	Quahog	2000	59,680
Falmouth	Quahog	2001	60,640
Falmouth	Quahog	2002	43,857
Falmouth	Quahog	2003	36,825
Falmouth	SS Clam	1998	17,520
Falmouth	SS Clam	1999	30,080
Falmouth	SS Clam	2000	11,680
Falmouth	SS Clam	2001	9,840
Falmouth	SS Clam	2002	8,689
Falmouth	SS Clam	2003	5,775
Falmouth	Surf Clam	1998	ND
Falmouth	Surf Clam	1999	ND
Falmouth	Surf Clam	2000	ND
Falmouth	Surf Clam	2001	ND
Falmouth	Surf Clam	2002	ND
Falmouth	Surf Clam	2003	ND
Falmouth	Oysters	1998	5,040
Falmouth	Oysters	1999	4,480
Falmouth	Oysters	2000	2,800
Falmouth	Oysters	2001	6,640
Falmouth	Oysters	2002	3,200
Falmouth	Oysters	2003	1,668
Falmouth	Scallops	1998	400
Falmouth	Scallops	1999	3,080
Falmouth	Scallops	2000	1,708
Falmouth	Scallops	2001	2,443
Falmouth	Scallops	2002	45,360
Falmouth	Scallops	2003	721
Westport	Quahog	1998	42,300
Westport	Quahog	1999	135,240
Westport	Quahog	2000	ND
Westport	Quahog	2001	59,460
Westport	Quahog	2002	57,000
Westport	Quahog	2003	35,025
Westport	SS Clam	1998	2,600
Westport	SS Clam	1999	3,350
Westport	SS Clam	2000	ND
Westport	SS Clam	2001	2,850
Westport	SS Clam	2002	2,550
Westport	SS Clam	2003	2,175

ND indicates no data, either because that shellfish type is not harvested in that township or because data were not available for that shellfish type-township-year combination.

Table A1-1: Recreational Shellfishing Harvest Data

Township	Shellfish Type	Year	Harvest (lbs)
Westport	Surf Clam	1998	480
Westport	Surf Clam	1999	480
Westport	Surf Clam	2000	ND
Westport	Surf Clam	2001	640
Westport	Surf Clam	2002	800
Westport	Surf Clam	2003	400
Westport	Oysters	1998	500
Westport	Oysters	1999	1,050
Westport	Oysters	2000	ND
Westport	Oysters	2001	1,150
Westport	Oysters	2002	1,050
Westport	Oysters	2003	380
Westport	Scallops	1998	500
Westport	Scallops	1999	600
Westport	Scallops	2000	ND
Westport	Scallops	2001	100
Westport	Scallops	2002	350
Westport	Scallops	2003	1,450
New Bedford	Quahog	1998	22,120
New Bedford	Quahog	1999	18,792
New Bedford	Quahog	2000	9,792
New Bedford	Quahog	2001	15,984
New Bedford	Quahog	2002	15,360
New Bedford	Quahog	2003	8,640
New Bedford	SS Clam	1998	ND
New Bedford	SS Clam	1999	ND
New Bedford	SS Clam	2000	ND
New Bedford	SS Clam	2001	ND
New Bedford	SS Clam	2002	ND
New Bedford	SS Clam	2003	ND
New Bedford	Surf Clam	1998	ND
New Bedford	Surf Clam	1999	ND
New Bedford	Surf Clam	2000	ND
New Bedford	Surf Clam	2001	ND
New Bedford	Surf Clam	2002	ND
New Bedford	Surf Clam	2003	ND
New Bedford	Oysters	1998	ND
New Bedford	Oysters	1999	ND
New Bedford	Oysters	2000	ND
New Bedford	Oysters	2001	ND
New Bedford	Oysters	2002	ND
New Bedford	Oysters	2003	ND
New Bedford	Scallops	1998	ND
New Bedford	Scallops	1999	ND
New Bedford	Scallops	2000	ND
New Bedford	Scallops	2001	ND
New Bedford	Scallops	2002	ND
New Bedford	Scallops	2003	ND

ND indicates no data, either because that shellfish type is not harvested in that township or because data were not available for that shellfish type-township-year combination.

Table A1-1: Recreational Shellfishing Harvest Data

Township	Shellfish Type	Year	Harvest (lbs)
Dartmouth	Quahog	1998	250,560
Dartmouth	Quahog	1999	216,240
Dartmouth	Quahog	2000	68,145
Dartmouth	Quahog	2001	40,990
Dartmouth	Quahog	2002	44,596
Dartmouth	Quahog	2003	142,888
Dartmouth	SS Clam	1998	7,000
Dartmouth	SS Clam	1999	3,500
Dartmouth	SS Clam	2000	6,990
Dartmouth	SS Clam	2001	4,050
Dartmouth	SS Clam	2002	1,770
Dartmouth	SS Clam	2003	ND
Dartmouth	Surf Clam	1998	ND
Dartmouth	Surf Clam	1999	ND
Dartmouth	Surf Clam	2000	ND
Dartmouth	Surf Clam	2001	ND
Dartmouth	Surf Clam	2002	ND
Dartmouth	Surf Clam	2003	ND
Dartmouth	Oysters	1998	12,408
Dartmouth	Oysters	1999	81,350
Dartmouth	Oysters	2000	8,382
Dartmouth	Oysters	2001	4,780
Dartmouth	Oysters	2002	920
Dartmouth	Oysters	2003	120
Dartmouth	Scallops	1998	ND
Dartmouth	Scallops	1999	0
Dartmouth	Scallops	2000	ND
Dartmouth	Scallops	2001	ND
Dartmouth	Scallops	2002	ND
Dartmouth	Scallops	2003	ND

ND indicates no data, either because that shellfish type is not harvested in that township or because data were not available for that shellfish type-township-year combination.

Table A1-2: Recreational Shellfishing License Data

Township	Total Permits by Year [a]						
	1998	1999	2000	2001	2002	2003	2004
Bourne	1,884	2,272	2,182	2,115	2,437	2,485	2,485
Dartmouth	389	375	365	447	361	273	343
Fairhaven	815	893	887	938	927	437	ND
Falmouth	1,578	1,817	1,975	1,805	1,805	1,951	2,038
Marion	614	645	553	640	638	476	405
Mattapoisett	815	805	820	819	1,058	511	800
New Bedford	178	245	209	235	236	244	247
Wareham	1,583	1,666	1,582	1,965	2,165	1,198	1,515
Westport	765	900	907	852	838	641	690

[a] includes resident, non-resident, and senior permits.
ND indicates no data.

Table A1-3: Recreational Shellfishing Conversions

Township	Shellfish Type	Pounds per Bushel	Harvest Limit (Bushels per Week)	Pounds per Trip [a]
(1)	(2)	(3)	(4)	(5)
Bourne	Quahog	60	0.25	15
Bourne	SS Clam	50	0.25	12.5
Bourne	Surf Clam	50	0.25	12.5
Bourne	Oysters	50	0.25	12.5
Bourne	Scallops	50	1	50
Fairhaven	Quahog	60	0.25	15
Fairhaven	SS Clam	50	0.25	12.5
Fairhaven	Surf Clam	50	0.25	12.5
Fairhaven	Oysters	60	0.25	15
Fairhaven	Scallops	50	1	50
Mattapoisett	Quahog	60	0.25	15
Mattapoisett	SS Clam	50	0.25	12.5
Mattapoisett	Surf Clam	50	0.25	12.5
Mattapoisett	Oysters	50	0.25	12.5
Mattapoisett	Scallops	50	1	50
Marion	Quahog	75	0.25	18.75
Marion	SS Clam	75	0.25	18.75
Marion	Surf Clam	75	0.25	18.75
Marion	Oysters	50	0.25	12.5
Marion	Scallops	50	1	50
Wareham	Quahog	60	0.25	15
Wareham	SS Clam	50	0.25	12.5
Wareham	Surf Clam	50	0.25	12.5
Wareham	Oysters	50	0.25	12.5
Wareham	Scallops	50	1	50
Falmouth	Quahog	80	0.3125	25
Falmouth	SS Clam	60	0.3125	18.75
Falmouth	Surf Clam	60	0.3125	18.75
Falmouth	Oysters	60	0.3125	18.75
Falmouth	Scallops	60	1	60
Westport	Quahog	80	0.5	40
Westport	SS Clam	50	0.5	25
Westport	Surf Clam	50	0.5	25
Westport	Oysters	50	1	50
Westport	Scallops	50	1.5	75
New Bedford	Quahog	80	0.5	40
New Bedford	SS Clam	NA	NA	NA
New Bedford	Surf Clam	NA	NA	NA
New Bedford	Oysters	NA	NA	NA
New Bedford	Scallops	NA	NA	NA
Dartmouth	Quahog	80	0.5	40
Dartmouth	SS Clam	60	0.5	30
Dartmouth	Surf Clam	60	0.5	30
Dartmouth	Oysters	60	2	120
Dartmouth	Scallops	NA	NA	NA

[a] Calculated value. (5) = (3) * (4)

NA indicates not applicable because shellfish type is not harvested in township.

APPENDIX A2: ESTIMATION OF THE REDUCTION IN SHELLFISHING TRIPS

Table A2-1: Estimated Trips and Trips per Permit by Township-Species-Year

Township	Shellfish Type	Trips [a]						Trips per License [b]					
		1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003
Bourne	Quahog	6,816	8,774	14,352	28,056	13,000	5,792	3.618	3.862	6.577	13.265	5.334	2.331
Bourne	SS Clam	3,120	2,948	976	860	1,100	2,528	1.656	1.297	0.447	0.407	0.451	1.017
Bourne	Surf Clam												
Bourne	Oysters	864	718	800	832	876	576	0.459	0.316	0.367	0.393	0.359	0.232
Bourne	Scallops	36	401	8	121	10	61	0.019	0.176	0.004	0.057	0.004	0.025
Fairhaven [c]	Quahog	20,400	15,487	43,867	46,667	60,333	807	25.030	17.342	49.455	49.751	65.085	1.846
Fairhaven [c]	SS Clam	4,800	200		80	160	120	5.890	0.224		0.085	0.173	0.275
Fairhaven [c]	Surf Clam												
Fairhaven [c]	Oysters	33	233		33	133	43	0.041	0.261		0.036	0.144	0.099
Fairhaven [c]	Scallops	15	160	200	300	200	6	0.018	0.179	0.225	0.320	0.216	0.014
Mattapoisett	Quahog	2,040	6,998	8,996		1,657	33	2.503	8.693	10.971		1.566	0.065
Mattapoisett	SS Clam	40	60	40			8	0.049	0.075	0.049			0.016
Mattapoisett	Surf Clam												
Mattapoisett	Oysters	20	40			24	4	0.025	0.050			0.023	0.008
Mattapoisett	Scallops	94	35	50		26	6	0.115	0.043	0.061		0.025	0.012
Marion	Quahog	1,376	1,702	1,036	1,240	1,008	240	2.241	2.639	1.874	1.938	1.580	0.504
Marion	SS Clam	240	136	85	117	107	37	0.391	0.211	0.154	0.183	0.167	0.078
Marion	Surf Clam												
Marion	Oysters	120	160	138	286	244	88	0.195	0.248	0.250	0.447	0.382	0.185
Marion	Scallops	68	18	2	122	75	3	0.111	0.028	0.004	0.191	0.118	0.006
Wareham	Quahog	15,080	11,940	11,372	11,976	12,992	9,584	9.526	7.167	7.188	6.095	6.001	8.000
Wareham	SS Clam	11,328	3,980	3,792	3,992	6,496	2,396	7.156	2.389	2.397	2.032	3.000	2.000
Wareham	Surf Clam												
Wareham	Oysters	600	600	600	1,000	1,080	596	0.379	0.360	0.379	0.509	0.499	0.497
Wareham	Scallops	10	20	20	20	20		0.006	0.012	0.013	0.010	0.009	
Falmouth	Quahog	1,331	2,931	2,387	2,426	1,754	1,473	0.844	1.613	1.209	1.344	0.972	0.755
Falmouth	SS Clam	934	1,604	623	525	463	308	0.592	0.883	0.315	0.291	0.257	0.158
Falmouth	Surf Clam												
Falmouth	Oysters	269	239	149	354	171	89	0.170	0.131	0.076	0.196	0.095	0.046
Falmouth	Scallops	7	51	28	41	756	12	0.004	0.028	0.014	0.023	0.419	0.006
Westport	Quahog	1,058	3,381		1,487	1,425	876	1.382	3.757		1.745	1.700	1.366
Westport	SS Clam	104	134		114	102	87	0.136	0.149		0.134	0.122	0.136
Westport	Surf Clam	19	19		26	32	16	0.025	0.021		0.030	0.038	0.025
Westport	Oysters	10	21		23	21	8	0.013	0.023		0.027	0.025	0.012
Westport	Scallops	7	8		1	5	19	0.009	0.009		0.002	0.006	0.030
New Bedford	Quahog	553	470	245	400	384	216	3.107	1.918	1.171	1.700	1.627	0.885
New Bedford	SS Clam												
New Bedford	Surf Clam												
New Bedford	Oysters												
New Bedford	Scallops												
Dartmouth	Quahog	6,264	5,406	1,704	1,025	1,115	3,572	16.103	14.416	4.667	2.292	3.088	13.085
Dartmouth	SS Clam	233	117	233	135	59		0.600	0.311	0.638	0.302	0.163	
Dartmouth	Surf Clam												
Dartmouth	Oysters	103	678	70	40	8	1	0.266	1.808	0.191	0.089	0.021	0.004
Dartmouth	Scallops												

[a] Calculated as harvest (in pounds) divided by trips per pound harvested. The harvest data are presented in A1 Table 1 and the trips per pound harvested are presented in A1 Table 3. Calculated values are rounded to the nearest whole number. Missing values indicate that there were no harvest data.

[b] Calculated as trips divided by the number of licenses. License data are presented in A-1 Table 1. Missing values indicate that there were no harvest data.

[c] The Fairhaven data presented is prior to the adjustment.

Table A2-2: Estimated Harvest, Trips, and Trips per Permit by Township-Year

Township	Trips [a]						Trips per License [b]					
	1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003
Bourne	10,836	12,840	16,136	29,869	14,986	8,957	5.752	5.651	7.395	14.122	6.149	3.604
Fairhaven [c]	25,248	16,080	44,067	47,080	60,827	976	30.980	18.007	49.681	50.192	65.617	2.233
Mattapoisett	2,194	7,133	9,086		1,707	51	2.692	8.861	11.080		1.613	0.100
Marion	1,804	2,016	1,262	1,765	1,434	368	2.938	3.126	2.282	2.758	2.247	0.774
Wareham	27,018	16,540	15,784	16,988	20,588	12,576	17.068	9.928	9.977	8.645	9.509	10.497
Falmouth	2,541	4,826	3,188	3,345	3,144	1,882	1.610	2.656	1.614	1.853	1.742	0.965
Westport	1,197	3,563		1,650	1,585	1,006	1.565	3.959		1.937	1.891	1.569
New Bedford	553	470	245	400	384	216	3.107	1.918	1.171	1.700	1.627	0.885
Dartmouth	6,601	6,201	2,006	1,200	1,182	3,573	16.968	16.535	5.497	2.684	3.273	13.089

[a] Values are the sum of the values presented in A2 Table 1, summed over shellfish type. Values are rounded to the nearest whole number. Missing values indicate harvest data were missing.

[b] Values are the sum of the values presented in A2 Table 1, summed over shellfish type. Missing values indicate that harvest data were missing.

[c] The Fairhaven data presented is prior to the adjustment.

Details on the Adjustment to Fairhaven Data

This section provides additional details on the adjustment to the Fairhaven data. The calculations described are presented in Table A2-3.

As noted in the report, the harvest, license, and conversion data for Fairhaven suggested that each license holder caught the limit almost every week of the year. This did not fit with the TWG's understanding of shellfishing in Buzzards Bay or with data for the other townships. Therefore, the TWG adjusted the Fairhaven data based on the data for other townships.

Table A2-3 presents the calculations used in the Fairhaven adjustment. (R1) contains the number of trips per permit in Fairhaven for each year used to estimate baseline (1998 to 2002). (R2) contains the average number of trips per permit in the other townships in each year. (R3) contains the ratio of the Fairhaven trips per permit to that of the other townships.

The TWG agreed to use the average 1998 to 1999 ratio of trips per permit in Fairhaven relative to the average trips per permit in the other townships to estimate use in Fairhaven. The average ratio is approximately 3.77 (C7 in Table A2-3).

To estimate 2003 baseline trips for Fairhaven, this ratio (3.77) was multiplied by the average trips per license under 2003 baseline conditions in the other townships (5.05) for an estimated 2003 baseline trips per year in Fairhaven of 19.03.[1] The 19.03 trips per permit in Fairhaven was then multiplied by the 2003 baseline number of permits in Fairhaven (892) to estimate baseline trips of 16,977.

The harvest and permit data for 2003 with-spill conditions in Fairhaven suggest a trips per permit of 2.23. However, the TWG assumed that the 2003 data are overestimated similarly as with the 2000 to 2002 data. Therefore, a correction factor was employed to reduce the 2003 with-spill Fairhaven trips per permit. The TWG divided the 2000 to 2002 average ratio to other townships (13.61) by the 1998 to 1999 average ratio (3.77) to yield a correction factor of 0.28.[2] Therefore, the estimated 2003 with-spill trips per permit in Fairhaven was estimated as 2.23 * 0.28, yielding 0.62 trips taken per permit in Fairhaven under with-spill conditions.

Table A2-4 includes the adjustment to the Fairhaven data. Other tables do not include the adjustment.

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[1] The average trip per license in the other township was calculated as simple average (*i.e.*, each township had an equal weight).

[2] The calculation of the 13.61 is presented in Table A2-3 (C8).

Table A2-3: Information Used to Adjust Fairhaven Trips

		1998	1999	2000	2001	2002	1998-1999 Avg	2000-2002 Avg
	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)	(C7)	(C8)
(R1)	Trips per Permit (Fairhaven)	30.980	18.007	49.681	50.192	65.617		
(R2)	Trips per Permit (Average across Other Townships)	6.463	6.579	4.877	4.213	3.507		
(R3)	Fairhaven : Other Ratio	4.794	2.737	10.186	11.915	18.713	3.765	13.605

Note: text in Appendix A2 describes calculations.

Table A2-4: Estimated Reduction in Trips –2003

Township	Trips [a]		
	2003 Baseline	2003 With-Spill	Reduction in Trips
Bourne	16,933	8,957	7,976
Fairhaven	16,977	270	16,707
Mattapoisett	4,024	51	3,973
Marion	1,656	368	1,288
Wareham	19,384	12,576	6,808
Falmouth	3,409	1,882	1,527
Westport	1,599	1,006	594
New Bedford	410	216	194
Dartmouth	3,438	2,750	688
Total	67,831	28,077	39,754

[a] Values include adjustments to Fairhaven and Dartmouth as discussed in the report. Values are rounded to the nearest whole number.

Table A2-5: Estimated Reduction in Trips – 2004

Township	2004 Baseline Licenses	2004 With-Spill Licenses	Reduction in Licenses	Baseline Trips per License	Reduction in Trips
(1)	(2)	(3)	(4)	(5)	(6)
Bourne	2,178	2,485	0	7.77	0
Dartmouth	387	343	44	8.87	394
Fairhaven	892	ND [a]	157	19.03	2,981
Falmouth	1,796	2,038	0	1.90	0
Marion	618	405	213	2.68	571
Mattapoisett	863	800	63	4.66	295
New Bedford	221	247	0	1.86	0
Wareham	1,792	1,515	277	10.82	2,998
Westport	852	690	162	1.88	305
Total					7,544

[a] The number of permits for Fairhaven for 2004 could not be obtained.

Notes

(2) Calculated as the average of licenses from 1998-2002.
(3) Actual licenses in 2004. The data for Fairhaven could not be obtained.
(4) Calculated as (3) - (2) .
(5) Average of 1998-2002. Trips per license data are presented in A2 Table 2.
(6) Calculated as (4) * (5) .

APPENDIX A3: DETAILS OF THE SHELLFISHING TRIP VALUE MODEL

The shellfishing valuation model uses information on the demand for shellfishing licenses by residents of southeastern Massachusetts to estimate the value of recreational shellfishing at Buzzards Bay sites. The demand for licenses is based on expected trips, so the prediction of trips may differ from data collected from other sources. It is assumed that the value per expected trip is a reasonable approximation of the value of actual trips. The shellfishing model is based on data for shellfishing licenses purchased at each of 11 sites, including ten towns in southeastern Massachusetts and Rhode Island. Table A3-1 shows the total licenses purchased at each of the 11 sites.

Table A3-1: License Purchases and Fees for Massachusetts Shellfishing Sites

	License Purchases				License Fees ($)		
Shellfishing Site	Resident	Non-Resident	Seniors	Total Licenses	Resident	Non-Resident	Seniors
Scituate	124	14	*	138	20	50	0
Duxbury	560	548	*	1108	20	100	0
Kingston	109	67	54	230	25	55	10
Plymouth	539	18	155	712	10	50	0
Wareham	984	172	359	1515	30	120	15
Marion	283	106	65	454	25	120	0
Mattapoisett	583	186	*	769	25	120	0
New Bedford	143	3	101	247	12	50	3
Dartmouth	331	13	*	344	15	75	0
Westport	477	65	129	671	25	100	10
Rhode Island	NA	46	NA	46	NA	200	NA

NA – Not applicable
*Sales to seniors are included in resident totals.

The model was developed in the framework of random utility maximization as described in McFadden (1974). An individual faces a choice of either not taking any shellfishing trips or purchasing an annual license for access to one of J sites. An individual will purchase a license at a given site if two conditions are met. First, his willingness-to-pay for access to the site must exceed the cost of a license. Second, his excess willingness-to-pay beyond the cost of the license must be greater at the chosen site than at any other site. Willingness-to-pay for a license is inversely proportional to the fee for the license and the cost of travel to the site, and will also vary according to site quality. At any given set of prices, some people will buy a license and many will not.

The model uses random draws from a distribution of preferences to estimate expected consumer surplus from participation at each site. The dimensions of preference heterogeneity include annual demand preferences (or avidity for shellfishing generally) and preferences regarding the quality of particular sites. For a description of the technical aspects of discrete choice analysis with simulation, see Train (2003). The details of the model are described in the following steps:

1. An expression for the utility (U) of a trip to each site is given by $U_{ijt} = \alpha\, TC_{ij} + c_{ij} + \varepsilon_t$ for individual i, site j and trip t. TC is travel cost for a trip and c is an

alternative-specific constant. Travel cost varies based on an individual's point of origin and the location of a shellfishing site. The site constants $\{c_j\}$ are distributed independently normal, representing variation in preferences across individuals for each site. If heterogeneity in preferences for specific site characteristics can be ignored, alternative specific constants provide more accurate predictions of consumer surplus than data on site characteristics because alternative specific constants account for both observed and unobserved characteristics (Murdock, 2006). The error term ε_t reflects differences in the marginal value of an individual's trips based on the number of trips taken in a given year.

2. An expression $U_{0i} = V_{0i} + \varepsilon_{0t}$ describes the utility (U_0) of alternative activities, in other words, the opportunity cost of a recreation trip. The error term can be viewed as variation in the marginal value of non-shellfishing activities, though in fact it subtracts out when compared to trip utility since only utility differences matter in describing choices.

3. Each individual is associated with a set of choice occasions representing activity throughout the year. The difference between the utility of a site visit (from step 1) and the utility of substitute activities (from step 2) represents the reservation price for each trip *t*. (Utility differences would be converted to a monetary reservation price using the coefficient on travel cost). Reservation prices trace out a demand curve for trips by each individual.

4. An expression is developed for consumer surplus (*CS*) obtained from the purchase of a license at a given site for a given individual. The fee for a license is fee_{ij} for individual *i* and site *j*. The number of choice occasions is *D*. With an extreme-value distribution assumed for the error terms in steps (1) and (2), the expression for consumer surplus for a license at site *j* is given by:

$$CS_{ij} = D\frac{\ln\left(e^{\alpha TC_{ij} + c_{ij}} + e^{V_{0i}}\right) - V_{0i}}{\alpha} - fee_{ij} - C\,. \qquad (1)$$

The first term on the right hand side is the difference of log sums, the standard expression for consumer surplus in a logit model. It represents the integral of the demand curve in step 3 (Small and Rosen, 1981). Since trips are taken only to the site where a license is purchased, the first log-sum term includes just one site plus the alternative activity. The second log-sum term reduces to V_{0i} since without a license no trips are taken. The final term *C* must be estimated, and reflects any hurdle to entry in addition to a license fee. Since the standard formula for consumer surplus assumes a choke price of infinity, estimation of *C* allows for the possibility that an

individual's choke price for trips may be less than infinite even in the absence of a license fee.

5. The likelihood that an individual buys a license is the likelihood that CS_{ij} is positive for at least one of the available sites. Differences in avidity for shellfishing are captured by V_{0i}, which varies across people in the general population according to a normal distribution. The distribution $f(V_0|z_i)$ depends on demographic variables z_i. A lower V_{0i} corresponds to greater avidity since the utility of a trip is higher by comparison.

6. The distributions of c and V_0 allow for numerical calculation of the probability of buying a license at a given site. Specifically, for any draw from $f(c)$ and $f(V_0|z_i)$, the maximum CS_{ij} from step 4 can be determined for a given individual. If $max\{CS_{ij}\} = CS_{ik} > 0$, the individual will purchase a license at site k.

7. Model specification requires the derivation of one additional term, $V_0^*(c_{ij},TC_{ij})$. This is the threshold V_0 where CS_{ij} becomes positive for the purchase of a license at site j given site constant c_{ij} and travel cost TC_{ij}. The threshold is determined by expression (1). Let $V_{ij} = \alpha\, TC_{ij} + c_{ij}$. Then from (1), the point of indifference for the purchase of a license is:

$$fee_{ij} + C = D\frac{\ln\left(e^{V_{ij}} + e^{V_0^*(c_{ij},TC_{ij})}\right) - V_0^*(c_{ij},TC_{ij})}{\alpha}. \qquad (2)$$

Rearranging gives:

$$V_0^*(c_{ij},TC_{ij}) = \ln\left(e^{V_{ij}}\right) - \ln\left(e^{\alpha(fee_{ij}+C)/D} - 1\right). \qquad (3)$$

8. Formulas for site choice, trip demand and consumer surplus are defined based on TCij and feeij as well as preferences described by the parameters C, α and the distributions f(V0|zi) and f(c). The following terms can be estimated for individual i:

P_{ik} = The probability of purchasing a license at site *k;*

$E(T_{ik})$ = The expected annual number of trips given the purchase of a license at site *k;*

$E(CS_{ik})$ = Expected annual consumer surplus given the purchase of a license at site *k.*

For three definitions of B to be given below, the appropriate formulas are:

$$P_{ik},\ E(T_{ik}),\ E(CS_{ik}) = \tag{4}$$

$$\int_{c_1=-\infty}^{\infty} \cdots \int_{c_J=-\infty}^{\infty} \int_{V_0=-\infty}^{V_0=V_0^*(c_k,TC_{ik})} I[\max(CS_{ij}) = CS_{ik}](B)\, f(V_0|z_i)\, dV_0\, f(c)\, dc_1 \ldots dc_J \ .$$

The term $I[\cdot]$ is an indicator function that equals one if $CS_{ik} > CS_{ij}\ \forall$ j ≠ k, zero otherwise. The upper limit of integration V_0^* ensures that the value of trips in a season to site *k* exceeds the cost of a license at site *k*, and the indicator function ensures that the net benefit of a license at site k exceeds the net benefit of a license at any other site. The portion of draws from $f(V_0)$ and $f(c)$ for which both of these requirements hold represents the portion of the population that purchases a license at site k. Therefore to arrive at the expression for P_{ik}, set $B = 1$. Likewise for $E(T_{ik})$

$$B = D\frac{e^{V_{ik}}}{e^{V_{ik}} + e^{V_0}}, \tag{5}$$

and for $E(CS_{ik})$

$$B = D\frac{\ln\left(e^{V_{ik}} + e^{V_0}\right) - V_0}{\alpha} - fee_{ij} - C\,. \tag{6}$$

9. The expression for P_{ij} is fit to data on license purchases for all sites and locations of origin using maximum simulated likelihood. The log-likelihood function is:

$$LL = \sum_{ij} L_{ij} \ln P_{ij} + \sum_i \left[\left(1 - \sum_j L_{ij}\right) \ln\left(1 - \sum_j P_{ij}\right)\right]. \tag{7}$$

The term L_{ij} equals one if individual i purchased a license at site j, zero otherwise. Both trip demand and consumer surplus are estimated based on the parameters of Pij at the maximum of the log-likelihood function.

It is worth considering the assumption that V_0 varies in the population according to a normal distribution. Since most people do not go shellfishing, only the lower tail of $f(V_0)$ below V_0^* represents preferences of those who actually participate. The normal distribution would be consistent with observed behavior if there are a small number of avid participants who each take many trips and a greater number of casual participants who take only a few trips each. Local officials familiar with shellfishing indicate that this description is reasonably accurate.

Estimated model parameters, standard errors and t-statistics are shown in Table A3-2. All parameters pass the relevant tests of significance except for the preference shifter for seniors. This is maintained in the model to assure that any difference in demand by seniors is not falsely ascribed to the different prices that apply to seniors. Both higher income and membership in the senior demographic group is associated with lower demand for a shellfishing license because these parameters shift the variable V_0, which varies inversely with license demand.

Table A3-2: Estimation Results – Model 1

		Parameter	SE	t-stat
Travel Cost		-0.028	0.002	-17.442
Site Constants	Scituate	0.278	0.035	7.848
	Duxbury	1.165	0.073	15.971
	Kingston	0.534	0.046	11.588
	Plymouth	0.409	0.030	13.525
	Wareham	1.280	0.076	16.795
	Marion	1.045	0.066	15.868
	Mattapoisett	1.176	0.069	17.131
	Dartmouth	0.512	0.037	13.705
	Westport	1.056	0.067	15.765
	Rhode Island	1.578	0.078	20.22
Site Constants – Standard Deviation		0.317	0.022	14.343
Participation				
	$\overline{V_0}$	5.806	0.148	39.145
	σ_0	0.683	0.035	19.712
	C	32.882	4.378	7.510
	Income	3.287	0.384	8.564
	Seniors	0.021	0.021	1.017

Table A3-3 presents model predictions for license demand and per-trip value. The model somewhat overestimates license demand, with 7,043 predicted sales for all 11 sites compared to 6,243 actual license sales. For Buzzards Bay sites, predicted sales are 4,725 compared to 4,000 actual sales. The estimates of average value per trip range from

a low of $14.78 to a high of $24.65, with an average for Buzzards Bay sites of $24.09 per trip. These values are within the range of estimates found in the literature for similar types of outdoor activities that are popular at the local or regional level (Rosenberger and Loomis, 2001).

Table A3-3: Predicted License Demand and Per-trip Value – Model 1

Shellfishing Site	License Purchases				Per Trip Value ($)
	Resident	Non-Resident	Seniors	Total	
Scituate	39	42	35	116	20.24
Duxbury	659	413	215	1,287	24.95
Kingston	53	119	20	192	24.04
Plymouth	500	43	135	678	16.56
Wareham	1,133	271	390	1,794	25.15
Marion	219	261	136	616	23.58
Mattapoisett	317	351	201	869	24.65
New Bedford	142	1	76	219	14.78
Dartmouth	226	21	134	381	16.67
Westport	459	224	162	846	25.00
Rhode Island	-	45	-	45	34.40
Total	3,748	1,791	1,504	7,043	23.93
Total - Buzzards Bay	2,496	1,129	1,100	4,725	24.09

Model 2: Alternative assumptions

A travel cost model plots quantity against price in the demand for recreation trips. The price variable depends on the origin and destination of each trip. If people choose to live near the recreational sites they prefer, price and demand will be correlated. The estimated demand function will be flatter than the actual demand function, and consumer surplus estimates will be biased downward. This may be particularly true in coastal areas, where opportunities for marine recreation are a significant attraction.

Coastal amenities compete with other important factors in the choice of residential location. One primary factor is proximity to a major urban center, which provides access to jobs, entertainment and other services. The presence of a major urban center could draw residents away from coastal communities, thus mitigating the effects of endogenous choice of residence in a travel cost model.

In the model presented below, the demand for shellfishing licenses is estimated for all sites simultaneously, while controlling for differences in the influence of residential choice. In particular, the major site most accessible to metropolitan Boston population is assumed to have a spatial pattern of use that is least influenced by endogenous residential movement toward the coast. Parameters reflecting this spatial pattern are applied to all sites, while controlling for differences in site quality.

An examination of various model specifications indicated that the town of Duxbury was different from other towns in the model. First, the license demand predictions for

Duxbury were generally too high for residents and too low for non-residents. Second, high variance in the site constant for Duxbury was also apparent, which could be due to license purchases from towns a considerable distance away. These factors indicate that the relative popularity of shellfishing for non-residents compared to residents is greater for Duxbury than for other sites in the region. Since Duxbury is the most highly desirable site in close proximity to the Boston Metropolitan area, the pattern of license purchases may be less influenced by endogenous residential location than sites along Buzzards Bay.

Revisions to the model may better explain preferences for recreational shellfishing by taking advantage of differences at the Duxbury site. The revised model is the same as the original model, except that the likelihood function is constructed using origin-specific data for the Duxbury site combined with origin-neutral data for the remaining sites. In other words, sites other than Duxbury appear in the likelihood function based only on the total number of licenses purchased at each site. Model predictions of licenses purchased in each town of origin are added up to arrive at the total number of licenses for each site, which are compared to actual totals using a Poisson distribution.[1] In this way the model ignores specific information about the residential location of license holders at Buzzards Bay sites. If those who enjoy shellfishing are more likely to choose a residence close to the coast, this endogenous behavior would not influence the model parameters.

Estimated model parameters are shown in Table A3-4. The parameters capturing the standard deviation of preferences for the Duxbury site are considerably larger in model 2 compared to the original model. This is consistent with the notion that demand remains significant in Duxbury even as travel costs are high. In other words, the revised model suggests that people living closer to Boston may have more significant demand for the Duxbury site than suggested by the previous model. Likewise, the standard deviation for sites other than Duxbury is also higher in the revised model. This suggests that total license demand at each Buzzards Bay site is consistent with a pattern of use extending throughout the region. If people have moved from inland towns to coastal towns in response to their demand for the use of coastal resources, demand may be correlated with price and the first model may be biased. The revised model may present a more accurate description of preference behavior.

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[1] Since the site choice predictions are binomial, and the sum of binomials is approximately Poisson, this formulation should mimic the original model quite well.

Table A3-4: Estimation Results – Model 2

		Parameter	SE	t-stat
Travel Cost		-0.047	0.005	-9.203
Site Constants	Scituate	-0.004	0.008	-0.508
	Duxbury	1.277	0.217	5.875
	Kingston	0.288	0.041	7.118
	Plymouth	0.384	0.047	8.242
	Wareham	1.493	0.160	9.324
	Marion	1.075	0.106	10.119
	Mattapoisett	1.325	0.136	9.720
	Dartmouth	0.565	0.070	8.055
	Westport	1.260	0.135	9.311
	Rhode Island	1.351	0.110	12.285
Site Constants – Standard Deviation				
	10 Sites	0.761	0.105	7.272
	Duxbury	0.685	0.074	9.268
Seasonal Participation				
	$\overline{V_0}$	6.588	0.451	14.624
	σ_0	0.921	0.100	9.206
	C	28.797	7.363	3.911

The important result for this assessment is that estimated per-trip values only change modestly in the revised model. Predicted license sales, trip demand and per-trip value are presented in Table A3-5. Predictions of demand and value are generally similar to the predictions in Table A3-3. The average value per trip in to the Buzzards Bay sites is slightly lower than the previous estimate, or $20.30. An average of the values from the two models was determined to be a reasonable estimate for use in estimating spill-related losses to recreational shellfishing.

Table A3-5: Predicted License Demand and Per-trip Value – Model 2

Shellfishing Site	License Purchases				Per Trip Value ($)
	Resident	Non-Resident	Seniors	Total	
Scituate	124	14	-	138	18.17
Duxbury	568	548	-	1,116	18.04
Kingston	150	67	13	229	18.21
Plymouth	584	18	109	710	14.86
Wareham	1,372	172	245	1,789	20.44
Marion	517	100	-	617	22.13
Mattapoisett	675	186	-	861	20.96
New Bedford	141	3	77	220	11.81
Dartmouth	374	13	-	387	15.68
Westport	702	65	83	850	19.56
Rhode Island	-	46	-	46	22.84
Total	5,205	1,232	527	6,963	19.62
Total - Buzzards Bay	3,780	539	405	4,724	20.30

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APPENDIX B: DETAILS OF THE GENERAL SHORELINE USE ASSESSMENT

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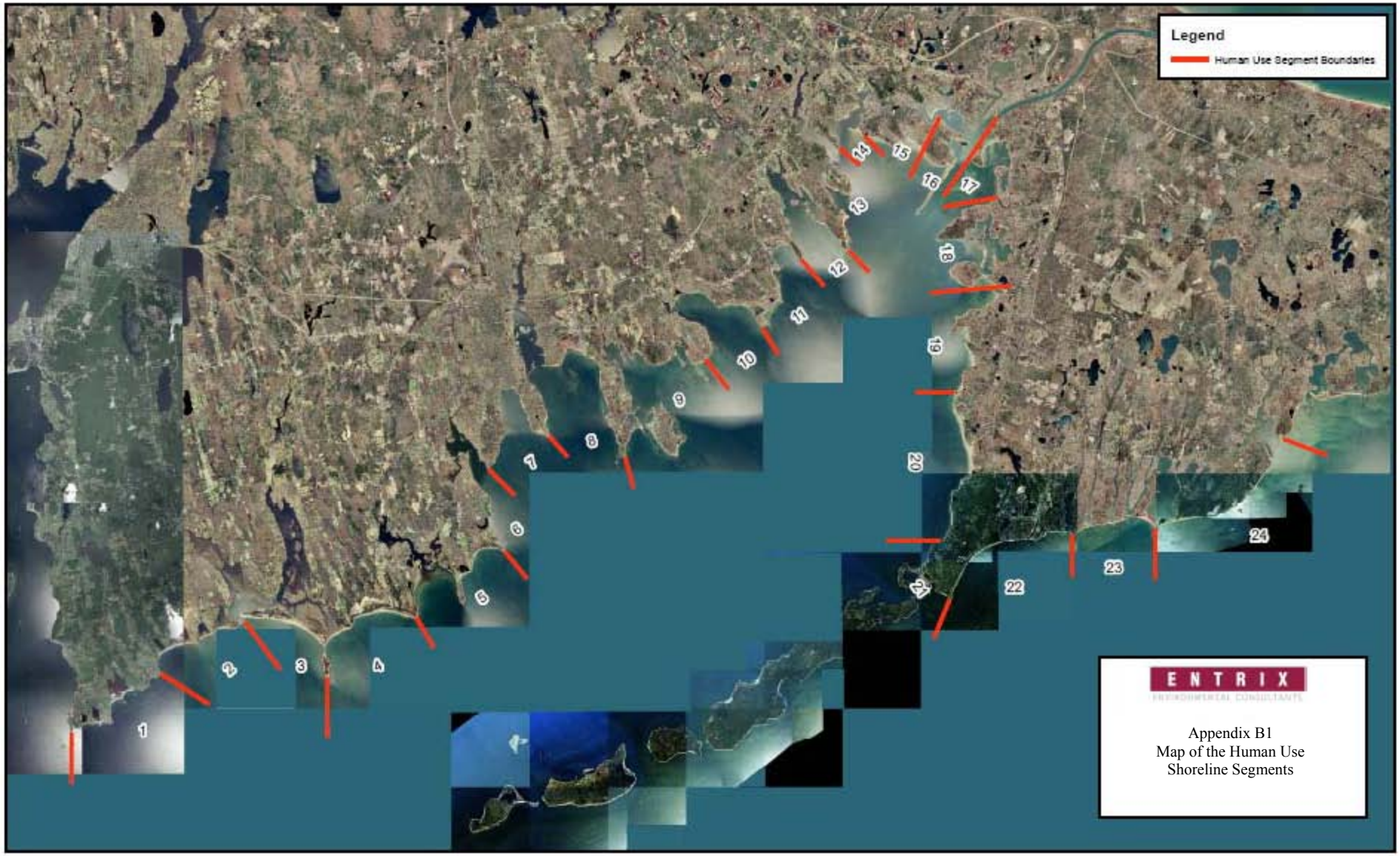
APPENDIX B1: MAP OF THE HUMAN USE SHORELINE SEGMENTS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Human Use Segment Boundaries
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ENTRIX
ENVIRONMENTAL CONSULTANTS
Appendix B1
Map of the Human Use
Shoreline Segments

APPENDIX B2: ANALYSIS OF STATE PARK DATA TO DETERMINE CUTOFF BETWEEN SHORELINE ASSESSMENT PERIODS

This appendix describes an analysis performed to estimate the return to baseline for the Bouchard B-120 Oil Spill lost general shoreline use assessment. The TWG compared the trends in the seasonal patterns of use at several state parks within the assessment area to a site outside of the spill area, employing an index that allows a determination of return to baseline. The results suggest that shoreline use at the state parks in Buzzards Bay returned to baseline during June, 2003.

DESCRIPTION OF STATE PARK ATTENDANCE DATA

South Cape Beach

The data for South Cape Beach (SCB) span April through September in 2002 and 2003 and April through June in 2004. Both vehicle and person counts are performed at SCB: 'vehicles' represents a day pass, 'permit' represents the number of people from vehicles with a season pass, and 'other' represents persons who do not arrive in a vehicle. The TWG followed their assumption that there are 2.8 people per vehicle. In 2003, they apparently did not track which vehicles had season passes and which had day passes, as there are only a handful of data for season passes. The following analysis of the data uses a total count, which equals (vehicles∗2.8 + permits + other).

Horseneck Beach

The data for Horseneck Beach (HB) span April through September in 2002, May through September in 2003, and April through June in 2004. Vehicle, person, and campground counts are performed at HB: 'campers' represents the number of people in the campground, 'vehicles' represents the number of day-pass vehicles and vehicles for which a season pass is initially purchased, 'walk-ins' represents an unknown type of visitor (there are only two days with such entries), 'permit' represents special groups, and 'other' represents a lifeguard count of persons on the beach.

The data exhibit some irregularities. First, the factor used to estimate the number of people visiting via vehicles changes from 3.0 to 2.9 in 2003. The TWG applied a factor of 3.0 to all vehicle counts. Second, it is unknown whether the lifeguard count is a count at a given time, whether it is use over the course of the day, and whether it is a consistent count over time. Third, there are periods for which there are no vehicle data at times that indicate zero vehicles was very unlikely (*e.g.*, June 11-16, 2002 and July 22-24, 2003). Finally, at some periods of the year (April, early May, and September), generally only the 'total' is reported.

The analysis below uses a total, which is calculated as (vehicles∗3 + permit + walk-ins + other). The TWG did not include the campground data in the total for several reasons, mainly because the campground data represents a different activity than others at HB and is expected to exhibit different patterns over time.

While the HB data are not perfect, they appear to exhibit consistent patterns from year to year. In addition, the patterns are similar to those of other parks. In order to investigate the sensitivity of the conclusions while considering potential flaws in the data, the TWG performed the analysis using vehicle and lifeguard count data separately. These two variations produce results that suggest recovery occurred slightly earlier or later than using all data combined. The overall conclusion that returns to baseline occurred during June, however, is unchanged.

Demarest Lloyd

The data for Demarest Lloyd (DL) span April to September in 2002, late April (27^{th}) through September in 2003, and May through June in 2004. Both vehicle and person counts are performed at DL: 'vehicles' represents the number of vehicles that enter the park, and includes both day passes and season passes, 'permit' includes special groups, and 'other' represents those that don't arrive by vehicle. The TWG followed the assumption of 3.4 people per vehicle. The following discussion uses a total, which is calculated as (vehicles∗3.4 + permit + other).

Fort Phoenix

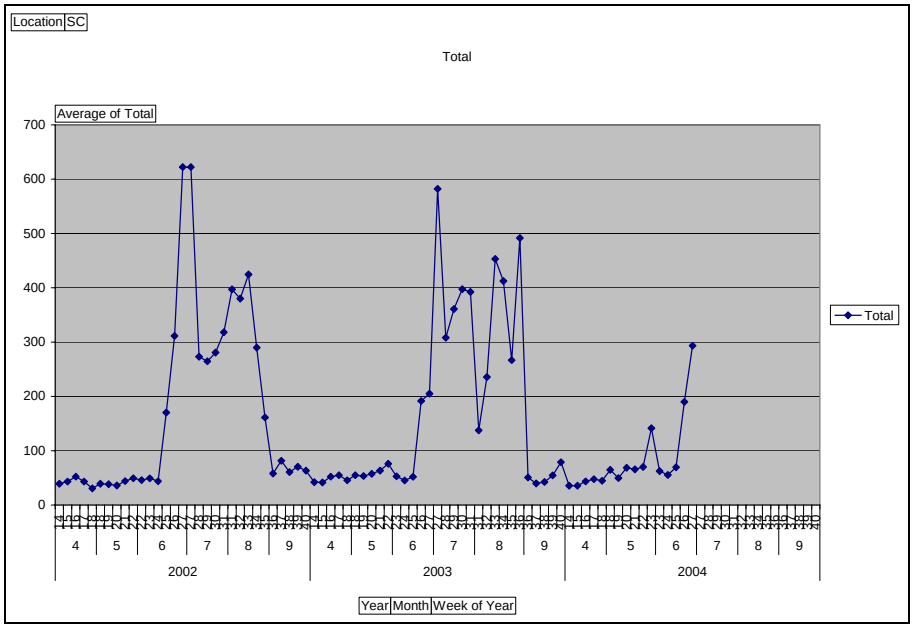
The data for Fort Phoenix (FP) span April through September in 2002 and 2003 and April through June in 2004. Only a total is presented.

GRAPHICAL ANALYSIS OF STATE PARK DATA

Comparison of Annual Patterns

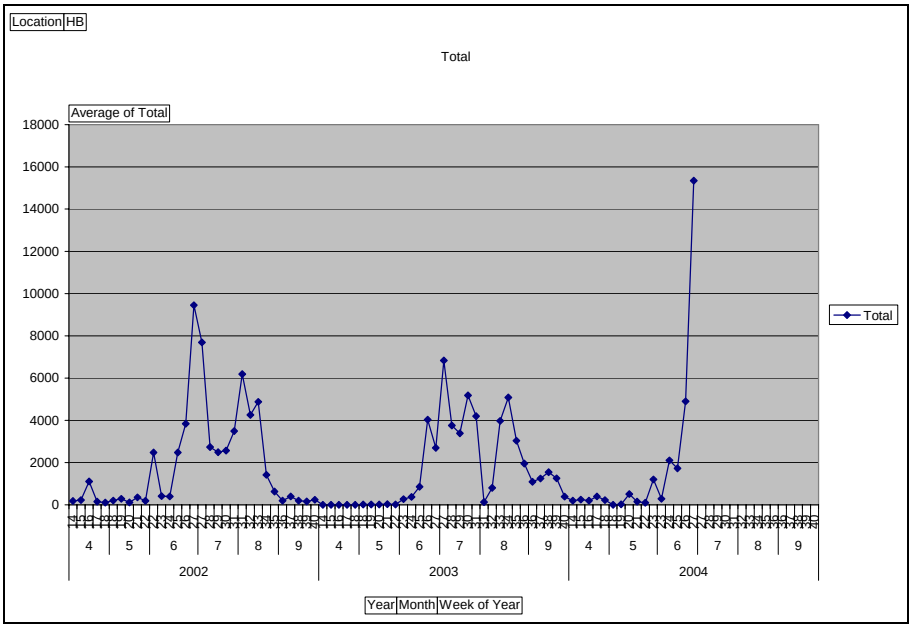
The following graphs depict the total visitation at each site over the duration of the data, where visitation is measured as the average daily use within a week of the year. Note that some weeks are split among two months. Also note that these do not include an adjustment for weather differences.

South Cape Beach



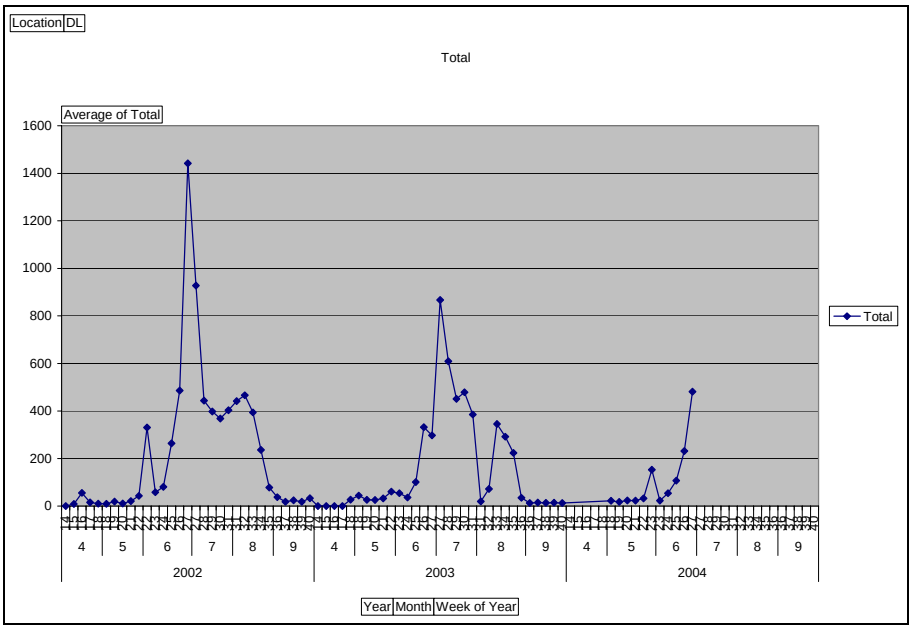
The graph suggests that the amount and pattern of visitation at SCB is similar across 2002, 2003, and the portion of 2004 for which the TWG has data.

Horseneck Beach



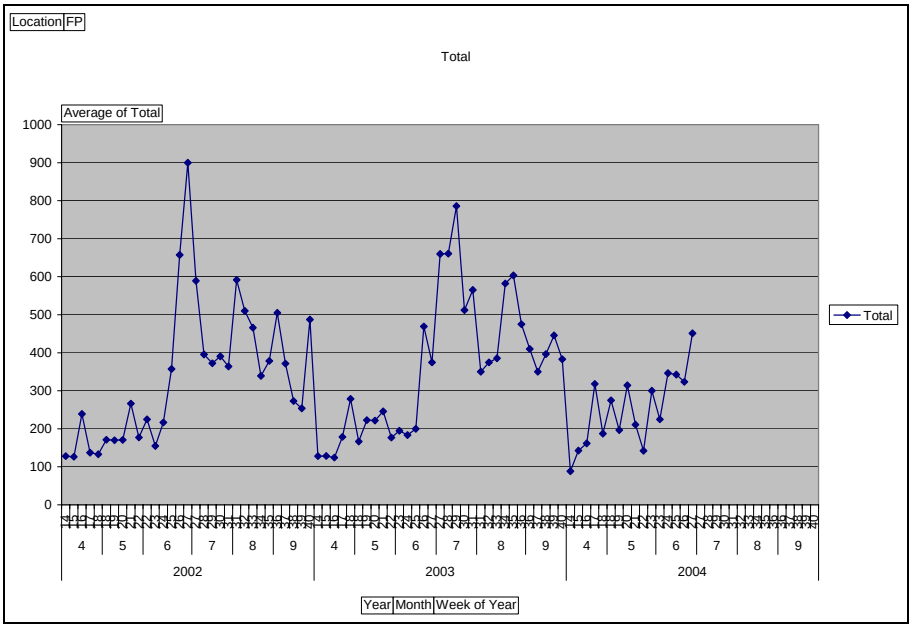
The patterns in 2002 and 2003 are similar. 2003 appears to have lower use from May through mid-June. April 2003 is zero due to missing data.

Demarest Lloyd



The amount and pattern of use is similar in 2002, 2003, and the portion of 2004 for which the TWG has data. April 2003 is zero due to missing data.

Fort Phoenix

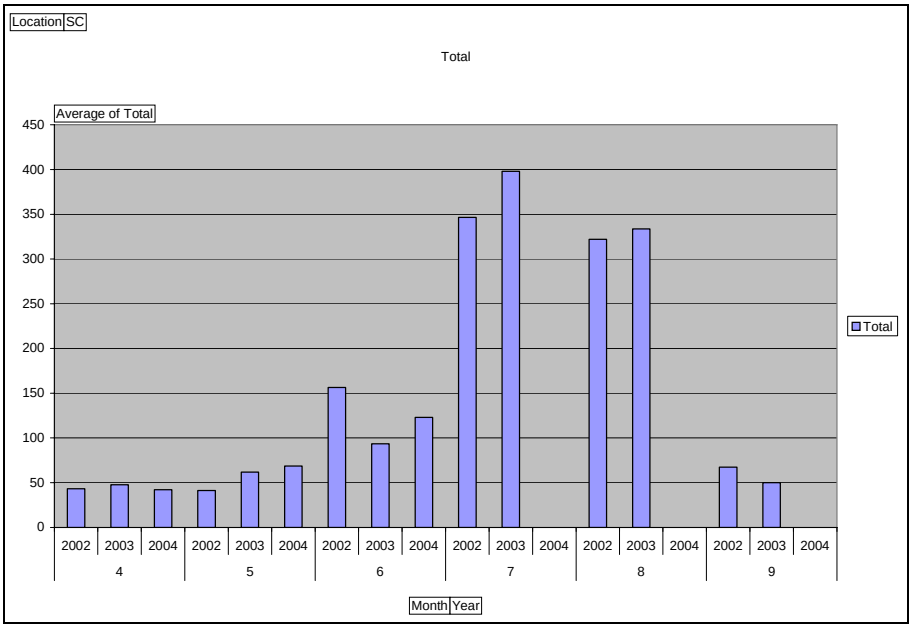


The patterns are similar in 2002, 2003, and the portion of 2004 for which the TWG has data.

Comparison of Monthly Patterns

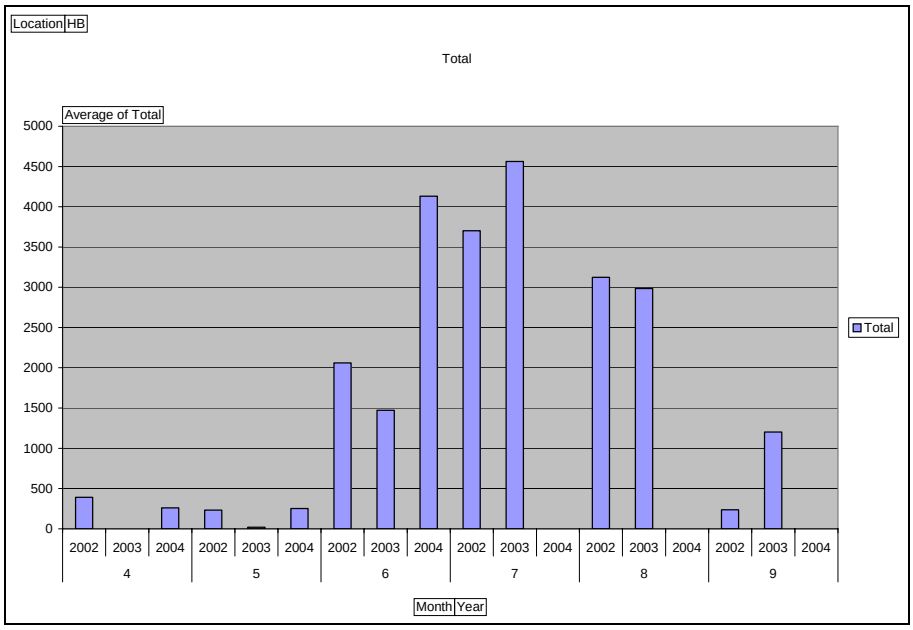
The following graphs are useful for comparing months across years.

South Cape Beach



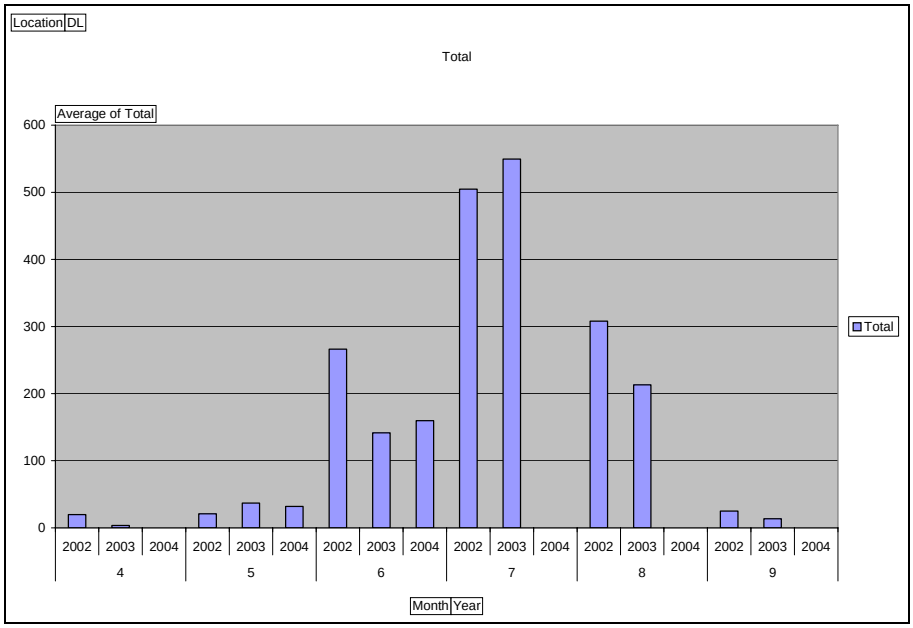
The use at SCB was similar in the three years. April and May of 2003 was higher than in 2002. June was lower, and July was higher in 2003 than 2002.

Horseneck Beach



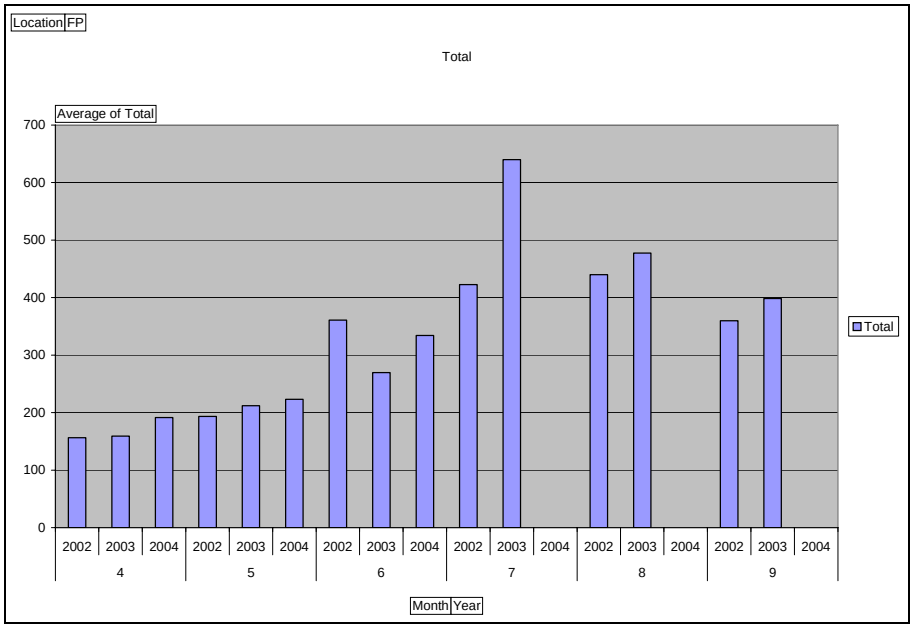
Use at HB was significantly lower in May 2003 than in the other years. Note that there was no data collected in April 2003. Similar to SCB, June was lower and July was higher in 2003 relative to 2002.

Demarest Lloyd



The use at DL in April 2003 cannot be compared to that in 2002, as several weeks of April 2003 data were zeros due to missing data. Similar to SCB, May and July were higher in 2003, while June was lower in 2003 relative to 2002.

Fort Phoenix



Use by month at FP generally increased from 2002 to 2004, with the exception of June 2003.

Summary of State Park Data Comparisons

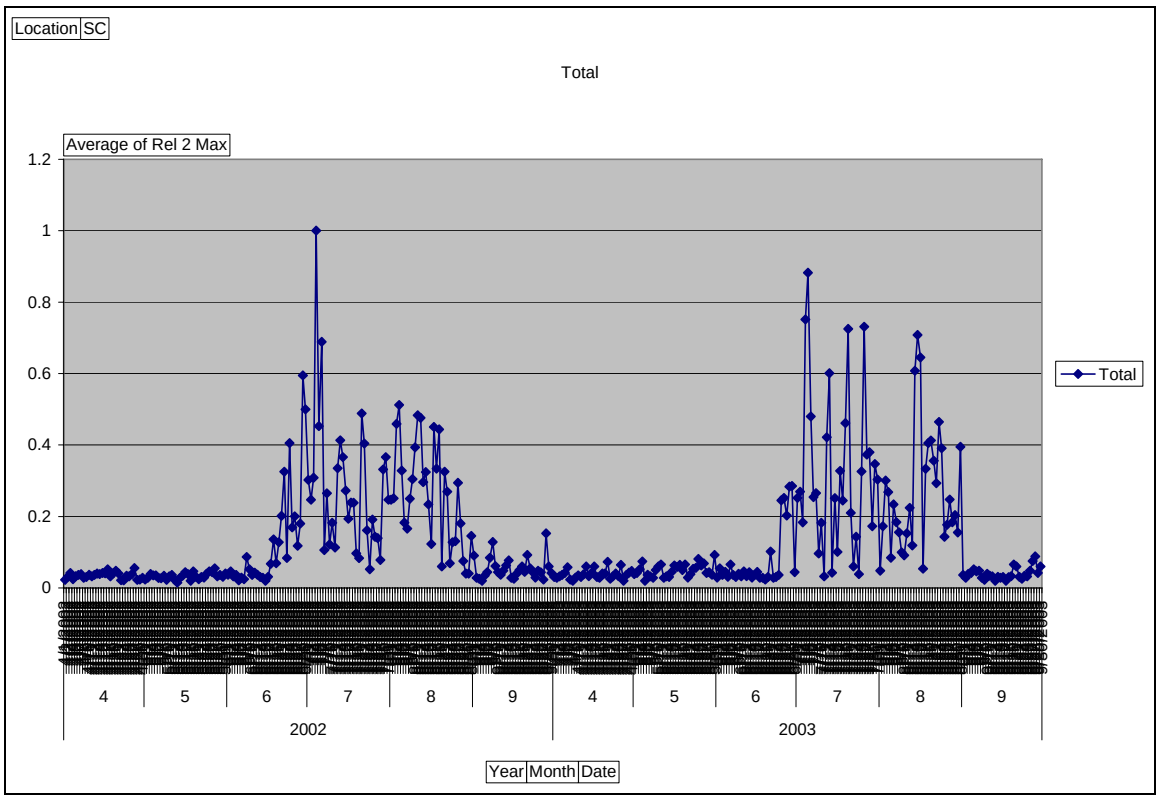
With the exception of Horseneck Beach, which had a significant decrease in use in early 2003 compared to other years, all parks exhibit comparable patterns of use across the three years. In addition, the four parks exhibit comparable monthly trends, which may be indicative of weather effects. All parks had lower use in June 2003 compared to 2002 and higher use in July 2003 compared to July 2002. Even though these trends are similar, differences in the patterns and scale of use throughout the season make interpretation of a spill effect or return to baseline difficult from the above analyses. The following section discusses an index used to perform a direct comparison of the pattern of use between the parks.

RELATIVE SEASONAL USE INDEX

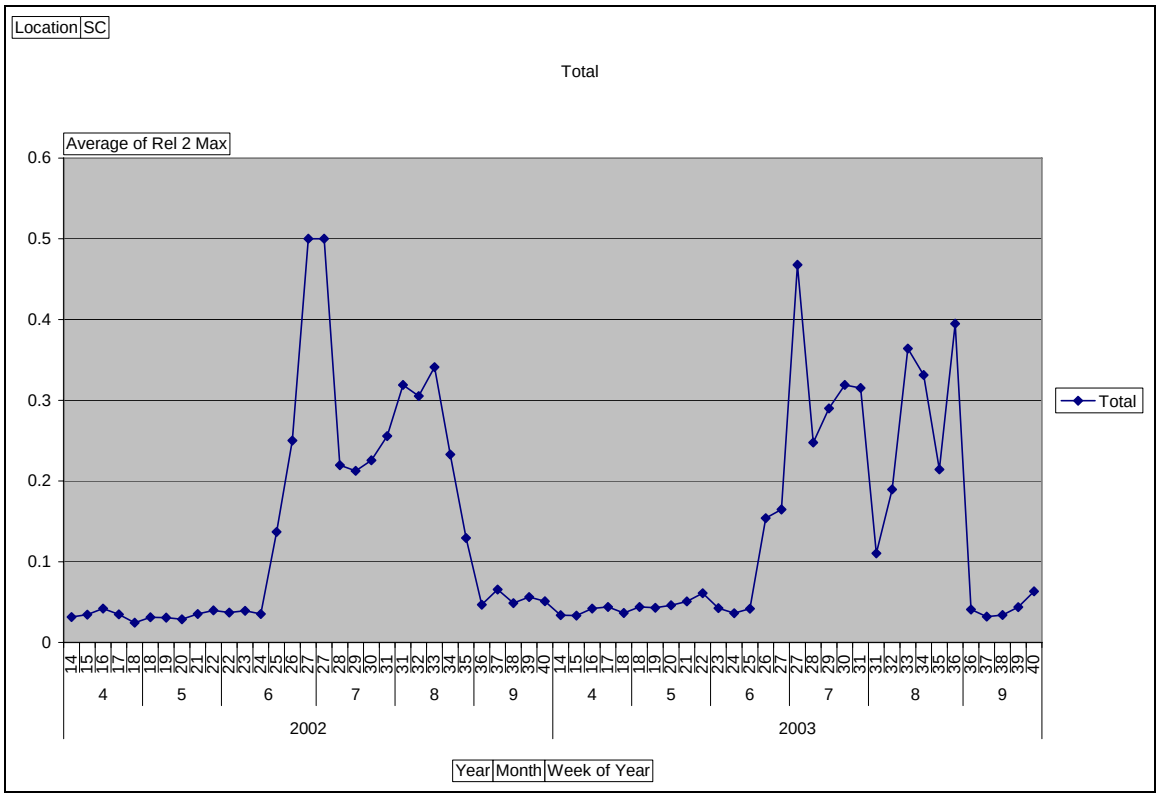
The relative seasonal use index allows a comparison of seasonal trends between parks.

Derivation of the Index at Each Park

The TWG started with the daily use at a park divided by the maximum daily use at that park in 2002 or 2003. 2004 was excluded because of partial data. The following graph depicts the daily index for SCB.

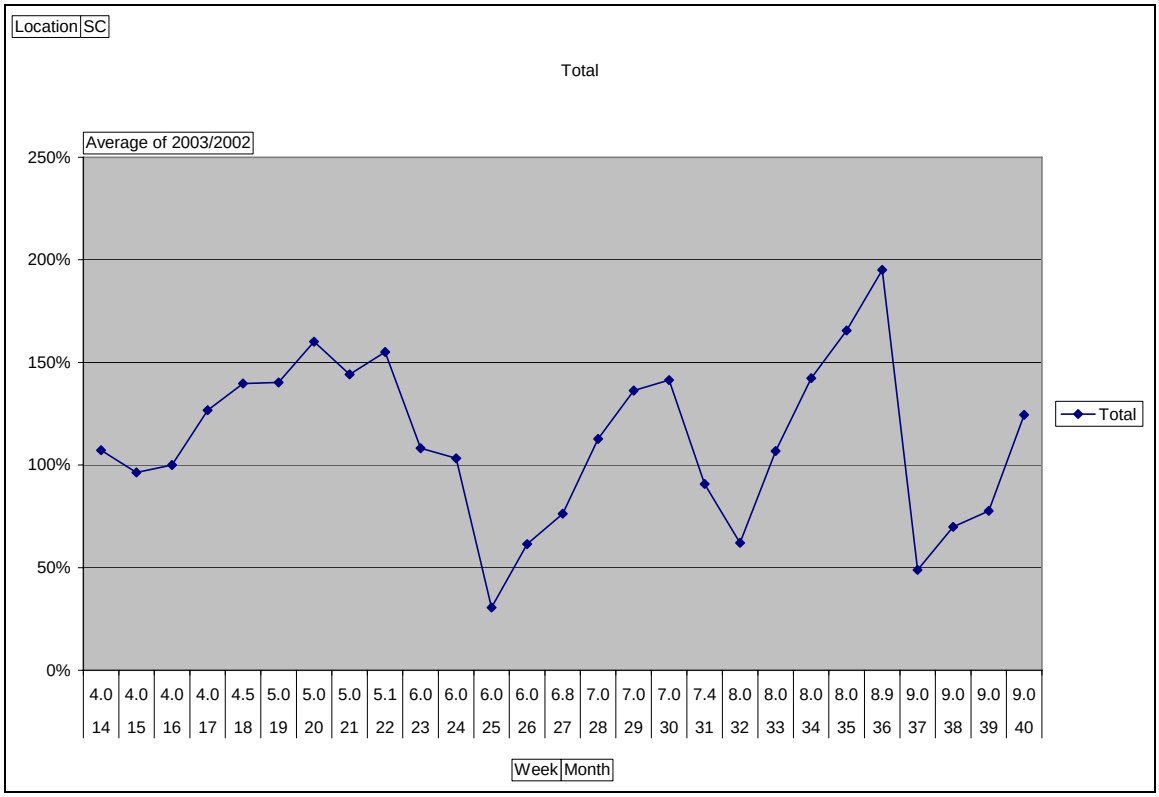


To remove daily variation, the above index was then averaged over each week of the year. The following graph depicts the resulting weekly average index for SCB.



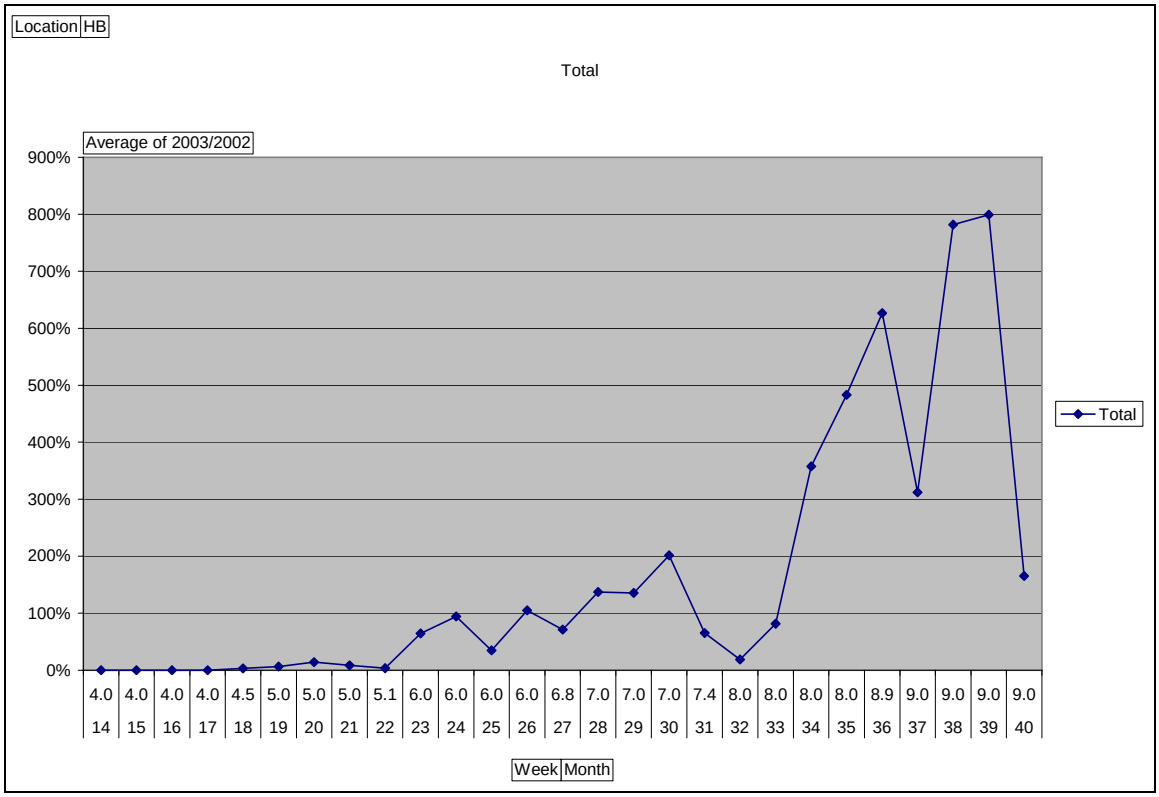
Next, in order to compare the difference between 2003 and 2002, the weekly average relative use index for 2003 was divided by the index for that week in 2002. Therefore, if a week had the same amount of use in 2003 relative to 2002, the number would equal one; if the index was higher in 2003 relative to 2002, the ratio would be greater than one; and if the index was lower in 2003 relative to 2002, the ratio would be less than one. The following is the graph for SCB.

South Cape Beach



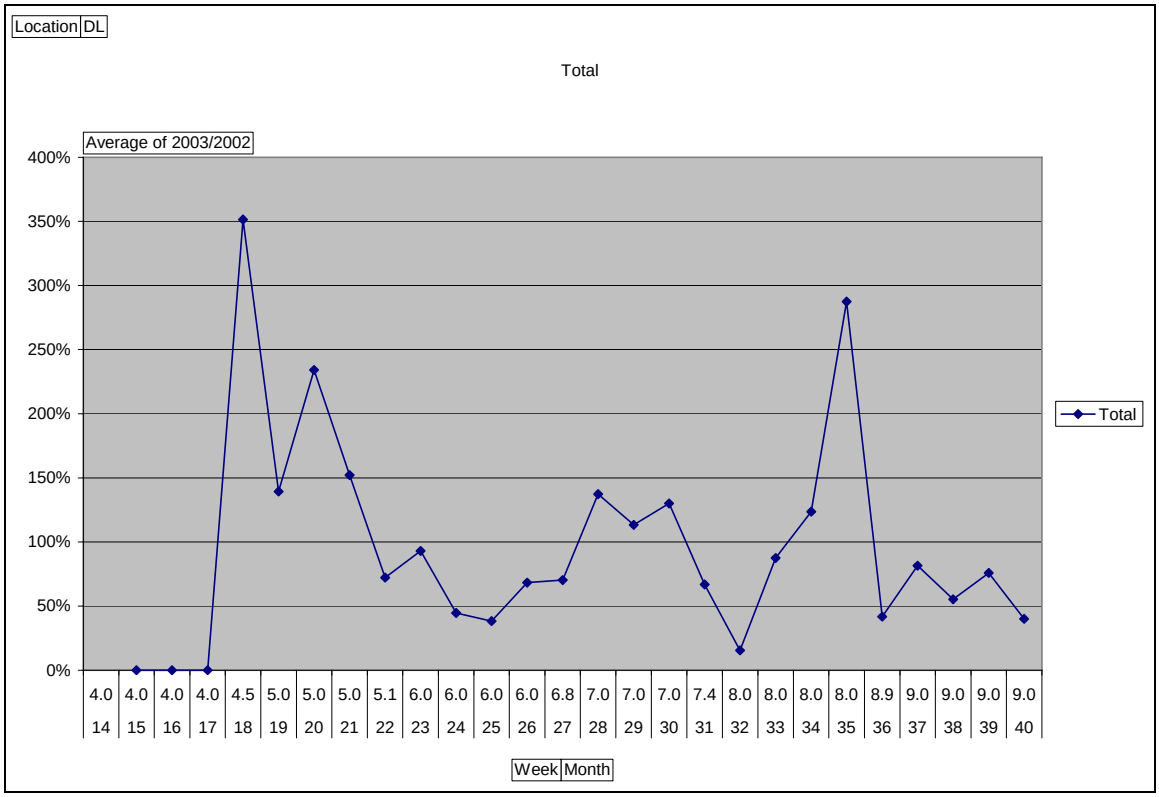
Deviations from 100% could indicate spill effects at parks in spill areas, weather differences, changes in use over time, or random fluctuations. The index for SCB is generally centered around 100%. There does not appear to be any significant trend up or down at SCB between the years.

Horseneck Beach



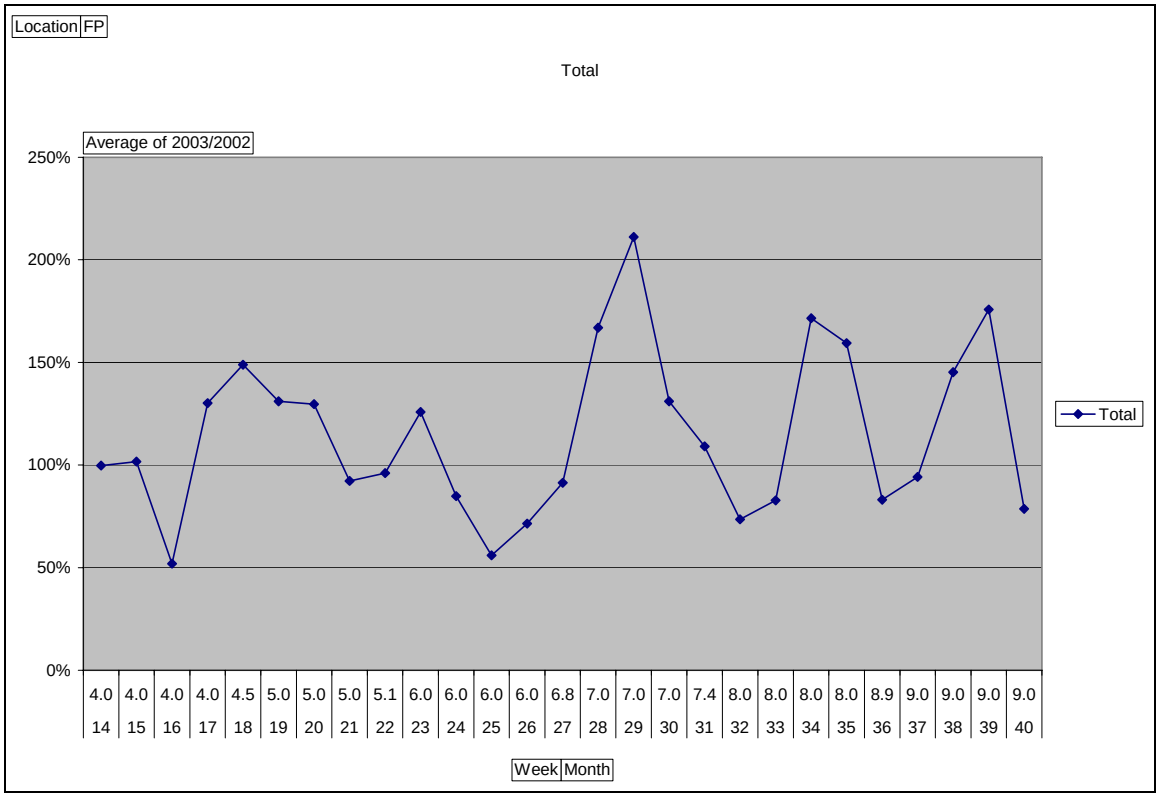
As expected based on the data previously presented, HB is well below 100% early in the year. Note that the zeros in April are a result of missing data. Similar to SCB, there are troughs in the middle of June and beginning of August. Unlike SCB, the end of the year is well above 100%.

Demarest Lloyd



The index for DL was above 100% early in the year, and then oscillated around 100% for the rest of the year. The zeros in April are missing data. Similar to HB and SCB, there are troughs in the middle of June and beginning of July.

Fort Phoenix

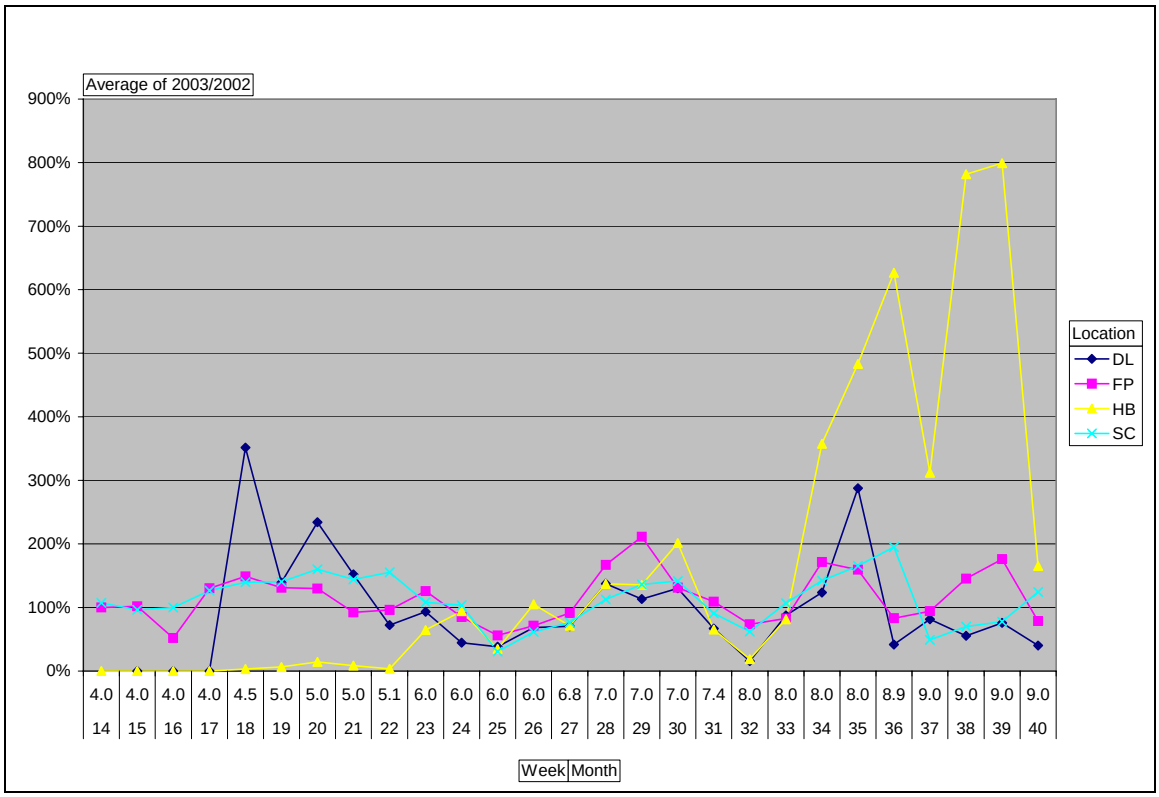


The use at FP appears to oscillate around 100%, with a mean slightly above 100%. Similar to the other parks, there are troughs in the middle of June and beginning of August.

Comparison of Parks within Spill Area to Control Site

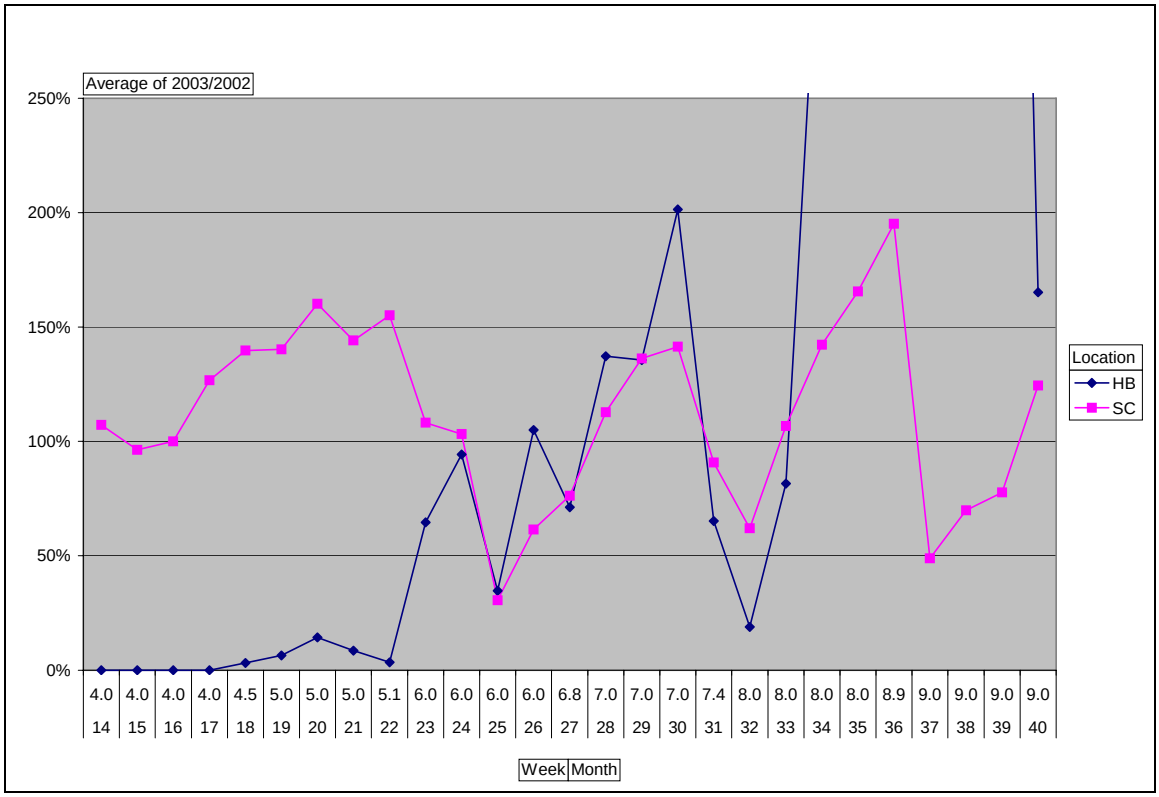
If weather effects and trends between years are similar at all parks, then the relative indices for the parks would be similar except for spill effects. Note that this approach allows each park to have an idiosyncratic seasonal pattern. As long as each park's seasonal patterns are similar from year to year, then the indices will be comparable.

If the TWG assumes that SCB is a representative control site, then comparing the indices at the oiled locations to SCB can reveal spill effects. If the indices are below that of SCB, there is a potential spill effect. The following graph overlays the indices for all parks.



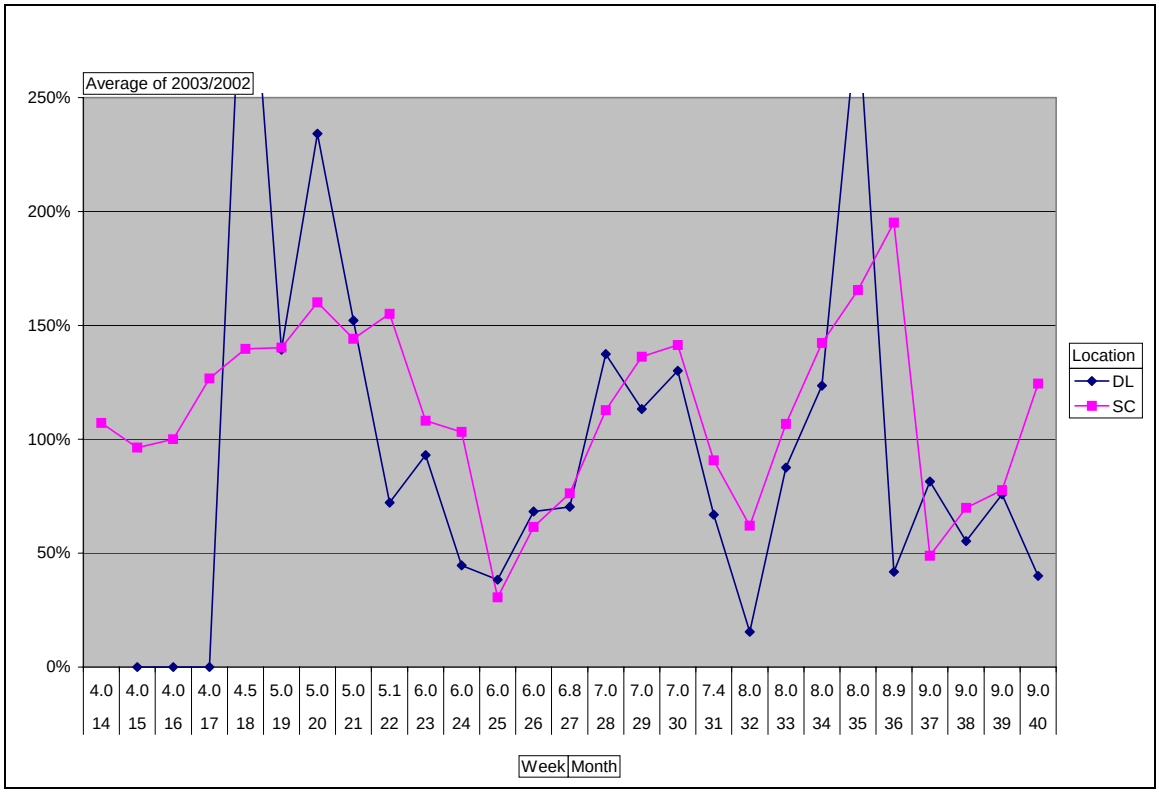
SCB, DL, and FP appear to be roughly similar for most of the year. HB is lower than the other parks early in the year and higher at the end of the year. The low use in May at HB is indicative of a spill effect. Note that from the second week of June through most of July, the index is very similar in the four parks. Each park follows similar trends in August and September, although there is more variation than earlier in the season. Each location within the assessment area is discussed individually relative to SCB below.

Horseneck Beach



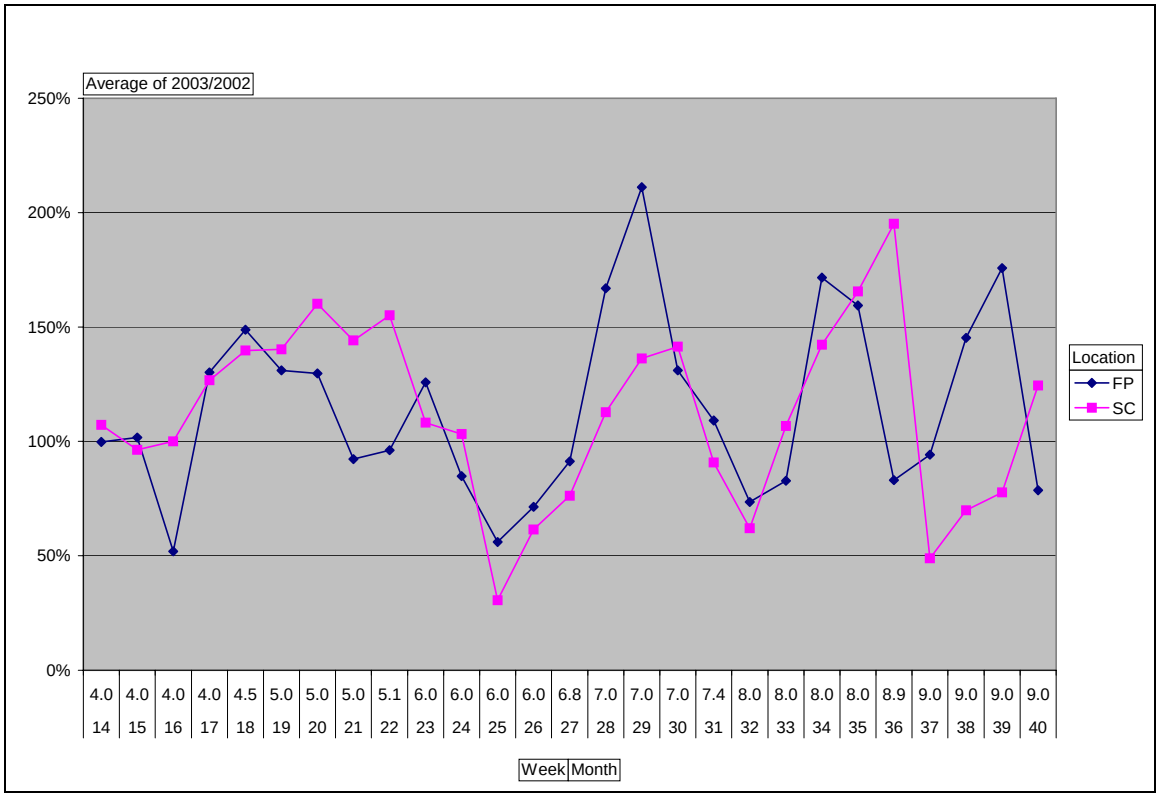
Recall that the zeros in April at HB are due to missing data. HB is clearly below SCB in May and the beginning of June, but recovers rapidly thereafter, which is consistent with the known timing of oiling and cleanup. HB appears to have returned to baseline in mid-June.

Demarest Lloyd



The end of April and beginning of May are equal to or above SCB. The next few weeks are below SCB. This may be indicative of a spill effect. Any spill effect appears to have ended by mid-June.

Fort Phoenix



FP is similar to SCB early in the year. The index then drops below SCB for May, which may be indicative of a spill effect. Any spill effect appears to have ended in early to mid-June.

Summary of Relative Seasonal Index Analysis

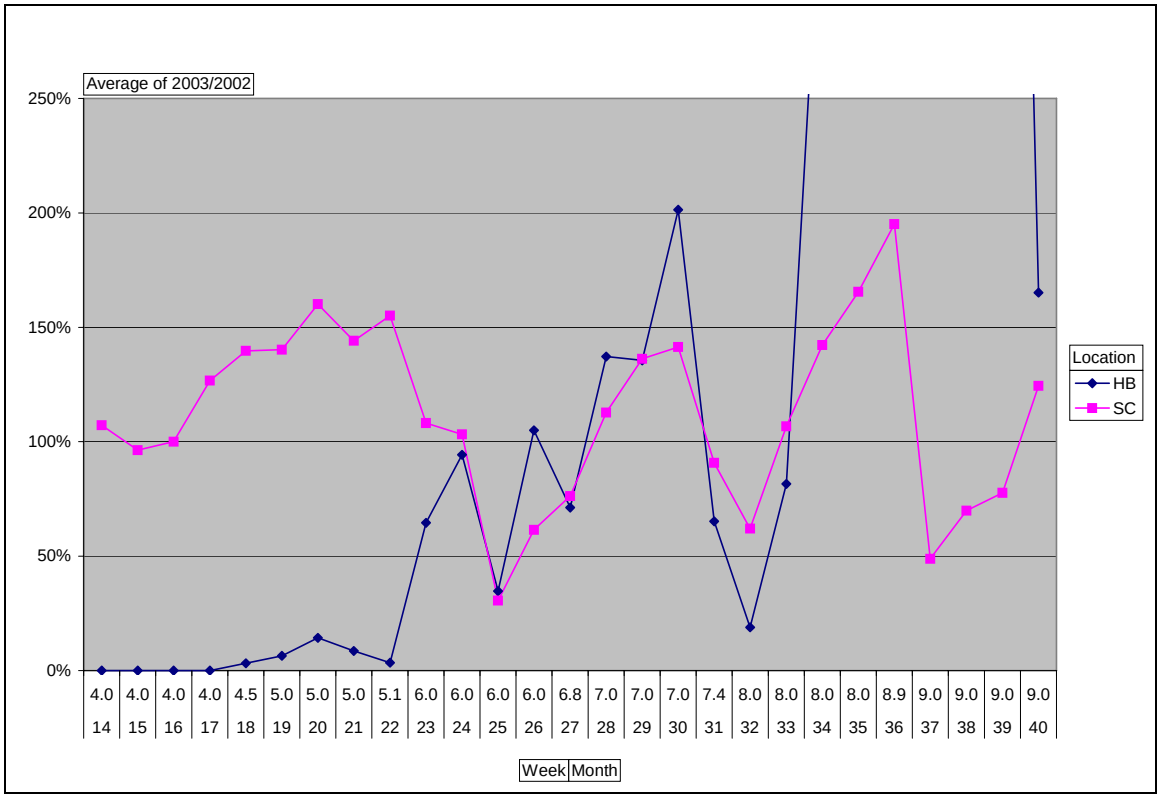
Comparisons of the relative seasonal use indices at the three parks within the spill area to a control site indicate potential spill effects in late April, May, and June. While the apparent time to recovery may have varied by a few weeks, it appears that all parks had returned to baseline during June.

Sensitivity of Analysis to Alternate Horseneck Beach Data

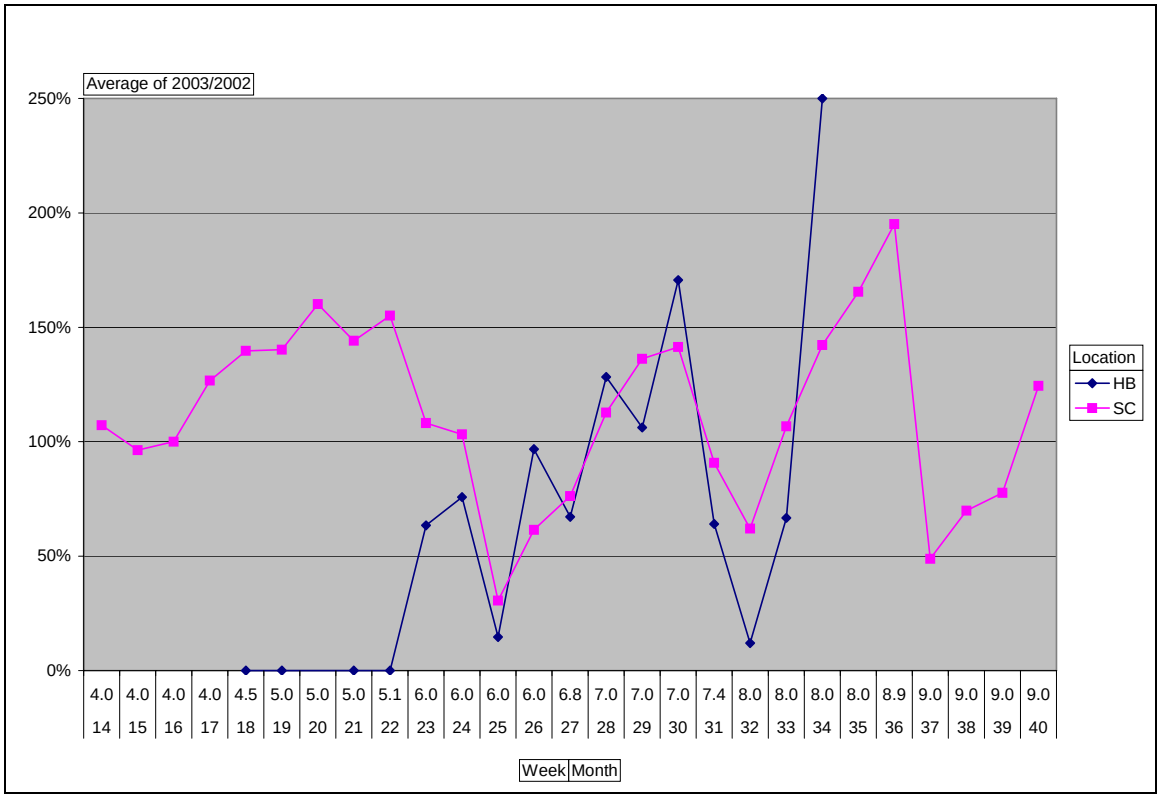
The potential spill effects suggested by the above analyses are most apparent at Horseneck Beach. As certain aspects of the Horseneck Beach data are questionable (*e.g.*, the lifeguard counts), the TWG investigated whether using alternate data for Horseneck Beach would alter the conclusion regarding return to baseline.

The following graphs present the index comparison using the data as described above, using only the vehicle data, and using only the lifeguard data.

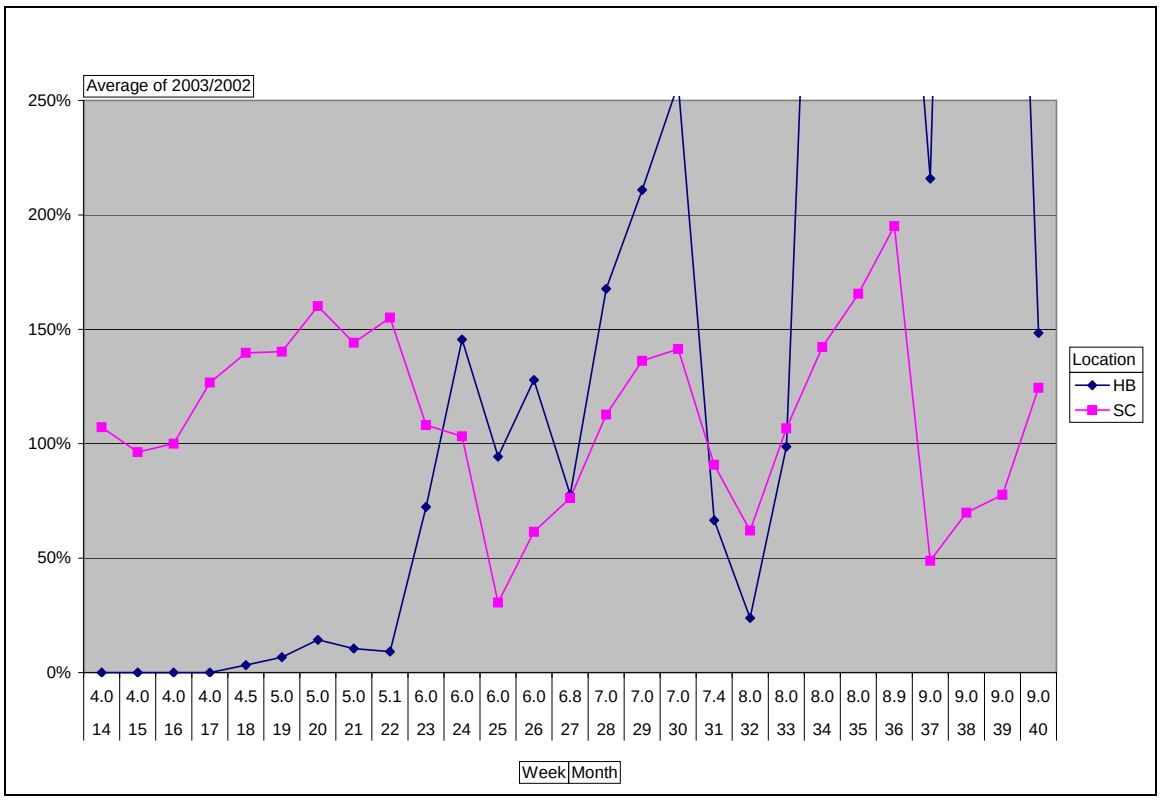
Horseneck Beach Comparison Using Data as Described Above



Horseneck Beach Comparison Using Only Vehicle Counts



Horseneck Beach Comparison Using Only Lifeguard Counts



Based on the original data and the vehicle data only, Horseneck Beach appears to have recovered in mid to late June. Based on the lifeguard counts only, it appears to have recovered in early June. While the results vary slightly, they do not change the conclusion that return to baseline likely occurred during June.

Table B2-1: South Cape Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Permit People	Other	Total
4/1/02	0	0	2.8	0	0	28	28
4/2/02	0	0	2.8	0	0	39	39
4/3/02	0	0	2.8	0	0	52	52
4/4/02	0	0	2.8	0	0	30	30
4/5/02	0	0	2.8	0	0	41	41
4/6/02	0	0	2.8	0	0	45	45
4/7/02	0	0	2.8	0	0	48	48
4/8/02	0	0	2.8	0	0	35	35
4/9/02	0	0	2.8	0	0	38	38
4/10/02	0	0	2.8	0	0	46	46
4/11/02	0	0	2.8	0	0	40	40
4/12/02	0	0	2.8	0	0	45	45
4/13/02	0	0	2.8	0	0	50	50
4/14/02	0	0	2.8	0	0	48	48
4/15/02	0	0	2.8	0	0	52	52
4/16/02	0	0	2.8	0	0	51	51
4/17/02	0	0	2.8	0	0	65	65
4/18/02	0	0	2.8	0	0	40	40
4/19/02	0	0	2.8	0	0	51	51
4/20/02	0	0	2.8	0	0	60	60
4/21/02	0	0	2.8	0	0	51	51
4/22/02	0	0	2.8	0	0	27	27
4/23/02	0	0	2.8	0	0	26	26
4/24/02	0	0	2.8	0	0	42	42
4/25/02	0	0	2.8	0	0	40	40
4/26/02	0	0	2.8	0	0	48	48
4/27/02	0	0	2.8	0	0	69	69
4/28/02	0	0	2.8	0	0	28	28
4/29/02	0	0	2.8	0	0	29	29
4/30/02	0	0	2.8	0	0	35	35
5/1/02	0	0	2.8	0	0	29	29
5/2/02	0	0	2.8	0	0	35	35
5/3/02	0	1	2.8	2.8	0	46	48.8
5/4/02	0	2	2.8	5.6	0	38	43.6
5/5/02	0	2	2.8	5.6	3	35	43.6
5/6/02	0	1	2.8	2.8	3	29	34.8
5/7/02	0	0	2.8	0	0	34	34
5/8/02	0	0	2.8	0	0	42	42
5/9/02	0	0	2.8	0	0	28	28
5/10/02	0	0	2.8	0	0	40	40
5/11/02	0	0	2.8	0	0	45	45
5/12/02	0	0	2.8	0	0	28	28
5/13/02	0	0	2.8	0	0	18	18
5/14/02	0	0	2.8	0	0	35	35
5/15/02	0	0	2.8	0	0	42	42
5/16/02	0	0	2.8	0	0	55	55
5/17/02	0	0	2.8	0	0	48	48
5/18/02	0	0	2.8	0	0	25	25
5/19/02	0	0	2.8	0	0	58	58
5/20/02	0	0	2.8	0	0	39	39
5/21/02	0	0	2.8	0	0	30	30
5/22/02	0	0	2.8	0	0	38	38
5/23/02	0	0	2.8	0	0	36	36
5/24/02	0	0	2.8	0	0	49	49
5/25/02	0	0	2.8	0	0	58	58
5/26/02	0	0	2.8	0	0	55	55
5/27/02	0	0	2.8	0	0	68	68
5/28/02	0	0	2.8	0	0	40	40
5/29/02	0	0	2.8	0	0	45	45
5/30/02	0	0	2.8	0	0	39	39
5/31/02	0	0	2.8	0	0	50	50
6/1/02	0	0	2.8	0	0	46	46
6/2/02	0	0	2.8	0	0	58	58
6/3/02	0	0	2.8	0	0	40	40
6/4/02	0	0	2.8	0	0	45	45
6/5/02	0	0	2.8	0	0	26	26
6/6/02	0	0	2.8	0	0	36	36
6/7/02	0	0	2.8	0	0	30	30
6/8/02	0	0	2.8	0	30	78	108
6/9/02	0	0	2.8	0	10	55	65
6/10/02	0	0	2.8	0	0	45	45
6/11/02	0	0	2.8	0	0	53	53
6/12/02	0	0	2.8	0	0	46	46
6/13/02	0	0	2.8	0	0	38	38
6/14/02	0	0	2.8	0	0	35	35
6/15/02	0	0	2.8	0	0	25	25
6/16/02	0	2	2.8	5.6	3	30	38.6
6/17/02	0	20	2.8	56	0	28	84
6/18/02	0	41	2.8	114.8	14	40	168.8
6/19/02	0	14	2.8	39.2	12	35	86.2
6/20/02	0	30	2.8	84	25	50	159
6/21/02	0	55	2.8	154	32	65	251
6/22/02	0	103	2.8	288.4	42	75	405.4
6/23/02	0	14	2.8	39.2	25	40	104.2

Note: description of variables is provided in text of Apendix B2.

Table B2-1: South Cape Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Permit People	Other	Total
6/24/02	0	107	2.8	299.6	70	135	504.6
6/25/02	0	37	2.8	103.6	42	65	210.6
6/26/02	0	49	2.8	137.2	34	78	249.2
6/27/02	0	28	2.8	78.4	28	40	146.4
6/28/02	0	43	2.8	120.4	42	62	224.4
6/29/02	0	151	2.8	422.8	98	220	740.8
6/30/02	0	118	2.8	330.4	112	180	622.4
7/1/02	0	70	2.8	196	70	110	376
7/2/02	0	58	2.8	162.4	50	95	307.4
7/3/02	0	74	2.8	207.2	65	112	384.2
7/4/02	0	266	2.8	744.8	150	350	1244.8
7/5/02	0	130	2.8	364	75	125	564
7/6/02	0	151	2.8	422.8	125	310	857.8
7/7/02	0	22	2.8	61.6	25	45	131.6
7/8/02	0	60	2.8	168	56	106	330
7/9/02	0	28	2.8	78.4	28	45	151.4
7/10/02	0	34	2.8	95.2	56	76	227.2
7/11/02	0	27	2.8	75.6	30	35	140.6
7/12/02	0	83	2.8	232.4	70	115	417.4
7/13/02	0	102	2.8	285.6	84	145	514.6
7/14/02	0	87	2.8	243.6	82	130	455.6
7/15/02	0	67	2.8	187.6	56	95	338.6
7/16/02	0	49	2.8	137.2	42	62	241.2
7/17/02	0	73	2.8	204.4	7	86	297.4
7/18/02	0	56	2.8	156.8	60	80	296.8
7/19/02	0	22	2.8	61.6	21	38	120.6
7/20/02	0	18	2.8	50.4	18	35	103.4
7/21/02	0	126	2.8	352.8	105	150	607.8
7/22/02	0	110	2.8	308	70	125	503
7/23/02	0	42	2.8	117.6	34	49	200.6
7/24/02	0	0	2.8	0	0	65	65
7/25/02	0	45	2.8	126	42	70	238
7/26/02	0	37	2.8	103.6	35	40	178.6
7/27/02	0	39	2.8	109.2	29	35	173.2
7/28/02	0	15	2.8	42	25	30	97
7/29/02	0	85	2.8	238	70	105	413
7/30/02	0	86	2.8	240.8	85	130	455.8
7/31/02	0	59	2.8	165.2	40	102	307.2
8/1/02	0	58	2.8	162.4	40	105	307.4
8/2/02	0	59	2.8	165.2	46	101	312.2
8/3/02	0	128	2.8	358.4	84	129	571.4
8/4/02	0	141	2.8	394.8	93	150	637.8
8/5/02	0	87	2.8	243.6	60	105	408.6
8/6/02	0	42	2.8	117.6	38	72	227.6
8/7/02	0	38	2.8	106.4	35	65	206.4
8/8/02	0	56	2.8	156.8	58	96	310.8
8/9/02	0	76	2.8	212.8	65	101	378.8
8/10/02	0	106	2.8	296.8	78	115	489.8
8/11/02	0	140	2.8	392	60	150	602
8/12/02	0	132	2.8	369.6	85	138	592.6
8/13/02	0	77	2.8	215.6	58	95	368.6
8/14/02	0	78	2.8	218.4	75	110	403.4
8/15/02	0	64	2.8	179.2	40	72	291.2
8/16/02	0	17	2.8	47.6	35	70	152.6
8/17/02	0	111	2.8	310.8	100	150	560.8
8/18/02	0	71	2.8	198.8	92	125	415.8
8/19/02	0	114	2.8	319.2	95	138	552.2
8/20/02	0	0	2.8	0	0	75	75
8/21/02	0	84	2.8	235.2	70	100	405.2
8/22/02	0	68	2.8	190.4	60	85	335.4
8/23/02	0	4	2.8	11.2	30	45	86.2
8/24/02	0	23	2.8	64.4	45	50	159.4
8/25/02	0	17	2.8	47.6	40	75	162.6
8/26/02	0	79	2.8	221.2	55	90	366.2
8/27/02	0	42	2.8	117.6	42	65	224.6
8/28/02	0	12	2.8	33.6	25	35	93.6
8/29/02	0	0	2.8	0	0	50	50
8/30/02	0	0	2.8	0	0	50	50
8/31/02	0	23	2.8	64.4	42	75	181.4
9/1/02	0	16	2.8	44.8	30	38	112.8
9/2/02	0	0	2.8	0	0	35	35
9/3/02	0	0	2.8	0	0	32	32
9/4/02	0	0	2.8	0	0	25	25
9/5/02	0	0	2.8	0	0	43	43
9/6/02	0	0	2.8	0	0	55	55
9/7/02	0	0	2.8	0	0	105	105
9/8/02	0	0	2.8	0	0	160	160
9/9/02	0	0	2.8	0	0	76	76
9/10/02	0	0	2.8	0	0	55	55
9/11/02	0	0	2.8	0	0	46	46
9/12/02	0	0	2.8	0	0	60	60
9/13/02	0	0	2.8	0	0	78	78
9/14/02	0	0	2.8	0	0	96	96
9/15/02	0	0	2.8	0	0	35	35

Note: description of variables is provided in text of Apendix B2.

Table B2-1: South Cape Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Permit People	Other	Total
9/16/02	0	0	2.8	0	0	32	32
9/17/02	0	0	2.8	0	0	50	50
9/18/02	0	0	2.8	0	0	62	62
9/19/02	0	0	2.8	0	0	75	75
9/20/02	0	0	2.8	0	0	56	56
9/21/02	0	0	2.8	0	0	115	115
9/22/02	0	0	2.8	0	0	68	68
9/23/02	0	0	2.8	0	0	55	55
9/24/02	0	0	2.8	0	0	36	36
9/25/02	0	0	2.8	0	0	60	60
9/26/02	0	0	2.8	0	0	54	54
9/27/02	0	0	2.8	0	0	29	29
9/28/02	0	0	2.8	0	0	190	190
9/29/02	0	0	2.8	0	0	75	75
9/30/02	0	0	2.8	0	0	52	52
4/1/03	0	0	2.8	0	0	38	38
4/2/03	0	0	2.8	0	0	35	35
4/3/03	0	0	2.8	0	0	40	40
4/4/03	0	0	2.8	0	0	45	45
4/5/03	0	0	2.8	0	0	52	52.03125
4/6/03	0	0	2.8	0	0	72	72
4/7/03	0	0	2.8	0	0	29	29
4/8/03	0	0	2.8	0	0	25	25
4/9/03	0	0	2.8	0	0	36	36
4/10/03	0	0	2.8	0	0	44	44
4/11/03	0	0	2.8	0	0	38	38
4/12/03	0	0	2.8	0	0	47	47
4/13/03	0	0	2.8	0	0	75	75
4/14/03	0	0	2.8	0	0	41	41
4/15/03	0	0	2.8	0	0	53	53
4/16/03	0	0	2.8	0	0	75	75
4/17/03	0	0	2.8	0	0	38	38
4/18/03	0	0	2.8	0	0	35	35
4/19/03	0	0	2.8	0	0	50	50
4/20/03	0	0	2.8	0	0	50	50
4/21/03	0	0	2.8	0	0	91	91
4/22/03	0	0	2.8	0	0	32	32
4/23/03	0	0	2.8	0	0	40	40
4/24/03	0	0	2.8	0	0	50	50
4/25/03	0	0	2.8	0	0	41	41
4/26/03	0	0	2.8	0	0	80	80
4/27/03	0	0	2.8	0	0	25	25
4/28/03	0	0	2.8	0	0	45	45
4/29/03	0	0	2.8	0	0	53	53
4/30/03	0	0	2.8	0	0	59	59
5/1/03	0	0	2.8	0	0	48	48
5/2/03	0	0	2.8	0	0	52	52
5/3/03	0	0	2.8	0	0	65	65
5/4/03	0	0	2.8	0	0	92	92
5/5/03	0	0	2.8	0	0	25	25
5/6/03	0	0	2.8	0	0	46	46
5/7/03	0	0	2.8	0	0	40	40
5/8/03	0	0	2.8	0	0	35	35
5/9/03	0	0	2.8	0	0	62	62
5/10/03	0	0	2.8	0	0	75	75
5/11/03	0	0	2.8	0	0	82	82
5/12/03	0	0	2.8	0	0	35	35
5/13/03	0	0	2.8	0	0	40	40
5/14/03	0	0	2.8	0	0	38	38
5/15/03	0	0	2.8	0	0	56	56
5/16/03	0	0	2.8	0	0	78	78
5/17/03	0	0	2.8	0	0	73	73
5/18/03	0	0	2.8	0	0	80	80
5/19/03	0	0	2.8	0	0	62	62
5/20/03	0	0	2.8	0	0	82	82
5/21/03	0	0	2.8	0	0	36	36
5/22/03	0	0	2.8	0	0	48	48
5/23/03	0	0	2.8	0	0	66	66
5/24/03	0	0	2.8	0	0	70	70
5/25/03	0	0	2.8	0	0	101	101
5/26/03	0	0	2.8	0	0	78	78
5/27/03	0	0	2.8	0	0	85	85
5/28/03	0	0	2.8	0	0	52	52
5/29/03	0	0	2.8	0	0	55	55
5/30/03	0	0	2.8	0	0	46	46
5/31/03	0	0	2.8	0	0	115	115
6/1/03	0	0	2.8	0	0	36	36
6/2/03	0	0	2.8	0	0	68	68
6/3/03	0	0	2.8	0	0	45	45
6/4/03	0	0	2.8	0	0	56	56
6/5/03	0	0	2.8	0	0	39	39
6/6/03	0	0	2.8	0	0	82	82
6/7/03	0	0	2.8	0	0	45	45
6/8/03	0	0	2.8	0	0	38	38

Note: description of variables is provided in text of Apendix B2.

Table B2-1: South Cape Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Permit People	Other	Total
6/9/03	0	0	2.8	0	0	49	49
6/10/03	0	0	2.8	0	0	40	40
6/11/03	0	0	2.8	0	0	58	58
6/12/03	0	0	2.8	0	0	41	41
6/13/03	0	0	2.8	0	0	55	55
6/14/03	0	0	2.8	0	0	36	36
6/15/03	0	0	2.8	0	0	45	45
6/16/03	0	0	2.8	0	0	56	56
6/17/03	0	0	2.8	0	0	35	35
6/18/03	0	0	2.8	0	0	35	35
6/19/03	0	0	2.8	0	0	29	29
6/20/03	0	0	2.8	0	0	38	38
6/21/03	0	20	2.8	56	12	59	127
6/22/03	0	0	2.8	0	0	35	35
6/23/03	0	0	2.8	0	0	38	38
6/24/03	0	0	2.8	0	0	45	45
6/25/03	0	74	2.8	207.2	50	48	305.2
6/26/03	0	72	2.8	201.6	47	65	313.6
6/27/03	0	60	2.8	168	39	45	252
6/28/03	0	76	2.8	212.8	62	78	352.8
6/29/03	0	83	2.8	232.4	58	65	355.4
6/30/03	0	0	2.8	0	0	55	55
7/1/03	0	78	2.8	218.4	0	95	313.4
7/2/03	0	82	2.8	229.6	0	106	335.6
7/3/03	0	53	2.8	148.4	0	80	228.4
7/4/03	0	245	2.8	686	0	250	936
7/5/03	0	294	2.8	823.2	0	275	1098.2
7/6/03	0	151	2.8	422.8	0	175	597.8
7/7/03	0	79	2.8	221.2	0	95	316.2
7/8/03	0	82	2.8	229.6	0	101	330.6
7/9/03	0	30	2.8	84	0	36	120
7/10/03	0	49	2.8	137.2	0	90	227.2
7/11/03	0	0	2.8	0	0	40	40
7/12/03	0	134	2.8	375.2	0	150	525.2
7/13/03	0	194	2.8	543.2	0	205	748.2
7/14/03	0	10	2.8	28	0	25	53
7/15/03	0	76	2.8	212.8	0	100	312.8
7/16/03	0	27	2.8	75.6	0	50	125.6
7/17/03	0	101	2.8	282.8	0	125	407.8
7/18/03	0	73	2.8	204.4	0	100	304.4
7/19/03	0	139	2.8	389.2	0	185	574.2
7/20/03	0	233	2.8	652.4	0	250	902.4
7/21/03	0	64	2.8	179.2	0	82	261.2
7/22/03	0	16	2.8	44.8	0	30	74.8
7/23/03	0	45	2.8	126	0	52	178
7/24/03	0	0	2.8	0	0	48	48
7/25/03	0	104	2.8	291.2	0	115	406.2
7/26/03	0	225	2.8	630	0	280	910
7/27/03	0	110	2.8	308	0	156	464
7/28/03	0	106	2.8	296.8	0	176	472.8
7/29/03	0	50	2.8	140	0	75	215
7/30/03	0	105	2.8	294	0	138	432
7/31/03	0	90	2.8	252	0	126	378
8/1/03	0	0	2.8	0	0	60	60
8/2/03	0	50	2.8	140	0	75	215
8/3/03	0	89	2.8	249.2	0	125	374.2
8/4/03	0	80	2.8	224	0	110	334
8/5/03	0	25	2.8	70	0	35	105
8/6/03	0	69	2.8	193.2	0	98	291.2
8/7/03	0	55	2.8	154	0	75	229
8/8/03	0	46	2.8	128.8	0	65	193.8
8/9/03	0	30	2.8	84	0	40	124
8/10/03	0	28	2.8	78.4	0	35	113.4
8/11/03	0	30	2.8	84	0	106	190
8/12/03	0	55	2.8	154	0	125	279
8/13/03	0	35	2.8	98	0	50	148
8/14/03	0	172	2.8	481.6	0	275	756.6
8/15/03	0	206	2.8	576.8	0	305	881.8
8/16/03	0	187	2.8	523.6	0	280	803.6
8/17/03	0	15	2.8	42	0	25	67
8/18/03	0	99	2.8	277.2	0	138	415.2
8/19/03	0	114	2.8	319.2	0	185	504.2
8/20/03	0	120	2.8	336	0	178	514
8/21/03	0	110	2.8	308	0	135	443
8/22/03	0	91	2.8	254.8	0	110	364.8
8/23/03	0	146	2.8	408.8	0	170	578.8
8/24/03	0	115	2.8	322	0	165	487
8/25/03	0	25	2.8	70	0	108	178
8/26/03	0	57	2.8	159.6	0	60	219.6
8/27/03	0	76	2.8	212.8	0	95	307.8
8/28/03	0	55	2.8	154	0	75	229
8/29/03	0	61	2.8	170.8	0	83	253.8
8/30/03	0	46	2.8	128.8	0	64	192.8
8/31/03	0	122	2.8	341.6	0	150	491.6

Note: description of variables is provided in text of Apendix B2.

Table B2-1: South Cape Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Permit People	Other	Total
9/1/03	0	9	2.8	25.2	0	20	45.2
9/2/03	0	0	2.8	0	0	35	35
9/3/03	0	0	2.8	0	0	49	49
9/4/03	0	0	2.8	0	0	52	52
9/5/03	0	0	2.8	0	0	65	65
9/6/03	0	0	2.8	0	0	58	58
9/7/03	0	0	2.8	0	0	60	60
9/8/03	0	0	2.8	0	0	35	35
9/9/03	0	0	2.8	0	0	28	28
9/10/03	0	0	2.8	0	0	49	49
9/11/03	0	0	2.8	0	0	42	42
9/12/03	0	0	2.8	0	0	40	40
9/13/03	0	0	2.8	0	0	25	25
9/14/03	0	0	2.8	0	0	39	39
9/15/03	0	0	2.8	0	0	35	35
9/16/03	0	0	2.8	0	0	38	38
9/17/03	0	0	2.8	0	0	25	25
9/18/03	0	0	2.8	0	0	37	37
9/19/03	0	0	2.8	0	0	41	41
9/20/03	0	0	2.8	0	0	82	82
9/21/03	0	0	2.8	0	0	75	75
9/22/03	0	0	2.8	0	0	39	39
9/23/03	0	0	2.8	0	0	32	32
9/24/03	0	0	2.8	0	0	42	42
9/25/03	0	0	2.8	0	0	40	40
9/26/03	0	0	2.8	0	0	60	60
9/27/03	0	0	2.8	0	0	94	94
9/28/03	0	0	2.8	0	0	110	110
9/29/03	0	0	2.8	0	0	52	52
9/30/03	0	0	2.8	0	0	75	75
4/1/04	0	0	2.8	0	0	28	28
4/2/04	0	0	2.8	0	0	39	39
4/3/04	0	0	2.8	0	0	40	40
4/4/04	0	0	2.8	0	0	34	34
4/5/04	0	0	2.8	0	0	21	21
4/6/04	0	0	2.8	0	0	30	30
4/7/04	0	0	2.8	0	0	31	31
4/8/04	0	0	2.8	0	0	38	38
4/9/04	0	0	2.8	0	0	40	40
4/10/04	0	0	2.8	0	0	56	56
4/11/04	0	0	2.8	0	0	60	60
4/12/04	0	0	2.8	0	0	36	36
4/13/04	0	0	2.8	0	0	41	41
4/14/04	0	0	2.8	0	0	35	35
4/15/04	0	0	2.8	0	0	38	38
4/16/04	0	0	2.8	0	0	40	40
4/17/04	0	0	2.8	0	0	55	55
4/18/04	0	0	2.8	0	0	65	65
4/19/04	0	0	2.8	0	0	60	60
4/20/04	0	0	2.8	0	0	42	42
4/21/04	0	0	2.8	0	0	35	35
4/22/04	0	0	2.8	0	0	40	40
4/23/04	0	0	2.8	0	0	42	42
4/24/04	0	0	2.8	0	0	50	50
4/25/04	0	0	2.8	0	0	58	58
4/26/04	0	0	2.8	0	0	35	35
4/27/04	0	0	2.8	0	0	40	40
4/28/04	0	0	2.8	0	0	32	32
4/29/04	0	0	2.8	0	0	43	43
4/30/04	0	0	2.8	0	0	60	60
5/1/04	0	0	2.8	0	0	65	65
5/2/04	0	0	2.8	0	0	53	53
5/3/04	0	0	2.8	0	0	35	35
5/4/04	0	0	2.8	0	0	38	38
5/5/04	0	0	2.8	0	0	40	40
5/6/04	0	0	2.8	0	0	55	55
5/7/04	0	0	2.8	0	0	52	52
5/8/04	0	0	2.8	0	0	75	75
5/9/04	0	0	2.8	0	0	60	60
5/10/04	0	0	2.8	0	0	48	48
5/11/04	0	0	2.8	0	0	62	62
5/12/04	0	0	2.8	0	0	55	55
5/13/04	0	0	2.8	0	0	68	68
5/14/04	0	0	2.8	0	0	60	60
5/15/04	0	0	2.8	0	0	128	128
5/16/04	0	0	2.8	0	0	80	80
5/17/04	0	0	2.8	0	0	40	40
5/18/04	0	0	2.8	0	0	45	45
5/19/04	0	0	2.8	0	0	62	62
5/20/04	0	0	2.8	0	0	60	60
5/21/04	0	0	2.8	0	0	48	48
5/22/04	0	0	2.8	0	0	125	125
5/23/04	0	0	2.8	0	0	72	72
5/24/04	0	0	2.8	0	0	56	56

Note: description of variables is provided in text of Apendix B2.

Table B2-1: South Cape Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Permit People	Other	Total
5/25/04	0	0	2.8	0	0	60	60
5/26/04	0	0	2.8	0	0	52	52
5/27/04	0	0	2.8	0	0	55	55
5/28/04	0	0	2.8	0	0	45	45
5/29/04	0	0	2.8	0	0	150	150
5/30/04	0	0	2.8	0	0	173	173
5/31/04	0	0	2.8	0	0	110	110
6/1/04	0	0	2.8	0	0	60	60
6/2/04	0	0	2.8	0	0	48	48
6/3/04	0	0	2.8	0	0	40	40
6/4/04	0	0	2.8	0	0	52	52
6/5/04	0	0	2.8	0	0	112	112
6/6/04	0	0	2.8	0	0	38	38
6/7/04	0	0	2.8	0	0	45	45
6/8/04	0	0	2.8	0	0	56	56
6/9/04	0	0	2.8	0	0	88	88
6/10/04	0	0	2.8	0	0	45	45
6/11/04	0	0	2.8	0	0	50	50
6/12/04	0	0	2.8	0	0	66	66
6/13/04	0	0	2.8	0	0	72	72
6/14/04	0	0	2.8	0	0	30	30
6/15/04	0	0	2.8	0	0	58	58
6/16/04	0	0	2.8	0	0	65	65
6/17/04	0	0	2.8	0	0	50	50
6/18/04	0	0	2.8	0	0	68	68
6/19/04	0	25	2.8	70	0	73	143
6/20/04	0	90	2.8	252	0	155	407
6/21/04	0	0	2.8	0	0	85	85
6/22/04	0	0	2.8	0	0	50	50
6/23/04	0	67	2.8	187.6	0	103	290.6
6/24/04	0	50	2.8	140	0	102	242
6/25/04	0	20	2.8	56	0	47	103
6/26/04	0	30	2.8	84	0	68	152
6/27/04	0	121	2.8	338.8	0	136	474.8
6/28/04	0	0	2.8	0	0	150	150
6/29/04	0	23	2.8	64.4	0	95	159.4
6/30/04	0	89	2.8	249.2	0	140	389.2

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
4/1/02	0	0	3	0	0	0	0	85	85
4/2/02	0	0	3	0	0	0	0	145	145
4/3/02	0	0	3	0	0	0	0	15	15
4/4/02	0	0	3	0	0	0	0	210	210
4/5/02	0	0	3	0	0	0	0	245	245
4/6/02	0	0	3	0	0	0	0	375	375
4/7/02	0	0	3	0	0	0	0	410	410
4/8/02	0	0	3	0	0	0	0	160	160
4/9/02	0	0	3	0	0	0	0	210	210
4/10/02	0	0	3	0	0	0	0	225	225
4/11/02	0	0	3	0	0	0	0	115	115
4/12/02	0	0	3	0	0	0	0	175	175
4/13/02	0	0	3	0	0	0	0	300	300
4/14/02	0	0	3	0	0	0	0	1100	1100
4/15/02	0	0	3	0	0	0	0	450	450
4/16/02	0	0	3	0	0	0	0	1500	1500
4/17/02	0	0	3	0	0	0	0	3600	3600
4/18/02	0	0	3	0	0	0	0	400	400
4/19/02	0	0	3	0	0	0	0	150	150
4/20/02	0	0	3	0	0	0	0	550	550
4/21/02	0	0	3	0	0	0	0	240	240
4/22/02	0	0	3	0	0	0	0	30	30
4/23/02	0	0	3	0	0	0	0	25	25
4/24/02	0	0	3	0	0	0	0	235	235
4/25/02	0	0	3	0	0	0	0	140	140
4/26/02	0	0	3	0	0	0	0	215	215
4/27/02	0	0	3	0	0	0	0	150	150
4/28/02	0	0	3	0	0	0	0	10	10
4/29/02	0	0	3	0	0	0	0	75	75
4/30/02	0	0	3	0	0	0	0	225	225
5/1/02	0	0	3	0	0	0	210	0	210
5/2/02	0	0	3	0	0	0	20	0	20
5/3/02	0	0	3	0	0	0	10	0	10
5/4/02	0	11	3	33	0	0	525	0	558
5/5/02	0	29	3	87	0	0	750	0	837
5/6/02	0	0	3	0	0	0	210	0	210
5/7/02	0	0	3	0	0	0	225	0	225
5/8/02	0	0	3	0	0	0	320	0	320
5/9/02	0	0	3	0	0	0	145	0	145
5/10/02	129	0	3	0	0	0	230	0	230
5/11/02	196	0	3	0	0	0	55	0	55
5/12/02	84	0	3	0	0	0	15	0	15
5/13/02	80	0	3	0	0	0	50	0	50
5/14/02	52	0	3	0	0	0	50	0	50
5/15/02	48	0	3	0	0	0	25	0	25
5/16/02	50	0	3	0	0	0	230	0	230
5/17/02	138	0	3	0	0	0	50	0	50
5/18/02	106	0	3	0	0	0	350	0	350
5/19/02	80	0	3	0	0	0	400	0	400
5/20/02	77	0	3	0	0	0	230	0	230
5/21/02	79	0	3	0	0	0	140	0	140
5/22/02	85	0	3	0	0	0	400	0	400
5/23/02	96	0	3	0	0	0	210	0	210
5/24/02	311	154	3	462	0	0	320	0	782
5/25/02	314	0	3	0	0	0	300	0	300
5/26/02	332	0	3	0	0	0	110	0	110
5/27/02	81	70	3	210	0	0	100	0	310
5/28/02	74	0	3	0	0	0	75	0	75
5/29/02	74	0	3	0	0	0	240	0	240
5/30/02	92	0	3	0	0	0	300	0	300
5/31/02	130	0	3	0	0	0	110	0	110

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
6/1/02	224	686	3	2058	0	0	420	0	2478
6/2/02	198	190	3	570	0	0	230	0	800
6/3/02	116	0	3	0	0	0	100	0	100
6/4/02	101	110	3	330	0	120	420	0	870
6/5/02	95	0	3	0	0	0	50	0	50
6/6/02	109	0	3	0	0	0	50	0	50
6/7/02	235	0	3	0	0	0	50	0	50
6/8/02	298	220	3	660	0	0	330	0	990
6/9/02	168	350	3	1050	0	0	315	0	1365
6/10/02	126	230	3	690	0	0	230	0	920
6/11/02	108	0	3	0	0	110	245	0	355
6/12/02	112	0	3	0	0	0	25	0	25
6/13/02	119	0	3	0	0	0	40	0	40
6/14/02	301	0	3	0	0	40	25	0	65
6/15/02	312	0	3	0	0	0	20	0	20
6/16/02	152	0	3	0	0	0	40	0	40
6/17/02	188	120	3	360	0	0	650	0	1010
6/18/02	204	450	3	1350	0	0	840	0	2190
6/19/02	256	481	3	1443	0	78	770	0	2291
6/20/02	272	780	3	2340	0	0	1100	0	3440
6/21/02	327	1225	3	3675	0	0	250	0	3925
6/22/02	333	1300	3	3900	0	0	535	0	4435
6/23/02	348	650	3	1950	0	0	750	0	2700
6/24/02	339	1050	3	3150	0	0	1200	0	4350
6/25/02	328	920	3	2760	0	0	865	0	3625
6/26/02	343	650	3	1950	0	110	1500	0	3560
6/27/02	338	610	3	1830	0	0	575	0	2405
6/28/02	350	490	3	1470	0	0	610	0	2080
6/29/02	332	2050	3	6150	0	0	2000	0	8150
6/30/02	356	2350	3	7050	0	0	2400	0	9450
7/1/02	343	810	3	2430	0	75	3500	0	6005
7/2/02	350	1250	3	3750	0	0	3750	0	7500
7/3/02	353	1330	3	3990	0	0	2940	0	6930
7/4/02	362	2510	3	7530	0	0	3230	0	10760
7/5/02	350	1660	3	4980	0	0	2850	0	7830
7/6/02	353	1370	3	4110	0	0	3000	0	7110
7/7/02	344	550	3	1650	0	280	850	0	2780
7/8/02	340	560	3	1680	0	0	650	0	2330
7/9/02	347	410	3	1230	0	0	420	0	1650
7/10/02	352	400	3	1200	0	65	340	1	1606
7/11/02	338	310	3	930	0	0	600	0	1530
7/12/02	335	620	3	1860	0	120	1200	0	3180
7/13/02	347	1430	3	4290	0	0	1800	0	6090
7/14/02	337	1620	3	4860	0	0	2500	0	7360
7/15/02	400	560	3	1680	0	0	650	0	2330
7/16/02	372	510	3	1530	0	100	650	0	2280
7/17/02	381	510	3	1530	0	165	575	0	2270
7/18/02	397	500	3	1500	0	140	650	0	2290
7/19/02	383	160	3	480	0	90	240	6	816
7/20/02	397	0	3	0	0	0	130	0	130
7/21/02	342	1720	3	5160	0	0	2520	0	7680
7/22/02	338	710	3	2130	0	95	2100	0	4325
7/23/02	308	600	3	1800	0	240	900	0	2940
7/24/02	344	0	3	0	0	0	175	0	175
7/25/02	332	260	3	780	0	0	310	0	1090
7/26/02	381	0	3	0	0	0	240	0	240
7/27/02	392	250	3	750	0	0	810	0	1560
7/28/02	388	100	3	300	0	0	700	0	1000
7/29/02	335	550	3	1650	0	0	1500	0	3150
7/30/02	392	616	3	1848	0	0	1800	0	3648
7/31/02	408	850	3	2550	0	32	3600	0	6182

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
8/1/02	397	700	3	2100	0	0	3000	0	5100
8/2/02	388	660	3	1980	0	80	2500	0	4560
8/3/02	391	1300	3	3900	0	0	5000	0	8900
8/4/02	380	2300	3	6900	0	0	6000	0	12900
8/5/02	372	200	3	600	0	45	900	0	1545
8/6/02	393	300	3	900	0	0	1250	0	2150
8/7/02	368	200	3	600	0	55	900	0	1555
8/8/02	381	200	3	600	0	0	1200	0	1800
8/9/02	389	600	3	1800	0	85	1700	0	3585
8/10/02	384	1100	3	3300	0	0	3000	0	6300
8/11/02	360	1900	3	5700	0	0	5500	0	11200
8/12/02	310	910	3	2730	0	0	3000	0	5730
8/13/02	313	600	3	1800	0	75	2000	0	3875
8/14/02	321	651	3	1953	0	0	2100	0	4053
8/15/02	392	400	3	1200	0	0	700	0	1900
8/16/02	387	150	3	450	0	0	900	0	1350
8/17/02	407	1400	3	4200	0	0	1800	0	6000
8/18/02	363	700	3	2100	0	0	1200	0	3300
8/19/02	364	550	3	1650	0	0	1600	0	3250
8/20/02	381	0	3	0	0	0	130	0	130
8/21/02	393	350	3	1050	0	0	315	0	1365
8/22/02	359	300	3	900	0	0	600	0	1500
8/23/02	361	0	3	0	0	0	175	0	175
8/24/02	384	0	3	0	0	0	240	0	240
8/25/02	364	0	3	0	0	0	500	0	500
8/26/02	365	500	3	1500	0	0	700	0	2200
8/27/02	403	100	3	300	0	0	600	0	900
8/28/02	380	0	3	0	0	0	230	0	230
8/29/02	356	0	3	0	0	0	30	0	30
8/30/02	392	0	3	0	0	0	55	0	55
8/31/02	0	0	3	0	0	0	85	397	482
9/1/02	336	58	3	174	0	0	30	0	204
9/2/02	192	0	3	0	0	0	25	0	25
9/3/02	171	0	3	0	0	0	50	0	50
9/4/02	153	0	3	0	0	0	75	0	75
9/5/02	161	0	3	0	0	0	150	0	150
9/6/02	372	0	3	0	0	0	350	0	350
9/7/02	390	0	3	0	0	0	500	0	500
9/8/02	268	0	3	0	0	0	1200	0	1200
9/9/02	78	0	3	0	0	0	500	0	500
9/10/02	81	0	3	0	0	0	500	0	500
9/11/02	94	0	3	0	0	0	75	0	75
9/12/02	143	0	3	0	0	0	150	0	150
9/13/02	336	0	3	0	0	0	80	0	80
9/14/02	312	0	3	0	0	0	300	0	300
9/15/02	275	0	3	0	0	0	210	0	210
9/16/02	260	0	3	0	0	0	50	0	50
9/17/02	210	0	3	0	0	0	60	0	60
9/18/02	143	0	3	0	0	0	230	0	230
9/19/02	178	0	3	0	0	0	220	0	220
9/20/02	239	0	3	0	0	0	175	0	175
9/21/02	298	0	3	0	0	0	440	0	440
9/22/02	218	0	3	0	0	0	620	0	620
9/23/02	150	0	3	0	0	0	50	0	50
9/24/02	120	0	3	0	0	0	35	0	35
9/25/02	141	0	3	0	0	0	75	0	75
9/26/02	132	0	3	0	0	0	65	0	65
9/27/02	180	0	3	0	0	0	15	0	15
9/28/02	191	0	3	0	0	0	240	0	240
9/29/02	184	0	3	0	0	0	300	0	300
9/30/02	178	0	3	0	0	0	175	0	175

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
4/1/03	0	0	3	0	0	0	0		0
4/2/03	0	0	3	0	0	0	0		0
4/3/03	0	0	3	0	0	0	0		0
4/4/03	0	0	3	0	0	0	0		0
4/5/03	0	0	3	0	0	0	0		0
4/6/03	0	0	3	0	0	0	0		0
4/7/03	0	0	3	0	0	0	0		0
4/8/03	0	0	3	0	0	0	0		0
4/9/03	0	0	3	0	0	0	0		0
4/10/03	0	0	3	0	0	0	0		0
4/11/03	0	0	3	0	0	0	0		0
4/12/03	0	0	3	0	0	0	0		0
4/13/03	0	0	3	0	0	0	0		0
4/14/03	0	0	3	0	0	0	0		0
4/15/03	0	0	3	0	0	0	0		0
4/16/03	0	0	3	0	0	0	0		0
4/17/03	0	0	3	0	0	0	0		0
4/18/03	0	0	3	0	0	0	0		0
4/19/03	0	0	3	0	0	0	0		0
4/20/03	0	0	3	0	0	0	0		0
4/21/03	0	0	3	0	0	0	0		0
4/22/03	0	0	3	0	0	0	0		0
4/23/03	0	0	3	0	0	0	0		0
4/24/03	0	0	3	0	0	0	0		0
4/25/03	0	0	3	0	0	0	0		0
4/26/03	0	0	3	0	0	0	0		0
4/27/03	0	0	3	0	0	0	0		0
4/28/03	0	0	3	0	0	0	0		0
4/29/03	0	0	3	0	0	0	0		0
4/30/03	0	0	3	0	0	0	0		0
5/1/03	0	0	3	0	0	0	10	0	10
5/2/03	0	0	3	0	0	0	15	0	15
5/3/03	0	0	3	0	0	0	10	0	10
5/4/03	0	0	3	0	0	0	20	0	20
5/5/03	0	0	3	0	0	0	23	0	23
5/6/03	0	0	3	0	0	0	15	0	15
5/7/03	0	0	3	0	0	0	25	0	25
5/8/03	0	0	3	0	0	0	20	0	20
5/9/03	103	0	3	0	0	0	17	0	17
5/10/03	124	0	3	0	0	0	10	0	10
5/11/03	68	0	3	0	0	0	22	0	22
5/12/03	39	0	3	0	0	0	5	0	5
5/13/03	28	0	3	0	0	0	3	0	3
5/14/03	41	0	3	0	0	0	0	0	0
5/15/03	52	0	3	0	0	0	15	0	15
5/16/03	112	0	3	0	0	0	30	0	30
5/17/03	136	0	3	0	0	0	35	0	35
5/18/03	84	0	3	0	0	0	50	0	50
5/19/03	100	0	3	0	0	0	65	0	65
5/20/03	108	0	3	0	0	0	40	0	40
5/21/03	108	0	3	0	0	0	25	0	25
5/22/03	120	0	3	0	0	0	15	0	15
5/23/03	320	0	3	0	0	0	5	0	5
5/24/03	264	0	3	0	0	0	10	0	10
5/25/03	212	0	3	0	0	0	10	0	10
5/26/03	68	0	3	0	0	0	5	0	5
5/27/03	72	0	3	0	0	0	0	0	0
5/28/03	72	0	3	0	0	0	20	0	20
5/29/03	92	0	3	0	0	0	25	0	25
5/30/03	196	0	3	0	0	0	25	0	25
5/31/03	186	0	3	0	0	0	40	0	40

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
6/1/03	188	0	3	0	0	0	40	-40	0
6/2/03	104	0	3	0	0	0	50	0	50
6/3/03	100	80	3	240	0	0	280	0	520
6/4/03	100	0	3	0	0	0	40	0	40
6/5/03	136	0	3	0	0	0	25	0	25
6/6/03	276	250	3	750	0	0	450	0	1200
6/7/03	248	0	3	0	0	0	45	0	45
6/8/03	188	0	3	0	0	0	20	0	20
6/9/03	156	0	3	0	0	0	55	0	55
6/10/03	180	440	3	1320	0	0	1100	0	2420
6/11/03	180	0	3	0	0	0	60	0	60
6/12/03	210	0	3	0	0	0	20	0	20
6/13/03	268	0	3	0	0	0	45	0	45
6/14/03	312	0	3	0	0	0	10	0	10
6/15/03	236	260	3	780	0	0	1250	0	2030
6/16/03	112	0	3	0	0	0	250	0	250
6/17/03	136	380	3	1140	150	0	1400	0	2690
6/18/03	84	0	3	0	0	0	50	0	50
6/19/03	220	0	3	0	0	0	100	0	100
6/20/03	324	0	3	0	0	0	750	0	750
6/21/03	356	0	3	0	0	0	150	0	150
6/22/03	304	0	3	0	0	0	15	0	15
6/23/03	320	0	3	0	0	0	175	0	175
6/24/03	348	910	3	2730	0	0	2100	0	4830
6/25/03	359	1510	3	4530	0	0	1500	0	6030
6/26/03	455	1480	3	4440	0	0	2500	0	6940
6/27/03	410	1110	3	3330	0	0	2350	0	5680
6/28/03	417	1200	3	3600	0	0	950	0	4550
6/29/03	396	430	3	1290	0	0	1200	0	2490
6/30/03	388	370	3	1110	0	0	800	1000	2910
7/1/03	392	1110	3	3330	0	0	3750	0	7080
7/2/03	388	1170	3	3510	0	0	2000	0	5510
7/3/03	388	540	3	1620	0	0	700	0	2320
7/4/03	401	2010	3	6030	0	0	3800	0	9830
7/5/03	396	1950	3	5850	0	0	3600	0	9450
7/6/03	392	2120	3	6360	0	0	4000	0	10360
7/7/03	396	880	3	2640	0	0	1500	0	4140
7/8/03	376	890	3	2670	0	0	1350	0	4020
7/9/03	376	200	3	600	0	0	580	0	1180
7/10/03	380	250	3	750	0	0	450	0	1200
7/11/03	352	0	3	0	0	0	250	0	250
7/12/03	376	1150	3	3450	0	0	1700	0	5150
7/13/03	348	1640	3	4920	0	0	3000	0	7920
7/14/03	352	360	3	1080	0	0	500	0	1580
7/15/03	488	0	3	0	0	0	100	0	100
7/16/03	384	0	3	0	0	0	95	0	95
7/17/03	392	870	3	2610	0	0	2200	0	4810
7/18/03	368	370	3	1110	0	0	2000	0	3110
7/19/03	392	860	3	2580	0	0	3500	0	6080
7/20/03	372	2420	3	7260	0	0	7000	0	14260
7/21/03	368	400	3	1200	0	0	1000	0	2200
7/22/03	372	0	3	0	0	0	500	0	500
7/23/03	354	0	3	0	0	0	250	0	250
7/24/03	360	0	3	0	0	0	200	0	200
7/25/03	394	610	3	1830	0	0	1200	0	3030
7/26/03	397	2610	3	7830	0	0	8000	0	15830
7/27/03	353	960	3	2880	0	0	4000	0	6880
7/28/03	384	800	3	2400	0	0	3000	0	5400
7/29/03	384	0	3	0	0	0	500	0	500
7/30/03	397	850	3	2550	0	0	3500	0	6050
7/31/03	384	450	3	1350	0	0	800	0	2150

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
8/1/03	368	0	3	0	0	0	150	0	150
8/2/03	374	0	3	0	0	0	100	0	100
8/3/03	388	340	3	1020	0	0	550	0	1570
8/4/03	378	0	3	0	0	0	250	0	250
8/5/03	388	0	3	0	300	0	500	0	800
8/6/03	380	0	3	0	0	0	420	0	420
8/7/03	388	250	3	750	0	0	750	0	1500
8/8/03	376	0	3	0	0	0	200	0	200
8/9/03	380	0	3	0	0	0	900	0	900
8/10/03	340	0	3	0	0	0	950	0	950
8/11/03	358	400	3	1200	0	0	1800	0	3000
8/12/03	360	0	3	0	0	0	300	0	300
8/13/03	384	0	3	0	0	0	250	0	250
8/14/03	392	1360	3	4080	0	0	5000	0	9080
8/15/03	378	1100	3	3300	0	0	3500	0	6800
8/16/03	407	1150	3	3450	0	0	4000	0	7450
8/17/03	412	0	3	0	0	0	50	0	50
8/18/03	390	350	3	1050	0	0	1100	0	2150
8/19/03	385	650	3	1950	0	0	2500	0	4450
8/20/03	384	900	3	2700	0	0	3000	0	5700
8/21/03	376	1100	3	3300	0	0	5000	0	8300
8/22/03	394	750	3	2250	0	0	4200	0	6450
8/23/03	404	1000	3	3000	0	0	5500	0	8500
8/24/03	391	650	3	1950	0	0	3000	0	4950
8/25/03	392	0	3	0	0	0	250	0	250
8/26/03	364	600	3	1800	0	0	3100	0	4900
8/27/03	366	500	3	1500	0	0	1800	0	3300
8/28/03	367	450	3	1350	0	0	1200	0	2550
8/29/03	392	500	3	1500	0	0	3300	0	4800
8/30/03	403	0	3	0	0	0	500	0	500
8/31/03	409	650	3	1950	0	0	0	0	1950
9/1/03	236	0	3	0	0	0	350	0	350
9/2/03	196	0	3	0	0	0	75	0	75
9/3/03	200	0	3	0	0	0	100	0	100
9/4/03	212	0	3	0	0	0	54	0	54
9/5/03	408	0	3	0	0	0	1515	0	1515
9/6/03	419	550	3	1650	0	0	2790	0	4440
9/7/03	378	900	3	2700	0	0	3325	0	6025
9/8/03	200	0	3	0	0	0	460	0	460
9/9/03	197	0	3	0	0	0	350	0	350
9/10/03	206	0	3	0	0	0	270	0	270
9/11/03	219	0	3	0	0	0	500	0	500
9/12/03	390	0	3	0	0	0	600	0	600
9/13/03	348	0	3	0	0	0	550	0	550
9/14/03	236	150	3	450	0	0	900	0	1350
9/15/03	204	0	3	0	0	0	575	0	575
9/16/03	168	0	3	0	0	0	413	0	413
9/17/03	160	0	3	0	0	0	420	0	420
9/18/03	175	0	3	0	0	0	2450	0	2450
9/19/03	300	0	3	0	0	0	2150	0	2150
9/20/03	336	0	3	0	0	0	3470	0	3470
9/21/03	232	700	3	2100	0	0	3000	0	5100
9/22/03	172	0	3	0	0	0	350	0	350
9/23/03	210	0	3	0	0	0	345	0	345
9/24/03	220	0	3	0	0	0	290	0	290
9/25/03	221	0	3	0	0	0	480	0	480
9/26/03	318	0	3	0	0	0	1400	0	1400
9/27/03	288	75	3	225	0	0	600	0	825
9/28/03	160	40	3	120	0	0	377	0	497
9/29/03	144	0	3	0	0	0	360	0	360
9/30/03	140	0	3	0	0	0	320	0	320

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
4/1/04	0	0	3	0	0	0	133	0	133
4/2/04	0	0	3	0	0	0	158	0	158
4/3/04	0	0	3	0	0	0	296	0	296
4/4/04	0	0	3	0	0	0	306	0	306
4/5/04	0	0	3	0	0	0	211	0	211
4/6/04	0	0	3	0	0	0	208	0	208
4/7/04	0	0	3	0	0	0	268	0	268
4/8/04	0	0	3	0	0	0	222	0	222
4/9/04	0	0	3	0	0	0	178	0	178
4/10/04	0	0	3	0	0	0	344	0	344
4/11/04	0	0	3	0	0	0	304	0	304
4/12/04	0	0	3	0	0	0	188	0	188
4/13/04	0	0	3	0	0	0	125	0	125
4/14/04	0	0	3	0	0	0	111	0	111
4/15/04	0	0	3	0	0	0	156	0	156
4/16/04	0	0	3	0	0	0	198	0	198
4/17/04	0	0	3	0	0	0	277	0	277
4/18/04	0	0	3	0	0	0	345	0	345
4/19/04	0	0	3	0	0	0	1256	0	1256
4/20/04	0	0	3	0	0	0	425	0	425
4/21/04	0	0	3	0	0	0	220	0	220
4/22/04	0	0	3	0	0	0	148	0	148
4/23/04	0	0	3	0	0	0	176	0	176
4/24/04	0	0	3	0	0	0	196	0	196
4/25/04	0	0	3	0	0	0	178	0	178
4/26/04	0	0	3	0	0	0	209	0	209
4/27/04	0	0	3	0	0	0	255	0	255
4/28/04	0	0	3	0	0	0	166	0	166
4/29/04	0	0	3	0	0	0	248	0	248
4/30/04	0	0	3	0	0	0	288	0	288
5/1/04	0	0	3	0	0	0	0	0	0
5/2/04	0	0	3	0	0	0	0	0	0
5/3/04	0	0	3	0	0	0	0	0	0
5/4/04	0	0	3	0	0	0	0	0	0
5/5/04	0	0	3	0	0	0	0	0	0
5/6/04	0	0	3	0	0	0	0	0	0
5/7/04	105	0	3	0	0	0	62		62
5/8/04	111	0	3	0	0	0	79		79
5/9/04	64	0	3	0	0	0	21		21
5/10/04	44	0	3	0	0	0	600		600
5/11/04	29	0	3	0	0	0	300		300
5/12/04	52	0	3	0	0	0	90		90
5/13/04	67	0	3	0	0	0	70		70
5/14/04	109	0	3	0	0	0	500		500
5/15/04	134	0	3	0	0	0	2000		2000
5/16/04	69	0	3	0	0	0	450		450
5/17/04	29	0	3	0	0	0	73		73
5/18/04	36	0	3	0	0	0	48		48
5/19/04	40	0	3	0	0	0	37		37
5/20/04	64	0	3	0	0	0	94		94
5/21/04	135	0	3	0	0	0	51		51
5/22/04	156	0	3	0	0	200	75	0	275
5/23/04	105	0	3	0	0	0	50		50
5/24/04	62	0	3	0	0	0	42		42
5/25/04	57	0	3	0	0	0	54		54
5/26/04	57	0	3	0	0	0	70		70
5/27/04	130	0	3	0	0	0	37		37
5/28/04	261	0	3	0	0	0	44		44
5/29/04	384	40	3	120	0	0	250		370
5/30/04	378	400	3	1200	0	0	560		1760
5/31/04	173	150	3	450	0	0	200		650

Note: description of variables is provided in text of Apendix B2.

Table B2-2: Horseneck Beach State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
6/1/04	57	0	3	0	0	0	15	0	15
6/2/04	53	0	3	0	0	0	20	0	20
6/3/04	95	0	3	0	0	0	10	0	10
6/4/04	165	280	3	840	0	0	25	0	865
6/5/04	196	160	3	480	0	0	20	0	500
6/6/04	102	0	3	0	0	0	5	0	5
6/7/04	102	0	3	0	0	0	50	0	50
6/8/04	134	880	3	2640	0	0	15	0	2655
6/9/04	164	3580	3	10740	0	0	100	0	10840
6/10/04	142	0	3	0	0	0	50	0	50
6/11/04	359	120	3	360	0	0	10	0	370
6/12/04	391	250	3	750	0	0	20	0	770
6/13/04	192	520	3	1560	0	0	25	0	1585
6/14/04	200	0	3	0	0	0	50	0	50
6/15/04	156	570	3	1710	0	50	40	0	1800
6/16/04	164	1330	3	3990	0	0	60	0	4050
6/17/04	162	510	3	1530	0	0	50	0	1580
6/18/04	388	0	3	0	0	0	20	0	20
6/19/04	391	990	3	2970	0	0	30	0	3000
6/20/04	298	1550	3	4650	0	0	25	0	4675
6/21/04	252	2570	3	7710	0	0	40	0	7750
6/22/04	252	0	3	0	0	0	15	0	15
6/23/04	262	4020	3	12060	0	0	50	0	12110
6/24/04	282	2820	3	8460	0	0	45	0	8505
6/25/04	390	410	3	1230	0	0	15	0	1245
6/26/04	424	0	3	0	0	0	10	0	10
6/27/04	497	7920	3	23760	0	0	100	0	23860
6/28/04	390	2550	3	7650	0	0	30	0	7680
6/29/04	392	1710	3	5130	0	0	50	0	5180
6/30/04	393	8190	3	24570	0	0	100	0	24670

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
4/1/02	0	0	3.4	0	0	0	0		0
4/2/02	0	0	3.4	0	0	0	0		0
4/3/02	0	0	3.4	0	0	0	0		0
4/4/02	0	0	3.4	0	0	0	0		0
4/5/02	0	0	3.4	0	0	0	0		0
4/6/02	0	0	3.4	0	0	0	0		0
4/7/02	0	0	3.4	0	0	0	0	3	3
4/8/02	0	0	3.4	0	0	0	0	2	2
4/9/02	0	0	3.4	0	0	0	0	3	3
4/10/02	0	0	3.4	0	0	0	0	10	10
4/11/02	0	0	3.4	0	0	0	0	12	12
4/12/02	0	0	3.4	0	0	0	0	16	16
4/13/02	0	0	3.4	0	0	0	0	17	17
4/14/02	0	0	3.4	0	0	0	0	21	21
4/15/02	0	0	3.4	0	0	0	0	13	13
4/16/02	0	0	3.4	0	0	0	0	19	19
4/17/02	0	0	3.4	0	0	0	0	200	200
4/18/02	0	0	3.4	0	0	0	0	75	75
4/19/02	0	0	3.4	0	0	0	0	35	35
4/20/02	0	0	3.4	0	0	0	0	24	24
4/21/02	0	0	3.4	0	0	0	0	32	32
4/22/02	0	0	3.4	0	0	0	0	4	4
4/23/02	0	0	3.4	0	0	0	0	10	10
4/24/02	0	0	3.4	0	0	0	0	12	12
4/25/02	0	0	3.4	0	0	0	0	14	14
4/26/02	0	0	3.4	0	0	0	0	15	15
4/27/02	0	0	3.4	0	0	0	0	19	19
4/28/02	0	0	3.4	0	0	0	0	21	21
4/29/02	0	0	3.4	0	0	0	0	4	4
4/30/02	0	0	3.4	0	0	0	0	6	6
5/1/02	0	0	3.4	0	0	0	10	0	10
5/2/02	0	0	3.4	0	0	0	5	0	5
5/3/02	0	0	3.4	0	0	0	7	0	7
5/4/02	0	0	3.4	0	0	0	15	0	15
5/5/02	0	4	3.4	13.6	0	0	25	0	38.6
5/6/02	0	0	3.4	0	0	0	16	0	16
5/7/02	0	0	3.4	0	0	0	12	0	12
5/8/02	0	0	3.4	0	0	0	15	0	15
5/9/02	0	0	3.4	0	0	0	11	0	11
5/10/02	0	0	3.4	0	0	0	17	0	17
5/11/02	0	0	3.4	0	0	0	21	0	21
5/12/02	0	0	3.4	0	0	0	10	0	10
5/13/02	0	0	3.4	0	0	0	6	0	6
5/14/02	0	0	3.4	0	0	0	12	0	12
5/15/02	0	0	3.4	0	0	0	6	0	6
5/16/02	0	0	3.4	0	0	0	21	0	21
5/17/02	0	0	3.4	0	0	0	14	0	14
5/18/02	0	0	3.4	0	0	0	7	0	7
5/19/02	0	0	3.4	0	0	0	15	0	15
5/20/02	0	0	3.4	0	0	0	18	0	18
5/21/02	0	0	3.4	0	0	0	19	0	19
5/22/02	0	0	3.4	0	0	0	21	0	21
5/23/02	0	0	3.4	0	0	0	21	0	21
5/24/02	0	0	3.4	0	0	0	11	0	11
5/25/02	0	8	3.4	27.2	0	0	15	0	42.2
5/26/02	0	0	3.4	0	0	0	16	0	16
5/27/02	0	43	3.4	146.2	0	0	25	0	171.2
5/28/02	0	0	3.4	0	0	0	8	0	8
5/29/02	0	0	3.4	0	0	0	12	0	12
5/30/02	0	0	3.4	0	0	0	23	0	23
5/31/02	0	0	3.4	0	0	0	28	0	28
6/1/02	0	87	3.4	295.8	0	0	35	0	330.8

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
6/2/02	0	28	3.4	95.2	0	0	20	0	115.2
6/3/02	0	0	3.4	0	0	0	25	0	25
6/4/02	0	0	3.4	0	0	150	10	0	160
6/5/02	0	0	3.4	0	0	0	20	0	20
6/6/02	0	0	3.4	0	0	0	16	0	16
6/7/02	0	0	3.4	0	0	0	13	0	13
6/8/02	0	9	3.4	30.6	0	0	25	0	55.6
6/9/02	0	56	3.4	190.4	0	0	35	0	225.4
6/10/02	0	0	3.4	0	0	200	40	0	240
6/11/02	0	0	3.4	0	0	0	31	0	31
6/12/02	0	0	3.4	0	0	0	35	0	35
6/13/02	0	0	3.4	0	0	0	12	0	12
6/14/02	0	0	3.4	0	0	0	10	0	10
6/15/02	0	0	3.4	0	0	0	10	0	10
6/16/02	0	0	3.4	0	0	0	22	0	22
6/17/02	0	0	3.4	0	0	0	16	0	16
6/18/02	0	7	3.4	23.8	0	0	20	0	43.8
6/19/02	0	57	3.4	193.8	0	0	33	0	226.8
6/20/02	0	64	3.4	217.6	0	0	37	0	254.6
6/21/02	0	124	3.4	421.6	0	0	55	0	476.6
6/22/02	0	200	3.4	680	0	0	125	0	805
6/23/02	0	166	3.4	564.4	0	0	75	0	639.4
6/24/02	0	72	3.4	244.8	0	0	56	0	300.8
6/25/02	0	122	3.4	414.8	0	0	58	0	472.8
6/26/02	0	60	3.4	204	0	0	51	0	255
6/27/02	0	61	3.4	207.4	0	25	58	0	290.4
6/28/02	0	61	3.4	207.4	0	225	45	0	477.4
6/29/02	0	262	3.4	890.8	0	0	75	0	965.8
6/30/02	0	380	3.4	1292	0	0	150	0	1442
7/1/02	0	61	3.4	207.4	0	40	25	0	272.4
7/2/02	0	211	3.4	717.4	0	0	65	0	782.4
7/3/02	0	163	3.4	554.2	0	0	500	-450	604.2
7/4/02	0	457	3.4	1553.8	0	0	700	0	2253.8
7/5/02	0	161	3.4	547.4	0	120	50	0	717.4
7/6/02	0	256	3.4	870.4	0	0	65	0	935.4
7/7/02	0	0	3.4	0	0	0	350	0	350
7/8/02	0	107	3.4	363.8	0	250	55	0	668.8
7/9/02	0	104	3.4	353.6	0	50	25	0	428.6
7/10/02	0	0	3.4	0	0	0	40	0	40
7/11/02	0	57	3.4	193.8	0	0	35	0	228.8
7/12/02	0	52	3.4	176.8	0	250	500	0	926.8
7/13/02	0	106	3.4	360.4	0	0	100	0	460.4
7/14/02	0	257	3.4	873.8	0	0	60	0	933.8
7/15/02	0	54	3.4	183.6	0	100	40	0	323.6
7/16/02	0	52	3.4	176.8	0	75	35	7	293.8
7/17/02	0	52	3.4	176.8	0	100	37	0	313.8
7/18/02	0	51	3.4	173.4	0	50	39	0	262.4
7/19/02	0	50	3.4	170	0	200	35	0	405
7/20/02	0	52	3.4	176.8	0	0	75	0	251.8
7/21/02	0	154	3.4	523.6	0	0	150	0	673.6
7/22/02	0	100	3.4	340	0	150	50	0	540
7/23/02	0	50	3.4	170	0	150	35	0	355
7/24/02	0	0	3.4	0	0	100	20	0	120
7/25/02	0	0	3.4	0	0	100	35	0	135
7/26/02	0	0	3.4	0	0	420	55	0	475
7/27/02	0	52	3.4	176.8	0	0	100	0	276.8
7/28/02	0	50	3.4	170	0	0	25	0	195
7/29/02	0	50	3.4	170	0	0	35	0	205
7/30/02	0	101	3.4	343.4	0	75	75	0	493.4
7/31/02	0	50	3.4	170	0	450	100	0	720
8/1/02	0	50	3.4	170	0	0	35	0	205
8/2/02	0	100	3.4	340	0	0	195	0	535

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
8/3/02	0	153	3.4	520.2	0	0	65	0	585.2
8/4/02	0	300	3.4	1020	0	0	150	0	1170
8/5/02	0	0	3.4	0	0	0	125	0	125
8/6/02	0	50	3.4	170	0	0	135	0	305
8/7/02	0	50	3.4	170	0	0	155	0	325
8/8/02	0	0	3.4	0	0	0	65	0	65
8/9/02	0	100	3.4	340	0	0	545	0	885
8/10/02	0	100	3.4	340	0	0	50	0	390
8/11/02	0	200	3.4	680	0	0	75	0	755
8/12/02	0	53	3.4	180.2	0	0	75	0	255.2
8/13/02	0	100	3.4	340	0	0	65	0	405
8/14/02	0	101	3.4	343.4	0	0	65	0	408.4
8/15/02	0	0	3.4	0	0	0	135	0	135
8/16/02	0	50	3.4	170	0	0	55	0	225
8/17/02	0	150	3.4	510	0	0	65	0	575
8/18/02	0	200	3.4	680	0	0	50	0	730
8/19/02	0	50	3.4	170	0	0	125	0	295
8/20/02	0	0	3.4	0	0	0	10	0	10
8/21/02	0	0	3.4	0	0	0	65	0	65
8/22/02	0	50	3.4	170	0	0	100	5	275
8/23/02	0	0	3.4	0	0	0	75	0	75
8/24/02	0	50	3.4	170	0	0	35	0	205
8/25/02	0	0	3.4	0	0	0	45	0	45
8/26/02	0	50	3.4	170	0	0	30	0	200
8/27/02	0	50	3.4	170	0	0	35	0	205
8/28/02	0	0	3.4	0	0	0	30	0	30
8/29/02	0	0	3.4	0	0	0	15	0	15
8/30/02	0	0	3.4	0	0	0	20	0	20
8/31/02	0	0	3.4	0	0	0	30	0	30
9/1/02	0	50	3.4	170	0	0	30	0	200
9/2/02	0	0	3.4	0	0	0	25	0	25
9/3/02	0	0	3.4	0	0	0	5	0	5
9/4/02	0	0	3.4	0	0	0	6	0	6
9/5/02	0	0	3.4	0	0	0	6	0	6
9/6/02	0	0	3.4	0	0	0	9	0	9
9/7/02	0	0	3.4	0	0	0	12	0	12
9/8/02	0	0	3.4	0	0	0	35	0	35
9/9/02	0	0	3.4	0	0	0	30	0	30
9/10/02	0	0	3.4	0	0	0	6	0	6
9/11/02	0	0	3.4	0	0	0	9	0	9
9/12/02	0	0	3.4	0	0	0	12	0	12
9/13/02	0	0	3.4	0	0	0	14	0	14
9/14/02	0	0	3.4	0	0	0	18	0	18
9/15/02	0	0	3.4	0	0	0	27	0	27
9/16/02	0	0	3.4	0	0	0	32	0	32
9/17/02	0	0	3.4	0	0	0	65	0	65
9/18/02	0	0	3.4	0	0	0	7	0	7
9/19/02	0	0	3.4	0	0	0	9	0	9
9/20/02	0	0	3.4	0	0	0	14	0	14
9/21/02	0	0	3.4	0	0	0	16	0	16
9/22/02	0	0	3.4	0	0	0	25	0	25
9/23/02	0	0	3.4	0	0	0	35	0	35
9/24/02	0	0	3.4	0	0	0	8	0	8
9/25/02	0	0	3.4	0	0	0	12	0	12
9/26/02	0	0	3.4	0	0	0	13	0	13
9/27/02	0	0	3.4	0	0	0	16	0	16
9/28/02	0	0	3.4	0	0	0	19	0	19
9/29/02	0	0	3.4	0	0	0	27	0	27
9/30/02	0	0	3.4	0	0	0	38	0	38
4/1/03	0	0	3.4	0	0	0	0		0
4/2/03	0	0	3.4	0	0	0	0		0
4/3/03	0	0	3.4	0	0	0	0		0

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
4/4/03	0	0	3.4	0	0	0	0		0
4/5/03	0	0	3.4	0	0	0	0		0
4/6/03	0	0	3.4	0	0	0	0		0
4/7/03	0	0	3.4	0	0	0	0		0
4/8/03	0	0	3.4	0	0	0	0		0
4/9/03	0	0	3.4	0	0	0	0		0
4/10/03	0	0	3.4	0	0	0	0		0
4/11/03	0	0	3.4	0	0	0	0		0
4/12/03	0	0	3.4	0	0	0	0		0
4/13/03	0	0	3.4	0	0	0	0		0
4/14/03	0	0	3.4	0	0	0	0		0
4/15/03	0	0	3.4	0	0	0	0		0
4/16/03	0	0	3.4	0	0	0	0		0
4/17/03	0	0	3.4	0	0	0	0		0
4/18/03	0	0	3.4	0	0	0	0		0
4/19/03	0	0	3.4	0	0	0	0		0
4/20/03	0	0	3.4	0	0	0	0		0
4/21/03	0	0	3.4	0	0	0	0		0
4/22/03	0	0	3.4	0	0	0	0		0
4/23/03	0	0	3.4	0	0	0	0		0
4/24/03	0	0	3.4	0	0	0	0		0
4/25/03	0	0	3.4	0	0	0	0		0
4/26/03	0	0	3.4	0	0	0	0		0
4/27/03	0	0	3.4	0	0	0	15	0	15
4/28/03	0	0	3.4	0	0	0	25	0	25
4/29/03	0	0	3.4	0	0	0	27	0	27
4/30/03	0	0	3.4	0	0	0	40	0	40
5/1/03	0	0	3.4	0	0	0	45	0	45
5/2/03	0	0	3.4	0	0	0	32	0	32
5/3/03	0	0	3.4	0	0	0	55	0	55
5/4/03	0	0	3.4	0	0	0	42	0	42
5/5/03	0	0	3.4	0	0	0	21	0	21
5/6/03	0	0	3.4	0	0	0	18	0	18
5/7/03	0	0	3.4	0	0	0	26	0	26
5/8/03	0	0	3.4	0	0	0	10	0	10
5/9/03	0	0	3.4	0	0	0	22	0	22
5/10/03	0	0	3.4	0	0	0	43	0	43
5/11/03	0	0	3.4	0	0	0	37	0	37
5/12/03	0	0	3.4	0	0	0	20	0	20
5/13/03	0	0	3.4	0	0	0	28	0	28
5/14/03	0	0	3.4	0	0	0	25	0	25
5/15/03	0	0	3.4	0	0	0	25	0	25
5/16/03	0	0	3.4	0	0	0	15	0	15
5/17/03	0	0	3.4	0	0	0	28	0	28
5/18/03	0	0	3.4	0	0	0	30	0	30
5/19/03	0	0	3.4	0	0	0	42	0	42
5/20/03	0	0	3.4	0	0	0	45	0	45
5/21/03	0	0	3.4	0	0	0	31	0	31
5/22/03	0	0	3.4	0	0	0	28	0	28
5/23/03	0	0	3.4	0	0	0	30	0	30
5/24/03	0	0	3.4	0	0	0	18	0	18
5/25/03	0	0	3.4	0	0	0	29	0	29
5/26/03	0	0	3.4	0	0	0	15	0	15
5/27/03	0	0	3.4	0	60	0	21	0	81
5/28/03	0	0	3.4	0	60	0	25	0	85
5/29/03	0	0	3.4	0	60	0	28	0	88
5/30/03	0	0	3.4	0	60	0	32	0	92
5/31/03	0	0	3.4	0	0	0	35	0	35
6/1/03	0	0	3.4	0	0	0	10	0	10
6/2/03	0	0	3.4	0	60	0	15	0	75
6/3/03	0	0	3.4	0	60	0	20	0	80
6/4/03	0	0	3.4	0	0	0	15	0	15

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
6/5/03	0	0	3.4	0	60	0	20	0	80
6/6/03	0	0	3.4	0	60	0	35	0	95
6/7/03	0	2	3.4	6.8	0	0	15	0	21.8
6/8/03	0	1	3.4	3.4	0	0	16	0	19.4
6/9/03	0	0	3.4	0	60	0	20	0	80
6/10/03	0	2	3.4	6.8	0	0	12	0	18.8
6/11/03	0	1	3.4	3.4	0	0	15	60	78.4
6/12/03	0	0	3.4	0	0	0	10	0	10
6/13/03	0	0	3.4	0	0	0	17	0	17
6/14/03	0	0	3.4	0	0	0	28	0	28
6/15/03	0	5	3.4	17	0	0	35	0	52
6/16/03	0	0	3.4	0	65	0	15	0	80
6/17/03	0	2	3.4	6.8	75	0	300	0	381.8
6/18/03	0	0	3.4	0	0	0	11	0	11
6/19/03	0	0	3.4	0	60	0	25	0	85
6/20/03	0	0	3.4	0	60	0	12	0	72
6/21/03	0	0	3.4	0	0	0	25	0	25
6/22/03	0	0	3.4	0	0	0	22	0	22
6/23/03	0	0	3.4	0	75	0	25	0	100
6/24/03	0	121	3.4	411.4	0	0	45	0	456.4
6/25/03	0	126	3.4	428.4	0	0	50	0	478.4
6/26/03	0	127	3.4	431.8	110	0	60	0	601.8
6/27/03	0	117	3.4	397.8	0	0	35	0	432.8
6/28/03	0	62	3.4	210.8	0	0	20	0	230.8
6/29/03	0	104	3.4	353.6	0	0	22	0	375.6
6/30/03	0	55	3.4	187	0	0	32	0	219
7/1/03	0	118	3.4	401.2	0	0	32		433.2
7/2/03	0	115	3.4	391	0	0	35		426
7/3/03	0	58	3.4	197.2	0	0	15		212.2
7/4/03	0	509	3.4	1730.6	0	0	550	0	2280.6
7/5/03	0	274	3.4	931.6	0	0	50		981.6
7/6/03	0	315	3.4	1071	0	0	42		1113
7/7/03	0	106	3.4	360.4	180	0	55	0	595.4
7/8/03	0	104	3.4	353.6	50	0	32	0	435.6
7/9/03	0	0	3.4	0	120	0	20	0	140
7/10/03	0	56	3.4	190.4	50	0	27	0	267.4
7/11/03	0	0	3.4	0	1100	0	15	0	1115
7/12/03	0	158	3.4	537.2	0	0	60	0	597.2
7/13/03	0	257	3.4	873.8	0	0	55	0	928.8
7/14/03	0	0	3.4	0	50	0	15	0	65
7/15/03	0	75	3.4	255	0	0	27	0	282
7/16/03	0	10	3.4	34	200	0	31	0	265
7/17/03	0	135	3.4	459	0	0	37	0	496
7/18/03	0	70	3.4	238	200	0	31	0	469
7/19/03	0	181	3.4	615.4	0	0	33	0	648.4
7/20/03	0	290	3.4	986	0	0	42	0	1028
7/21/03	0	70	3.4	238	120	0	22	0	380
7/22/03	0	0	3.4	0	120	0	15	0	135
7/23/03	0	0	3.4	0	60	0	20	0	80
7/24/03	0	0	3.4	0	0	0	23	0	23
7/25/03	0	73	3.4	248.2	65	0	32	1	346.2
7/26/03	0	385	3.4	1309	0	0	50	0	1359
7/27/03	0	175	3.4	595	0	0	35	0	630
7/28/03	0	70	3.4	238	60	0	26	0	324
7/29/03	0	70	3.4	238	140	0	20	0	398
7/30/03	0	120	3.4	408	120	0	22	0	550
7/31/03	0	0	3.4	0	0	0	25	0	25
8/1/03	0	0	3.4	0	0	0	22	0	22
8/2/03	0	0	3.4	0	0	0	17	0	17
8/3/03	0	60	3.4	204	0	0	25	0	229
8/4/03	0	0	3.4	0	0	0	15	0	15
8/5/03	0	0	3.4	0	0	0	20	0	20

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
8/6/03	0	0	3.4	0	150	0	25	0	175
8/7/03	0	0	3.4	0	0	0	22	-2	20
8/8/03	0	0	3.4	0	0	0	20	2	22
8/9/03	0	0	3.4	0	0	0	25	0	25
8/10/03	0	65	3.4	221	0	0	20	0	241
8/11/03	0	0	3.4	0	0	0	18	0	18
8/12/03	0	60	3.4	204	0	0	23	0	227
8/13/03	0	120	3.4	408	120	0	28	0	556
8/14/03	0	60	3.4	204	0	0	23	-2	225
8/15/03	0	125	3.4	425	60	0	32	0	517
8/16/03	0	175	3.4	595	0	0	37	0	632
8/17/03	0	0	3.4	0	0	0	15	0	15
8/18/03	0	65	3.4	221	75	0	20	0	316
8/19/03	0	60	3.4	204	140	0	25	0	369
8/20/03	0	110	3.4	374	0	0	22	0	396
8/21/03	0	135	3.4	459	0	0	26	0	485
8/22/03	0	55	3.4	187	40	0	27	-40	214
8/23/03	0	65	3.4	221	0	0	29	0	250
8/24/03	0	175	3.4	595	0	0	24	0	619
8/25/03	0	0	3.4	0	75	0	28	0	103
8/26/03	0	60	3.4	204	90	0	18	0	312
8/27/03	0	0	3.4	0	0	0	22	0	22
8/28/03	0	65	3.4	221	0	0	24	0	245
8/29/03	0	0	3.4	0	0	0	26	0	26
8/30/03	0	62	3.4	210.8	0	0	29	0	239.8
8/31/03	0	0	3.4	0	0	0	35	0	35
9/1/03	0	0	3.4	0	0	0	20	0	20
9/2/03	0	0	3.4	0	0	0	10	0	10
9/3/03	0	0	3.4	0	0	0	8	0	8
9/4/03	0	0	3.4	0	0	0	12	0	12
9/5/03	0	0	3.4	0	0	0	10	0	10
9/6/03	0	0	3.4	0	0	0	15	0	15
9/7/03	0	0	3.4	0	0	0	20	0	20
9/8/03	0	0	3.4	0	0	0	5	0	5
9/9/03	0	0	3.4	0	0	0	10	0	10
9/10/03	0	0	3.4	0	0	0	10	0	10
9/11/03	0	0	3.4	0	0	0	12	0	12
9/12/03	0	0	3.4	0	0	0	14	0	14
9/13/03	0	0	3.4	0	0	0	30	0	30
9/14/03	0	0	3.4	0	0	0	18	0	18
9/15/03	0	0	3.4	0	0	0	7	0	7
9/16/03	0	0	3.4	0	0	0	12	0	12
9/17/03	0	0	3.4	0	0	0	13	0	13
9/18/03	0	0	3.4	0	0	0	13	0	13
9/19/03	0	0	3.4	0	0	0	10	0	10
9/20/03	0	0	3.4	0	0	0	21	0	21
9/21/03	0	0	3.4	0	0	0	23	0	23
9/22/03	0	0	3.4	0	0	0	12	0	12
9/23/03	0	0	3.4	0	0	0	5	0	5
9/24/03	0	0	3.4	0	0	0	13	0	13
9/25/03	0	0	3.4	0	0	0	13	0	13
9/26/03	0	0	3.4	0	0	0	15	0	15
9/27/03	0	0	3.4	0	0	0	16	0	16
9/28/03	0	0	3.4	0	0	0	17	0	17
9/29/03	0	0	3.4	0	0	0	10	0	10
9/30/03	0	0	3.4	0	0	0	12	0	12
4/1/04	0		3.4						
4/2/04	0		3.4						
4/3/04	0		3.4						
4/4/04	0		3.4						
4/5/04	0		3.4						
4/6/04	0		3.4						

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
4/7/04	0		3.4						
4/8/04	0		3.4						
4/9/04	0		3.4						
4/10/04	0		3.4						
4/11/04	0		3.4						
4/12/04	0		3.4						
4/13/04	0		3.4						
4/14/04	0		3.4						
4/15/04	0		3.4						
4/16/04	0		3.4						
4/17/04	0		3.4						
4/18/04	0		3.4						
4/19/04	0		3.4						
4/20/04	0		3.4						
4/21/04	0		3.4						
4/22/04	0		3.4						
4/23/04	0		3.4						
4/24/04	0		3.4						
4/25/04	0		3.4						
4/26/04	0		3.4						
4/27/04	0		3.4						
4/28/04	0		3.4						
4/29/04	0		3.4						
4/30/04	0		3.4						
5/1/04	0	0	3.4	0	0	0	22	0	22
5/2/04	0	0	3.4	0	0	0	16	0	16
5/3/04	0	0	3.4	0	0	0	8	0	8
5/4/04	0	0	3.4	0	0	0	18	0	18
5/5/04	0	0	3.4	0	0	0	20	0	20
5/6/04	0	0	3.4	0	0	0	12	0	12
5/7/04	0	0	3.4	0	0	0	22	0	22
5/8/04	0	0	3.4	0	0	0	25	0	25
5/9/04	0	0	3.4	0	0	0	15	0	15
5/10/04	0	0	3.4	0	0	0	18	0	18
5/11/04	0	0	3.4	0	0	0	23	0	23
5/12/04	0	0	3.4	0	0	0	27	0	27
5/13/04	0	0	3.4	0	0	0	15	0	15
5/14/04	0	0	3.4	0	0	0	29	0	29
5/15/04	0	0	3.4	0	0	0	35	0	35
5/16/04	0	0	3.4	0	0	0	32	0	32
5/17/04	0	0	3.4	0	0	0	26	0	26
5/18/04	0	0	3.4	0	0	0	12	0	12
5/19/04	0	0	3.4	0	0	0	16	0	16
5/20/04	0	0	3.4	0	0	0	27	0	27
5/21/04	0	0	3.4	0	0	0	28	0	28
5/22/04	0	0	3.4	0	0	0	17	0	17
5/23/04	0	0	3.4	0	0	0	32	0	32
5/24/04	0	0	3.4	0	0	0	16	0	16
5/25/04	0	0	3.4	0	0	0	20	0	20
5/26/04	0	0	3.4	0	0	0	21	0	21
5/27/04	0	0	3.4	0	0	0	23	0	23
5/28/04	0	0	3.4	0	0	0	15	0	15
5/29/04	0	22	3.4	74.8	0	0	21	0	95.8
5/30/04	0	36	3.4	122.4	0	0	29	0	151.4
5/31/04	0	39	3.4	132.6	0	0	22	0	154.6
6/1/04	0	0	3.4	0	0	0	12	0	12
6/2/04	0	0	3.4	0	0	0	16	0	16
6/3/04	0	0	3.4	0	0	0	25	0	25
6/4/04	0	0	3.4	0	0	0	29	0	29
6/5/04	0	0	3.4	0	0	0	32	0	32
6/6/04	0	0	3.4	0	0	0	13	0	13
6/7/04	0	0	3.4	0	50	0	25	0	75

Note: description of variables is provided in text of Apendix B2.

Table B2-3: Demarest Lloyd State Park Daily Attendance Data

Date	Campers	Vehicles	Vehic Factor	Vehic People	Walk-ins	Permit People	Other	Other 2	Total
6/8/04	0	0	3.4	0	50	0	15	0	65
6/9/04	0	0	3.4	0	40	0	65	0	105
6/10/04	0	0	3.4	0	0	0	20	0	20
6/11/04	0	0	3.4	0	0	0	30	0	30
6/12/04	0	0	3.4	0	0	0	70	0	70
6/13/04	0	30	3.4	102	0	0	35	0	137
6/14/04	0	0	3.4	0	0	0	65	0	65
6/15/04	0	0	3.4	0	0	0	100	0	100
6/16/04	0	0	3.4	0	200	0	75	0	275
6/17/04	0	0	3.4	0	0	0	75	0	75
6/18/04	0	0	3.4	0	0	0	30	0	30
6/19/04	0	8	3.4	27.2	0	0	40	0	67.2
6/20/04	0	121	3.4	411.4	0	0	35	0	446.4
6/21/04	0	20	3.4	68	0	0	40	0	108
6/22/04	0	0	3.4	0	0	0	25	0	25
6/23/04	0	101	3.4	343.4	0	0	30	0	373.4
6/24/04	0	136	3.4	462.4	0	0	45	0	507.4
6/25/04	0	30	3.4	102	0	0	20	0	122
6/26/04	0	0	3.4	0	0	0	40	0	40
6/27/04	0	238	3.4	809.2	0	0	50	0	859.2
6/28/04	0	63	3.4	214.2	50	0	50	0	314.2
6/29/04	0	0	3.4	0	0	0	35	0	35
6/30/04	0	195	3.4	663	0	0	55	0	718

Note: description of variables is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
4/1/02	105
4/2/02	115
4/3/02	100
4/4/02	125
4/5/02	175
4/6/02	150
4/7/02	110
4/8/02	85
4/9/02	125
4/10/02	115
4/11/02	125
4/12/02	150
4/13/02	175
4/14/02	200
4/15/02	150
4/16/02	275
4/17/02	400
4/18/02	375
4/19/02	135
4/20/02	140
4/21/02	165
4/22/02	150
4/23/02	120
4/24/02	115
4/25/02	105
4/26/02	95
4/27/02	210
4/28/02	175
4/29/02	125
4/30/02	100
5/1/02	150
5/2/02	125
5/3/02	110
5/4/02	300
5/5/02	250
5/6/02	140
5/7/02	120
5/8/02	135
5/9/02	150
5/10/02	175
5/11/02	220
5/12/02	210
5/13/02	125
5/14/02	155
5/15/02	105
5/16/02	200
5/17/02	150
5/18/02	250
5/19/02	1000
5/20/02	175
5/21/02	100
5/22/02	150
5/23/02	160
5/24/02	105
5/25/02	175
5/26/02	100
5/27/02	185
5/28/02	155
5/29/02	200
5/30/02	250
5/31/02	175
6/1/02	225

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
6/2/02	180
6/3/02	110
6/4/02	140
6/5/02	135
6/6/02	120
6/7/02	75
6/8/02	325
6/9/02	400
6/10/02	150
6/11/02	125
6/12/02	180
6/13/02	160
6/14/02	175
6/15/02	325
6/16/02	300
6/17/02	150
6/18/02	175
6/19/02	275
6/20/02	200
6/21/02	400
6/22/02	1000
6/23/02	1100
6/24/02	600
6/25/02	450
6/26/02	250
6/27/02	500
6/28/02	700
6/29/02	1000
6/30/02	900
7/1/02	475
7/2/02	500
7/3/02	750
7/4/02	800
7/5/02	510
7/6/02	500
7/7/02	525
7/8/02	380
7/9/02	375
7/10/02	400
7/11/02	275
7/12/02	305
7/13/02	510
7/14/02	500
7/15/02	450
7/16/02	175
7/17/02	315
7/18/02	290
7/19/02	425
7/20/02	450
7/21/02	300
7/22/02	400
7/23/02	310
7/24/02	275
7/25/02	300
7/26/02	800
7/27/02	350
7/28/02	275
7/29/02	405
7/30/02	400
7/31/02	375
8/1/02	700
8/2/02	600

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
8/3/02	475
8/4/02	450
8/5/02	300
8/6/02	400
8/7/02	625
8/8/02	700
8/9/02	800
8/10/02	295
8/11/02	400
8/12/02	375
8/13/02	380
8/14/02	425
8/15/02	500
8/16/02	600
8/17/02	580
8/18/02	400
8/19/02	375
8/20/02	225
8/21/02	250
8/22/02	200
8/23/02	400
8/24/02	525
8/25/02	500
8/26/02	275
8/27/02	400
8/28/02	350
8/29/02	375
8/30/02	400
8/31/02	350
9/1/02	550
9/2/02	775
9/3/02	400
9/4/02	375
9/5/02	410
9/6/02	350
9/7/02	675
9/8/02	800
9/9/02	275
9/10/02	350
9/11/02	275
9/12/02	200
9/13/02	400
9/14/02	300
9/15/02	525
9/16/02	210
9/17/02	195
9/18/02	180
9/19/02	275
9/20/02	220
9/21/02	305
9/22/02	410
9/23/02	190
9/24/02	240
9/25/02	210
9/26/02	175
9/27/02	250
9/28/02	300
9/29/02	475
9/30/02	500
4/1/03	165
4/2/03	140
4/3/03	75

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
4/4/03	100
4/5/03	160
4/6/03	115
4/7/03	130
4/8/03	125
4/9/03	75
4/10/03	150
4/11/03	145
4/12/03	160
4/13/03	125
4/14/03	150
4/15/03	140
4/16/03	85
4/17/03	95
4/18/03	100
4/19/03	175
4/20/03	190
4/21/03	130
4/22/03	155
4/23/03	100
4/24/03	125
4/25/03	150
4/26/03	400
4/27/03	700
4/28/03	140
4/29/03	150
4/30/03	125
5/1/03	125
5/2/03	175
5/3/03	200
5/4/03	225
5/5/03	190
5/6/03	150
5/7/03	300
5/8/03	250
5/9/03	210
5/10/03	235
5/11/03	210
5/12/03	240
5/13/03	230
5/14/03	195
5/15/03	175
5/16/03	200
5/17/03	300
5/18/03	295
5/19/03	450
5/20/03	375
5/21/03	150
5/22/03	165
5/23/03	140
5/24/03	145
5/25/03	140
5/26/03	135
5/27/03	160
5/28/03	175
5/29/03	155
5/30/03	250
5/31/03	225
6/1/03	100
6/2/03	250
6/3/03	150
6/4/03	145

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
6/5/03	400
6/6/03	155
6/7/03	165
6/8/03	275
6/9/03	175
6/10/03	200
6/11/03	150
6/12/03	225
6/13/03	135
6/14/03	125
6/15/03	160
6/16/03	250
6/17/03	225
6/18/03	145
6/19/03	160
6/20/03	240
6/21/03	220
6/22/03	140
6/23/03	155
6/24/03	290
6/25/03	800
6/26/03	850
6/27/03	700
6/28/03	350
6/29/03	300
6/30/03	450
7/1/03	350
7/2/03	375
7/3/03	275
7/4/03	1350
7/5/03	950
7/6/03	1200
7/7/03	750
7/8/03	625
7/9/03	250
7/10/03	350
7/11/03	150
7/12/03	1300
7/13/03	1500
7/14/03	450
7/15/03	275
7/16/03	575
7/17/03	400
7/18/03	800
7/19/03	1500
7/20/03	300
7/21/03	275
7/22/03	175
7/23/03	185
7/24/03	600
7/25/03	1550
7/26/03	500
7/27/03	700
7/28/03	375
7/29/03	600
7/30/03	700
7/31/03	450
8/1/03	300
8/2/03	400
8/3/03	800
8/4/03	300
8/5/03	450

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
8/6/03	300
8/7/03	350
8/8/03	200
8/9/03	225
8/10/03	175
8/11/03	250
8/12/03	275
8/13/03	250
8/14/03	450
8/15/03	600
8/16/03	700
8/17/03	200
8/18/03	600
8/19/03	700
8/20/03	650
8/21/03	675
8/22/03	500
8/23/03	750
8/24/03	800
8/25/03	600
8/26/03	650
8/27/03	525
8/28/03	600
8/29/03	800
8/30/03	250
8/31/03	475
9/1/03	400
9/2/03	235
9/3/03	275
9/4/03	200
9/5/03	400
9/6/03	950
9/7/03	300
9/8/03	375
9/9/03	350
9/10/03	425
9/11/03	300
9/12/03	300
9/13/03	400
9/14/03	500
9/15/03	300
9/16/03	275
9/17/03	550
9/18/03	400
9/19/03	150
9/20/03	600
9/21/03	650
9/22/03	495
9/23/03	200
9/24/03	450
9/25/03	400
9/26/03	375
9/27/03	550
9/28/03	525
9/29/03	425
9/30/03	200
4/1/04	50
4/2/04	90
4/3/04	125
4/4/04	135
4/5/04	85
4/6/04	95

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
4/7/04	110
4/8/04	175
4/9/04	225
4/10/04	175
4/11/04	225
4/12/04	80
4/13/04	90
4/14/04	100
4/15/04	110
4/16/04	275
4/17/04	250
4/18/04	275
4/19/04	350
4/20/04	275
4/21/04	200
4/22/04	125
4/23/04	200
4/24/04	800
4/25/04	100
4/26/04	150
4/27/04	150
4/28/04	250
4/29/04	300
4/30/04	175
5/1/04	275
5/2/04	100
5/3/04	125
5/4/04	200
5/5/04	125
5/6/04	200
5/7/04	225
5/8/04	400
5/9/04	175
5/10/04	195
5/11/04	500
5/12/04	400
5/13/04	210
5/14/04	220
5/15/04	500
5/16/04	275
5/17/04	150
5/18/04	135
5/19/04	275
5/20/04	175
5/21/04	225
5/22/04	240
5/23/04	150
5/24/04	175
5/25/04	165
5/26/04	100
5/27/04	180
5/28/04	150
5/29/04	75
5/30/04	250
5/31/04	350
6/1/04	100
6/2/04	200
6/3/04	250
6/4/04	300
6/5/04	275
6/6/04	150
6/7/04	275

Note: description of data is provided in text of Apendix B2.

Table B2-4: Fort Phoenix State Park Daily Attendance Data

Date	Total
6/8/04	500
6/9/04	450
6/10/04	275
6/11/04	300
6/12/04	475
6/13/04	450
6/14/04	200
6/15/04	350
6/16/04	550
6/17/04	400
6/18/04	150
6/19/04	300
6/20/04	305
6/21/04	250
6/22/04	275
6/23/04	300
6/24/04	220
6/25/04	315
6/26/04	600
6/27/04	800
6/28/04	300
6/29/04	305
6/30/04	400

Note: description of data is provided in text of Apendix B2.

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	4/1/02	14	28	0.022
SC	4/2/02	14	39	0.031
SC	4/3/02	14	52	0.042
SC	4/4/02	14	30	0.024
SC	4/5/02	14	41	0.033
SC	4/6/02	14	45	0.036
SC	4/7/02	15	48	0.039
SC	4/8/02	15	35	0.028
SC	4/9/02	15	38	0.031
SC	4/10/02	15	46	0.037
SC	4/11/02	15	40	0.032
SC	4/12/02	15	45	0.036
SC	4/13/02	15	50	0.040
SC	4/14/02	16	48	0.039
SC	4/15/02	16	52	0.042
SC	4/16/02	16	51	0.041
SC	4/17/02	16	65	0.052
SC	4/18/02	16	40	0.032
SC	4/19/02	16	51	0.041
SC	4/20/02	16	60	0.048
SC	4/21/02	17	51	0.041
SC	4/22/02	17	27	0.022
SC	4/23/02	17	26	0.021
SC	4/24/02	17	42	0.034
SC	4/25/02	17	40	0.032
SC	4/26/02	17	48	0.039
SC	4/27/02	17	69	0.055
SC	4/28/02	18	28	0.022
SC	4/29/02	18	29	0.023
SC	4/30/02	18	35	0.028
SC	5/1/02	18	29	0.023
SC	5/2/02	18	35	0.028
SC	5/3/02	18	48.8	0.039
SC	5/4/02	18	43.6	0.035
SC	5/5/02	19	43.6	0.035
SC	5/6/02	19	34.8	0.028
SC	5/7/02	19	34	0.027
SC	5/8/02	19	42	0.034
SC	5/9/02	19	28	0.022
SC	5/10/02	19	40	0.032
SC	5/11/02	19	45	0.036
SC	5/12/02	20	28	0.022
SC	5/13/02	20	18	0.014
SC	5/14/02	20	35	0.028
SC	5/15/02	20	42	0.034
SC	5/16/02	20	55	0.044
SC	5/17/02	20	48	0.039
SC	5/18/02	20	25	0.020
SC	5/19/02	21	58	0.047
SC	5/20/02	21	39	0.031
SC	5/21/02	21	30	0.024
SC	5/22/02	21	38	0.031
SC	5/23/02	21	36	0.029
SC	5/24/02	21	49	0.039
SC	5/25/02	21	58	0.047
SC	5/26/02	22	55	0.044
SC	5/27/02	22	68	0.055
SC	5/28/02	22	40	0.032
SC	5/29/02	22	45	0.036
SC	5/30/02	22	39	0.031
SC	5/31/02	22	50	0.040
SC	6/1/02	22	46	0.037
SC	6/2/02	23	58	0.047

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	6/3/02	23	40	0.032
SC	6/4/02	23	45	0.036
SC	6/5/02	23	26	0.021
SC	6/6/02	23	36	0.029
SC	6/7/02	23	30	0.024
SC	6/8/02	23	108	0.087
SC	6/9/02	24	65	0.052
SC	6/10/02	24	45	0.036
SC	6/11/02	24	53	0.043
SC	6/12/02	24	46	0.037
SC	6/13/02	24	38	0.031
SC	6/14/02	24	35	0.028
SC	6/15/02	24	25	0.020
SC	6/16/02	25	38.6	0.031
SC	6/17/02	25	84	0.067
SC	6/18/02	25	168.8	0.136
SC	6/19/02	25	86.2	0.069
SC	6/20/02	25	159	0.128
SC	6/21/02	25	251	0.202
SC	6/22/02	25	405.4	0.326
SC	6/23/02	26	104.2	0.084
SC	6/24/02	26	504.6	0.405
SC	6/25/02	26	210.6	0.169
SC	6/26/02	26	249.2	0.200
SC	6/27/02	26	146.4	0.118
SC	6/28/02	26	224.4	0.180
SC	6/29/02	26	740.8	0.595
SC	6/30/02	27	622.4	0.500
SC	7/1/02	27	376	0.302
SC	7/2/02	27	307.4	0.247
SC	7/3/02	27	384.2	0.309
SC	7/4/02	27	1244.8	1.000
SC	7/5/02	27	564	0.453
SC	7/6/02	27	857.8	0.689
SC	7/7/02	28	131.6	0.106
SC	7/8/02	28	330	0.265
SC	7/9/02	28	151.4	0.122
SC	7/10/02	28	227.2	0.183
SC	7/11/02	28	140.6	0.113
SC	7/12/02	28	417.4	0.335
SC	7/13/02	28	514.6	0.413
SC	7/14/02	29	455.6	0.366
SC	7/15/02	29	338.6	0.272
SC	7/16/02	29	241.2	0.194
SC	7/17/02	29	297.4	0.239
SC	7/18/02	29	296.8	0.238
SC	7/19/02	29	120.6	0.097
SC	7/20/02	29	103.4	0.083
SC	7/21/02	30	607.8	0.488
SC	7/22/02	30	503	0.404
SC	7/23/02	30	200.6	0.161
SC	7/24/02	30	65	0.052
SC	7/25/02	30	238	0.191
SC	7/26/02	30	178.6	0.143
SC	7/27/02	30	173.2	0.139
SC	7/28/02	31	97	0.078
SC	7/29/02	31	413	0.332
SC	7/30/02	31	455.8	0.366
SC	7/31/02	31	307.2	0.247
SC	8/1/02	31	307.4	0.247
SC	8/2/02	31	312.2	0.251
SC	8/3/02	31	571.4	0.459
SC	8/4/02	32	637.8	0.512

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	8/5/02	32	408.6	0.328
SC	8/6/02	32	227.6	0.183
SC	8/7/02	32	206.4	0.166
SC	8/8/02	32	310.8	0.250
SC	8/9/02	32	378.8	0.304
SC	8/10/02	32	489.8	0.393
SC	8/11/02	33	602	0.484
SC	8/12/02	33	592.6	0.476
SC	8/13/02	33	368.6	0.296
SC	8/14/02	33	403.4	0.324
SC	8/15/02	33	291.2	0.234
SC	8/16/02	33	152.6	0.123
SC	8/17/02	33	560.8	0.451
SC	8/18/02	34	415.8	0.334
SC	8/19/02	34	552.2	0.444
SC	8/20/02	34	75	0.060
SC	8/21/02	34	405.2	0.326
SC	8/22/02	34	335.4	0.269
SC	8/23/02	34	86.2	0.069
SC	8/24/02	34	159.4	0.128
SC	8/25/02	35	162.6	0.131
SC	8/26/02	35	366.2	0.294
SC	8/27/02	35	224.6	0.180
SC	8/28/02	35	93.6	0.075
SC	8/29/02	35	50	0.040
SC	8/30/02	35	50	0.040
SC	8/31/02	35	181.4	0.146
SC	9/1/02	36	112.8	0.091
SC	9/2/02	36	35	0.028
SC	9/3/02	36	32	0.026
SC	9/4/02	36	25	0.020
SC	9/5/02	36	43	0.035
SC	9/6/02	36	55	0.044
SC	9/7/02	36	105	0.084
SC	9/8/02	37	160	0.129
SC	9/9/02	37	76	0.061
SC	9/10/02	37	55	0.044
SC	9/11/02	37	46	0.037
SC	9/12/02	37	60	0.048
SC	9/13/02	37	78	0.063
SC	9/14/02	37	96	0.077
SC	9/15/02	38	35	0.028
SC	9/16/02	38	32	0.026
SC	9/17/02	38	50	0.040
SC	9/18/02	38	62	0.050
SC	9/19/02	38	75	0.060
SC	9/20/02	38	56	0.045
SC	9/21/02	38	115	0.092
SC	9/22/02	39	68	0.055
SC	9/23/02	39	55	0.044
SC	9/24/02	39	36	0.029
SC	9/25/02	39	60	0.048
SC	9/26/02	39	54	0.043
SC	9/27/02	39	29	0.023
SC	9/28/02	39	190	0.153
SC	9/29/02	40	75	0.060
SC	9/30/02	40	52	0.042
SC	4/1/03	14	38	0.031
SC	4/2/03	14	35	0.028
SC	4/3/03	14	40	0.032
SC	4/4/03	14	45	0.036
SC	4/5/03	14	52	0.042
SC	4/6/03	15	72	0.058

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	4/7/03	15	29	0.023
SC	4/8/03	15	25	0.020
SC	4/9/03	15	36	0.029
SC	4/10/03	15	44	0.035
SC	4/11/03	15	38	0.031
SC	4/12/03	15	47	0.038
SC	4/13/03	16	75	0.060
SC	4/14/03	16	41	0.033
SC	4/15/03	16	53	0.043
SC	4/16/03	16	75	0.060
SC	4/17/03	16	38	0.031
SC	4/18/03	16	35	0.028
SC	4/19/03	16	50	0.040
SC	4/20/03	17	50	0.040
SC	4/21/03	17	91	0.073
SC	4/22/03	17	32	0.026
SC	4/23/03	17	40	0.032
SC	4/24/03	17	50	0.040
SC	4/25/03	17	41	0.033
SC	4/26/03	17	80	0.064
SC	4/27/03	18	25	0.020
SC	4/28/03	18	45	0.036
SC	4/29/03	18	53	0.043
SC	4/30/03	18	59	0.047
SC	5/1/03	18	48	0.039
SC	5/2/03	18	52	0.042
SC	5/3/03	18	65	0.052
SC	5/4/03	19	92	0.074
SC	5/5/03	19	25	0.020
SC	5/6/03	19	46	0.037
SC	5/7/03	19	40	0.032
SC	5/8/03	19	35	0.028
SC	5/9/03	19	62	0.050
SC	5/10/03	19	75	0.060
SC	5/11/03	20	82	0.066
SC	5/12/03	20	35	0.028
SC	5/13/03	20	40	0.032
SC	5/14/03	20	38	0.031
SC	5/15/03	20	56	0.045
SC	5/16/03	20	78	0.063
SC	5/17/03	20	73	0.059
SC	5/18/03	21	80	0.064
SC	5/19/03	21	62	0.050
SC	5/20/03	21	82	0.066
SC	5/21/03	21	36	0.029
SC	5/22/03	21	48	0.039
SC	5/23/03	21	66	0.053
SC	5/24/03	21	70	0.056
SC	5/25/03	22	101	0.081
SC	5/26/03	22	78	0.063
SC	5/27/03	22	85	0.068
SC	5/28/03	22	52	0.042
SC	5/29/03	22	55	0.044
SC	5/30/03	22	46	0.037
SC	5/31/03	22	115	0.092
SC	6/1/03	23	36	0.029
SC	6/2/03	23	68	0.055
SC	6/3/03	23	45	0.036
SC	6/4/03	23	56	0.045
SC	6/5/03	23	39	0.031
SC	6/6/03	23	82	0.066
SC	6/7/03	23	45	0.036
SC	6/8/03	24	38	0.031

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	6/9/03	24	49	0.039
SC	6/10/03	24	40	0.032
SC	6/11/03	24	58	0.047
SC	6/12/03	24	41	0.033
SC	6/13/03	24	55	0.044
SC	6/14/03	24	36	0.029
SC	6/15/03	25	45	0.036
SC	6/16/03	25	56	0.045
SC	6/17/03	25	35	0.028
SC	6/18/03	25	35	0.028
SC	6/19/03	25	29	0.023
SC	6/20/03	25	38	0.031
SC	6/21/03	25	127	0.102
SC	6/22/03	26	35	0.028
SC	6/23/03	26	38	0.031
SC	6/24/03	26	45	0.036
SC	6/25/03	26	305.2	0.245
SC	6/26/03	26	313.6	0.252
SC	6/27/03	26	252	0.202
SC	6/28/03	26	352.8	0.283
SC	6/29/03	27	355.4	0.286
SC	6/30/03	27	55	0.044
SC	7/1/03	27	313.4	0.252
SC	7/2/03	27	335.6	0.270
SC	7/3/03	27	228.4	0.183
SC	7/4/03	27	936	0.752
SC	7/5/03	27	1098.2	0.882
SC	7/6/03	28	597.8	0.480
SC	7/7/03	28	316.2	0.254
SC	7/8/03	28	330.6	0.266
SC	7/9/03	28	120	0.096
SC	7/10/03	28	227.2	0.183
SC	7/11/03	28	40	0.032
SC	7/12/03	28	525.2	0.422
SC	7/13/03	29	748.2	0.601
SC	7/14/03	29	53	0.043
SC	7/15/03	29	312.8	0.251
SC	7/16/03	29	125.6	0.101
SC	7/17/03	29	407.8	0.328
SC	7/18/03	29	304.4	0.245
SC	7/19/03	29	574.2	0.461
SC	7/20/03	30	902.4	0.725
SC	7/21/03	30	261.2	0.210
SC	7/22/03	30	74.8	0.060
SC	7/23/03	30	178	0.143
SC	7/24/03	30	48	0.039
SC	7/25/03	30	406.2	0.326
SC	7/26/03	30	910	0.731
SC	7/27/03	31	464	0.373
SC	7/28/03	31	472.8	0.380
SC	7/29/03	31	215	0.173
SC	7/30/03	31	432	0.347
SC	7/31/03	31	378	0.304
SC	8/1/03	31	60	0.048
SC	8/2/03	31	215	0.173
SC	8/3/03	32	374.2	0.301
SC	8/4/03	32	334	0.268
SC	8/5/03	32	105	0.084
SC	8/6/03	32	291.2	0.234
SC	8/7/03	32	229	0.184
SC	8/8/03	32	193.8	0.156
SC	8/9/03	32	124	0.100
SC	8/10/03	33	113.4	0.091

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	8/11/03	33	190	0.153
SC	8/12/03	33	279	0.224
SC	8/13/03	33	148	0.119
SC	8/14/03	33	756.6	0.608
SC	8/15/03	33	881.8	0.708
SC	8/16/03	33	803.6	0.646
SC	8/17/03	34	67	0.054
SC	8/18/03	34	415.2	0.334
SC	8/19/03	34	504.2	0.405
SC	8/20/03	34	514	0.413
SC	8/21/03	34	443	0.356
SC	8/22/03	34	364.8	0.293
SC	8/23/03	34	578.8	0.465
SC	8/24/03	35	487	0.391
SC	8/25/03	35	178	0.143
SC	8/26/03	35	219.6	0.176
SC	8/27/03	35	307.8	0.247
SC	8/28/03	35	229	0.184
SC	8/29/03	35	253.8	0.204
SC	8/30/03	35	192.8	0.155
SC	8/31/03	36	491.6	0.395
SC	9/1/03	36	45.2	0.036
SC	9/2/03	36	35	0.028
SC	9/3/03	36	49	0.039
SC	9/4/03	36	52	0.042
SC	9/5/03	36	65	0.052
SC	9/6/03	36	58	0.047
SC	9/7/03	37	60	0.048
SC	9/8/03	37	35	0.028
SC	9/9/03	37	28	0.022
SC	9/10/03	37	49	0.039
SC	9/11/03	37	42	0.034
SC	9/12/03	37	40	0.032
SC	9/13/03	37	25	0.020
SC	9/14/03	38	39	0.031
SC	9/15/03	38	35	0.028
SC	9/16/03	38	38	0.031
SC	9/17/03	38	25	0.020
SC	9/18/03	38	37	0.030
SC	9/19/03	38	41	0.033
SC	9/20/03	38	82	0.066
SC	9/21/03	39	75	0.060
SC	9/22/03	39	39	0.031
SC	9/23/03	39	32	0.026
SC	9/24/03	39	42	0.034
SC	9/25/03	39	40	0.032
SC	9/26/03	39	60	0.048
SC	9/27/03	39	94	0.076
SC	9/28/03	40	110	0.088
SC	9/29/03	40	52	0.042
SC	9/30/03	40	75	0.060
SC	4/1/04	14	28	0.022
SC	4/2/04	14	39	0.031
SC	4/3/04	14	40	0.032
SC	4/4/04	15	34	0.027
SC	4/5/04	15	21	0.017
SC	4/6/04	15	30	0.024
SC	4/7/04	15	31	0.025
SC	4/8/04	15	38	0.031
SC	4/9/04	15	40	0.032
SC	4/10/04	15	56	0.045
SC	4/11/04	16	60	0.048
SC	4/12/04	16	36	0.029

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	4/13/04	16	41	0.033
SC	4/14/04	16	35	0.028
SC	4/15/04	16	38	0.031
SC	4/16/04	16	40	0.032
SC	4/17/04	16	55	0.044
SC	4/18/04	17	65	0.052
SC	4/19/04	17	60	0.048
SC	4/20/04	17	42	0.034
SC	4/21/04	17	35	0.028
SC	4/22/04	17	40	0.032
SC	4/23/04	17	42	0.034
SC	4/24/04	17	50	0.040
SC	4/25/04	18	58	0.047
SC	4/26/04	18	35	0.028
SC	4/27/04	18	40	0.032
SC	4/28/04	18	32	0.026
SC	4/29/04	18	43	0.035
SC	4/30/04	18	60	0.048
SC	5/1/04	18	65	0.052
SC	5/2/04	19	53	0.043
SC	5/3/04	19	35	0.028
SC	5/4/04	19	38	0.031
SC	5/5/04	19	40	0.032
SC	5/6/04	19	55	0.044
SC	5/7/04	19	52	0.042
SC	5/8/04	19	75	0.060
SC	5/9/04	20	60	0.048
SC	5/10/04	20	48	0.039
SC	5/11/04	20	62	0.050
SC	5/12/04	20	55	0.044
SC	5/13/04	20	68	0.055
SC	5/14/04	20	60	0.048
SC	5/15/04	20	128	0.103
SC	5/16/04	21	80	0.064
SC	5/17/04	21	40	0.032
SC	5/18/04	21	45	0.036
SC	5/19/04	21	62	0.050
SC	5/20/04	21	60	0.048
SC	5/21/04	21	48	0.039
SC	5/22/04	21	125	0.100
SC	5/23/04	22	72	0.058
SC	5/24/04	22	56	0.045
SC	5/25/04	22	60	0.048
SC	5/26/04	22	52	0.042
SC	5/27/04	22	55	0.044
SC	5/28/04	22	45	0.036
SC	5/29/04	22	150	0.121
SC	5/30/04	23	173	0.139
SC	5/31/04	23	110	0.088
SC	6/1/04	23	60	0.048
SC	6/2/04	23	48	0.039
SC	6/3/04	23	40	0.032
SC	6/4/04	23	52	0.042
SC	6/5/04	23	112	0.090
SC	6/6/04	24	38	0.031
SC	6/7/04	24	45	0.036
SC	6/8/04	24	56	0.045
SC	6/9/04	24	88	0.071
SC	6/10/04	24	45	0.036
SC	6/11/04	24	50	0.040
SC	6/12/04	24	66	0.053
SC	6/13/04	25	72	0.058
SC	6/14/04	25	30	0.024

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
SC	6/15/04	25	58	0.047
SC	6/16/04	25	65	0.052
SC	6/17/04	25	50	0.040
SC	6/18/04	25	68	0.055
SC	6/19/04	25	143	0.115
SC	6/20/04	26	407	0.327
SC	6/21/04	26	85	0.068
SC	6/22/04	26	50	0.040
SC	6/23/04	26	290.6	0.233
SC	6/24/04	26	242	0.194
SC	6/25/04	26	103	0.083
SC	6/26/04	26	152	0.122
SC	6/27/04	27	474.8	0.381
SC	6/28/04	27	150	0.121
SC	6/29/04	27	159.4	0.128
SC	6/30/04	27	389.2	0.313
HB	4/1/02	14	85	0.005
HB	4/2/02	14	145	0.009
HB	4/3/02	14	15	0.001
HB	4/4/02	14	210	0.013
HB	4/5/02	14	245	0.015
HB	4/6/02	14	375	0.024
HB	4/7/02	15	410	0.026
HB	4/8/02	15	160	0.010
HB	4/9/02	15	210	0.013
HB	4/10/02	15	225	0.014
HB	4/11/02	15	115	0.007
HB	4/12/02	15	175	0.011
HB	4/13/02	15	300	0.019
HB	4/14/02	16	1100	0.069
HB	4/15/02	16	450	0.028
HB	4/16/02	16	1500	0.095
HB	4/17/02	16	3600	0.227
HB	4/18/02	16	400	0.025
HB	4/19/02	16	150	0.009
HB	4/20/02	16	550	0.035
HB	4/21/02	17	240	0.015
HB	4/22/02	17	30	0.002
HB	4/23/02	17	25	0.002
HB	4/24/02	17	235	0.015
HB	4/25/02	17	140	0.009
HB	4/26/02	17	215	0.014
HB	4/27/02	17	150	0.009
HB	4/28/02	18	10	0.001
HB	4/29/02	18	75	0.005
HB	4/30/02	18	225	0.014
HB	5/1/02	18	210	0.013
HB	5/2/02	18	20	0.001
HB	5/3/02	18	10	0.001
HB	5/4/02	18	558	0.035
HB	5/5/02	19	837	0.053
HB	5/6/02	19	210	0.013
HB	5/7/02	19	225	0.014
HB	5/8/02	19	320	0.020
HB	5/9/02	19	145	0.009
HB	5/10/02	19	230	0.015
HB	5/11/02	19	55	0.003
HB	5/12/02	20	15	0.001
HB	5/13/02	20	50	0.003
HB	5/14/02	20	50	0.003
HB	5/15/02	20	25	0.002
HB	5/16/02	20	230	0.015
HB	5/17/02	20	50	0.003

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	5/18/02	20	350	0.022
HB	5/19/02	21	400	0.025
HB	5/20/02	21	230	0.015
HB	5/21/02	21	140	0.009
HB	5/22/02	21	400	0.025
HB	5/23/02	21	210	0.013
HB	5/24/02	21	782	0.049
HB	5/25/02	21	300	0.019
HB	5/26/02	22	110	0.007
HB	5/27/02	22	310	0.020
HB	5/28/02	22	75	0.005
HB	5/29/02	22	240	0.015
HB	5/30/02	22	300	0.019
HB	5/31/02	22	110	0.007
HB	6/1/02	22	2478	0.157
HB	6/2/02	23	800	0.051
HB	6/3/02	23	100	0.006
HB	6/4/02	23	870	0.055
HB	6/5/02	23	50	0.003
HB	6/6/02	23	50	0.003
HB	6/7/02	23	50	0.003
HB	6/8/02	23	990	0.063
HB	6/9/02	24	1365	0.086
HB	6/10/02	24	920	0.058
HB	6/11/02	24	355	0.022
HB	6/12/02	24	25	0.002
HB	6/13/02	24	40	0.003
HB	6/14/02	24	65	0.004
HB	6/15/02	24	20	0.001
HB	6/16/02	25	40	0.003
HB	6/17/02	25	1010	0.064
HB	6/18/02	25	2190	0.138
HB	6/19/02	25	2291	0.145
HB	6/20/02	25	3440	0.217
HB	6/21/02	25	3925	0.248
HB	6/22/02	25	4435	0.280
HB	6/23/02	26	2700	0.171
HB	6/24/02	26	4350	0.275
HB	6/25/02	26	3625	0.229
HB	6/26/02	26	3560	0.225
HB	6/27/02	26	2405	0.152
HB	6/28/02	26	2080	0.131
HB	6/29/02	26	8150	0.515
HB	6/30/02	27	9450	0.597
HB	7/1/02	27	6005	0.379
HB	7/2/02	27	7500	0.474
HB	7/3/02	27	6930	0.438
HB	7/4/02	27	10760	0.680
HB	7/5/02	27	7830	0.495
HB	7/6/02	27	7110	0.449
HB	7/7/02	28	2780	0.176
HB	7/8/02	28	2330	0.147
HB	7/9/02	28	1650	0.104
HB	7/10/02	28	1606	0.101
HB	7/11/02	28	1530	0.097
HB	7/12/02	28	3180	0.201
HB	7/13/02	28	6090	0.385
HB	7/14/02	29	7360	0.465
HB	7/15/02	29	2330	0.147
HB	7/16/02	29	2280	0.144
HB	7/17/02	29	2270	0.143
HB	7/18/02	29	2290	0.145
HB	7/19/02	29	816	0.052

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	7/20/02	29	130	0.008
HB	7/21/02	30	7680	0.485
HB	7/22/02	30	4325	0.273
HB	7/23/02	30	2940	0.186
HB	7/24/02	30	175	0.011
HB	7/25/02	30	1090	0.069
HB	7/26/02	30	240	0.015
HB	7/27/02	30	1560	0.099
HB	7/28/02	31	1000	0.063
HB	7/29/02	31	3150	0.199
HB	7/30/02	31	3648	0.230
HB	7/31/02	31	6182	0.391
HB	8/1/02	31	5100	0.322
HB	8/2/02	31	4560	0.288
HB	8/3/02	31	8900	0.562
HB	8/4/02	32	12900	0.815
HB	8/5/02	32	1545	0.098
HB	8/6/02	32	2150	0.136
HB	8/7/02	32	1555	0.098
HB	8/8/02	32	1800	0.114
HB	8/9/02	32	3585	0.226
HB	8/10/02	32	6300	0.398
HB	8/11/02	33	11200	0.708
HB	8/12/02	33	5730	0.362
HB	8/13/02	33	3875	0.245
HB	8/14/02	33	4053	0.256
HB	8/15/02	33	1900	0.120
HB	8/16/02	33	1350	0.085
HB	8/17/02	33	6000	0.379
HB	8/18/02	34	3300	0.208
HB	8/19/02	34	3250	0.205
HB	8/20/02	34	130	0.008
HB	8/21/02	34	1365	0.086
HB	8/22/02	34	1500	0.095
HB	8/23/02	34	175	0.011
HB	8/24/02	34	240	0.015
HB	8/25/02	35	500	0.032
HB	8/26/02	35	2200	0.139
HB	8/27/02	35	900	0.057
HB	8/28/02	35	230	0.015
HB	8/29/02	35	30	0.002
HB	8/30/02	35	55	0.003
HB	8/31/02	35	482	0.030
HB	9/1/02	36	204	0.013
HB	9/2/02	36	25	0.002
HB	9/3/02	36	50	0.003
HB	9/4/02	36	75	0.005
HB	9/5/02	36	150	0.009
HB	9/6/02	36	350	0.022
HB	9/7/02	36	500	0.032
HB	9/8/02	37	1200	0.076
HB	9/9/02	37	500	0.032
HB	9/10/02	37	500	0.032
HB	9/11/02	37	75	0.005
HB	9/12/02	37	150	0.009
HB	9/13/02	37	80	0.005
HB	9/14/02	37	300	0.019
HB	9/15/02	38	210	0.013
HB	9/16/02	38	50	0.003
HB	9/17/02	38	60	0.004
HB	9/18/02	38	230	0.015
HB	9/19/02	38	220	0.014
HB	9/20/02	38	175	0.011

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	9/21/02	38	440	0.028
HB	9/22/02	39	620	0.039
HB	9/23/02	39	50	0.003
HB	9/24/02	39	35	0.002
HB	9/25/02	39	75	0.005
HB	9/26/02	39	65	0.004
HB	9/27/02	39	15	0.001
HB	9/28/02	39	240	0.015
HB	9/29/02	40	300	0.019
HB	9/30/02	40	175	0.011
HB	4/1/03	14	0	0.000
HB	4/2/03	14	0	0.000
HB	4/3/03	14	0	0.000
HB	4/4/03	14	0	0.000
HB	4/5/03	14	0	0.000
HB	4/6/03	15	0	0.000
HB	4/7/03	15	0	0.000
HB	4/8/03	15	0	0.000
HB	4/9/03	15	0	0.000
HB	4/10/03	15	0	0.000
HB	4/11/03	15	0	0.000
HB	4/12/03	15	0	0.000
HB	4/13/03	16	0	0.000
HB	4/14/03	16	0	0.000
HB	4/15/03	16	0	0.000
HB	4/16/03	16	0	0.000
HB	4/17/03	16	0	0.000
HB	4/18/03	16	0	0.000
HB	4/19/03	16	0	0.000
HB	4/20/03	17	0	0.000
HB	4/21/03	17	0	0.000
HB	4/22/03	17	0	0.000
HB	4/23/03	17	0	0.000
HB	4/24/03	17	0	0.000
HB	4/25/03	17	0	0.000
HB	4/26/03	17	0	0.000
HB	4/27/03	18	0	0.000
HB	4/28/03	18	0	0.000
HB	4/29/03	18	0	0.000
HB	4/30/03	18	0	0.000
HB	5/1/03	18	10	0.001
HB	5/2/03	18	15	0.001
HB	5/3/03	18	10	0.001
HB	5/4/03	19	20	0.001
HB	5/5/03	19	23	0.001
HB	5/6/03	19	15	0.001
HB	5/7/03	19	25	0.002
HB	5/8/03	19	20	0.001
HB	5/9/03	19	17	0.001
HB	5/10/03	19	10	0.001
HB	5/11/03	20	22	0.001
HB	5/12/03	20	5	0.000
HB	5/13/03	20	3	0.000
HB	5/14/03	20	0	0.000
HB	5/15/03	20	15	0.001
HB	5/16/03	20	30	0.002
HB	5/17/03	20	35	0.002
HB	5/18/03	21	50	0.003
HB	5/19/03	21	65	0.004
HB	5/20/03	21	40	0.003
HB	5/21/03	21	25	0.002
HB	5/22/03	21	15	0.001
HB	5/23/03	21	5	0.000

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	5/24/03	21	10	0.001
HB	5/25/03	22	10	0.001
HB	5/26/03	22	5	0.000
HB	5/27/03	22	0	0.000
HB	5/28/03	22	20	0.001
HB	5/29/03	22	25	0.002
HB	5/30/03	22	25	0.002
HB	5/31/03	22	40	0.003
HB	6/1/03	23	0	0.000
HB	6/2/03	23	50	0.003
HB	6/3/03	23	520	0.033
HB	6/4/03	23	40	0.003
HB	6/5/03	23	25	0.002
HB	6/6/03	23	1200	0.076
HB	6/7/03	23	45	0.003
HB	6/8/03	24	20	0.001
HB	6/9/03	24	55	0.003
HB	6/10/03	24	2420	0.153
HB	6/11/03	24	60	0.004
HB	6/12/03	24	20	0.001
HB	6/13/03	24	45	0.003
HB	6/14/03	24	10	0.001
HB	6/15/03	25	2030	0.128
HB	6/16/03	25	250	0.016
HB	6/17/03	25	2690	0.170
HB	6/18/03	25	50	0.003
HB	6/19/03	25	100	0.006
HB	6/20/03	25	750	0.047
HB	6/21/03	25	150	0.009
HB	6/22/03	26	15	0.001
HB	6/23/03	26	175	0.011
HB	6/24/03	26	4830	0.305
HB	6/25/03	26	6030	0.381
HB	6/26/03	26	6940	0.438
HB	6/27/03	26	5680	0.359
HB	6/28/03	26	4550	0.287
HB	6/29/03	27	2490	0.157
HB	6/30/03	27	2910	0.184
HB	7/1/03	27	7080	0.447
HB	7/2/03	27	5510	0.348
HB	7/3/03	27	2320	0.147
HB	7/4/03	27	9830	0.621
HB	7/5/03	27	9450	0.597
HB	7/6/03	28	10360	0.654
HB	7/7/03	28	4140	0.262
HB	7/8/03	28	4020	0.254
HB	7/9/03	28	1180	0.075
HB	7/10/03	28	1200	0.076
HB	7/11/03	28	250	0.016
HB	7/12/03	28	5150	0.325
HB	7/13/03	29	7920	0.500
HB	7/14/03	29	1580	0.100
HB	7/15/03	29	100	0.006
HB	7/16/03	29	95	0.006
HB	7/17/03	29	4810	0.304
HB	7/18/03	29	3110	0.196
HB	7/19/03	29	6080	0.384
HB	7/20/03	30	14260	0.901
HB	7/21/03	30	2200	0.139
HB	7/22/03	30	500	0.032
HB	7/23/03	30	250	0.016
HB	7/24/03	30	200	0.013
HB	7/25/03	30	3030	0.191

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	7/26/03	30	15830	1.000
HB	7/27/03	31	6880	0.435
HB	7/28/03	31	5400	0.341
HB	7/29/03	31	500	0.032
HB	7/30/03	31	6050	0.382
HB	7/31/03	31	2150	0.136
HB	8/1/03	31	150	0.009
HB	8/2/03	31	100	0.006
HB	8/3/03	32	1570	0.099
HB	8/4/03	32	250	0.016
HB	8/5/03	32	800	0.051
HB	8/6/03	32	420	0.027
HB	8/7/03	32	1500	0.095
HB	8/8/03	32	200	0.013
HB	8/9/03	32	900	0.057
HB	8/10/03	33	950	0.060
HB	8/11/03	33	3000	0.190
HB	8/12/03	33	300	0.019
HB	8/13/03	33	250	0.016
HB	8/14/03	33	9080	0.574
HB	8/15/03	33	6800	0.430
HB	8/16/03	33	7450	0.471
HB	8/17/03	34	50	0.003
HB	8/18/03	34	2150	0.136
HB	8/19/03	34	4450	0.281
HB	8/20/03	34	5700	0.360
HB	8/21/03	34	8300	0.524
HB	8/22/03	34	6450	0.407
HB	8/23/03	34	8500	0.537
HB	8/24/03	35	4950	0.313
HB	8/25/03	35	250	0.016
HB	8/26/03	35	4900	0.310
HB	8/27/03	35	3300	0.208
HB	8/28/03	35	2550	0.161
HB	8/29/03	35	4800	0.303
HB	8/30/03	35	500	0.032
HB	8/31/03	36	1950	0.123
HB	9/1/03	36	350	0.022
HB	9/2/03	36	75	0.005
HB	9/3/03	36	100	0.006
HB	9/4/03	36	54	0.003
HB	9/5/03	36	1515	0.096
HB	9/6/03	36	4440	0.280
HB	9/7/03	37	6025	0.381
HB	9/8/03	37	460	0.029
HB	9/9/03	37	350	0.022
HB	9/10/03	37	270	0.017
HB	9/11/03	37	500	0.032
HB	9/12/03	37	600	0.038
HB	9/13/03	37	550	0.035
HB	9/14/03	38	1350	0.085
HB	9/15/03	38	575	0.036
HB	9/16/03	38	413	0.026
HB	9/17/03	38	420	0.027
HB	9/18/03	38	2450	0.155
HB	9/19/03	38	2150	0.136
HB	9/20/03	38	3470	0.219
HB	9/21/03	39	5100	0.322
HB	9/22/03	39	350	0.022
HB	9/23/03	39	345	0.022
HB	9/24/03	39	290	0.018
HB	9/25/03	39	480	0.030
HB	9/26/03	39	1400	0.088

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	9/27/03	39	825	0.052
HB	9/28/03	40	497	0.031
HB	9/29/03	40	360	0.023
HB	9/30/03	40	320	0.020
HB	4/1/04	14	133	0.008
HB	4/2/04	14	158	0.010
HB	4/3/04	14	296	0.019
HB	4/4/04	15	306	0.019
HB	4/5/04	15	211	0.013
HB	4/6/04	15	208	0.013
HB	4/7/04	15	268	0.017
HB	4/8/04	15	222	0.014
HB	4/9/04	15	178	0.011
HB	4/10/04	15	344	0.022
HB	4/11/04	16	304	0.019
HB	4/12/04	16	188	0.012
HB	4/13/04	16	125	0.008
HB	4/14/04	16	111	0.007
HB	4/15/04	16	156	0.010
HB	4/16/04	16	198	0.013
HB	4/17/04	16	277	0.017
HB	4/18/04	17	345	0.022
HB	4/19/04	17	1256	0.079
HB	4/20/04	17	425	0.027
HB	4/21/04	17	220	0.014
HB	4/22/04	17	148	0.009
HB	4/23/04	17	176	0.011
HB	4/24/04	17	196	0.012
HB	4/25/04	18	178	0.011
HB	4/26/04	18	209	0.013
HB	4/27/04	18	255	0.016
HB	4/28/04	18	166	0.010
HB	4/29/04	18	248	0.016
HB	4/30/04	18	288	0.018
HB	5/1/04	18	0	0.000
HB	5/2/04	19	0	0.000
HB	5/3/04	19	0	0.000
HB	5/4/04	19	0	0.000
HB	5/5/04	19	0	0.000
HB	5/6/04	19	0	0.000
HB	5/7/04	19	62	0.004
HB	5/8/04	19	79	0.005
HB	5/9/04	20	21	0.001
HB	5/10/04	20	600	0.038
HB	5/11/04	20	300	0.019
HB	5/12/04	20	90	0.006
HB	5/13/04	20	70	0.004
HB	5/14/04	20	500	0.032
HB	5/15/04	20	2000	0.126
HB	5/16/04	21	450	0.028
HB	5/17/04	21	73	0.005
HB	5/18/04	21	48	0.003
HB	5/19/04	21	37	0.002
HB	5/20/04	21	94	0.006
HB	5/21/04	21	51	0.003
HB	5/22/04	21	275	0.017
HB	5/23/04	22	50	0.003
HB	5/24/04	22	42	0.003
HB	5/25/04	22	54	0.003
HB	5/26/04	22	70	0.004
HB	5/27/04	22	37	0.002
HB	5/28/04	22	44	0.003
HB	5/29/04	22	370	0.023

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
HB	5/30/04	23	1760	0.111
HB	5/31/04	23	650	0.041
HB	6/1/04	23	15	0.001
HB	6/2/04	23	20	0.001
HB	6/3/04	23	10	0.001
HB	6/4/04	23	865	0.055
HB	6/5/04	23	500	0.032
HB	6/6/04	24	5	0.000
HB	6/7/04	24	50	0.003
HB	6/8/04	24	2655	0.168
HB	6/9/04	24	10840	0.685
HB	6/10/04	24	50	0.003
HB	6/11/04	24	370	0.023
HB	6/12/04	24	770	0.049
HB	6/13/04	25	1585	0.100
HB	6/14/04	25	50	0.003
HB	6/15/04	25	1800	0.114
HB	6/16/04	25	4050	0.256
HB	6/17/04	25	1580	0.100
HB	6/18/04	25	20	0.001
HB	6/19/04	25	3000	0.190
HB	6/20/04	26	4675	0.295
HB	6/21/04	26	7750	0.490
HB	6/22/04	26	15	0.001
HB	6/23/04	26	12110	0.765
HB	6/24/04	26	8505	0.537
HB	6/25/04	26	1245	0.079
HB	6/26/04	26	10	0.001
HB	6/27/04	27	23860	1.507
HB	6/28/04	27	7680	0.485
HB	6/29/04	27	5180	0.327
HB	6/30/04	27	24670	1.558
DL	4/1/02	14	0	0.000
DL	4/2/02	14	0	0.000
DL	4/3/02	14	0	0.000
DL	4/4/02	14	0	0.000
DL	4/5/02	14	0	0.000
DL	4/6/02	14	0	0.000
DL	4/7/02	15	3	0.001
DL	4/8/02	15	2	0.001
DL	4/9/02	15	3	0.001
DL	4/10/02	15	10	0.004
DL	4/11/02	15	12	0.005
DL	4/12/02	15	16	0.007
DL	4/13/02	15	17	0.007
DL	4/14/02	16	21	0.009
DL	4/15/02	16	13	0.006
DL	4/16/02	16	19	0.008
DL	4/17/02	16	200	0.088
DL	4/18/02	16	75	0.033
DL	4/19/02	16	35	0.015
DL	4/20/02	16	24	0.011
DL	4/21/02	17	32	0.014
DL	4/22/02	17	4	0.002
DL	4/23/02	17	10	0.004
DL	4/24/02	17	12	0.005
DL	4/25/02	17	14	0.006
DL	4/26/02	17	15	0.007
DL	4/27/02	17	19	0.008
DL	4/28/02	18	21	0.009
DL	4/29/02	18	4	0.002
DL	4/30/02	18	6	0.003
DL	5/1/02	18	10	0.004

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	5/2/02	18	5	0.002
DL	5/3/02	18	7	0.003
DL	5/4/02	18	15	0.007
DL	5/5/02	19	38.6	0.017
DL	5/6/02	19	16	0.007
DL	5/7/02	19	12	0.005
DL	5/8/02	19	15	0.007
DL	5/9/02	19	11	0.005
DL	5/10/02	19	17	0.007
DL	5/11/02	19	21	0.009
DL	5/12/02	20	10	0.004
DL	5/13/02	20	6	0.003
DL	5/14/02	20	12	0.005
DL	5/15/02	20	6	0.003
DL	5/16/02	20	21	0.009
DL	5/17/02	20	14	0.006
DL	5/18/02	20	7	0.003
DL	5/19/02	21	15	0.007
DL	5/20/02	21	18	0.008
DL	5/21/02	21	19	0.008
DL	5/22/02	21	21	0.009
DL	5/23/02	21	21	0.009
DL	5/24/02	21	11	0.005
DL	5/25/02	21	42.2	0.019
DL	5/26/02	22	16	0.007
DL	5/27/02	22	171.2	0.075
DL	5/28/02	22	8	0.004
DL	5/29/02	22	12	0.005
DL	5/30/02	22	23	0.010
DL	5/31/02	22	28	0.012
DL	6/1/02	22	330.8	0.145
DL	6/2/02	23	115.2	0.051
DL	6/3/02	23	25	0.011
DL	6/4/02	23	160	0.070
DL	6/5/02	23	20	0.009
DL	6/6/02	23	16	0.007
DL	6/7/02	23	13	0.006
DL	6/8/02	23	55.6	0.024
DL	6/9/02	24	225.4	0.099
DL	6/10/02	24	240	0.105
DL	6/11/02	24	31	0.014
DL	6/12/02	24	35	0.015
DL	6/13/02	24	12	0.005
DL	6/14/02	24	10	0.004
DL	6/15/02	24	10	0.004
DL	6/16/02	25	22	0.010
DL	6/17/02	25	16	0.007
DL	6/18/02	25	43.8	0.019
DL	6/19/02	25	226.8	0.099
DL	6/20/02	25	254.6	0.112
DL	6/21/02	25	476.6	0.209
DL	6/22/02	25	805	0.353
DL	6/23/02	26	639.4	0.280
DL	6/24/02	26	300.8	0.132
DL	6/25/02	26	472.8	0.207
DL	6/26/02	26	255	0.112
DL	6/27/02	26	290.4	0.127
DL	6/28/02	26	477.4	0.209
DL	6/29/02	26	965.8	0.423
DL	6/30/02	27	1442	0.632
DL	7/1/02	27	272.4	0.119
DL	7/2/02	27	782.4	0.343
DL	7/3/02	27	604.2	0.265

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	7/4/02	27	2253.8	0.988
DL	7/5/02	27	717.4	0.315
DL	7/6/02	27	935.4	0.410
DL	7/7/02	28	350	0.153
DL	7/8/02	28	668.8	0.293
DL	7/9/02	28	428.6	0.188
DL	7/10/02	28	40	0.018
DL	7/11/02	28	228.8	0.100
DL	7/12/02	28	926.8	0.406
DL	7/13/02	28	460.4	0.202
DL	7/14/02	29	933.8	0.409
DL	7/15/02	29	323.6	0.142
DL	7/16/02	29	293.8	0.129
DL	7/17/02	29	313.8	0.138
DL	7/18/02	29	262.4	0.115
DL	7/19/02	29	405	0.178
DL	7/20/02	29	251.8	0.110
DL	7/21/02	30	673.6	0.295
DL	7/22/02	30	540	0.237
DL	7/23/02	30	355	0.156
DL	7/24/02	30	120	0.053
DL	7/25/02	30	135	0.059
DL	7/26/02	30	475	0.208
DL	7/27/02	30	276.8	0.121
DL	7/28/02	31	195	0.086
DL	7/29/02	31	205	0.090
DL	7/30/02	31	493.4	0.216
DL	7/31/02	31	720	0.316
DL	8/1/02	31	205	0.090
DL	8/2/02	31	535	0.235
DL	8/3/02	31	585.2	0.257
DL	8/4/02	32	1170	0.513
DL	8/5/02	32	125	0.055
DL	8/6/02	32	305	0.134
DL	8/7/02	32	325	0.143
DL	8/8/02	32	65	0.029
DL	8/9/02	32	885	0.388
DL	8/10/02	32	390	0.171
DL	8/11/02	33	755	0.331
DL	8/12/02	33	255.2	0.112
DL	8/13/02	33	405	0.178
DL	8/14/02	33	408.4	0.179
DL	8/15/02	33	135	0.059
DL	8/16/02	33	225	0.099
DL	8/17/02	33	575	0.252
DL	8/18/02	34	730	0.320
DL	8/19/02	34	295	0.129
DL	8/20/02	34	10	0.004
DL	8/21/02	34	65	0.029
DL	8/22/02	34	275	0.121
DL	8/23/02	34	75	0.033
DL	8/24/02	34	205	0.090
DL	8/25/02	35	45	0.020
DL	8/26/02	35	200	0.088
DL	8/27/02	35	205	0.090
DL	8/28/02	35	30	0.013
DL	8/29/02	35	15	0.007
DL	8/30/02	35	20	0.009
DL	8/31/02	35	30	0.013
DL	9/1/02	36	200	0.088
DL	9/2/02	36	25	0.011
DL	9/3/02	36	5	0.002
DL	9/4/02	36	6	0.003

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	9/5/02	36	6	0.003
DL	9/6/02	36	9	0.004
DL	9/7/02	36	12	0.005
DL	9/8/02	37	35	0.015
DL	9/9/02	37	30	0.013
DL	9/10/02	37	6	0.003
DL	9/11/02	37	9	0.004
DL	9/12/02	37	12	0.005
DL	9/13/02	37	14	0.006
DL	9/14/02	37	18	0.008
DL	9/15/02	38	27	0.012
DL	9/16/02	38	32	0.014
DL	9/17/02	38	65	0.029
DL	9/18/02	38	7	0.003
DL	9/19/02	38	9	0.004
DL	9/20/02	38	14	0.006
DL	9/21/02	38	16	0.007
DL	9/22/02	39	25	0.011
DL	9/23/02	39	35	0.015
DL	9/24/02	39	8	0.004
DL	9/25/02	39	12	0.005
DL	9/26/02	39	13	0.006
DL	9/27/02	39	16	0.007
DL	9/28/02	39	19	0.008
DL	9/29/02	40	27	0.012
DL	9/30/02	40	38	0.017
DL	4/1/03	14	0	0.000
DL	4/2/03	14	0	0.000
DL	4/3/03	14	0	0.000
DL	4/4/03	14	0	0.000
DL	4/5/03	14	0	0.000
DL	4/6/03	15	0	0.000
DL	4/7/03	15	0	0.000
DL	4/8/03	15	0	0.000
DL	4/9/03	15	0	0.000
DL	4/10/03	15	0	0.000
DL	4/11/03	15	0	0.000
DL	4/12/03	15	0	0.000
DL	4/13/03	16	0	0.000
DL	4/14/03	16	0	0.000
DL	4/15/03	16	0	0.000
DL	4/16/03	16	0	0.000
DL	4/17/03	16	0	0.000
DL	4/18/03	16	0	0.000
DL	4/19/03	16	0	0.000
DL	4/20/03	17	0	0.000
DL	4/21/03	17	0	0.000
DL	4/22/03	17	0	0.000
DL	4/23/03	17	0	0.000
DL	4/24/03	17	0	0.000
DL	4/25/03	17	0	0.000
DL	4/26/03	17	0	0.000
DL	4/27/03	18	15	0.007
DL	4/28/03	18	25	0.011
DL	4/29/03	18	27	0.012
DL	4/30/03	18	40	0.018
DL	5/1/03	18	45	0.020
DL	5/2/03	18	32	0.014
DL	5/3/03	18	55	0.024
DL	5/4/03	19	42	0.018
DL	5/5/03	19	21	0.009
DL	5/6/03	19	18	0.008
DL	5/7/03	19	26	0.011

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	5/8/03	19	10	0.004
DL	5/9/03	19	22	0.010
DL	5/10/03	19	43	0.019
DL	5/11/03	20	37	0.016
DL	5/12/03	20	20	0.009
DL	5/13/03	20	28	0.012
DL	5/14/03	20	25	0.011
DL	5/15/03	20	25	0.011
DL	5/16/03	20	15	0.007
DL	5/17/03	20	28	0.012
DL	5/18/03	21	30	0.013
DL	5/19/03	21	42	0.018
DL	5/20/03	21	45	0.020
DL	5/21/03	21	31	0.014
DL	5/22/03	21	28	0.012
DL	5/23/03	21	30	0.013
DL	5/24/03	21	18	0.008
DL	5/25/03	22	29	0.013
DL	5/26/03	22	15	0.007
DL	5/27/03	22	81	0.036
DL	5/28/03	22	85	0.037
DL	5/29/03	22	88	0.039
DL	5/30/03	22	92	0.040
DL	5/31/03	22	35	0.015
DL	6/1/03	23	10	0.004
DL	6/2/03	23	75	0.033
DL	6/3/03	23	80	0.035
DL	6/4/03	23	15	0.007
DL	6/5/03	23	80	0.035
DL	6/6/03	23	95	0.042
DL	6/7/03	23	21.8	0.010
DL	6/8/03	24	19.4	0.009
DL	6/9/03	24	80	0.035
DL	6/10/03	24	18.8	0.008
DL	6/11/03	24	78.4	0.034
DL	6/12/03	24	10	0.004
DL	6/13/03	24	17	0.007
DL	6/14/03	24	28	0.012
DL	6/15/03	25	52	0.023
DL	6/16/03	25	80	0.035
DL	6/17/03	25	381.8	0.167
DL	6/18/03	25	11	0.005
DL	6/19/03	25	85	0.037
DL	6/20/03	25	72	0.032
DL	6/21/03	25	25	0.011
DL	6/22/03	26	22	0.010
DL	6/23/03	26	100	0.044
DL	6/24/03	26	456.4	0.200
DL	6/25/03	26	478.4	0.210
DL	6/26/03	26	601.8	0.264
DL	6/27/03	26	432.8	0.190
DL	6/28/03	26	230.8	0.101
DL	6/29/03	27	375.6	0.165
DL	6/30/03	27	219	0.096
DL	7/1/03	27	433.2	0.190
DL	7/2/03	27	426	0.187
DL	7/3/03	27	212.2	0.093
DL	7/4/03	27	2280.6	1.000
DL	7/5/03	27	981.6	0.430
DL	7/6/03	28	1113	0.488
DL	7/7/03	28	595.4	0.261
DL	7/8/03	28	435.6	0.191
DL	7/9/03	28	140	0.061

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	7/10/03	28	267.4	0.117
DL	7/11/03	28	1115	0.489
DL	7/12/03	28	597.2	0.262
DL	7/13/03	29	928.8	0.407
DL	7/14/03	29	65	0.029
DL	7/15/03	29	282	0.124
DL	7/16/03	29	265	0.116
DL	7/17/03	29	496	0.217
DL	7/18/03	29	469	0.206
DL	7/19/03	29	648.4	0.284
DL	7/20/03	30	1028	0.451
DL	7/21/03	30	380	0.167
DL	7/22/03	30	135	0.059
DL	7/23/03	30	80	0.035
DL	7/24/03	30	23	0.010
DL	7/25/03	30	346.2	0.152
DL	7/26/03	30	1359	0.596
DL	7/27/03	31	630	0.276
DL	7/28/03	31	324	0.142
DL	7/29/03	31	398	0.175
DL	7/30/03	31	550	0.241
DL	7/31/03	31	25	0.011
DL	8/1/03	31	22	0.010
DL	8/2/03	31	17	0.007
DL	8/3/03	32	229	0.100
DL	8/4/03	32	15	0.007
DL	8/5/03	32	20	0.009
DL	8/6/03	32	175	0.077
DL	8/7/03	32	20	0.009
DL	8/8/03	32	22	0.010
DL	8/9/03	32	25	0.011
DL	8/10/03	33	241	0.106
DL	8/11/03	33	18	0.008
DL	8/12/03	33	227	0.100
DL	8/13/03	33	556	0.244
DL	8/14/03	33	225	0.099
DL	8/15/03	33	517	0.227
DL	8/16/03	33	632	0.277
DL	8/17/03	34	15	0.007
DL	8/18/03	34	316	0.139
DL	8/19/03	34	369	0.162
DL	8/20/03	34	396	0.174
DL	8/21/03	34	485	0.213
DL	8/22/03	34	214	0.094
DL	8/23/03	34	250	0.110
DL	8/24/03	35	619	0.271
DL	8/25/03	35	103	0.045
DL	8/26/03	35	312	0.137
DL	8/27/03	35	22	0.010
DL	8/28/03	35	245	0.107
DL	8/29/03	35	26	0.011
DL	8/30/03	35	239.8	0.105
DL	8/31/03	36	35	0.015
DL	9/1/03	36	20	0.009
DL	9/2/03	36	10	0.004
DL	9/3/03	36	8	0.004
DL	9/4/03	36	12	0.005
DL	9/5/03	36	10	0.004
DL	9/6/03	36	15	0.007
DL	9/7/03	37	20	0.009
DL	9/8/03	37	5	0.002
DL	9/9/03	37	10	0.004
DL	9/10/03	37	10	0.004

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	9/11/03	37	12	0.005
DL	9/12/03	37	14	0.006
DL	9/13/03	37	30	0.013
DL	9/14/03	38	18	0.008
DL	9/15/03	38	7	0.003
DL	9/16/03	38	12	0.005
DL	9/17/03	38	13	0.006
DL	9/18/03	38	13	0.006
DL	9/19/03	38	10	0.004
DL	9/20/03	38	21	0.009
DL	9/21/03	39	23	0.010
DL	9/22/03	39	12	0.005
DL	9/23/03	39	5	0.002
DL	9/24/03	39	13	0.006
DL	9/25/03	39	13	0.006
DL	9/26/03	39	15	0.007
DL	9/27/03	39	16	0.007
DL	9/28/03	40	17	0.007
DL	9/29/03	40	10	0.004
DL	9/30/03	40	12	0.005
DL	5/1/04	18	22	0.010
DL	5/2/04	19	16	0.007
DL	5/3/04	19	8	0.004
DL	5/4/04	19	18	0.008
DL	5/5/04	19	20	0.009
DL	5/6/04	19	12	0.005
DL	5/7/04	19	22	0.010
DL	5/8/04	19	25	0.011
DL	5/9/04	20	15	0.007
DL	5/10/04	20	18	0.008
DL	5/11/04	20	23	0.010
DL	5/12/04	20	27	0.012
DL	5/13/04	20	15	0.007
DL	5/14/04	20	29	0.013
DL	5/15/04	20	35	0.015
DL	5/16/04	21	32	0.014
DL	5/17/04	21	26	0.011
DL	5/18/04	21	12	0.005
DL	5/19/04	21	16	0.007
DL	5/20/04	21	27	0.012
DL	5/21/04	21	28	0.012
DL	5/22/04	21	17	0.007
DL	5/23/04	22	32	0.014
DL	5/24/04	22	16	0.007
DL	5/25/04	22	20	0.009
DL	5/26/04	22	21	0.009
DL	5/27/04	22	23	0.010
DL	5/28/04	22	15	0.007
DL	5/29/04	22	95.8	0.042
DL	5/30/04	23	151.4	0.066
DL	5/31/04	23	154.6	0.068
DL	6/1/04	23	12	0.005
DL	6/2/04	23	16	0.007
DL	6/3/04	23	25	0.011
DL	6/4/04	23	29	0.013
DL	6/5/04	23	32	0.014
DL	6/6/04	24	13	0.006
DL	6/7/04	24	75	0.033
DL	6/8/04	24	65	0.029
DL	6/9/04	24	105	0.046
DL	6/10/04	24	20	0.009
DL	6/11/04	24	30	0.013
DL	6/12/04	24	70	0.031

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
DL	6/13/04	25	137	0.060
DL	6/14/04	25	65	0.029
DL	6/15/04	25	100	0.044
DL	6/16/04	25	275	0.121
DL	6/17/04	25	75	0.033
DL	6/18/04	25	30	0.013
DL	6/19/04	25	67.2	0.029
DL	6/20/04	26	446.4	0.196
DL	6/21/04	26	108	0.047
DL	6/22/04	26	25	0.011
DL	6/23/04	26	373.4	0.164
DL	6/24/04	26	507.4	0.222
DL	6/25/04	26	122	0.053
DL	6/26/04	26	40	0.018
DL	6/27/04	27	859.2	0.377
DL	6/28/04	27	314.2	0.138
DL	6/29/04	27	35	0.015
DL	6/30/04	27	718	0.315
FP	4/1/02	14	105	0.068
FP	4/2/02	14	115	0.074
FP	4/3/02	14	100	0.065
FP	4/4/02	14	125	0.081
FP	4/5/02	14	175	0.113
FP	4/6/02	14	150	0.097
FP	4/7/02	15	110	0.071
FP	4/8/02	15	85	0.055
FP	4/9/02	15	125	0.081
FP	4/10/02	15	115	0.074
FP	4/11/02	15	125	0.081
FP	4/12/02	15	150	0.097
FP	4/13/02	15	175	0.113
FP	4/14/02	16	200	0.129
FP	4/15/02	16	150	0.097
FP	4/16/02	16	275	0.177
FP	4/17/02	16	400	0.258
FP	4/18/02	16	375	0.242
FP	4/19/02	16	135	0.087
FP	4/20/02	16	140	0.090
FP	4/21/02	17	165	0.106
FP	4/22/02	17	150	0.097
FP	4/23/02	17	120	0.077
FP	4/24/02	17	115	0.074
FP	4/25/02	17	105	0.068
FP	4/26/02	17	95	0.061
FP	4/27/02	17	210	0.135
FP	4/28/02	18	175	0.113
FP	4/29/02	18	125	0.081
FP	4/30/02	18	100	0.065
FP	5/1/02	18	150	0.097
FP	5/2/02	18	125	0.081
FP	5/3/02	18	110	0.071
FP	5/4/02	18	300	0.194
FP	5/5/02	19	250	0.161
FP	5/6/02	19	140	0.090
FP	5/7/02	19	120	0.077
FP	5/8/02	19	135	0.087
FP	5/9/02	19	150	0.097
FP	5/10/02	19	175	0.113
FP	5/11/02	19	220	0.142
FP	5/12/02	20	210	0.135
FP	5/13/02	20	125	0.081
FP	5/14/02	20	155	0.100
FP	5/15/02	20	105	0.068

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	5/16/02	20	200	0.129
FP	5/17/02	20	150	0.097
FP	5/18/02	20	250	0.161
FP	5/19/02	21	1000	0.645
FP	5/20/02	21	175	0.113
FP	5/21/02	21	100	0.065
FP	5/22/02	21	150	0.097
FP	5/23/02	21	160	0.103
FP	5/24/02	21	105	0.068
FP	5/25/02	21	175	0.113
FP	5/26/02	22	100	0.065
FP	5/27/02	22	185	0.119
FP	5/28/02	22	155	0.100
FP	5/29/02	22	200	0.129
FP	5/30/02	22	250	0.161
FP	5/31/02	22	175	0.113
FP	6/1/02	22	225	0.145
FP	6/2/02	23	180	0.116
FP	6/3/02	23	110	0.071
FP	6/4/02	23	140	0.090
FP	6/5/02	23	135	0.087
FP	6/6/02	23	120	0.077
FP	6/7/02	23	75	0.048
FP	6/8/02	23	325	0.210
FP	6/9/02	24	400	0.258
FP	6/10/02	24	150	0.097
FP	6/11/02	24	125	0.081
FP	6/12/02	24	180	0.116
FP	6/13/02	24	160	0.103
FP	6/14/02	24	175	0.113
FP	6/15/02	24	325	0.210
FP	6/16/02	25	300	0.194
FP	6/17/02	25	150	0.097
FP	6/18/02	25	175	0.113
FP	6/19/02	25	275	0.177
FP	6/20/02	25	200	0.129
FP	6/21/02	25	400	0.258
FP	6/22/02	25	1000	0.645
FP	6/23/02	26	1100	0.710
FP	6/24/02	26	600	0.387
FP	6/25/02	26	450	0.290
FP	6/26/02	26	250	0.161
FP	6/27/02	26	500	0.323
FP	6/28/02	26	700	0.452
FP	6/29/02	26	1000	0.645
FP	6/30/02	27	900	0.581
FP	7/1/02	27	475	0.306
FP	7/2/02	27	500	0.323
FP	7/3/02	27	750	0.484
FP	7/4/02	27	800	0.516
FP	7/5/02	27	510	0.329
FP	7/6/02	27	500	0.323
FP	7/7/02	28	525	0.339
FP	7/8/02	28	380	0.245
FP	7/9/02	28	375	0.242
FP	7/10/02	28	400	0.258
FP	7/11/02	28	275	0.177
FP	7/12/02	28	305	0.197
FP	7/13/02	28	510	0.329
FP	7/14/02	29	500	0.323
FP	7/15/02	29	450	0.290
FP	7/16/02	29	175	0.113
FP	7/17/02	29	315	0.203

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	7/18/02	29	290	0.187
FP	7/19/02	29	425	0.274
FP	7/20/02	29	450	0.290
FP	7/21/02	30	300	0.194
FP	7/22/02	30	400	0.258
FP	7/23/02	30	310	0.200
FP	7/24/02	30	275	0.177
FP	7/25/02	30	300	0.194
FP	7/26/02	30	800	0.516
FP	7/27/02	30	350	0.226
FP	7/28/02	31	275	0.177
FP	7/29/02	31	405	0.261
FP	7/30/02	31	400	0.258
FP	7/31/02	31	375	0.242
FP	8/1/02	31	700	0.452
FP	8/2/02	31	600	0.387
FP	8/3/02	31	475	0.306
FP	8/4/02	32	450	0.290
FP	8/5/02	32	300	0.194
FP	8/6/02	32	400	0.258
FP	8/7/02	32	625	0.403
FP	8/8/02	32	700	0.452
FP	8/9/02	32	800	0.516
FP	8/10/02	32	295	0.190
FP	8/11/02	33	400	0.258
FP	8/12/02	33	375	0.242
FP	8/13/02	33	380	0.245
FP	8/14/02	33	425	0.274
FP	8/15/02	33	500	0.323
FP	8/16/02	33	600	0.387
FP	8/17/02	33	580	0.374
FP	8/18/02	34	400	0.258
FP	8/19/02	34	375	0.242
FP	8/20/02	34	225	0.145
FP	8/21/02	34	250	0.161
FP	8/22/02	34	200	0.129
FP	8/23/02	34	400	0.258
FP	8/24/02	34	525	0.339
FP	8/25/02	35	500	0.323
FP	8/26/02	35	275	0.177
FP	8/27/02	35	400	0.258
FP	8/28/02	35	350	0.226
FP	8/29/02	35	375	0.242
FP	8/30/02	35	400	0.258
FP	8/31/02	35	350	0.226
FP	9/1/02	36	550	0.355
FP	9/2/02	36	775	0.500
FP	9/3/02	36	400	0.258
FP	9/4/02	36	375	0.242
FP	9/5/02	36	410	0.265
FP	9/6/02	36	350	0.226
FP	9/7/02	36	675	0.435
FP	9/8/02	37	800	0.516
FP	9/9/02	37	275	0.177
FP	9/10/02	37	350	0.226
FP	9/11/02	37	275	0.177
FP	9/12/02	37	200	0.129
FP	9/13/02	37	400	0.258
FP	9/14/02	37	300	0.194
FP	9/15/02	38	525	0.339
FP	9/16/02	38	210	0.135
FP	9/17/02	38	195	0.126
FP	9/18/02	38	180	0.116

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	9/19/02	38	275	0.177
FP	9/20/02	38	220	0.142
FP	9/21/02	38	305	0.197
FP	9/22/02	39	410	0.265
FP	9/23/02	39	190	0.123
FP	9/24/02	39	240	0.155
FP	9/25/02	39	210	0.135
FP	9/26/02	39	175	0.113
FP	9/27/02	39	250	0.161
FP	9/28/02	39	300	0.194
FP	9/29/02	40	475	0.306
FP	9/30/02	40	500	0.323
FP	4/1/03	14	165	0.106
FP	4/2/03	14	140	0.090
FP	4/3/03	14	75	0.048
FP	4/4/03	14	100	0.065
FP	4/5/03	14	160	0.103
FP	4/6/03	15	115	0.074
FP	4/7/03	15	130	0.084
FP	4/8/03	15	125	0.081
FP	4/9/03	15	75	0.048
FP	4/10/03	15	150	0.097
FP	4/11/03	15	145	0.094
FP	4/12/03	15	160	0.103
FP	4/13/03	16	125	0.081
FP	4/14/03	16	150	0.097
FP	4/15/03	16	140	0.090
FP	4/16/03	16	85	0.055
FP	4/17/03	16	95	0.061
FP	4/18/03	16	100	0.065
FP	4/19/03	16	175	0.113
FP	4/20/03	17	190	0.123
FP	4/21/03	17	130	0.084
FP	4/22/03	17	155	0.100
FP	4/23/03	17	100	0.065
FP	4/24/03	17	125	0.081
FP	4/25/03	17	150	0.097
FP	4/26/03	17	400	0.258
FP	4/27/03	18	700	0.452
FP	4/28/03	18	140	0.090
FP	4/29/03	18	150	0.097
FP	4/30/03	18	125	0.081
FP	5/1/03	18	125	0.081
FP	5/2/03	18	175	0.113
FP	5/3/03	18	200	0.129
FP	5/4/03	19	225	0.145
FP	5/5/03	19	190	0.123
FP	5/6/03	19	150	0.097
FP	5/7/03	19	300	0.194
FP	5/8/03	19	250	0.161
FP	5/9/03	19	210	0.135
FP	5/10/03	19	235	0.152
FP	5/11/03	20	210	0.135
FP	5/12/03	20	240	0.155
FP	5/13/03	20	230	0.148
FP	5/14/03	20	195	0.126
FP	5/15/03	20	175	0.113
FP	5/16/03	20	200	0.129
FP	5/17/03	20	300	0.194
FP	5/18/03	21	295	0.190
FP	5/19/03	21	450	0.290
FP	5/20/03	21	375	0.242
FP	5/21/03	21	150	0.097

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	5/22/03	21	165	0.106
FP	5/23/03	21	140	0.090
FP	5/24/03	21	145	0.094
FP	5/25/03	22	140	0.090
FP	5/26/03	22	135	0.087
FP	5/27/03	22	160	0.103
FP	5/28/03	22	175	0.113
FP	5/29/03	22	155	0.100
FP	5/30/03	22	250	0.161
FP	5/31/03	22	225	0.145
FP	6/1/03	23	100	0.065
FP	6/2/03	23	250	0.161
FP	6/3/03	23	150	0.097
FP	6/4/03	23	145	0.094
FP	6/5/03	23	400	0.258
FP	6/6/03	23	155	0.100
FP	6/7/03	23	165	0.106
FP	6/8/03	24	275	0.177
FP	6/9/03	24	175	0.113
FP	6/10/03	24	200	0.129
FP	6/11/03	24	150	0.097
FP	6/12/03	24	225	0.145
FP	6/13/03	24	135	0.087
FP	6/14/03	24	125	0.081
FP	6/15/03	25	160	0.103
FP	6/16/03	25	250	0.161
FP	6/17/03	25	225	0.145
FP	6/18/03	25	145	0.094
FP	6/19/03	25	160	0.103
FP	6/20/03	25	240	0.155
FP	6/21/03	25	220	0.142
FP	6/22/03	26	140	0.090
FP	6/23/03	26	155	0.100
FP	6/24/03	26	290	0.187
FP	6/25/03	26	800	0.516
FP	6/26/03	26	850	0.548
FP	6/27/03	26	700	0.452
FP	6/28/03	26	350	0.226
FP	6/29/03	27	300	0.194
FP	6/30/03	27	450	0.290
FP	7/1/03	27	350	0.226
FP	7/2/03	27	375	0.242
FP	7/3/03	27	275	0.177
FP	7/4/03	27	1350	0.871
FP	7/5/03	27	950	0.613
FP	7/6/03	28	1200	0.774
FP	7/7/03	28	750	0.484
FP	7/8/03	28	625	0.403
FP	7/9/03	28	250	0.161
FP	7/10/03	28	350	0.226
FP	7/11/03	28	150	0.097
FP	7/12/03	28	1300	0.839
FP	7/13/03	29	1500	0.968
FP	7/14/03	29	450	0.290
FP	7/15/03	29	275	0.177
FP	7/16/03	29	575	0.371
FP	7/17/03	29	400	0.258
FP	7/18/03	29	800	0.516
FP	7/19/03	29	1500	0.968
FP	7/20/03	30	300	0.194
FP	7/21/03	30	275	0.177
FP	7/22/03	30	175	0.113
FP	7/23/03	30	185	0.119

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	7/24/03	30	600	0.387
FP	7/25/03	30	1550	1.000
FP	7/26/03	30	500	0.323
FP	7/27/03	31	700	0.452
FP	7/28/03	31	375	0.242
FP	7/29/03	31	600	0.387
FP	7/30/03	31	700	0.452
FP	7/31/03	31	450	0.290
FP	8/1/03	31	300	0.194
FP	8/2/03	31	400	0.258
FP	8/3/03	32	800	0.516
FP	8/4/03	32	300	0.194
FP	8/5/03	32	450	0.290
FP	8/6/03	32	300	0.194
FP	8/7/03	32	350	0.226
FP	8/8/03	32	200	0.129
FP	8/9/03	32	225	0.145
FP	8/10/03	33	175	0.113
FP	8/11/03	33	250	0.161
FP	8/12/03	33	275	0.177
FP	8/13/03	33	250	0.161
FP	8/14/03	33	450	0.290
FP	8/15/03	33	600	0.387
FP	8/16/03	33	700	0.452
FP	8/17/03	34	200	0.129
FP	8/18/03	34	600	0.387
FP	8/19/03	34	700	0.452
FP	8/20/03	34	650	0.419
FP	8/21/03	34	675	0.435
FP	8/22/03	34	500	0.323
FP	8/23/03	34	750	0.484
FP	8/24/03	35	800	0.516
FP	8/25/03	35	600	0.387
FP	8/26/03	35	650	0.419
FP	8/27/03	35	525	0.339
FP	8/28/03	35	600	0.387
FP	8/29/03	35	800	0.516
FP	8/30/03	35	250	0.161
FP	8/31/03	36	475	0.306
FP	9/1/03	36	400	0.258
FP	9/2/03	36	235	0.152
FP	9/3/03	36	275	0.177
FP	9/4/03	36	200	0.129
FP	9/5/03	36	400	0.258
FP	9/6/03	36	950	0.613
FP	9/7/03	37	300	0.194
FP	9/8/03	37	375	0.242
FP	9/9/03	37	350	0.226
FP	9/10/03	37	425	0.274
FP	9/11/03	37	300	0.194
FP	9/12/03	37	300	0.194
FP	9/13/03	37	400	0.258
FP	9/14/03	38	500	0.323
FP	9/15/03	38	300	0.194
FP	9/16/03	38	275	0.177
FP	9/17/03	38	550	0.355
FP	9/18/03	38	400	0.258
FP	9/19/03	38	150	0.097
FP	9/20/03	38	600	0.387
FP	9/21/03	39	650	0.419
FP	9/22/03	39	495	0.319
FP	9/23/03	39	200	0.129
FP	9/24/03	39	450	0.290

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	9/25/03	39	400	0.258
FP	9/26/03	39	375	0.242
FP	9/27/03	39	550	0.355
FP	9/28/03	40	525	0.339
FP	9/29/03	40	425	0.274
FP	9/30/03	40	200	0.129
FP	4/1/04	14	50	0.032
FP	4/2/04	14	90	0.058
FP	4/3/04	14	125	0.081
FP	4/4/04	15	135	0.087
FP	4/5/04	15	85	0.055
FP	4/6/04	15	95	0.061
FP	4/7/04	15	110	0.071
FP	4/8/04	15	175	0.113
FP	4/9/04	15	225	0.145
FP	4/10/04	15	175	0.113
FP	4/11/04	16	225	0.145
FP	4/12/04	16	80	0.052
FP	4/13/04	16	90	0.058
FP	4/14/04	16	100	0.065
FP	4/15/04	16	110	0.071
FP	4/16/04	16	275	0.177
FP	4/17/04	16	250	0.161
FP	4/18/04	17	275	0.177
FP	4/19/04	17	350	0.226
FP	4/20/04	17	275	0.177
FP	4/21/04	17	200	0.129
FP	4/22/04	17	125	0.081
FP	4/23/04	17	200	0.129
FP	4/24/04	17	800	0.516
FP	4/25/04	18	100	0.065
FP	4/26/04	18	150	0.097
FP	4/27/04	18	150	0.097
FP	4/28/04	18	250	0.161
FP	4/29/04	18	300	0.194
FP	4/30/04	18	175	0.113
FP	5/1/04	18	275	0.177
FP	5/2/04	19	100	0.065
FP	5/3/04	19	125	0.081
FP	5/4/04	19	200	0.129
FP	5/5/04	19	125	0.081
FP	5/6/04	19	200	0.129
FP	5/7/04	19	225	0.145
FP	5/8/04	19	400	0.258
FP	5/9/04	20	175	0.113
FP	5/10/04	20	195	0.126
FP	5/11/04	20	500	0.323
FP	5/12/04	20	400	0.258
FP	5/13/04	20	210	0.135
FP	5/14/04	20	220	0.142
FP	5/15/04	20	500	0.323
FP	5/16/04	21	275	0.177
FP	5/17/04	21	150	0.097
FP	5/18/04	21	135	0.087
FP	5/19/04	21	275	0.177
FP	5/20/04	21	175	0.113
FP	5/21/04	21	225	0.145
FP	5/22/04	21	240	0.155
FP	5/23/04	22	150	0.097
FP	5/24/04	22	175	0.113
FP	5/25/04	22	165	0.106
FP	5/26/04	22	100	0.065
FP	5/27/04	22	180	0.116

Table B2-5: Relative Use Index

Location	Date	Week of Year	Count	Relative Use Index
FP	5/28/04	22	150	0.097
FP	5/29/04	22	75	0.048
FP	5/30/04	23	250	0.161
FP	5/31/04	23	350	0.226
FP	6/1/04	23	100	0.065
FP	6/2/04	23	200	0.129
FP	6/3/04	23	250	0.161
FP	6/4/04	23	300	0.194
FP	6/5/04	23	275	0.177
FP	6/6/04	24	150	0.097
FP	6/7/04	24	275	0.177
FP	6/8/04	24	500	0.323
FP	6/9/04	24	450	0.290
FP	6/10/04	24	275	0.177
FP	6/11/04	24	300	0.194
FP	6/12/04	24	475	0.306
FP	6/13/04	25	450	0.290
FP	6/14/04	25	200	0.129
FP	6/15/04	25	350	0.226
FP	6/16/04	25	550	0.355
FP	6/17/04	25	400	0.258
FP	6/18/04	25	150	0.097
FP	6/19/04	25	300	0.194
FP	6/20/04	26	305	0.197
FP	6/21/04	26	250	0.161
FP	6/22/04	26	275	0.177
FP	6/23/04	26	300	0.194
FP	6/24/04	26	220	0.142
FP	6/25/04	26	315	0.203
FP	6/26/04	26	600	0.387
FP	6/27/04	27	800	0.516
FP	6/28/04	27	300	0.194
FP	6/29/04	27	305	0.197
FP	6/30/04	27	400	0.258

Table B2-6: 2003 Rel. Use Index / 2002 Rel. Use Index

Week of Year	Location	2002 Rel. Use Index	2003 Rel. Use Index	2002 RUI / 2003 RUI
14	DL	0.000	0.000	
14	FP	0.083	0.083	0.997
14	HB	0.011	0.000	0.000
14	SC	0.031	0.034	1.072
15	DL	0.004	0.000	0.000
15	FP	0.082	0.083	1.017
15	HB	0.014	0.000	0.000
15	SC	0.035	0.033	0.964
16	DL	0.024	0.000	0.000
16	FP	0.154	0.080	0.519
16	HB	0.070	0.000	0.000
16	SC	0.042	0.042	1.000
17	DL	0.007	0.000	0.000
17	FP	0.088	0.115	1.302
17	HB	0.009	0.000	0.000
17	SC	0.035	0.044	1.267
18	DL	0.004	0.015	3.515
18	FP	0.100	0.149	1.488
18	HB	0.010	0.000	0.032
18	SC	0.029	0.040	1.397
19	DL	0.008	0.011	1.394
19	FP	0.110	0.144	1.311
19	HB	0.018	0.001	0.064
19	SC	0.031	0.043	1.402
20	DL	0.005	0.011	2.342
20	FP	0.110	0.143	1.297
20	HB	0.007	0.001	0.143
20	SC	0.029	0.046	1.602
21	DL	0.009	0.014	1.522
21	FP	0.172	0.159	0.922
21	HB	0.022	0.002	0.085
21	SC	0.035	0.051	1.442
22	DL	0.037	0.027	0.722
22	FP	0.119	0.114	0.961
22	HB	0.033	0.001	0.035
22	SC	0.039	0.061	1.551
23	DL	0.025	0.024	0.931
23	FP	0.100	0.126	1.258
23	HB	0.026	0.017	0.646
23	SC	0.039	0.043	1.082
24	DL	0.035	0.016	0.447
24	FP	0.140	0.118	0.848
24	HB	0.025	0.024	0.943
24	SC	0.035	0.036	1.033
25	DL	0.116	0.044	0.383
25	FP	0.230	0.129	0.560
25	HB	0.156	0.054	0.347
25	SC	0.137	0.042	0.306
26	DL	0.213	0.145	0.683
26	FP	0.424	0.303	0.714

Table B2-6: 2003 Rel. Use Index / 2002 Rel. Use Index

Week of Year	Location	2002 Rel. Use Index	2003 Rel. Use Index	2002 RUI / 2003 RUI
26	HB	0.242	0.255	1.050
26	SC	0.250	0.154	0.615
27	DL	0.439	0.309	0.703
27	FP	0.409	0.373	0.913
27	HB	0.502	0.357	0.712
27	SC	0.500	0.381	0.763
28	DL	0.194	0.267	1.374
28	FP	0.255	0.426	1.670
28	HB	0.173	0.237	1.372
28	SC	0.220	0.248	1.128
29	DL	0.174	0.198	1.133
29	FP	0.240	0.507	2.111
29	HB	0.158	0.214	1.356
29	SC	0.213	0.290	1.363
30	DL	0.161	0.210	1.301
30	FP	0.252	0.330	1.311
30	HB	0.163	0.327	2.014
30	SC	0.226	0.319	1.414
31	DL	0.184	0.123	0.669
31	FP	0.298	0.325	1.091
31	HB	0.294	0.192	0.652
31	SC	0.283	0.257	0.908
32	DL	0.205	0.032	0.155
32	FP	0.329	0.242	0.735
32	HB	0.269	0.051	0.189
32	SC	0.305	0.189	0.621
33	DL	0.173	0.151	0.876
33	FP	0.300	0.249	0.828
33	HB	0.308	0.251	0.816
33	SC	0.341	0.364	1.068
34	DL	0.104	0.128	1.236
34	FP	0.219	0.376	1.716
34	HB	0.090	0.321	3.574
34	SC	0.233	0.331	1.423
35	DL	0.034	0.098	2.875
35	FP	0.244	0.389	1.594
35	HB	0.040	0.192	4.833
35	SC	0.129	0.214	1.655
36	DL	0.016	0.007	0.418
36	FP	0.326	0.271	0.830
36	HB	0.012	0.077	6.266
36	SC	0.047	0.091	1.951
37	DL	0.008	0.006	0.815
37	FP	0.240	0.226	0.942
37	HB	0.025	0.079	3.121
37	SC	0.066	0.032	0.489
38	DL	0.011	0.006	0.553
38	FP	0.176	0.256	1.453
38	HB	0.012	0.098	7.818
38	SC	0.049	0.034	0.699

Table B2-6: 2003 Rel. Use Index / 2002 Rel. Use Index

Week of Year	Location	2002 Rel. Use Index	2003 Rel. Use Index	2002 RUI / 2003 RUI
39	DL	0.008	0.006	0.758
39	FP	0.164	0.288	1.758
39	HB	0.010	0.079	7.991
39	SC	0.056	0.044	0.776
40	DL	0.014	0.006	0.400
40	FP	0.315	0.247	0.786
40	HB	0.015	0.025	1.652
40	SC	0.051	0.063	1.244

APPENDIX B3: ESTIMATION OF THE REDUCTION IN TRIPS DURING PERIOD ONE

Overflight counts

Helicopter overflights were conducted on five days during the May-June period of 2003 and 2004, respectively. The purpose of the overflights was to obtain counts of total shoreline activity throughout the potential spill-impact area. The potential spill impact area was identified as the shoreline from Block Island, Rhode Island to Woods Hole in Falmouth, Massachusetts, since this area encompassed all locations where shoreline oiling was observed. While effects of an oil spill on recreational activities may extend beyond areas of direct oiling, it was determined that Narragansett Bay on the western edge of the impact area and the Woods Hole peninsula on the eastern edge of the impact area formed distinct geographic boundaries that were likely to minimize effects on recreation outside of the identified impact area. Reports compiled by oil spill response officials did not contain evidence of public perceptions or concern about oiling in areas outside of the Block Island-to-Woods Hole impact area.

The helicopter overflights were used to obtain recreator counts over 24 shoreline segments, as shown in Table B3-1. Segments 1 through 21 correspond to the identified impact area, and segments 22 through 24 were control areas on the south side of Cape Cod, east of Woods Hole. The counts recorded use on a selection of weekdays and weekend days and at various times during the day to obtain a reasonable representation of types of use and potential spill effects. The overflights were conducted within the first two months following the spill to evaluate spill effects during the likely period of highest impact.

Model of user counts

Effects of the spill were evaluated using a statistical model that compared recreational use in 2003 to use in 2004. An examination of daily user counts at Horseneck Beach, Fort Phoenix State Park, and Demarest Lloyd State Park indicated that use had returned to normal by late June, 2003 (see Appendix B2). It was also determined that shoreline use in other areas had returned to normal by the end of September 2003. Shoreline user counts undertaken in 2004 were therefore determined to be an adequate measure of baseline activity.

To appropriately compare use in 2003 and 2004, the statistical model included dummy variables to control for non-spill factors potentially affecting recreational use. Variables included in the model were:

u_i = days, i = 1 to 10 (one for each overflight day);

d_j = segments, j = 1 to 24 (one for each shoreline segment);

t_k = time of day, k = 1 to 5 (for the recorded times 11 am to 3 pm);

$s_{ij} = s$ = spill, i = 1 to 5 (spill was 2003 only), $j \in S$, representing spill-affected segments;

$sub_{ij} = sub$ = substitution effects, i = 1 to 5 and j = 24 (spill year only, segment 24); and

y_{ij} = number of trips on overflight day i and segment j.

Differences in use across days as captured by u_i account for the effects of weather, the influence of seasonal changes and the summer school vacation, differences in use across days of the week, etc. The segment dummies d_j control for differences in use across shoreline segments, which vary in size, proximity to urban centers, etc. Time of day was represented by t_k, one for each hourly time period from 11 am to 3 pm. In addition, it was determined that segment 24, which includes South Cape Beach State Park, was a possible destination for substitute trips during the spill. A dummy was applied to the segment during the spill to control for substitution effects that might otherwise overstate use in the control area under baseline conditions. Once these factors were accounted for, differences in use between the spill-affected segments identified by s_{ij} and the control segments 22 to 24 were assumed to provide an estimate of average effects of the spill throughout the impacted shoreline segments.

The counts y_{ij} were fit to the explanatory variables using a Poisson distribution, where the mean $\lambda = \exp(u_i + d_{ij} + s_{ij} + t_k + sub_{ij})$. The estimated parameters are presented in Table B3-2. The dummy for the 10th day is omitted for model identification. Model predictions for the ten overflight days are presented in Table B3-3. To facilitate consistent analysis across segments and days, all of the predictions represent counts at the peak time of use, or 2 pm.

Predicted trips

The predicted counts at the time of peak use represent an index of recreational activity. An assessment of recreational losses requires an estimate of lost trips. To estimate trips, counts are converted into total recreation hours, and recreation hours are converted into trips. To estimate the number of recreation hours associated with each count, a profile of recreational use throughout the day is constructed using the time-of-day variable in the statistical model of user counts. Because the model only covers the time from 11 am to 3 pm, the profile of use is also supplemented with data from a previous assessment of the Chalk Point oil spill in Maryland (Byrd *et al*., 2001). The results appear in Table B3-4. A total of 7.58 recreation hours are associated with each person counted at the 2 pm peak time.

Table B3-5 presents the calculation of the number of hours per trip for a typical Buzzards Bay shoreline recreation trip. The calculation is based on a survey of use at West Island, Mattapoisett and Horseneck Beach, with most observations recorded at Horseneck Beach. Trips to Horseneck Beach were considered to be representative of trips to many of the high-use areas throughout the impact area. The average length of trips recorded during the survey was estimated using the harmonic mean, which controls for the higher likelihood of intercepting people engaged in longer trips. The average trip length was 2.55 hours.

By multiplying predicted peak users (Table B3-3) by hours per peak user (Table B3-4) and dividing by hours per trip (Table B3-5) the total number of predicted trips under actual and baseline conditions is calculated in Table B3-6. Table B3-7 compares total actual and baseline use to estimate the rate of lost trips. The number of lost trips as a percent of baseline trips throughout the assessment area (segments determined to be oiled

and coded as "spill" segments in the model) during the five overflight days of 2003 was 9.24%. This estimate of the rate of lost trips was applied to the baseline level of shoreline recreational activity in the assessment area throughout the overflight assessment period of April 27 to June 26. For Period 2 of the assessment (June 27 to September 3), the same rate of losses was applied to areas determined to have continuing losses after June 26, 2003, as described in Appendix B4.

Baseline use throughout the season

Data on use throughout the season was obtained from daily user counts available at the four state parks in the overflight area: Horseneck, Demarest Lloyd, Fort Phoenix, and South Cape Beach. The daily counts from these four sites during 2003 and on the five overflight days of 2004 are shown in Table B3-8. The relationship between use throughout the overflight area and counts at these selected sites was estimated using a simple linear regression based on the ten overflight days. The regression is based on the assumption that use in the total overflight area is some multiple (or linear function) of use at the four state parks. The regression is given in Table B3-9. To estimate parameters consistently for the ten observations, the five overflight counts from 2003 are converted to baseline levels using the estimate of spill effects calculated in the overflight model described previously.

Table B3-10 shows the predicted number of trips in the overflight area throughout 2003 based on the linear regression. Baseline trips in the assessment area were estimated by applying the ratio of predicted trips in the assessment area (Segments 1-21) to predicted trips in the overflight area (Segments 1-24) of 0.8419. The estimated with-spill number of trips in the assessment area was calculated by applying the 9.24% loss calculated from the overflight model. The difference between baseline and actual trips represents lost trips as determined for the period of the overflight assessment from April 27 through June 26.

Table B3-11 briefly describes the calculation of losses for Block Island, RI. Because Block Island is somewhat distant from other shoreline areas it was included in only one overflight count, and data from the island is not part of the model or calculations described above. Based on the overflight count that included Block Island, recreational use on the island was determined to be 9.4% of use throughout the remainder of the assessment area. Baseline use for Block Island was estimated based on this percentage, and losses were calculated as 9.24% of baseline use. The period of losses on Block Island was determined to begin May 18, 2003, when oiling was first observed there.

REFERENCES

Byrd, H., E. English, N. Meade, and T. Tomasi. Chalk Point Oil Spill: Lost Use Valuation Report. National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, Maryland Department of the Environment, Maryland Department of Natural Resources, May. 2001

Table B3-1: Helicopter Overflight Data

	Observed People per Segment [a]									
Year	2003					2004				
Flight	1	2	3	4	5	6	7	8	9	10
Date	5/18/03	5/20/03	5/30/03	5/31/03	6/26/03	5/1/04	5/21/04	6/4/04	6/12/04	6/23/04
Day of Week	Sunday	Tuesday	Friday	Saturday	Thursday	Saturday	Friday	Friday	Saturday	Wednesday
Human Use Segment										
1	63	5	11		153		5	19	71	149
2	41	44	16		375		14	32	125	604
3	134	300	49	68	695		29	94	309	1,249
4	51	42	9	38	208		17	32	83	256
5	22	28	10	37	284		3	33	103	482
6	32	11	5	36	45			10	11	35
7	73	42	13	38	263		8	29	90	265
8	93	119	27	106	570	41	15	80	340	606
9	36	14	5	15	156	13	15	40	70	188
10	20	24	17	28	104	40	16	41	83	183
11	25	3	1	14	57	10	2	27	48	64
12	16	10	3	38	158	18	20	50	85	209
13	3	2	5	5		4	29	14	9	38
14	62	22	11	43		34	9	36	145	187
15	18	7	4	23		9	18	12	39	64
16	92	15	28	68		17	21	98	315	432
17	36	27	26	30	203	6	11	16	133	141
18	53	17	32	45	128	5	34	34	213	105
19	92	81	81	82	1,189	24	62	91	501	575
20	75	18	56	50	390	7	14	54	221	171
21	62	12	23	16	122	8	28	14	109	30
22	24	21	40	31	258		4	34	140	125
23	48	34	40	59	603		20	82	296	154
24	118	108	88	66	584		41	64	264	134

[a] Includes all activities considered in the general shoreline use category (shoreline and beach recreation, near-shore boating, birding, and back-yard use). Missing values indicate that segment was not counted on that flight.

Table B3-1: Helicopter Overflight Data

	Time of Count [b]									
Year	2003					2004				
Flight	1	2	3	4	5	6	7	8	9	10
Date	5/18/03	5/20/03	5/30/03	5/31/03	6/26/03	5/1/04	5/21/04	6/4/04	6/12/04	6/23/04
Day of Week	Sunday	Tuesday	Friday	Saturday	Thursday	Saturday	Friday	Friday	Saturday	Wednesday
Human Use Segment										
1	1.53	1.26	1.05		4.00		4.35	3.10	11.50	2.15
2	1.50	1.22	1.00		3.55		4.30	3.05	11.55	2.10
3	1.44	1.10	12.55	1.40	3.44		12.40	3.00	11.58	2.00
4	1.38	1.05	12.50	1.35	3.39		12.50	2.55	12.03	1.55
5	1.27	12.56	12.40	1.30	3.30		12.55	2.50	12.10	1.45
6	1.20	12.52	11.38	1.25	3.25		1.00	2.45	12.16	1.40
7	1.15	12.46	12.35	1.20	3.20		1.05	2.40	12.20	1.35
8	12.00	12.00	11.53	1.10	3.08	12.10	1.10	2.30	12.26	1.25
9	11.34	11.45	11.40	1.00	2.56	12.00	1.20	2.15	12.37	1.15
10	11.20	11.37	11.30	12.55	2.50	11.55	1.35	2.10	12.51	1.05
11	11.12	11.34	11.35	12.50	2.45	11.50	1.45	2.05	12.56	1.00
12	10.55	11.23	11.25	12.00	2.39	11.40	1.55	1.55	1.02	12.55
13	10.45	11.16	11.10	11.55		11.30	2.00	1.45	2.03	12.45
14	4.35	4.15	3.50	11.45		11.25	2.10	12.55	2.09	12.00
15	4.26	4.05	3.40	11.40		11.15	2.15	12.45	2.18	11.50
16	4.20	4.00	3.35	11.30		11.10	2.25	12.40	2.27	11.40
17	4.11	3.53	3.25	11.25	1.32	11.00	2.35	12.35	2.36	11.30
18	3.58	3.39	3.15	11.15	1.19	10.55	3.55	12.20	2.45	11.20
19	3.50	3.33	3.10	11.10	1.08	10.55	3.48	12.15	3.00	11.10
20	3.44	3.29	3.00	11.05	1.00	10.40	3.45	12.08	3.07	11.05
21	3.35	3.22	2.57	11.00	12.55	10.25	3.45	12.03	3.13	11.00
22	3.32	3.19	2.55	10.55	12.50		3.40	12.00	3.20	10.55
23	3.26	3.13	2.50	10.50	12.40		3.30	11.55	3.24	10.50
24	3.20	3.06	2.43	10.45	12.30		3.25	11.50	3.30	10.45

[b] In HH.MM format. Missing values indicate that segment was not counted on that flight.

Table B3-2: Estimated Model Parameters

Parameter	Estimate	Std. err.	Est./s.e.
Flight 1	- 0.2174	0.0421	- 5.1870
Flight 2	- 0.7444	0.0503	-14.8260
Flight 3	0.0070	0.0412	0.2450
Flight 4	1.7127	0.0309	55.4000
Flight 5	- 0.6040	0.0941	- 6.9690
Flight 6	- 1.1912	0.0779	-15.9290
Flight 7	- 0.2496	0.0694	- 4.3180
Flight 8	1.0422	0.0637	15.5940
Flight 9	1.7157	0.0644	25.8730
Flight 10	3.2381	0.0811	40.6410
Segment 1	4.2044	0.0727	58.6650
Segment 2	4.9888	0.0698	72.2860
Segment 3	3.6083	0.0768	47.7770
Segment 4	3.9283	0.0743	53.6830
Segment 5	2.2450	0.1006	22.9080
Segment 6	3.7249	0.0772	49.0060
Segment 7	4.6852	0.0727	65.2620
Segment 8	3.3542	0.0812	42.0250
Segment 9	3.3767	0.0811	42.3460
Segment 10	2.5814	0.0936	28.1960
Segment 11	3.5007	0.0799	44.5130
Segment 12	2.0751	0.1173	18.1850
Segment 13	3.7334	0.0791	47.9440
Segment 14	2.6931	0.0979	28.0940
Segment 15	4.4155	0.0731	61.1480
Segment 16	3.5171	0.0796	44.5200
Segment 17	3.7959	0.0779	49.4490
Segment 18	5.2241	0.0702	75.2100
Segment 19	4.2538	0.0758	56.4520
Segment 20	3.3413	0.0846	39.7900
Segment 21	3.7721	0.0793	48.5770
Segment 22	4.4480	0.0497	89.9110
Segment 23	4.3525	0.0773	56.9280
Time 11:00 AM	- 0.7479	0.0401	-18.6320
12:00 PM	- 0.1273	0.0318	- 4.1400
1:00 PM	0.0966	0.0284	3.1900
2:00 PM	0.3009	0.0302	9.6440
3:00 PM	0.0597	0.0304	1.9480
Spill [a]	- 0.0970	0.0603	- 2.6030
Substitute [b]	0.3211	0.0792	3.4870

[a] Indicates a segment within the assessment area (i.e., not a control or substitute segment) during 2003.

[b] Indicates a substitute segment during 2003.

Table B3-3: Predicted Peak Use

	Predicted Peak Baseline Use [a]									
Year	2003					2004				
Flight	1	2	3	4	5	6	7	8	9	10
Human Use Segment										
1	34.43	27.70	16.36	34.67	190.89	18.82	10.46	26.83	97.63	191.46
2	90.50	72.81	42.99	91.13	501.70	49.47	27.50	70.51	256.60	503.21
3	198.28	159.54	94.19	199.68	1,099.27	108.39	60.25	154.49	562.22	1,102.57
4	49.86	40.12	23.68	50.21	276.41	27.25	15.15	38.85	141.37	277.24
5	68.66	55.25	32.62	69.14	380.66	37.53	20.86	53.50	194.69	381.80
6	12.75	10.26	6.06	12.84	70.71	6.97	3.88	9.94	36.17	70.92
7	56.03	45.08	26.61	56.42	310.60	30.62	17.02	43.65	158.86	311.53
8	146.36	117.77	69.53	147.39	811.43	80.01	44.47	114.03	415.01	813.87
9	38.67	31.12	18.37	38.94	214.39	21.14	11.75	30.13	109.65	215.03
10	39.55	31.82	18.79	39.83	219.27	21.62	12.02	30.81	112.15	219.93
11	17.86	14.37	8.48	17.98	98.99	9.76	5.43	13.91	50.63	99.29
12	44.77	36.02	21.27	45.09	248.22	24.47	13.60	34.88	126.95	248.96
13	10.76	8.66	5.11	10.84	59.66	5.88	3.27	8.38	30.51	59.84
14	56.50	45.46	26.84	56.90	313.25	30.89	17.17	44.02	160.21	314.19
15	19.97	16.06	9.48	20.11	110.69	10.91	6.07	15.56	56.61	111.02
16	111.77	89.93	53.09	112.55	619.62	61.09	33.96	87.08	316.90	621.48
17	45.51	36.62	21.62	45.83	252.32	24.88	13.83	35.46	129.05	253.08
18	60.15	48.40	28.57	60.57	333.45	32.88	18.28	46.86	170.55	334.45
19	250.89	201.87	119.18	252.65	1,390.89	137.14	76.23	195.47	711.38	1,395.07
20	95.08	76.50	45.16	95.75	527.11	51.97	28.89	74.08	269.59	528.69
21	38.18	30.72	18.13	38.44	211.64	20.87	11.60	29.74	108.25	212.28
22	58.73	47.26	27.90	59.15	325.61	32.10	17.85	45.76	166.53	326.59
23	115.46	92.90	54.84	116.27	640.08	63.11	35.08	89.95	327.37	642.01
24	104.94	84.44	49.85	105.68	581.78	57.36	31.89	81.76	297.56	583.53
Total	1,765.66	1,420.66	838.72	1,778.06	9,788.64	965.14	536.51	1,375.64	5,006.43	9,818.05

[a] Predicted peak use is the estimated instantaneous number of recreators at the peak time of day.

Table B3-3: Predicted Peak Use

	Predicted Peak With-Spill Use [a]									
Year	2003					2004				
Flight	1	2	3	4	5	6	7	8	9	10
Human Use Segment										
1	31.25	25.14	14.84	31.47	173.24	18.82	10.46	26.83	97.63	191.46
2	82.13	66.08	39.01	82.71	455.32	49.47	27.50	70.51	256.60	503.21
3	179.95	144.79	85.48	181.22	997.65	108.39	60.25	154.49	562.22	1,102.57
4	45.25	36.41	21.49	45.57	250.86	27.25	15.15	38.85	141.37	277.24
5	62.31	50.14	29.60	62.75	345.47	37.53	20.86	53.50	194.69	381.80
6	11.58	9.31	5.50	11.66	64.17	6.97	3.88	9.94	36.17	70.92
7	50.85	40.91	24.15	51.20	281.89	30.62	17.02	43.65	158.86	311.53
8	132.83	106.88	63.10	133.77	736.42	80.01	44.47	114.03	415.01	813.87
9	35.10	28.24	16.67	35.34	194.57	21.14	11.75	30.13	109.65	215.03
10	35.90	28.88	17.05	36.15	199.00	21.62	12.02	30.81	112.15	219.93
11	16.20	13.04	7.70	16.32	89.84	9.76	5.43	13.91	50.63	99.29
12	40.63	32.69	19.30	40.92	225.27	24.47	13.60	34.88	126.95	248.96
13	9.77	7.86	4.64	9.84	54.15	5.88	3.27	8.38	30.51	59.84
14	51.28	41.26	24.36	51.64	284.29	30.89	17.17	44.02	160.21	314.19
15	18.12	14.58	8.61	18.25	100.45	10.91	6.07	15.56	56.61	111.02
16	101.43	81.61	48.18	102.15	562.34	61.09	33.96	87.08	316.90	621.48
17	41.31	33.23	19.62	41.60	228.99	24.88	13.83	35.46	129.05	253.08
18	54.59	43.92	25.93	54.97	302.63	32.88	18.28	46.86	170.55	334.45
19	227.69	183.20	108.16	229.29	1,262.31	137.14	76.23	195.47	711.38	1,395.07
20	86.29	69.43	40.99	86.89	478.38	51.97	28.89	74.08	269.59	528.69
21	34.65	27.88	16.46	34.89	192.08	20.87	11.60	29.74	108.25	212.28
22	58.73	47.26	27.90	59.15	325.61	32.10	17.85	45.76	166.53	326.59
23	115.46	92.90	54.84	116.27	640.08	63.11	35.08	89.95	327.37	642.01
24	144.68	116.41	68.72	145.69	802.07	57.36	31.89	81.76	297.56	583.53
Total	1,667.97	1,342.06	792.32	1,679.69	9,247.08	965.14	536.51	1,375.64	5,006.43	9,818.05

[a] Predicted peak use is the estimated instantaneous number of recreators at the peak time of day.

Table B3-4: Calculation of Hours per Peak User

Use-Hours, Normalized to 1.00			
Time	Buzzards Bay [a]	Chalk Point [b]	Buzzards Bay with Extrapolation [c]
6:00 AM		0.220	
7:00 AM		0.436	0.000
8:00 AM		0.496	0.088
9:00 AM		0.560	0.177
10:00 AM		0.663	0.265
11:00 AM	**0.354**	**0.937**	**0.354**
12:00 PM	**0.655**	**0.791**	**0.655**
1:00 PM	**0.818**	**0.743**	**0.818**
2:00 PM	**1.000**	**1.000**	**1.000**
3:00 PM	**0.793**	**0.774**	**0.793**
4:00 PM	**0.747**	**0.758**	**0.747**
5:00 PM		0.884	0.884
6:00 PM		0.784	0.784
7:00 PM		0.618	0.618
8:00 PM		0.394	0.394
9:00 PM			0.000

Note: bold values indicate hours included in peak time.

[a] Based on helicopter overflight data.

[b] From Byrd, H., E. English, N. Meade, and T. Tomasi (2001), Chalk Point Oil Spill: Lost Use Valuation Report, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, Maryland Department of the Environment, Maryland Department of Natural Resources.

[c] Use-hours before peak time based on linear extrapolation. Use-hours during peak time based on Buzzards Bay data. Use-hours after peak time based on Chalk Point.

Calculation of Hours per Peak User	
Total Peak Use-Hours	4.367
Total Non-Peak Use-Hours	3.212
Hours per Observed Peak User	7.580

Table B3-5: Mean Trip Duration

Location	Trip Duration (Hours)
Horseneck Beach State Park	5.000
Horseneck Beach State Park	3.000
Horseneck Beach State Park	2.500
Horseneck Beach State Park	4.250
Horseneck Beach State Park	4.000
Horseneck Beach State Park	4.000
Horseneck Beach State Park	4.000
Horseneck Beach State Park	2.160
Horseneck Beach State Park	5.000
Horseneck Beach State Park	2.500
Horseneck Beach State Park	3.000
Horseneck Beach State Park	4.750
Horseneck Beach State Park	3.000
Horseneck Beach State Park	4.500
Horseneck Beach State Park	2.000
Horseneck Beach State Park	3.500
Horseneck Beach State Park	4.500
Horseneck Beach State Park	1.500
Horseneck Beach State Park	6.000
Horseneck Beach State Park	3.000
Horseneck Beach State Park	5.500
Horseneck Beach State Park	4.500
Horseneck Beach State Park	0.990
Horseneck Beach State Park	7.000
Horseneck Beach State Park	5.500
Horseneck Beach State Park	3.500
Horseneck Beach State Park	3.500
Horseneck Beach State Park	6.000
Horseneck Beach State Park	5.000
Horseneck Beach State Park	4.500
Horseneck Beach State Park	5.000
Horseneck Beach State Park	4.750
Horseneck Beach State Park	2.500
Horseneck Beach State Park	2.250
Horseneck Beach State Park	4.330
Horseneck Beach State Park	1.250
Horseneck Beach State Park	2.083
Horseneck Beach State Park	3.000
Horseneck Beach State Park	5.000
Horseneck Beach State Park	4.000
Horseneck Beach State Park	6.500
Horseneck Beach State Park	4.000
Horseneck Beach State Park	2.500
Horseneck Beach State Park	2.000
Horseneck Beach State Park	5.000
Horseneck Beach State Park	4.000
Horseneck Beach State Park	2.500
Horseneck Beach State Park	4.000
Horseneck Beach State Park	4.000
Horseneck Beach State Park	2.500

Table B3-5: Mean Trip Duration

Location	Trip Duration (Hours)
Horseneck Beach State Park	4.000
Horseneck Beach State Park	3.500
Horseneck Beach State Park	5.000
Horseneck Beach State Park	2.250
Horseneck Beach State Park	3.000
Horseneck Beach State Park	3.500
Horseneck Beach State Park	4.250
Horseneck Beach State Park	2.500
Horseneck Beach State Park	4.500
Horseneck Beach State Park	3.250
Horseneck Beach State Park	3.750
Horseneck Beach State Park	2.500
Horseneck Beach State Park	1.750
Horseneck Beach State Park	1.000
Horseneck Beach State Park	6.000
Horseneck Beach State Park	2.000
Horseneck Beach State Park	2.750
Horseneck Beach State Park	4.000
Horseneck Beach State Park	3.000
Horseneck Beach State Park	3.000
Horseneck Beach State Park	2.750
Horseneck Beach State Park	2.500
Horseneck Beach State Park	5.000
Horseneck Beach State Park	3.500
Horseneck Beach State Park	7.000
Horseneck Beach State Park	3.500
Horseneck Beach State Park	5.000
Horseneck Beach State Park	2.000
Horseneck Beach State Park	4.500
Horseneck Beach State Park	3.000
Horseneck Beach State Park	2.160
Horseneck Beach State Park	3.000
Horseneck Beach State Park	5.500
Horseneck Beach State Park	4.250
Horseneck Beach State Park	2.000
Horseneck Beach State Park	3.500
Horseneck Beach State Park	2.160
Horseneck Beach State Park	2.000
Horseneck Beach State Park	2.000
Horseneck Beach State Park	6.250
Horseneck Beach State Park	3.500
Horseneck Beach State Park	3.500
Horseneck Beach State Park	1.000
Horseneck Beach State Park	3.500
Mattapoisett Town Beach	2.000
West Island Beach	1.583
West Island Beach	0.500
West Island Beach	0.250
Harmonic Mean	2.549

Table B3-6: Predicted Trips on Days Sampled

	Predicted Daily Baseline Trips									
Year	2003					2004				
Flight	1	2	3	4	5	6	7	8	9	10
Human Use Segment										
1	102.40	82.39	48.64	103.12	567.70	55.97	31.11	79.78	290.35	569.40
2	269.13	216.54	127.84	271.02	1,492.02	147.11	81.78	209.68	763.10	1,496.50
3	589.68	474.46	280.11	593.83	3,269.16	322.33	179.18	459.43	1,672.02	3,278.98
4	148.28	119.31	70.43	149.32	822.04	81.05	45.06	115.53	420.43	824.51
5	204.20	164.30	97.00	205.63	1,132.05	111.62	62.05	159.09	578.99	1,135.45
6	37.93	30.52	18.02	38.20	210.29	20.73	11.53	29.55	107.55	210.92
7	166.62	134.06	79.15	167.79	923.70	91.08	50.63	129.81	472.43	926.48
8	435.28	350.23	206.77	438.34	2,413.15	237.93	132.26	339.13	1,234.21	2,420.40
9	115.01	92.54	54.63	115.81	637.58	62.86	34.95	89.60	326.09	639.50
10	117.62	94.64	55.87	118.45	652.09	64.30	35.74	91.64	333.51	654.05
11	53.10	42.73	25.22	53.47	294.38	29.03	16.13	41.37	150.56	295.27
12	133.15	107.13	63.25	134.09	738.18	72.78	40.46	103.74	377.54	740.40
13	32.00	25.75	15.20	32.23	177.43	17.49	9.72	24.94	90.75	177.97
14	168.04	135.20	79.82	169.22	931.58	91.85	51.06	130.92	476.46	934.38
15	59.38	47.77	28.20	59.79	329.17	32.46	18.04	46.26	168.36	330.16
16	332.38	267.44	157.89	334.72	1,842.70	181.69	101.00	258.96	942.45	1,848.24
17	135.35	108.91	64.30	136.30	750.39	73.99	41.13	105.46	383.79	752.64
18	178.88	143.92	84.97	180.13	991.67	97.78	54.35	139.36	507.19	994.65
19	746.12	600.33	354.42	751.36	4,136.43	407.85	226.71	581.31	2,115.59	4,148.85
20	282.76	227.51	134.31	284.74	1,567.58	154.56	85.92	220.30	801.74	1,572.29
21	113.53	91.35	53.93	114.33	629.41	62.06	34.50	88.45	321.91	631.30
22	174.67	140.54	82.97	175.90	968.34	95.48	53.07	136.09	495.26	971.25
23	343.36	276.27	163.10	345.77	1,903.57	187.69	104.33	267.52	973.59	1,909.29
24	312.09	251.11	148.25	314.28	1,730.19	170.59	94.83	243.15	884.91	1,735.39
Total	5,250.95	4,224.96	2,494.30	5,287.84	29,110.81	2,870.28	1,595.54	4,091.08	14,888.81	29,198.28

Table B3-6: Predicted Trips on Days Sampled

	Predicted Daily With-Spill Trips									
Year	2003					2004				
Flight	1	2	3	4	5	6	7	8	9	10
Human Use Segment										
1	92.93	74.78	44.15	93.59	515.22	55.97	31.11	79.78	290.35	569.40
2	244.25	196.52	116.02	245.96	1,354.09	147.11	81.78	209.68	763.10	1,496.50
3	535.17	430.60	254.22	538.93	2,966.94	322.33	179.18	459.43	1,672.02	3,278.98
4	134.57	108.28	63.92	135.52	746.05	81.05	45.06	115.53	420.43	824.51
5	185.32	149.11	88.03	186.62	1,027.40	111.62	62.05	159.09	578.99	1,135.45
6	34.43	27.70	16.35	34.67	190.85	20.73	11.53	29.55	107.55	210.92
7	151.21	121.67	71.83	152.27	838.31	91.08	50.63	129.81	472.43	926.48
8	395.04	317.85	187.65	397.82	2,190.07	237.93	132.26	339.13	1,234.21	2,420.40
9	104.37	83.98	49.58	105.11	578.64	62.86	34.95	89.60	326.09	639.50
10	106.75	85.89	50.71	107.50	591.81	64.30	35.74	91.64	333.51	654.05
11	48.19	38.78	22.89	48.53	267.17	29.03	16.13	41.37	150.56	295.27
12	120.84	97.23	57.40	121.69	669.94	72.78	40.46	103.74	377.54	740.40
13	29.05	23.37	13.80	29.25	161.03	17.49	9.72	24.94	90.75	177.97
14	152.50	122.71	72.44	153.57	845.47	91.85	51.06	130.92	476.46	934.38
15	53.89	43.36	25.60	54.27	298.74	32.46	18.04	46.26	168.36	330.16
16	301.66	242.71	143.29	303.77	1,672.35	181.69	101.00	258.96	942.45	1,848.24
17	122.84	98.84	58.35	123.70	681.02	73.99	41.13	105.46	383.79	752.64
18	162.34	130.62	77.11	163.48	899.99	97.78	54.35	139.36	507.19	994.65
19	677.15	544.84	321.66	681.90	3,754.04	407.85	226.71	581.31	2,115.59	4,148.85
20	256.62	206.48	121.90	258.42	1,422.67	154.56	85.92	220.30	801.74	1,572.29
21	103.04	82.90	48.94	103.76	571.23	62.06	34.50	88.45	321.91	631.30
22	174.67	140.54	82.97	175.90	968.34	95.48	53.07	136.09	495.26	971.25
23	343.36	276.27	163.10	345.77	1,903.57	187.69	104.33	267.52	973.59	1,909.29
24	430.26	346.19	204.38	433.28	2,385.32	170.59	94.83	243.15	884.91	1,735.39
Total	4,960.44	3,991.21	2,356.31	4,995.29	27,500.26	2,870.28	1,595.54	4,091.08	14,888.81	29,198.28

Table B3-7: Estimated Percentage Reduction in Trips

Flight (in 2003) Date		1 5/18/03	2 5/20/03	3 5/30/03	4 5/31/03	5 6/26/03	Total
Calculations for the Overflight Area	Predicted Baseline Trips	5,250.95	4,224.96	2,494.30	5,287.84	29,110.81	46,368.87
	Predicted With-Spill Trips	4,960.44	3,991.21	2,356.31	4,995.29	27,500.26	43,803.51
Calculations for the Assessment Area	Predicted Baseline Trips	4,420.83	3,557.04	2,099.98	4,451.89	24,508.71	39,038.45
	Predicted With-Spill Trips	4,012.15	3,228.21	1,905.85	4,040.34	22,243.02	35,429.58
	Reduction in Trips	408.68	328.83	194.13	411.55	2,265.68	3,608.87
	Reduction in Trips as Percent of Baseline						*9.244%*

Table B3-8: Daily State Park Visitation Data

Date	Daily With-Spill Counts [a]			
	Demerast Lloyd SP	Fort Pheonix SP	South Cape Beach SP	Horseneck Beach SP
4/27/03	15	700	25	10
4/28/03	25	140	45	10
4/29/03	27	150	53	10
4/30/03	40	120	59	10
5/1/03	45	125	48	10
5/2/03	32	175	52	15
5/3/03	55	200	65	10
5/4/03	42	225	92	20
5/5/03	21	190	25	23
5/6/03	18	150	46	15
5/7/03	26	300	40	25
5/8/03	10	250	35	20
5/9/03	22	210	62	17
5/10/03	43	235	75	10
5/11/03	37	210	82	22
5/12/03	20	240	35	5
5/13/03	28	230	40	3
5/14/03	25	195	38	0
5/15/03	25	175	56	15
5/16/03	15	200	78	30
5/17/03	28	300	73	35
5/18/03	30	295	80	50
5/19/03	42	450	62	65
5/20/03	45	375	82	40
5/21/03	31	150	36	25
5/22/03	28	165	48	15
5/23/03	30	140	66	5
5/24/03	18	145	70	10
5/25/03	29	140	101	10
5/26/03	15	135	78	5
5/27/03	21	160	85	0
5/28/03	25	175	52	20
5/29/03	28	155	55	25
5/30/03	32	250	46	25

[a] Count data for each park obtained from Massachusetts Department of Conversation and Recreation.

Table B3-8: Daily State Park Visitation Data

Date	Daily With-Spill Counts [a]			
	Demerast Lloyd SP	Fort Pheonix SP	South Cape Beach SP	Horseneck Beach SP
5/31/03	35	225	115	40
6/1/03	10	100	36	40
6/2/03	15	250	68	50
6/3/03	20	150	45	280
6/4/03	15	145	56	40
6/5/03	20	400	39	25
6/6/03	35	155	82	450
6/7/03	22	165	45	45
6/8/03	19	275	38	20
6/9/03	20	175	49	55
6/10/03	19	200	40	1100
6/11/03	18	150	58	60
6/12/03	10	225	41	20
6/13/03	17	130	55	45
6/14/03	28	125	36	10
6/15/03	52	160	99	1250
6/16/03	15	250	90	250
6/17/03	307	225	35	1400
6/18/03	11	145	35	50
6/19/03	25	160	29	100
6/20/03	12	240	38	750
6/21/03	25	220	127	150
6/22/03	22	140	35	15
6/23/03	25	155	38	175
6/24/03	456	290	45	2100
6/25/03	478	800	305	1500
6/26/03	492	850	313	2500

[a] Count data for each park obtained from Massachusetts Department of Conversation and Recreation.

Table B3-8: Daily State Park Visitation Data

Date	Estimated Daily Baseline Counts [b]			
	Demerast Lloyd SP	Fort Pheonix SP	South Cape Beach SP	Horseneck Beach SP
4/27/03	16.53	771.30	18.13	11.02
4/28/03	27.55	154.26	32.64	11.02
4/29/03	29.75	165.28	38.44	11.02
4/30/03	44.07	132.22	42.80	11.02
5/1/03	49.58	137.73	34.82	11.02
5/2/03	35.26	192.83	37.72	16.53
5/3/03	60.60	220.37	47.15	11.02
5/4/03	46.28	247.92	66.73	22.04
5/5/03	23.14	209.35	18.13	25.34
5/6/03	19.83	165.28	33.37	16.53
5/7/03	28.65	330.56	29.01	27.55
5/8/03	11.02	275.47	25.39	22.04
5/9/03	24.24	231.39	44.97	18.73
5/10/03	47.38	258.94	54.40	11.02
5/11/03	40.77	231.39	59.48	24.24
5/12/03	22.04	264.45	25.39	5.51
5/13/03	30.85	253.43	29.01	3.31
5/14/03	27.55	214.86	27.56	0.00
5/15/03	27.55	192.83	40.62	16.53
5/16/03	16.53	220.37	56.58	33.06
5/17/03	30.85	330.56	52.95	38.57
5/18/03	33.06	325.05	58.03	55.09
5/19/03	46.28	495.84	44.97	71.62
5/20/03	49.58	413.20	59.48	44.07
5/21/03	34.16	165.28	26.11	27.55
5/22/03	30.85	181.81	34.82	16.53
5/23/03	33.06	154.26	47.87	5.51
5/24/03	19.83	159.77	50.77	11.02
5/25/03	31.95	154.26	73.26	11.02
5/26/03	16.53	148.75	56.58	5.51
5/27/03	23.14	176.30	61.65	0.00
5/28/03	27.55	192.83	37.72	22.04
5/29/03	30.85	170.79	39.89	27.55
5/30/03	35.26	275.47	33.37	27.55

[b] Baseline trips estimated based on estimated percentage reduction in baseline trips.

Table B3-8: Daily State Park Visitation Data

Date	Estimated Daily Baseline Counts [b]			
	Demerast Lloyd SP	Fort Pheonix SP	South Cape Beach SP	Horseneck Beach SP
5/31/03	38.57	247.92	83.42	44.07
6/1/03	11.02	110.19	26.11	44.07
6/2/03	16.53	275.47	49.32	55.09
6/3/03	22.04	165.28	32.64	308.52
6/4/03	16.53	159.77	40.62	44.07
6/5/03	22.04	440.74	28.29	27.55
6/6/03	38.57	170.79	59.48	495.84
6/7/03	24.24	181.81	32.64	49.58
6/8/03	20.94	303.01	27.56	22.04
6/9/03	22.04	192.83	35.54	60.60
6/10/03	20.94	220.37	29.01	1,212.05
6/11/03	19.83	165.28	42.07	66.11
6/12/03	11.02	247.92	29.74	22.04
6/13/03	18.73	143.24	39.89	49.58
6/14/03	30.85	137.73	26.11	11.02
6/15/03	57.30	176.30	71.81	1,377.33
6/16/03	16.53	275.47	65.28	275.47
6/17/03	338.27	247.92	25.39	1,542.60
6/18/03	12.12	159.77	25.39	55.09
6/19/03	27.55	176.30	21.04	110.19
6/20/03	13.22	264.45	27.56	826.40
6/21/03	27.55	242.41	92.12	165.28
6/22/03	24.24	154.26	25.39	16.53
6/23/03	27.55	170.79	27.56	192.83
6/24/03	502.45	319.54	32.64	2,313.91
6/25/03	526.69	881.49	221.23	1,652.79
6/26/03	542.12	936.58	227.03	2,754.65

[b] Baseline trips estimated based on estimated percentage reduction in baseline trips.

Table B3-9: Estimated Daily Baseline Use Regression

Count Data Used in Regression					
Flight	**Date**	**Demerast Lloyd SP**	**Fort Pheonix SP**	**South Cape Beach SP**	**Use Across all Human Use Segments**
1	5/18/03	33.06	325.05	58.03	5,250.95
2	5/20/03	49.58	413.20	59.48	4,224.96
3	5/30/03	35.26	275.47	33.37	2,494.30
4	5/31/03	38.57	247.92	83.42	5,287.84
5	6/26/03	542.12	936.58	227.03	29,110.81
6	5/1/04	22.00	275.00	65.00	2,870.28
7	5/21/04	28.00	225.00	48.00	1,595.54
8	6/4/04	29.00	300.00	52.00	4,091.08
9	6/12/04	70.00	475.00	66.00	14,888.81
10	6/23/04	373.00	300.00	291.00	29,198.28

Regresion Results			
Parameter	**Estimate**	**Std. Error**	**Est. / s.e.**
Demerast Lloyd SP	25.7640	13.5695	1.8987
Fort Pheonix SP	2.8750	4.5574	0.6308
South Cape Beach SP	60.1899	23.1852	2.5960
Adjusted R Square	0.8045		

Table B3-10: Estimated Baseline and Reduction in Trips

Date	Baseline Trips in Overflight Area	Baseline Trips in Assessment Area	With-Spill Trips in Assessment Area	Reduction in Trips in Assessment Area
4/27/03	3,734.78	3,144.35	2,853.68	290.68
4/28/03	3,117.85	2,624.95	2,382.29	242.66
4/29/03	3,555.58	2,993.48	2,716.75	276.73
4/30/03	4,091.54	3,444.71	3,126.27	318.44
5/1/03	3,769.08	3,173.23	2,879.88	293.35
5/2/03	3,733.06	3,142.90	2,852.36	290.54
5/3/03	5,032.75	4,237.12	3,845.43	391.70
5/4/03	5,921.68	4,985.53	4,524.65	460.88
5/5/03	2,289.51	1,927.57	1,749.37	178.19
5/6/03	2,994.47	2,521.08	2,288.02	233.06
5/7/03	3,434.80	2,891.79	2,624.47	267.33
5/8/03	2,603.90	2,192.25	1,989.59	202.66
5/9/03	3,996.63	3,364.81	3,053.75	311.06
5/10/03	5,239.55	4,411.23	4,003.44	407.79
5/11/03	5,295.64	4,458.45	4,046.30	412.16
5/12/03	2,856.11	2,404.59	2,182.30	222.29
5/13/03	3,269.83	2,752.90	2,498.41	254.49
5/14/03	2,986.47	2,514.34	2,281.91	232.44
5/15/03	3,708.97	3,122.62	2,833.96	288.67
5/16/03	4,464.78	3,758.95	3,411.45	347.49
5/17/03	4,932.32	4,152.57	3,768.69	383.88
5/18/03	5,278.87	4,444.33	4,033.48	410.85
5/19/03	5,324.68	4,482.91	4,068.49	414.42
5/20/03	6,045.44	5,089.72	4,619.20	470.51
5/21/03	2,926.93	2,464.21	2,236.41	227.80
5/22/03	3,413.19	2,873.60	2,607.95	265.65
5/23/03	4,176.63	3,516.35	3,191.28	325.07
5/24/03	4,026.44	3,389.91	3,076.53	313.38
5/25/03	5,676.30	4,778.94	4,337.15	441.78
5/26/03	4,258.87	3,585.59	3,254.12	331.47
5/27/03	4,814.01	4,052.96	3,678.29	374.67
5/28/03	3,534.34	2,975.60	2,700.52	275.08
5/29/03	3,687.12	3,104.23	2,817.26	286.97
5/30/03	3,708.69	3,122.39	2,833.74	288.65
5/31/03	6,727.12	5,663.63	5,140.06	523.57
6/1/03	2,172.38	1,828.95	1,659.88	169.08
6/2/03	4,186.58	3,524.73	3,198.89	325.84
6/3/03	3,007.59	2,532.12	2,298.04	234.08
6/4/03	3,330.05	2,803.61	2,544.43	259.18
6/5/03	3,537.59	2,978.34	2,703.01	275.33
6/6/03	5,064.63	4,263.97	3,869.79	394.18
6/7/03	3,111.88	2,619.93	2,377.73	242.20
6/8/03	3,069.57	2,584.30	2,345.40	238.90
6/9/03	3,261.42	2,745.82	2,491.99	253.83
6/10/03	2,919.30	2,457.79	2,230.58	227.21
6/11/03	3,518.38	2,962.16	2,688.32	273.83
6/12/03	2,786.66	2,346.12	2,129.23	216.88
6/13/03	3,295.65	2,774.65	2,518.15	256.50
6/14/03	2,762.57	2,325.84	2,110.83	215.01
6/15/03	6,305.27	5,308.47	4,817.74	490.74
6/16/03	5,147.08	4,333.38	3,932.78	400.59
6/17/03	10,956.04	9,224.01	8,371.31	852.70
6/18/03	2,299.67	1,936.11	1,757.13	178.98
6/19/03	2,482.67	2,090.18	1,896.96	193.23
6/20/03	2,759.98	2,323.65	2,108.85	214.81
6/21/03	6,951.30	5,852.37	5,311.36	541.02
6/22/03	2,596.10	2,185.68	1,983.63	202.05
6/23/03	2,859.76	2,407.66	2,185.09	222.57
6/24/03	15,828.40	13,326.10	12,094.18	1,231.92
6/25/03	29,419.83	24,768.87	22,479.14	2,289.73
6/26/03	30,324.93	25,530.89	23,170.71	2,360.18
Total	308,583.20	259,799.51	235,782.61	24,016.90

Table B3-11: Calculation of Lost Trips on Block Island

Block Island Use As a Proportion of Use at Segments 1 - 21	
Block Island Actual Use - Flight 10, 3:25 pm	608
Block Island Site-Specific Constant (to predict actual use)	4.635
Predicted Actual Use - 23 June 2006, 3:25 pm	607.95
Predicted Peak Use - 23 June 2004, Block Island	773.79
Predicted Peak Use - 23 June 2004, Segments 1 to 21	8,265.92
Block Island as Percent of Total Predicted Peak Use	9.36%

Calculation of Lost Trips on Block Island	
Estimated Baseline Trips -- Segments 1 to 21	191,580.07
Estimated Baseline Trips -- Block Island	17,934.20
Estimated Lost Trips -- Block Island	1,657.91

APPENDIX B4: ESTIMATION OF THE REDUCTION IN TRIPS DURING PERIOD TWO

The TWG agreed to estimate lost trips from the spill date through June 26, 2003 using a statistical model of the helicopter overflight data. Based on an analysis of state park time series data, the TWG agreed that shoreline use had likely returned to baseline for most portions of the shoreline by June 26, 2003. The TWG agreed to use the results of IRAC inspections to characterize potential shoreline losses after June 26.

This appendix summarizes the methods used to estimate lost trips for the Bouchard B-120 Oil Spill that occurred after June 26, 2003.

SUMMARY OF IRAC INSPECTION DATA

The IRAC/SCAT segments are shorter (typically less than 20%) than the segments developed for the recreational use assessment. The results of IRAC inspections include the date inspected, the result, and usually some degree of comments. There are three potential outcomes:

1. Passed;

2. Failed with no further action feasible; and

3. Failed with further action feasible.

The criterion used for IRAC inspections was the presence of oil. Thus, segments that passed IRAC inspections typically had no observable oil. Segments that failed with no further action feasible had visible oil, but the oil was not generally available to the touch. Segments that failed with further action feasible had visible oil that was generally available to the touch. Of the 141 IRAC inspections performed after June 26 (about two-thirds of all IRAC inspections), 102 passed (72%), 10 failed with no action feasible (7%), and 23 failed with action feasible (16%).

Based on the analysis of state park data presented in Appendix B3, the TWG concluded that if a segment passed IRAC inspection, it was reasonable to assume that shoreline use on that segment had returned to baseline. If the segment failed with further action feasible, the TWG assumed that shoreline use had not returned to baseline. Segments that failed with no further action feasible typically had relatively small amounts of visible oil that was not available to the touch. The oil tended to be confined to rocks, groins, or other hard structures, but not on sandy portions of beaches. These segments also tended to be less heavily used. Therefore, the TWG concluded that the remaining oil on these segments would not likely result in practicably measurable reductions in shoreline use, and therefore considered these segments to have returned to baseline on the date that they failed with no further action feasible.

Therefore, there were three categories of results relative to June 26:

1. Passed before or on June 26;

2. Failed with further action feasible after June 26; and

3. Passed or failed with no further action feasible after June 26.

The first two categories are relatively clear-cut in our analysis. If a segment passed before or on June 26, it was assumed to have returned to baseline and is excluded from further analysis. Segments that failed with further action feasible after June 26 were assumed not to have returned to baseline and were considered further.

The third category is more complicated. These segments either passed or failed with no further action feasible the first time they were inspected. However, since the first inspection for each segment was after June 26, this does not necessarily imply that the segments would have passed or failed with no further action feasible on June 26. The number of segments in this category is significant; approximately 79% of the inspections that occurred after June 26 fell into Category 3.[1] As a result, for many of the segments, the IRAC inspection data does not yield a clear indication of whether the IRAC segment likely had reduced beach attendance after June 26.

Therefore, the TWG incorporated other information, including the maximum degree of oiling, the location/media of oiling, and the IRAC inspection results for surrounding segments in determining which segments likely had reduced attendance after June 26. Incorporating this information yields a pattern of areas affected after June 26 that generally coincide with areas that had the heaviest oiling. On the east side of Buzzards Bay, the TWG included the south side of Scraggy Neck, Nye's Neck, and Magansett Harbor. On the west side, the TWG included the southwestern-facing shorelines of Mattapoisett, Fairhaven, and New Bedford. These areas are portions of human use segments 7-10, 13, 18, and 19.

[1] Of the inspections for segments in Category 3, approximately 89% passed and approximately 11% failed with no further action feasible.

ESTIMATING BASELINE USE IN AFFECTED IRAC SEGMENTS

As the human use segments are substantially larger than the IRAC segments, the TWG had to apportion baseline use in the human use segments to the affected IRAC segments. To estimate baseline use in affected IRAC segments, the TWG used three steps: estimating baseline use in human use segments, estimating the proportion of trips in the human use segments taken to affected IRAC segments, and calculating the baseline use in affected IRAC segments.

In order to estimate baseline use in each human use segment, the TWG employed two elements of the Period 1 shoreline loss model. First, the TWG calculated the "segment proportions", the proportion of total baseline trips (where the total is over all 24 human use segments) in each human use segment based on the predicted baseline peak users from the Period 1 loss model. Second, the TWG used the relationship of total baseline use in the overflight area to the state park daily time series data to estimate the total baseline use on each day from June 27 to September 3. The TWG multiplied the total daily use by the segment proportions to estimate the total daily use in each segment from June 27 to September 3.

September 3 was the latest date on which an IRAC segment passed. There were four segments that failed after June 26, but for which the TWG has no record of being inspected again. The two eastern segments (E1-11 and E1-13) are near a segment (E1-12) that also failed inspection in early August (the same time as these two segments), and then passed on August 28. Comments on the sheet noted that E1-12 looked "great". One western segment (W2-A), the very southern tip of Sconticut Neck in Fairhaven, failed in mid-August. Another nearby segment that was more heavily oiled (W2A-10) passed on September 3. Finally, another western segment (W2B-5, the Fort Rodman Military Reservation), failed with action feasible on June 26. A nearby segment (W2B-4) passed on August 29. Based on similar nearby segments passing on or before September 3, the TWG assumed that these four segments for which the TWG does not have a record of final passing returned to baseline on September 3. During the seven days prior to September 3, the TWG estimated approximately 209 lost trips. Because use is expected to decline through September and the number of baseline trips taken at this time of year is relatively small, the TWG judged that the above assumption would result in a negligible error, if any.

In order to estimate the proportion of trips in each human use segment that would be taken to IRAC segments that failed after June 26, the TWG made the following assumptions:

- If an IRAC segment was deemed to represent a negligible portion of the human use in a segment (*e.g.*, it is a remote area or it is marsh), it was assumed to have no use;

- If the TWG had information concerning the proportion of use in a particular IRAC segment, such information was incorporated (as discussed further below); and

- If the TWG had no information concerning the proportion of use in a particular IRAC segment, the TWG assumed that trips were evenly distributed across the human use segment and allocated trips to the IRAC segment based on distance.

Regarding the segments for which the TWG had some information, adjustments were made as follows. For human use segments 8, 9, and 19, the TWG typically recorded helicopter counts at the large public use areas (Fort Phoenix State Park, West Island Beach, and Old Silver Beach, respectively) in addition to the segment totals. This allowed the TWG to adjust the proportion of trips taken in affected IRAC segments accordingly.

In Human Use Segment 8 (western portion of Fairhaven), the overflight counts suggest that about 50% of the segment's use occurs at Fort Phoenix State Park, which comprises about 10% of the segment length. While the IRAC segment containing Fort Phoenix passed IRAC before June 26, approximately 42% of human use segment 8 had lost trips after June 26. Apportioning the remaining 50% of use evenly over the remaining 90% of the segment would result in the failed IRAC segments having approximately 24% (0.423/0.9*0.5) of the total use of the segment. However, based on recollection from the overflight surveys, the TWG thought that the IRAC segments that failed have higher use than those that did not (excluding Fort Phoenix). Therefore, the TWG assumed that the trips taken per mile in the failed areas were twice as high as in the non-failed areas. Based on this assumption, approximately 31% of the baseline trips to Segment 8 are estimated to occur in the areas that failed.[2]

In Human Use Segment 9 (eastern portion of Fairhaven and western portion of Mattapoisett), the overflight counts suggest that West Island Beach comprises about 45% of the total segment use, and the TWG estimated that it comprises about 5% of the segment distance. The IRAC segment containing West Island Beach failed after June 26, and the trip proportion to this segment was adjusted to 45%. In total, about 32% of Segment 9 failed after June 26. Therefore, the area that failed outside of West Island Beach was about 27% of the total segment distance. Based on our recollection from the overflights, the TWG assumed that the trips taken per mile were twice as high in these failed areas than areas that passed. Based on these assumptions, the TWG estimate that 45% of the total segment use occurred in West Island Beach, and 24% of the total segment use occurs in other areas that failed, yielding an estimate that 69% of segment use occurs in areas that failed.

In Human Use Segment 19 (Nye's Neck to West Falmouth Harbor), the overflight counts suggest that Old Silver Beach comprises about 75% of the total segment use, and the

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[2] Solve for x, where x is the trip proportion / distance proportion:

$0.423*2x + (1-0.423-0.1) *x = 1-0.5$; $x = 0.364$.

The trip proportion on the failed IRAC segments is $0.42*2x = 0.308$.

TWG estimated that it comprises about 5% of the segment length. Areas that did not fail IRAC comprised about 25% of the total segment length (and did not include Old Silver Beach). There are several human use areas in the portions that failed and several in the portions that did not fail. Therefore, the TWG assumed that trips taken per mile was equal in the failed and passed areas (excluding Old Silver Beach), and apportioned the remaining 25% of the use based on distance. Based on these assumptions, about 7% of the total segment use was allocated to the areas that failed.

For human use segments 10 and 18, the TWG did not have any helicopter counts for portions of the segment as discussed for the above segments. However, the TWG performed adjustments based on our recollection from the overflights.

In Human Use Segment 10 (Mattapoisett), approximately 40% of the segment failed. The areas that failed contained some high use areas (Crescent Beach, Ned's Point Lighthouse), and some stretches of private beaches. The areas that passed included some high use areas (the town beach to the west of the boat launch and Shell Beach), as well as some private areas. Based on best professional judgment, the TWG assumed that the trips taken per mile were twice as high in the areas that failed compared to the areas that passed. Based on this assumption, about 57% of the total segment use was estimated to occur in areas that failed.

In human use segment 18 (southern Bourne to North Falmouth), the only area that failed was the south side of Scraggy Neck. This area comprised about 13% of the segment distance. Scraggy Neck is a private island, with a gated entry and relatively low density housing. The remainder of the segment includes several public use areas, as well as higher density housing. Therefore, the TWG assumed that the trips per mile on Scraggy Neck were one-half of the trips per mile on the remainder of the segment. Based on this assumption, about 6% of the segment use was assumed to occur in the areas that failed.

For the two other segments, 7 and 13, the TWG didn't have enough information to help determine whether trips per mile in affected areas was likely lower or higher than areas that passed. Therefore, for these segments, the TWG assumed that trips were taken evenly throughout the segment.

Table 1 contains the proportion of human use segments affected after June 26, both as distance and as trips taken. Note that the table indicates proportions as of June 26. As portions of the affected areas passed IRAC inspections after June 26, use allocated to those segments were no longer included in the lost trips. This implicitly assumes that trips taken per mile are evenly distributed among the areas that failed.

Table B4- 1: Proportion of Human Use Segments Affected after June 26

Segment	Distance Proportion	Trip Proportion	Reason
7	39.5%	39.5%	Not enough information to adjust
8	42.3%	30.8%	Fort Phoenix passed, failed areas thought to have higher use
9	32.1%	69.4%	West Island Beach failed
10	39.7%	56.7%	Failed areas thought to have higher use
13	16.5%	16.5%	Not enough information to adjust
18	12.7%	6.3%	Failed areas thought to have lower use
19	25.3%	6.7%	Old Silver Beach passed

This step yielded daily baseline trip proportions to affected IRAC segments. The TWG multiplied these proportions by the estimated daily use in each human use segment to yield the daily baseline trips taken to the affected IRAC segments.

ESTIMATING LOST TRIPS IN AFFECTED IRAC SEGMENTS

As previously discussed, the TWG applied the estimated proportion of trips lost before June 26 (9.24%) to the post-June 26 period. Using these methods, the TWG estimate 10,766 trips were lost in affected IRAC segments from June 27 through the remainder of the 2003 season.

Table B4-2: IRAC Inspection Results

Segment Division	Segment ID	Date	Outcome Code
E1	1	6/23/03	A
E1	1	6/23/03	A
E1	2	7/15/03	A
E1	3	7/15/03	A
E1	4	8/12/03	A
E1	5	8/12/03	A
E1	6	8/14/03	A
E1	7	6/12/03	A
E1	7	6/12/03	A
E1	7	6/12/03	A
E1	8	7/15/03	A
E1	9	7/15/03	ND
E1	9	8/8/03	A
E1	10	6/11/03	A
E1	10	6/11/03	A
E1	11	8/4/03	C
E1	12	6/23/03	C
E1	12	6/23/03	C
E1	12	8/5/03	C
E1	12	8/28/03	A
E1	13	8/6/03	C
E1	14	8/28/03	A
E1	15	8/28/03	A
E1	16	8/14/03	A
E2	1	8/27/03	C
E2	5	7/14/03	A
E2	6	7/14/03	A
E2	7	7/14/03	A
E2	8	7/14/03	A
E2	9	7/25/03	A
E2	10	7/25/03	C
E2	10	8/28/03	A
E2	11	7/25/03	A
W1B	7	5/30/03	A
W1B	7	7/30/03	A
W1B	8	6/16/03	A
W1B	8	6/13/03	A
W1B	12	7/10/03	A
W1B	13	7/10/03	A
W1B	14	6/17/03	A
W1B	14	6/17/03	A
W1B	15	6/17/03	A
W1B	15	6/17/03	A
W1B	16	6/17/03	A
W1B	16	6/17/03	A
W1B	17	7/10/03	A
W1B	18	8/26/03	A
W1B	19	8/26/03	A
W1B	20	8/26/03	A
W1B	21	7/10/03	A
W1B	22	7/10/03	A
W1B	23	7/10/03	A
W1B	24	7/28/03	C

Outcome Code	Outcome
A	Meets IRAC Endpoints
B	Does not meet; further cleaning not feasible
C	Does not meet; further cleaning is feasible
ND	No data - not considered passed

Table B4-2: IRAC Inspection Results

Segment Division	Segment ID	Date	Outcome Code
W1B	24	9/2/03	A
W1B	25	8/27/03	A
W1B	26	8/25/03	A
W1B	27	8/25/03	A
W1B	28	7/28/03	A
W1B	29	8/25/03	A
W1B	30	8/15/03	A
W1B	31	7/23/03	A
W1B	32	7/23/03	A
W1B	33	7/23/03	A
W1C	1	7/28/03	C
W1C	4	7/11/03	A
W1C	5	7/11/03	C
W1C	5	8/7/03	A
W1C	10	7/11/03	C
W1C	10	8/7/03	B
W1C	11	7/11/03	A
W1C	12	8/8/03	B
W1D	1	6/25/03	A
W1D	1	6/25/03	A
W1D	1	6/15/03	C
W1D	1	6/15/03	C
W1D	2	6/15/03	A
W1D	2	6/15/03	A
W1D	3	6/25/03	A
W1D	3	6/25/03	A
W1D	3	6/15/03	C
W1D	3	6/15/03	C
W1D	4	6/26/03	A
W1D	4	6/26/03	A
W1D	4	6/25/03	C
W1D	4	6/25/03	C
W1D	5	6/25/03	A
W1D	5	6/25/03	A
W1E	1	8/25/03	A
W1E	2	9/2/03	B
W1E	2	9/2/03	ND
W1E	2	8/25/03	ND
W1E	3	8/25/03	C
W1E	4	8/25/03	A
W1E	5	8/21/03	A
W1E	6	8/21/03	A
W1F	1	8/22/03	A
W1F	3	9/2/03	B
W1F	3	9/2/03	ND
W1F	3	8/22/03	C
W1F	4	8/22/03	A
W1F	4	8/27/03	ND
W1F	6	9/2/03	B
W1F	6	9/2/03	ND
W1F	6	8/27/03	C
W1F	7	8/22/03	B
W1F	7	8/27/03	A

Outcome Code	Outcome
A	Meets IRAC Endpoints
B	Does not meet; further cleaning not feasible
C	Does not meet; further cleaning is feasible
ND	No data - not considered passed

Table B4-2: IRAC Inspection Results

Segment Division	Segment ID	Date	Outcome Code
W1F	8	8/27/03	A
W1F	9	8/21/03	A
W1G	1	7/8/03	A
W2A	1	6/24/03	A
W2A	1	6/24/03	A
W2A	1	6/13/03	C
W2A	1	6/13/03	C
W2A	2	6/13/03	C
W2A	2	6/13/03	C
W2A	2	6/24/03	A
W2A	2	6/24/03	A
W2A	3	6/24/03	A
W2A	3	6/24/03	A
W2A	3	6/13/03	C
W2A	3	6/13/03	C
W2A	4	6/24/03	A
W2A	4	6/24/03	A
W2A	5	8/11/03	B
W2A	6	8/11/03	B
W2A	7	8/12/03	A
W2A	8	8/12/03	C
W2A	9	8/12/03	A
W2A	10	9/3/03	B
W2A	11	8/13/03	A
W2A	12	6/26/03	C
W2A	12	6/26/03	C
W2A	12	8/13/03	A
W2A	13	9/3/03	A
W2A	13	8/13/03	C
W2A	14	9/3/03	A
W2A	14	8/14/03	C
W2A	15	8/14/03	A
W2A	16	8/14/03	A
W2A	17	6/14/03	A
W2A	17	6/14/03	A
W2A	18	6/14/03	A
W2A	18	6/14/03	A
W2A	19-A	8/15/03	A
W2B	1	7/24/03	C
W2B	1	8/1/03	A
W2B	2	7/24/03	ND
W2B	2	7/31/03	A
W2B	4	7/29/03	C
W2B	4	8/29/03	A
W2B	5	6/18/03	C
W2B	5	6/18/03	C
W2B	5	6/26/03	C
W2B	5	6/26/03	C
W2B	6	6/18/03	A
W2B	6	6/18/03	A
W3A	1	8/26/03	A
W3A	1	8/26/03	A
W3A	2	7/7/03	A

Outcome Code	Outcome
A	Meets IRAC Endpoints
B	Does not meet; further cleaning not feasible
C	Does not meet; further cleaning is feasible
ND	No data - not considered passed

Table B4-2: IRAC Inspection Results

Segment Division	Segment ID	Date	Outcome Code
W3A	2	7/7/03	A
W3A	3	7/7/03	A
W3A	3	7/7/03	A
W3A	4	7/7/03	C
W3A	4	7/9/03	A
W3A	4	7/7/03	C
W3A	5	7/7/03	A
W3A	5	7/7/03	A
W3A	6	7/7/03	C
W3A	6	7/7/03	C
W3A	6	8/1/03	B
W3B	1	8/26/03	A
W3C	1	7/9/03	A
W3C	2	7/9/03	A
W3C	3	7/31/03	A
W3C	5	6/27/03	A
W3C	5	6/27/03	A
W3C	6	6/27/03	A
W3C	6	6/27/03	A
W3D	1	6/27/03	A
W3D	1	6/27/03	A
W3D	2	6/27/03	A
W3D	2	6/27/03	A
W3D	3	6/27/03	A
W3D	3	6/27/03	A
W3D	4	6/10/03	A
W3D	4	6/10/03	A
W3D	5	6/10/03	A
W3D	5	6/10/03	A
W3D	6	7/9/03	A
W3D	7	7/9/03	A

Outcome Code	Outcome
A	Meets IRAC Endpoints
B	Does not meet; further cleaning not feasible
C	Does not meet; further cleaning is feasible
ND	No data - not considered passed

Table B4-3: Proportion of Trips in Human Use Segments Taken within Affected IRAC Segments by IRAC Segment

Affected IRAC Segment	Last Date Failed with Action Feasible	Date Passed or No Action Feasable	Injury Cutoff Date	IRAC Segment Length (mi)	Corresponding Human Use Segment	Human Use Segment Length (mi)	Proportion of Human Use Segment in IRAC Segment	Trips per Mile Ratio (IRAC Seg. to Human Use Seg.)	Trips Ratio (IRAC Seg. to Human Use Seg.)
E1-11	8/4/03		9/3/06	2.847	18	22.450	0.127	0.5	0.063
E1-12	8/5/03	8/28/03	8/28/03	1.481	19	12.870	0.115	0.265	0.030
E1-13	8/6/03		9/3/06	1.773	19	12.870	0.138	0.265	0.037
W1B-33		7/23/03	7/23/03	1.039	13	6.310	0.165	1.0	0.165
W1E-04		8/25/03	8/25/03	1.198	10	10.430	0.115	1.5	0.172
W1E-05		8/21/03	8/21/03	1.047	10	10.430	0.100	1.5	0.151
W1E-06		8/21/03	8/21/03	0.619	10	10.430	0.059	1.5	0.089
W1F-01		8/22/03	8/22/03	0.694	10	10.430	0.067	1.5	0.100
W1F-02		8/22/03	8/22/03	0.685	9	25.900	0.026	0.85	0.022
W1F-03	9/2/03	9/2/03	9/2/03	0.495	9	25.900	0.019	0.85	0.016
W1F-07		8/27/03	8/27/03	0.582	10	10.430	0.056	1.0	0.056
W2A-05		8/11/03	8/11/03	1.050	8	10.380	0.101	0.728	0.074
W2A-06		8/11/03	8/11/03	1.071	8	10.380	0.103	0.728	0.075
W2A-07		8/12/03	8/12/03	1.361	8	10.380	0.131	0.728	0.095
W2A-08	8/12/03		9/3/03	0.183	8	10.380	0.018	0.728	0.013
W2A-08	8/12/03		9/3/03	0.183	9	25.900	0.007	1.0	0.007
W2A-09		8/12/03	8/12/03	0.610	9	25.900	0.024	0.915	0.022
W2A-10		9/3/03	9/3/03	1.123	9	25.900	0.043	0.915	0.040
W2A-11		8/13/03	8/13/03	1.331	9	25.900	0.051	8.75	0.450
W2A-12	6/26/03	8/13/03	8/13/03	0.730	9	25.900	0.028	0.915	0.026
W2A-14	8/14/03	9/3/03	9/3/03	0.766	9	25.900	0.030	0.915	0.027
W2A-19-A		8/15/03	8/15/03	2.392	9	25.900	0.092	0.915	0.085
W2B-04	7/29/03	8/29/03	8/29/03	1.544	7	5.740	0.269	1.0	0.269
W2B-05	6/26/03		9/3/03	0.723	7	5.740	0.126	1.0	0.126
W2B-05	6/26/03		9/3/03	0.723	8	10.380	0.070	0.728	0.051

Table B4-4: Proportion of Length and Baseline Trips in Affected IRAC Segments by Human Use Segment

Human UseSegment	Proportion Affected (by Distance)	Proportion Affected (by Baseline Trips)
7	0.395	0.395
8	0.423	0.308
9	0.321	0.694
10	0.397	0.567
13	0.165	0.165
18	0.127	0.063
19	0.253	0.067

Table B4-5: Proportion of Baseline Trips in Affected IRAC Segments by Human Use Segment and Date

	Human Use Segment																							
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6/27/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
6/28/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
6/29/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
6/30/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/1/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/2/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/3/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/4/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/5/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/6/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/7/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/8/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/9/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/10/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/11/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/12/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/13/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/14/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/15/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/16/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/17/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/18/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/19/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/20/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/21/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/22/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0.165	0	0	0	0	0.063	0.067	0	0	0	0	0
7/23/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/24/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/25/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/26/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/27/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/28/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/29/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/30/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
7/31/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/1/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/2/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/3/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/4/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/5/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/6/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/7/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/8/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/9/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/10/2003	0	0	0	0	0	0	0.395	0.308	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/11/2003	0	0	0	0	0	0	0.395	0.159	0.694	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/12/2003	0	0	0	0	0	0	0.395	0.063	0.672	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/13/2003	0	0	0	0	0	0	0.395	0.063	0.197	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/14/2003	0	0	0	0	0	0	0.395	0.063	0.197	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/15/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/16/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/17/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/18/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/19/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/20/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.567	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/21/2003	0	0	0	0	0	0	0.395	0.063	0.113	0.328	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/22/2003	0	0	0	0	0	0	0.395	0.063	0.090	0.228	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/23/2003	0	0	0	0	0	0	0.395	0.063	0.090	0.228	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/24/2003	0	0	0	0	0	0	0.395	0.063	0.090	0.228	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/25/2003	0	0	0	0	0	0	0.395	0.063	0.090	0.056	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/26/2003	0	0	0	0	0	0	0.395	0.063	0.090	0.056	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/27/2003	0	0	0	0	0	0	0.395	0.063	0.090	0	0	0	0	0	0	0	0	0.063	0.067	0	0	0	0	0
8/28/2003	0	0	0	0	0	0	0.395	0.063	0.090	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0
8/29/2003	0	0	0	0	0	0	0.126	0.063	0.090	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0
8/30/2003	0	0	0	0	0	0	0.126	0.063	0.090	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0
8/31/2003	0	0	0	0	0	0	0.126	0.063	0.090	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0
9/1/2003	0	0	0	0	0	0	0.126	0.063	0.090	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0
9/2/2003	0	0	0	0	0	0	0.126	0.063	0.074	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0
9/3/2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.063	0.037	0	0	0	0	0

Table B4-6: Proportion of Total Baseline Trips in Each Human Use Segment

Human Use Segment	Predicted Baseline Peak Use	Proportion of Baseline Trips
1	345.215	0.020
2	907.277	0.051
3	1,988.058	0.112
4	499.901	0.028
5	688.395	0.039
6	127.875	0.007
7	561.721	0.032
8	1,467.457	0.083
9	387.707	0.022
10	396.555	0.022
11	179.020	0.010
12	448.877	0.025
13	107.899	0.006
14	566.466	0.032
15	200.172	0.011
16	1,120.550	0.063
17	456.315	0.026
18	603.011	0.034
19	2,515.262	0.142
20	953.261	0.054
21	382.749	0.022
22	588.862	0.033
23	1,157.492	0.065
24	1,052.113	0.059

Table B4-7: Predicted Baseline Trips by Human Use Segment and Date

		Human Use Segment																							
Date	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
6/27/03	25,731.31	501.79	1,318.79	2,889.77	726.64	1,000.63	185.87	816.50	2,133.04	563.56	576.42	260.22	652.47	156.84	823.39	290.96	1,628.79	663.28	876.52	3,656.10	1,385.63	556.35	855.95	1,682.49	1,529.31
6/28/03	23,078.84	450.07	1,182.84	2,591.88	651.73	897.48	166.71	732.33	1,913.16	505.46	517.00	233.39	585.21	140.67	738.52	260.97	1,460.89	594.91	786.16	3,279.21	1,242.79	499.00	767.72	1,509.05	1,371.67
6/29/03	27,124.48	528.96	1,390.19	3,046.23	765.98	1,054.80	195.94	860.71	2,248.53	594.07	607.63	274.31	687.80	165.33	867.98	306.72	1,716.98	699.19	923.97	3,854.05	1,460.65	586.47	902.29	1,773.58	1,612.12
6/30/03	10,044.46	195.88	514.80	1,128.05	283.65	390.60	72.56	318.73	832.65	219.99	225.01	101.58	254.70	61.22	321.42	113.58	635.81	258.92	342.16	1,427.19	540.89	217.18	334.13	656.78	596.98
7/1/03	27,067.48	527.85	1,387.27	3,039.83	764.37	1,052.59	195.53	858.90	2,243.81	592.82	606.35	273.73	686.35	164.98	866.15	306.07	1,713.37	697.73	922.03	3,845.95	1,457.58	585.24	900.40	1,769.86	1,608.73
7/2/03	27,952.10	545.10	1,432.61	3,139.18	789.35	1,086.99	201.92	886.97	2,317.14	612.20	626.17	282.68	708.78	170.37	894.46	316.07	1,769.37	720.53	952.16	3,971.64	1,505.22	604.37	929.82	1,827.70	1,661.30
7/3/03	16,844.40	328.49	863.31	1,891.72	475.68	655.04	121.68	534.50	1,396.35	368.92	377.34	170.35	427.13	102.67	539.02	190.47	1,066.25	434.20	573.79	2,393.38	907.07	364.20	560.33	1,101.40	1,001.13
7/4/03	109,873.51	2,142.67	5,631.26	12,339.41	3,102.77	4,272.71	793.69	3,486.47	9,108.17	2,406.41	2,461.32	1,111.14	2,786.08	669.70	3,515.92	1,242.42	6,954.99	2,832.24	3,742.75	15,611.65	5,916.67	2,375.63	3,654.93	7,184.29	6,530.22
7/5/03	78,827.48	1,537.23	4,040.08	8,852.77	2,226.05	3,065.41	569.42	2,501.33	6,534.55	1,726.45	1,765.85	797.17	1,998.84	480.47	2,522.46	891.36	4,989.78	2,031.96	2,685.19	11,200.40	4,244.85	1,704.37	2,622.19	5,154.28	4,685.03
7/6/03	61,509.04	1,199.50	3,152.47	6,907.81	1,736.98	2,391.93	444.32	1,951.79	5,098.90	1,347.15	1,377.89	622.03	1,559.69	374.91	1,968.27	695.53	3,893.52	1,585.53	2,095.25	8,739.66	3,312.25	1,329.92	2,046.09	4,021.88	3,655.73
7/7/03	27,954.56	545.15	1,432.73	3,139.45	789.42	1,087.08	201.93	887.05	2,317.34	612.25	626.22	282.70	708.85	170.39	894.54	316.10	1,769.52	720.59	952.25	3,971.99	1,505.35	604.42	929.91	1,827.86	1,661.45
7/8/03	27,390.12	534.14	1,403.80	3,076.06	773.48	1,065.13	197.86	869.14	2,270.55	599.89	613.58	276.99	694.53	166.95	876.48	309.72	1,733.79	706.04	933.02	3,891.79	1,474.95	592.22	911.13	1,790.95	1,627.90
7/9/03	6,598.91	128.69	338.21	741.09	186.35	256.62	47.67	209.39	547.03	144.53	147.82	66.73	167.33	40.22	211.16	74.62	417.71	170.10	224.79	937.62	355.35	142.68	219.51	431.48	392.20
7/10/03	17,180.29	335.04	880.53	1,929.44	485.16	668.10	124.10	545.16	1,424.19	376.28	384.86	173.74	435.64	104.72	549.76	194.27	1,087.51	442.86	585.23	2,441.10	925.16	371.46	571.50	1,123.37	1,021.09
7/11/03	2,647.42	51.63	135.69	297.32	74.76	102.95	19.12	84.01	219.46	57.98	59.31	26.77	67.13	16.14	84.72	29.94	167.58	68.24	90.18	376.17	142.56	57.24	88.07	173.11	157.35
7/12/03	43,421.04	846.76	2,225.42	4,876.43	1,226.19	1,688.54	313.66	1,377.82	3,599.47	950.99	972.69	439.11	1,101.03	264.66	1,389.46	490.99	2,748.55	1,119.28	1,479.10	6,169.59	2,338.22	938.83	1,444.40	2,839.17	2,580.69
7/13/03	63,784.32	1,243.87	3,269.09	7,163.34	1,801.24	2,480.41	460.76	2,023.98	5,287.52	1,396.98	1,428.86	645.04	1,617.39	388.78	2,041.08	721.26	4,037.55	1,644.19	2,172.76	9,062.95	3,434.77	1,379.11	2,121.78	4,170.66	3,790.96
7/14/03	4,165.35	81.23	213.48	467.79	117.63	161.98	30.09	132.17	345.29	91.23	93.31	42.12	105.62	25.39	133.29	47.10	263.67	107.37	141.89	591.84	224.30	90.06	138.56	272.36	247.56
7/15/03	22,542.82	439.61	1,155.37	2,531.69	636.60	876.63	162.84	715.32	1,868.73	493.72	504.99	227.97	571.62	137.40	721.36	254.91	1,426.96	581.09	767.90	3,203.05	1,213.93	487.41	749.89	1,474.00	1,339.81
7/16/03	9,168.02	178.79	469.88	1,029.62	258.90	356.52	66.23	290.92	760.00	200.79	205.38	92.72	232.47	55.88	293.37	103.67	580.34	236.33	312.30	1,302.66	493.70	198.23	304.97	599.47	544.89
7/17/03	33,162.14	646.70	1,699.63	3,724.29	936.48	1,289.59	239.55	1,052.29	2,749.04	726.31	742.88	335.36	840.90	202.13	1,061.18	374.99	2,099.16	854.83	1,129.64	4,711.93	1,785.78	717.02	1,103.14	2,168.37	1,970.96
7/18/03	23,443.94	457.19	1,201.55	2,632.89	662.04	911.68	169.35	743.92	1,943.43	513.46	525.18	237.09	594.47	142.90	750.20	265.10	1,484.00	604.32	798.60	3,331.09	1,262.45	506.89	779.86	1,532.93	1,393.37
7/19/03	48,209.69	940.15	2,470.85	5,414.22	1,361.42	1,874.76	348.25	1,529.78	3,996.43	1,055.87	1,079.97	487.54	1,222.46	293.85	1,542.70	545.14	3,051.67	1,242.71	1,642.22	6,849.99	2,596.08	1,042.37	1,603.69	3,152.28	2,865.29
7/20/03	69,517.13	1,355.67	3,562.91	7,807.16	1,963.13	2,703.35	502.17	2,205.90	5,762.75	1,522.54	1,557.28	703.02	1,762.75	423.72	2,224.53	786.08	4,400.43	1,791.96	2,368.04	9,877.51	3,743.49	1,503.07	2,312.48	4,545.51	4,131.68
7/21/03	19,647.94	383.16	1,007.00	2,206.57	554.85	764.06	141.93	623.46	1,628.75	430.32	440.14	198.70	498.21	119.76	628.73	222.17	1,243.71	506.47	669.29	2,791.73	1,058.04	424.82	653.59	1,284.72	1,167.75
7/22/03	4,254.69	82.97	218.06	477.83	120.15	165.45	30.73	135.01	352.70	93.18	95.31	43.03	107.89	25.93	136.15	48.11	269.32	109.67	144.93	604.54	229.11	91.99	141.53	278.20	252.87
7/23/03	8,925.23	174.05	457.44	1,002.35	252.04	347.08	64.47	283.21	739.87	195.48	199.94	90.26	226.32	54.40	285.61	100.92	564.97	230.07	304.03	1,268.16	480.62	192.98	296.90	583.59	530.46
7/24/03	4,649.36	90.67	238.29	522.15	131.30	180.80	33.59	147.53	385.42	101.83	104.15	47.02	117.89	28.34	148.78	52.57	294.30	119.85	158.38	660.62	250.37	100.53	154.66	304.01	276.33
7/25/03	30,613.78	597.01	1,569.02	3,438.10	864.52	1,190.49	221.14	971.43	2,537.79	670.49	685.79	309.59	776.28	186.60	979.63	346.17	1,937.85	789.14	1,042.83	4,349.83	1,648.55	661.92	1,018.36	2,001.74	1,819.50
7/26/03	79,897.45	1,558.10	4,094.92	8,972.93	2,256.26	3,107.01	577.15	2,535.28	6,623.25	1,749.89	1,789.82	807.99	2,025.97	486.99	2,556.70	903.46	5,057.51	2,059.54	2,721.64	11,352.43	4,302.46	1,727.50	2,657.78	5,224.24	4,748.62
7/27/03	40,361.84	787.11	2,068.63	4,532.86	1,139.80	1,569.57	291.56	1,280.75	3,345.87	883.99	904.16	408.17	1,023.46	246.01	1,291.57	456.40	2,554.90	1,040.42	1,374.89	5,734.91	2,173.48	872.68	1,342.63	2,639.13	2,398.86
7/28/03	29,334.06	572.05	1,503.44	3,294.38	828.38	1,140.73	211.90	930.82	2,431.70	642.46	657.12	296.65	743.83	178.80	938.68	331.70	1,856.85	756.15	999.24	4,168.00	1,579.63	634.25	975.79	1,918.06	1,743.44
7/29/03	18,612.38	362.96	953.93	2,090.28	525.60	723.79	134.45	590.60	1,542.91	407.64	416.94	188.22	471.96	113.45	595.59	210.46	1,178.16	479.78	634.02	2,644.59	1,002.27	402.43	619.14	1,217.01	1,106.21
7/30/03	33,286.51	649.13	1,706.01	3,738.26	939.99	1,294.43	240.45	1,056.24	2,759.35	729.03	745.67	336.62	844.05	202.89	1,065.16	376.40	2,107.04	858.04	1,133.88	4,729.60	1,792.47	719.71	1,107.27	2,176.50	1,978.35
7/31/03	18,638.53	363.47	955.27	2,093.21	526.34	724.81	134.64	591.43	1,545.08	408.21	417.53	188.49	472.62	113.61	596.43	210.76	1,179.82	480.45	634.91	2,648.30	1,003.68	402.99	620.01	1,218.72	1,107.76
8/1/03	4,194.52	81.80	214.98	471.07	118.45	163.11	30.30	133.10	347.71	91.87	93.96	42.42	106.36	25.57	134.22	47.43	265.51	108.12	142.88	595.99	225.87	90.69	139.53	274.27	249.30
8/2/03	11,136.54	217.18	570.77	1,250.70	314.49	433.07	80.45	353.38	923.18	243.91	249.47	112.62	282.39	67.88	356.37	125.93	704.94	287.07	379.36	1,582.36	599.70	240.79	370.46	728.18	661.89
8/3/03	20,998.51	409.50	1,076.22	2,358.25	592.99	816.58	151.69	666.32	1,740.71	459.90	470.40	212.36	532.46	127.99	671.95	237.45	1,329.21	541.28	715.30	2,983.63	1,130.77	454.02	698.51	1,373.03	1,248.03
8/4/03	15,958.43	311.21	817.90	1,792.22	450.66	620.58	115.28	506.39	1,322.90	349.52	357.49	161.39	404.66	97.27	510.67	180.45	1,010.17	411.36	543.61	2,267.49	859.36	345.05	530.86	1,043.47	948.47
8/5/03	6,577.59	128.27	337.12	738.70	185.75	255.79	47.51	208.72	545.26	144.06	147.35	66.52	166.79	40.09	210.48	74.38	416.36	169.55	224.06	934.59	354.20	142.22	218.80	430.09	390.93
8/6/03	14,364.99	280.14	736.24	1,613.27	405.66	558.62	103.77	455.83	1,190.81	314.62	321.80	145.27	364.25	87.56	459.68	162.44	909.30	370.29	489.33	2,041.09	773.55	310.59	477.85	939.28	853.77
8/7/03	11,674.55	227.67	598.35	1,311.12	329.68	453.99	84.33	370.45	967.78	255.69	261.53	118.06	296.03	71.16	373.58	132.01	739.00	300.94	397.68	1,658.81	628.67	252.42	388.35	763.36	693.87
8/8/03	9,728.08	189.71	498.59	1,092.52	274.72	378.30	70.27	308.69	806.43	213.06	217.92	98.38	246.68	59.29	311.30	110.00	615.79	250.76	331.38	1,382.24	523.86	210.34	323.60	636.09	578.18
8/9/03	6,836.30	133.32	350.38	767.75	193.05	265.85	49.38	216.93	566.71	149.73	153.14	69.13	173.35	41.67	218.76	77.30	432.74	176.22	232.87	971.35	368.13	147.81	227.41	447.00	406.31
8/10/03	12,330.14	240.45	631.95	1,384.74	348.20	479.49	89.07	391.26	1,022.13	270.05	276.21	124.69	312.66	75.15	394.56	139.43	780.50	317.84	420.02	1,751.96	663.98	266.60	410.16	806.23	732.83
8/11/03	9,598.27	187.18	491.93	1,077.94	271.05	373.25	69.33	304.57	795.67	210.22	215.01	97.07	243.38	58.50	307.14	108.53	607.57	247.42	326.96	1,363.79	516.87	207.53	319.29	627.60	570.46
8/12/03	19,496.89	380.21	999.26	2,189.61	550.58	758.19	140.84	618.67	1,616.23	427.01	436.76	197.17	494.39	118.84	623.90	220.47	1,234.15	502.58	664.15	2,770.26	1,049.90	421.55	648.56	1,274.84	1,158.78
8/13/03	19,632.08	382.85	1,006.19	2,204.79	554.40	763.44	141.82	622.96	1,627.44	429.97	439.79	198.54	497.81	119.66	628.22	221.99	1,242.71	506.06	668.75	2,789.47	1,057.18	424.48	653.06	1,283.68	1,166.81
8/14/03	40,819.97	796.04	2,092.11	4,584.31	1,152.73	1,587.39	294.87	1,295.29	3,383.85	894.02	914.43	412.81	1,035.08	248.81	1,306.23	461.58	2,583.90	1,052.23	1,390.50	5,800.01	2,198.15	882.59	1,357.87	2,669.09	2,426.09
8/15/03	53,339.31	1,040.18	2,733.76	5,990.30	1,506.27	2,074.23	385.31	1,692.55	4,421.66	1,168.22	1,194.88	539.41	1,352.53	325.11	1,706.84	603.15	3,376.38	1,374.94	1,816.96	7,578.85	2,872.31	1,153.28	1,774.33	3,487.69	3,170.17
8/16/03	55,219.12	1,076.84	2,830.10	6,201.42	1,559.36	2,147.33	398.88	1,752.20	4,577.49	1,209.39	1,236.99	558.42	1,400.20	336.57	1,767.00	624.40	3,495.37	1,423.40	1,880.99	7,845.95	2,973.54	1,193.92	1,836.86	3,610.61	3,281.89
8/17/03	3,984.61	77.70	204.22	447.49	112.52	154.95	28.78	126.44	330.31	87.27	89.26	40.30	101.04	24.29	127.51	45.06	252.23	102.71	135.73	566.16	214.57	86.15	132.55	260.54	236.82
8/18/03	26,861.59	523.83	1,376.72	3,016.71	758.56	1,044.58	194.04	852.36	2,226.74	588.31	601.74	271.65	681.13	163.73	859.56	303.74	1,700.34	692.42	915.02	3,816.70	1,446.49	580.79	893.55	1,756.40	1,596.49
8/19/03	30,723.36	599.14	1,574.64	3,450.41	867.61	1,194.76	221.94	974.90	2,546.87	672.89	688.25	310.70	779.06	187.27	983.14	347.41	1,944.79	791.96	1,046.57	4,365.40	1,654.45	664.29	1,022.01	2,008.90	1,826.01
8/20/03	35,742.88	697.03	1,831.90	4,014.13	1,009.36	1,389.95	258.19	1,134.18	2,962.97	782.83	800.69	361.46	906.34	217.86	1,143.76	404.17	2,262.52	921.35	1,217.55	5,078.62	1,924.75	772.82	1,188.98	2,337.12	2,124.34
8/21/03	35,249.08	687.40	1,806.59	3,958.67	995.42	1,370.75	254.63	1,118.51	2,922.04	772.01	789.63	356.47	893.81	214.85	1,127.96	398.59	2,231.27	908.62	1,200.73	5,008.45	1,898.16	762.14	1,172.56	2,304.83	2,094.99
8/22/03	22,590.61	440.54	1,157.82	2,537.05	637.95	878.49	163.19	716.84	1,872.69	494.77	506.06	228.46	572.83	137.69	722.89	255.45	1,429.99	582.32	769.53	3,209.84	1,216.50	488.44	751.47	1,477.13	1,342.65
8/23/03	34,708.76	676.86	1,778.90	3,897.99	980.16	1,349.74	250.72	1,101.37	2,877.25	760.18	777.53	351.01	880.11	211.56	1,110.67	392.48	2,197.06	894.70	1,182.32	4,931.68	1,869.06	750.46	1,154.58	2,269.50	2,062.88
8/24/03	41,370.48	806.78	2,120.33	4,646.14	1,168.28	1,608.80	298.85	1,312.76	3,429.48	906.08	926.76	418.37	1,049.04	252.16	1,323.84	467.81	2,618.75	1,066.42	1,409.25	5,878.23	2,227.79	894.49	1,376.19	2,705.09	2,458.81
8/25/03	10,467.03	204.12	536.46	1,175.51	295.58	407.04	75.61	332.14	867.68	229.25	234.48	105.85	265.41	63.80	334.94	118.36	662.56	269.81	356.55	1,487.23	563.65	226.31	348.18	684.41	622.10
8/26/03	17,923.33	349.53	918.61	2,012.89	506.15	696.99	129.47	568.74	1,485.79	392.55	401.51	181.26	454.48	109.25	573.54	202.67	1,134.55	462.01	610.54	2,546.68	965.17	387.53	596.22	1,171.95	1,065.25
8/27/03	15,734.80	306.85	806.44	1,767.11	444.34	611.89	113.66	499.29	1,304.37	344.62	352.48	159.12	398.99	95.91	503.51	177.92	996.01	405.60	535.99	2,235.72	847.32	340.21	523.42	1,028.85	935.18
8/28/03	18,854.53	367.69	966.34	2,117.47	532.44	733.21	136.20	598.29	1,562.98	412.95	422.37	190.67	478.10	114.92	603.34	213.20	1,193.49	486.02	642.26	2,678.99	1,015.31	407.66	627.19	1,232.84	1,120.60
8/29/03	14,318.27	279.22	733.84	1,608.02	404.34	556.80	103.43	454.34	1,186.94	313.59	320.75	144.80	363.07	87.27	458.18	161.91	906.35	369.09	487.74	2,034.45	771.04	309.58	476.30	936.23	850.99
8/30/03	15,988.42	311.79	819.44	1,795.59	451.50	621.75	115.49	507.34	1,325.39	350.17	358.16	161.69	405.42	97.45	511.63	180.79	1,012.07	412.14	544.63	2,271.75	860.97	345.69	531.85	1,045.43	950.26
8/31/03	23,935.14	466.76	1,226.73	2,688.05	675.92	930.78	172.90	759.50	1,984.15	524.22	536.18	242.05	606.93	145.89	765.92	270.65	1,515.09	616.98	815.33	3,400.88	1,288.90	517.51	796.20	1,565.04	1,422.56
9/1/03	3,799.64	74.10	194.74	426.72	107.30	147.76	27.45	120.57	314.98	83.22	85.12	38.43	96.35	23.16	121.59	42.97	240.52	97.94	129.43	539.88	204.61	82.15	126.39	248.45	225.83
9/2/03	2,556.44	49.85	131.02	287.10	72.19	99.41	18.47	81.12	211.92	55.99	57.27	25.85	64.82	15.58	81.81	28.91	161.82	65.90	87.08	363.24	137.66	55.27	85.04	167.16	151.94
9/3/03	3,237.60	63.14	165.93	363.60	91.43	125.90	23.39	102.73	268.39	70.91	72.53	32.74	82.10	19.73	103.60	36.61	204.94	83.46	110.29	460.02	174.34	70.00	107.70	211.70	192.42

Table B4-8: Lost Trips by Human Use Segment and Date

	Human Use Segment																							
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
6/27/03	0	0	0	0	0	0	30	61	36	30	0	0	2	0	0	0	0	5	23	0	0	0	0	0	187
6/28/03	0	0	0	0	0	0	27	54	32	27	0	0	2	0	0	0	0	5	20	0	0	0	0	0	168
6/29/03	0	0	0	0	0	0	31	64	38	32	0	0	3	0	0	0	0	5	24	0	0	0	0	0	197
6/30/03	0	0	0	0	0	0	12	24	14	12	0	0	1	0	0	0	0	2	9	0	0	0	0	0	73
7/1/03	0	0	0	0	0	0	31	64	38	32	0	0	3	0	0	0	0	5	24	0	0	0	0	0	197
7/2/03	0	0	0	0	0	0	32	66	39	33	0	0	3	0	0	0	0	6	25	0	0	0	0	0	203
7/3/03	0	0	0	0	0	0	20	40	24	20	0	0	2	0	0	0	0	3	15	0	0	0	0	0	122
7/4/03	0	0	0	0	0	0	127	259	154	129	0	0	10	0	0	0	0	22	97	0	0	0	0	0	798
7/5/03	0	0	0	0	0	0	91	186	111	93	0	0	7	0	0	0	0	16	69	0	0	0	0	0	573
7/6/03	0	0	0	0	0	0	71	145	86	72	0	0	6	0	0	0	0	12	54	0	0	0	0	0	447
7/7/03	0	0	0	0	0	0	32	66	39	33	0	0	3	0	0	0	0	6	25	0	0	0	0	0	203
7/8/03	0	0	0	0	0	0	32	65	38	32	0	0	3	0	0	0	0	5	24	0	0	0	0	0	199
7/9/03	0	0	0	0	0	0	8	16	9	8	0	0	1	0	0	0	0	1	6	0	0	0	0	0	48
7/10/03	0	0	0	0	0	0	20	40	24	20	0	0	2	0	0	0	0	3	15	0	0	0	0	0	125
7/11/03	0	0	0	0	0	0	3	6	4	3	0	0	0	0	0	0	0	1	2	0	0	0	0	0	19
7/12/03	0	0	0	0	0	0	50	102	61	51	0	0	4	0	0	0	0	9	38	0	0	0	0	0	315
7/13/03	0	0	0	0	0	0	74	150	90	75	0	0	6	0	0	0	0	13	56	0	0	0	0	0	463
7/14/03	0	0	0	0	0	0	5	10	6	5	0	0	0	0	0	0	0	1	4	0	0	0	0	0	30
7/15/03	0	0	0	0	0	0	26	53	32	26	0	0	2	0	0	0	0	4	20	0	0	0	0	0	164
7/16/03	0	0	0	0	0	0	11	22	13	11	0	0	1	0	0	0	0	2	8	0	0	0	0	0	67
7/17/03	0	0	0	0	0	0	38	78	47	39	0	0	3	0	0	0	0	7	29	0	0	0	0	0	241
7/18/03	0	0	0	0	0	0	27	55	33	28	0	0	2	0	0	0	0	5	21	0	0	0	0	0	170
7/19/03	0	0	0	0	0	0	56	114	68	57	0	0	4	0	0	0	0	10	42	0	0	0	0	0	350
7/20/03	0	0	0	0	0	0	80	164	98	82	0	0	6	0	0	0	0	14	61	0	0	0	0	0	505
7/21/03	0	0	0	0	0	0	23	46	28	23	0	0	2	0	0	0	0	4	17	0	0	0	0	0	143
7/22/03	0	0	0	0	0	0	5	10	6	5	0	0	0	0	0	0	0	1	4	0	0	0	0	0	31
7/23/03	0	0	0	0	0	0	10	21	13	10	0	0	0	0	0	0	0	2	8	0	0	0	0	0	64
7/24/03	0	0	0	0	0	0	5	11	7	5	0	0	0	0	0	0	0	1	4	0	0	0	0	0	33
7/25/03	0	0	0	0	0	0	35	72	43	36	0	0	0	0	0	0	0	6	27	0	0	0	0	0	220
7/26/03	0	0	0	0	0	0	93	188	112	94	0	0	0	0	0	0	0	16	70	0	0	0	0	0	573
7/27/03	0	0	0	0	0	0	47	95	57	47	0	0	0	0	0	0	0	8	36	0	0	0	0	0	289
7/28/03	0	0	0	0	0	0	34	69	41	34	0	0	0	0	0	0	0	6	26	0	0	0	0	0	210
7/29/03	0	0	0	0	0	0	22	44	26	22	0	0	0	0	0	0	0	4	16	0	0	0	0	0	133
7/30/03	0	0	0	0	0	0	39	78	47	39	0	0	0	0	0	0	0	7	29	0	0	0	0	0	239
7/31/03	0	0	0	0	0	0	22	44	26	22	0	0	0	0	0	0	0	4	16	0	0	0	0	0	134
8/1/03	0	0	0	0	0	0	5	10	6	5	0	0	0	0	0	0	0	1	4	0	0	0	0	0	30
8/2/03	0	0	0	0	0	0	13	26	16	13	0	0	0	0	0	0	0	2	10	0	0	0	0	0	80
8/3/03	0	0	0	0	0	0	24	49	29	25	0	0	0	0	0	0	0	4	18	0	0	0	0	0	151
8/4/03	0	0	0	0	0	0	18	38	22	19	0	0	0	0	0	0	0	3	14	0	0	0	0	0	114
8/5/03	0	0	0	0	0	0	8	15	9	8	0	0	0	0	0	0	0	1	6	0	0	0	0	0	47
8/6/03	0	0	0	0	0	0	17	34	20	17	0	0	0	0	0	0	0	3	13	0	0	0	0	0	103
8/7/03	0	0	0	0	0	0	14	28	16	14	0	0	0	0	0	0	0	2	10	0	0	0	0	0	84
8/8/03	0	0	0	0	0	0	11	23	14	11	0	0	0	0	0	0	0	2	9	0	0	0	0	0	70
8/9/03	0	0	0	0	0	0	8	16	10	8	0	0	0	0	0	0	0	1	6	0	0	0	0	0	49
8/10/03	0	0	0	0	0	0	14	29	17	14	0	0	0	0	0	0	0	2	11	0	0	0	0	0	88
8/11/03	0	0	0	0	0	0	11	12	13	11	0	0	0	0	0	0	0	2	8	0	0	0	0	0	58
8/12/03	0	0	0	0	0	0	23	9	27	23	0	0	0	0	0	0	0	4	17	0	0	0	0	0	103
8/13/03	0	0	0	0	0	0	23	10	8	23	0	0	0	0	0	0	0	4	17	0	0	0	0	0	84
8/14/03	0	0	0	0	0	0	47	20	16	48	0	0	0	0	0	0	0	8	36	0	0	0	0	0	175
8/15/03	0	0	0	0	0	0	62	26	12	63	0	0	0	0	0	0	0	11	47	0	0	0	0	0	220
8/16/03	0	0	0	0	0	0	64	27	13	65	0	0	0	0	0	0	0	11	49	0	0	0	0	0	228
8/17/03	0	0	0	0	0	0	5	2	1	5	0	0	0	0	0	0	0	1	4	0	0	0	0	0	16
8/18/03	0	0	0	0	0	0	31	13	6	32	0	0	0	0	0	0	0	5	24	0	0	0	0	0	111
8/19/03	0	0	0	0	0	0	36	15	7	36	0	0	0	0	0	0	0	6	27	0	0	0	0	0	127
8/20/03	0	0	0	0	0	0	41	17	8	42	0	0	0	0	0	0	0	7	31	0	0	0	0	0	147
8/21/03	0	0	0	0	0	0	41	17	8	24	0	0	0	0	0	0	0	7	31	0	0	0	0	0	128
8/22/03	0	0	0	0	0	0	26	11	4	11	0	0	0	0	0	0	0	5	20	0	0	0	0	0	76
8/23/03	0	0	0	0	0	0	40	17	6	16	0	0	0	0	0	0	0	7	31	0	0	0	0	0	117
8/24/03	0	0	0	0	0	0	48	20	8	20	0	0	0	0	0	0	0	8	36	0	0	0	0	0	140
8/25/03	0	0	0	0	0	0	12	5	2	1	0	0	0	0	0	0	0	2	9	0	0	0	0	0	32
8/26/03	0	0	0	0	0	0	21	9	3	2	0	0	0	0	0	0	0	4	16	0	0	0	0	0	54
8/27/03	0	0	0	0	0	0	18	8	3	0	0	0	0	0	0	0	0	3	14	0	0	0	0	0	46
8/28/03	0	0	0	0	0	0	22	9	3	0	0	0	0	0	0	0	0	4	9	0	0	0	0	0	47
8/29/03	0	0	0	0	0	0	5	7	3	0	0	0	0	0	0	0	0	3	7	0	0	0	0	0	25
8/30/03	0	0	0	0	0	0	6	8	3	0	0	0	0	0	0	0	0	3	8	0	0	0	0	0	27
8/31/03	0	0	0	0	0	0	9	12	4	0	0	0	0	0	0	0	0	5	11	0	0	0	0	0	41
9/1/03	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	7
9/2/03	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4
9/3/03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	2
Total	0	0	0	0	0	0	1,992	3,125	1,858	1,841	0	0	77	0	0	0	0	352	1,520	0	0	0	0	0	10,766

APPENDIX B5: SHORELINE TRIP VALUE BENEFIT TRANSFER AND ADJUSTMENT

This appendix presents the analysis undertaken to determine the appropriate per-trip value for lost trips in the category of general shoreline use. As noted previously, general shoreline use includes sunbathing, swimming, picnicking and other beach and shore-related activities. It does not include recreational activities examined in other sections of this assessment, such as shellfishing and boating.

To estimate the value of a shoreline trip, the TWG relied on a model of shoreline recreation available from the economics literature. The TWG also obtained assistance for the analysis from Dr. George Parsons of the University of Delaware. Dr. Parsons was one of the researchers who developed the original valuation model appearing in the literature. The information presented in this appendix reflects the model estimated by Dr. Parsons at the request of the TWG, including certain adjustments requested by the TWG for the purpose of applying the results to the Buzzards Bay assessment.

The shore-use model relies on information from a survey of residents of the state of Delaware conducted in the fall of 1997. The survey asks respondents to report trips they took during the previous season to beaches in New Jersey and Delaware. As noted previously, the model was determined to be appropriate for use in the Buzzards Bay assessment for several reasons. These include the high quality of the original research and the reasonable degree of similarity between the Delaware shoreline sites and the Buzzards Bay sites. Similarities include the types of beach activities undertaken and the predominantly suburban character of the surrounding region.

The Delaware study was based on 565 observations obtained from a stratified random sample of 1,000 Delaware residents. Following conventions in the literature, only day trips are used for the valuation model. The model includes 62 shore-use destinations, including 46 in New Jersey, 14 in Delaware and 2 in Maryland and Virginia. Details of the model and data are described in Parsons (2004).

The beach valuation analysis is based on a multiple-site random-utility maximization (RUM) model. RUM models are one of the most widely accepted method for valuing recreation trips. The model describes the choices made by Delaware residents among the 62 destinations available for each beach trip. In addition to quality, the distance from a resident's home to the available beaches is also an important determinant of site choice. Distance is captured in a "travel cost" variable which includes both driving expenses and individuals' willingness to pay to avoid time spent driving. The time-cost component was estimated as one-third the wage rate, a common practice in the literature. The model also includes a participation component describing the number of trips residents took throughout the year. This total trip demand depends on the proximity of desirable

beaches and also on an individual's demographic characteristics. The model allows for adjustments to the availability or quality of beaches and predicts the resulting changes in the demand for trips. The model also predicts residents' willingness to pay to obtain new resource amenities or avoid negative impacts, such as those of an oil spill.

To obtain per-trip values, a model was estimated using alternative-specific constants for each of the 62 beaches. This specification is different from previously published versions of the model, such as Parsons (2004). The alternative-specific constants replace variables representing the characteristics of individual sites, such as the presence of a boardwalk or nearby parking. This revision to the model was appropriate because the TWG wished to obtain values for a recreation trip rather than values for specific site characteristics. The use of alternative-specific constants avoids bias in welfare measures that may be associated with any unobserved site characteristics (Murdock, 2006).

One other important feature of the model is the nesting structure. Sites which may share characteristics in common are often grouped into a "nest" (Parsons 2004). This improves the ability of the model to accurately predict substitution patterns among the available sites. In the model estimated for this assessment, sites in New Jersey were placed in one nest and sites in Delaware, Maryland and Virginia were placed in another nest.

Model parameters are reported in Table B5-1. The travel-cost parameter is negative and significant, indicating that all else equal beachgoers prefer nearby sites to distant sites. The site constants reflect the relative quality of the 62 beaches. The inclusive value parameters generate the expected nesting structure in which New Jersey sites share more characteristics in common with each other than with sites located in Delaware, Maryland or Virginia.

To calculate per-trip values applicable to the Buzzards Bay assessment, a dummy variable was added to the site constants to represent a decline in quality. The effect of the dummy variable within the beach-use model was intended to be comparable to the effect of the oil spill in Buzzards Bay. This was accomplished in two ways. First, the oil spill dummy was applied only to the 14 beach sites within Delaware. The TWG determined that the area represented by the 14 Delaware sites was geographically similar to the area impacted by the oil spill in Buzzards Bay. Like beaches in the spill impact area, the 14 Delaware beaches represent a long sequence of distinct but contiguous sites. This feature is important in determining the recreational impacts of the spill because those avoiding impacted beaches would have to travel a significant distance to avoid the affected area. The TWG recognized that the travel distance across the spill impact area in Buzzards Bay extended for 65 miles from Little Compton, RI to Falmouth, MA, while the distance across Delaware beach from Lewes, DE to Fenwick Island is only 25 miles.

However, the TWG determined that the effect of a smaller simulated impact zone in the Delaware model may be partly or fully offset by the lower availability of nearby substitutes. Specifically, the Delaware beaches are separated from the New Jersey beaches by Delaware Bay and crossing the bay or driving around it entails significant travel costs.

The second feature of the Delaware model that was adjusted to mimic the Bouchard B-120 spill involved the severity of impact. Specifically, the dummy variable representing the impact of the spill was adjusted to produce a decline in the demand for trips of 10%. As described in Section 4, the assessment of lost shoreline trips indicated that trip demand declined by 10% in Buzzards Bay during the period immediately following the spill. Because model estimates of value per lost trip can change considerably depending on the percentage decline in demand, this adjustment for the severity of impact is important in adapting the analysis to the circumstances of the Bouchard B-120 spill.

A welfare loss was calculated based on a 10% decline in demand at the 14 Delaware sites. The loss was then divided by the number of trips that were lost at the 14 sites according to model predictions. The resulting per-trip value was $28.02 in 1997 dollars.

Table B5- 1: Estimated Model Parameters

Variable	Parameter
Travel Cost	-0.0336
Alternative Specific Constants for New Jersey Beaches:*	
Sandy Hook	5.29
Long Branch	4.18
Deal	4.29
Asbury Park	4.24
Ocean Grove	4.32
Bradley Beach	3.86
Avon-by-the-Sea	4.96
Belmar	3.85
Spring Lake	5.61
Manasquan	4.37
Point Pleasant Beach	4.92
Bay Head	4.47
Mantoloking	4.42
Chadwick Beach	4.43
Ocean Beach	3.84
Lavallette	3.33
Ortley Beach	3.18
Seaside Heights	2.92
Seaside Park	3.76
Island Beach State Park	4.58
Barnegat Light	4.13
Loveladies	3.82
Harvey Cedars	3.30
Surf City	3.71
Ship Bottom	3.53
Long Beach	4.73
Beach Haven	4.48

Table B5- 1: Estimated Model Parameters (continued)

Variable	Parameter
Holgate	3.90
Brigantine	5.04
Atlantic City	5.85
Ventnor	4.62
Margate	4.59
Longport	4.33
Ocean City	5.86
Strathmere	4.61
Sea Isle City	5.01
Avalon	4.86
Stone Harbor	5.19
North Wildwood	4.88
Wildwood	5.36
Wildwood Crest	5.11
Cape May	6.01
Alternative Specific Constants for Delmarva Beaches:[+]	
Cape Henlopen State Park	6.02
North Shores	5.20
Henlopen Acres	4.84
Rehoboth Beach	6.38
Dewey Beach	5.65
Indian Beach	5.09
Delaware Seashore St. Park	5.67
North Bethany Beaches	5.18
Bethany Beach	6.00
Sea Colony	4.60
Middlesex Beach	4.40
South Bethany Beach	5.06
Fenwick Island State Park	5.43

Table B5- 1: Estimated Model Parameters (continued)

Variable	Parameter
Fenwick Island	5.64
Ocean City	6.27
Assateague Island	5.75
Inclusive Values:	
IV for Delmarva Beaches	0.535**
IV for NJ Beaches	0.535**
IV for Participation	0.90
Individual Characteristics:* **	
Ln(age)	0.25
Kids under 10 yrs. (y/n)	0.19
Kids between 10 – 16 yrs. (y/n)	-0.15
Flex time (y/n)	-0.28
Beach property in DE (y/n)	-1.56
Beach property in non-DE (y/n)	-0.69
Retired (y/n)	0.45
Student (y/n)	-0.85
Work part time (y/n)	-0.36
Work at home (y/n)	0.41
Volunteer (y/n)	0.01

* The alternative-specific constant for not taking a trip fixed at a value of eight for model identification.
** Inclusive value for DE/MD beaches and NJ beaches constrained to be equal.
*** The symbol "y/n" denotes dummy variables. All individual-characteristic coefficients are significant at 99%.
+ Delmarva refers to the Delmarva peninsula, which is split between Delaware, Maryland, and Virginia.

REFERENCES

Murdock, J. "Handling Unobserved Site Characteristic in Random Utility Models of Recreation Demand." *Journal of Environmental Economics and Management* 51:1-25. 2006.

Parsons, G. "Travel Cost Models." In P. Champ, K. Boyle, and T. Brown, eds. *A Primer on Nonmarket Valuation*. Dordrecht, Netherlands: Kluwer Academic Publishers, pp. 269-329. 2004.

APPENDIX C: DETAILS OF THE RECREATIONAL BOATING ASSESSMENT

TABLE OF CONTENTS

APPENDIX C1: NUMBER OF INACTIVE BOATS

Table C1-1: Results of Aerial Boat Counts

Date	Flight	Time	Human Use Segment	Township	Count	Type Code
5/1/04	6	10:25	21	Woods Hole	3	M
5/1/04	6	10:25	21	Woods Hole	40	U
5/1/04	6	10:25	21	Woods Hole	20	U
5/1/04	6	10:25	21	Woods Hole	17	U
5/1/04	6	10:40	20	W Falmouth	12	U
5/1/04	6	10:55	19	N Falmouth	1	U
5/1/04	6	10:55	19	N Falmouth	56	M
5/1/04	6	10:55	19	N Falmouth	10	P
5/1/04	6	10:55	19	N Falmouth	5	P
5/1/04	6	10:55	19	N Falmouth	1	P
5/1/04	6	10:55	19	N Falmouth	1	P
5/1/04	6	10:55	19	N Falmouth	5	P
5/1/04	6	10:55	18	Bourne	1	P
5/1/04	6	10:55	18	Bourne	3	P
5/1/04	6	10:55	18	Bourne	8	P
5/1/04	6	10:55	18	Bourne	49	MW
5/1/04	6	10:55	18	Bourne	100	M
5/1/04	6	10:55	18	Bourne	17	P
5/1/04	6	10:55	18	Bourne	2	P
5/1/04	6	10:55	18	Bourne	1	P
5/1/04	6	10:55	18	Bourne	1	P
5/1/04	6	11:00	17	Bourne	8	P
5/1/04	6	11:00	17	Bourne	11	M
5/1/04	6	11:00	17	Bourne	2	P
5/1/04	6	11:00	17	Bourne	2	P
5/1/04	6	11:00	17	Bourne	1	P
5/1/04	6	11:10	16	Wareham	34	M
5/1/04	6	11:10	16	Wareham	3	T
5/1/04	6	11:10	16	Wareham	13	M
5/1/04	6	11:10	16	Wareham	12	P
5/1/04	6	11:10	16	Wareham	2	P
5/1/04	6	11:10	16	Wareham	5	P
5/1/04	6	11:10	16	Wareham	1	T
5/1/04	6	11:10	16	Wareham	72	M
5/1/04	6	11:10	16	Wareham	15	M
5/1/04	6	11:10	16	Wareham	4	T
5/1/04	6	11:10	16	Wareham	12	P
5/1/04	6	11:10	16	Wareham	1	P
5/1/04	6	11:10	16	Wareham	16	P
5/1/04	6	11:25	14	Wareham	2	P
5/1/04	6	11:25	14	Wareham	1	P
5/1/04	6	11:25	14	Wareham	1	P
5/1/04	6	11:25	14	Wareham	11	T
5/1/04	6	11:25	14	Wareham	11	P
5/1/04	6	11:25	14	Wareham	47	M
5/1/04	6	11:25	14	Wareham	1	P
5/1/04	6	11:25	14	Wareham	3	P
5/1/04	6	11:30	13	Marion	1	P
5/1/04	6	11:30	13	Marion	2	P
5/1/04	6	11:30	13	Marion	2	P
5/1/04	6	11:30	13	Marion	2	P
5/1/04	6	11:30	13	Marion	1	T
5/1/04	6	11:30	13	Marion	1	P
5/1/04	6	11:40	12	Marion	8	P
5/1/04	6	11:40	12	Marion	2	P
5/1/04	6	11:40	12	Marion	55	M
5/1/04	6	11:40	12	Marion	19	M
5/1/04	6	11:40	12	Marion	60	M
5/1/04	6	11:40	12	Marion	7	U
5/1/04	6	11:40	12	Marion	2	P
5/1/04	6	11:40	12	Marion	2	P
5/1/04	6	11:50	11	Mattapoisett	2	P
5/1/04	6	11:50	11	Mattapoisett	1	P
5/1/04	6	11:55	10	Mattapoisett	10	P
5/1/04	6	11:55	10	Mattapoisett	2	P
5/1/04	6	11:55	10	Mattapoisett	4	M
5/1/04	6	11:55	10	Mattapoisett	2	P
5/1/04	6	11:55	10	Mattapoisett	5	P
5/1/04	6	11:55	10	Mattapoisett	1	P
5/1/04	6	12:00	9	Fairhaven	1	P
5/1/04	6	12:00	9	Fairhaven	8	M
5/1/04	6	12:00	9	Fairhaven	2	P
5/1/04	6	12:00	9	Fairhaven	2	P
5/1/04	6	12:00	9	Fairhaven	3	T
5/1/04	6	12:00	9	Fairhaven	16	M
5/1/04	6	12:00	9	Fairhaven	1	P

Activity	Code
Nearshore Boaters	N
Boats Docked at Marina	M
Boats Moored	W
Boats Moored off a Marina	MW
Private Boats	P
Unspecified Boats	U
Empty Trailers	T

Table C1-1: Results of Aerial Boat Counts

Date	Flight	Time	Human Use Segment	Township	Count	Type Code
5/1/04	6	12:00	9	Fairhaven	2	P
5/1/04	6	12:00	9	Fairhaven	4	T
5/1/04	6	12:10	8	Fairhaven	90	U
5/1/04	6	12:10	8	Fairhaven	1	T
5/21/04	7	12:40	3	Westport	6	U
5/21/04	7	12:40	3	Westport	8	P
5/21/04	7	12:40	3	Westport	55	W
5/21/04	7	12:40	3	Westport	3	P
5/21/04	7	12:40	3	Westport	110	M
5/21/04	7	12:40	3	Westport	21	U
5/21/04	7	12:55	5	Dartmouth	2	P
5/21/04	7	12:55	5	Dartmouth	1	P
5/21/04	7	12:55	5	Dartmouth	4	P
5/21/04	7	13:00	6	Dartmouth	150	MW
5/21/04	7	13:00	6	Dartmouth	152	M
5/21/04	7	13:00	6	Dartmouth	8	P
5/21/04	7	13:00	6	Dartmouth	56	W
5/21/04	7	13:05	7	Dartmouth/Fairhaven	1	P
5/21/04	7	13:05	7	Dartmouth/Fairhaven	5	P
5/21/04	7	13:10	8	Fairhaven	5	P
5/21/04	7	13:10	8	Fairhaven	93	M
5/21/04	7	13:10	8	Fairhaven	4	P
5/21/04	7	13:10	8	Fairhaven	3	T
5/21/04	7	13:10	8	Fairhaven	109	M
5/21/04	7	13:10	8	Fairhaven	3	M
5/21/04	7	13:10	8	Fairhaven	91	M
5/21/04	7	13:10	8	Fairhaven	47	M
5/21/04	7	13:10	8	Fairhaven	30	M
5/21/04	7	13:10	8	Fairhaven	35	M
5/21/04	7	13:10	8	Fairhaven	8	M
5/21/04	7	13:10	8	Fairhaven	14	M
5/21/04	7	13:10	8	Fairhaven	8	W
5/21/04	7	13:20	9	Fairhaven	1	P
5/21/04	7	13:20	9	Fairhaven	3	T
5/21/04	7	13:20	9	Fairhaven	3	P
5/21/04	7	13:20	9	Fairhaven	14	M
5/21/04	7	13:20	9	Fairhaven	38	M
5/21/04	7	13:20	9	Fairhaven	7	P
5/21/04	7	13:20	9	Fairhaven	2	T
5/21/04	7	13:20	9	Fairhaven	1	P
5/21/04	7	13:20	9	Fairhaven	1	P
5/21/04	7	13:20	9	Fairhaven	3	P
5/21/04	7	13:20	9	Fairhaven	30	M
5/21/04	7		10	Mattapoisett	3	P
5/21/04	7		10	Mattapoisett	3	P
5/21/04	7		10	Mattapoisett	1	T
5/21/04	7		10	Mattapoisett	87	MW
5/21/04	7		10	Mattapoisett	50	MW
5/21/04	7		10	Mattapoisett	2	P
5/21/04	7		10	Mattapoisett	5	M
5/21/04	7		10	Mattapoisett	2	P
5/21/04	7		10	Mattapoisett	1	P
5/21/04	7	13:45	11	Mattapoisett	1	P
5/21/04	7	13:45	11	Mattapoisett	7	P
5/21/04	7	13:45	11	Mattapoisett	3	P
5/21/04	7	13:45	11	Mattapoisett	1	P
5/21/04	7	13:55	12	Marion	3	P
5/21/04	7	13:55	12	Marion	2	P
5/21/04	7	13:55	12	Marion	8	P
5/21/04	7	13:55	12	Marion	19	M
5/21/04	7	13:55	12	Marion	81	M
5/21/04	7	13:55	12	Marion	6	P
5/21/04	7	13:55	12	Marion	7	P
5/21/04	7	13:55	12	Marion	200	W
5/21/04	7	13:55	12	Marion	29	P
5/21/04	7	13:55	12	Marion	2	P
5/21/04	7	14:00	13	Marion	5	P
5/21/04	7	14:00	13	Marion	1	P
5/21/04	7	14:00	13	Marion	40	P
5/21/04	7	14:00	13	Marion	4	P
5/21/04	7	14:00	13	Marion	1	P
5/21/04	7	14:10	14	Wareham	8	P
5/21/04	7	14:10	14	Wareham	6	P
5/21/04	7	14:10	14	Wareham	6	P
5/21/04	7	14:10	14	Wareham	10	P
5/21/04	7	14:10	14	Wareham	91	M

Activity	Code
Nearshore Boaters	N
Boats Docked at Marina	M
Boats Moored	W
Boats Moored off a Marina	MW
Private Boats	P
Unspecified Boats	U
Empty Trailers	T

Table C1-1: Results of Aerial Boat Counts

Date	Flight	Time	Human Use Segment	Township	Count	Type Code
5/21/04	7	14:10	14	Wareham	46	W
5/21/04	7	14:10	14	Wareham	8	T
5/21/04	7	14:10	14	Wareham	3	P
5/21/04	7	14:10	14	Wareham	1	P
5/21/04	7	14:10	14	Wareham	3	P
5/21/04	7	14:15	15	Wareham	2	P
5/21/04	7	14:15	15	Wareham	1	P
5/21/04	7	14:15	15	Wareham	2	P
5/21/04	7	14:15	15	Wareham	3	P
5/21/04	7	14:15	15	Wareham	9	P
5/21/04	7		16	Wareham	2	P
5/21/04	7		16	Wareham	3	P
5/21/04	7		16	Wareham	24	P
5/21/04	7		16	Wareham	52	M
5/21/04	7		16	Wareham	77	M
5/21/04	7		16	Wareham	37	M
5/21/04	7		16	Wareham	29	P
5/21/04	7		16	Wareham	8	P
5/21/04	7		16	Wareham	9	P
5/21/04	7		16	Wareham	11	P
5/21/04	7		16	Wareham	98	M
5/21/04	7		16	Wareham	37	M
5/21/04	7		16	Wareham	1	T
5/21/04	7		16	Wareham	19	P
5/21/04	7	14:35	17	Bourne	4	P
5/21/04	7	14:35	17	Bourne	28	W
5/21/04	7	14:35	17	Bourne	33	M
5/21/04	7	14:35	17	Bourne	10	T
5/21/04	7	14:35	17	Bourne	4	P
5/21/04	7	14:35	17	Bourne	2	P
5/21/04	7	14:35	17	Bourne	47	U
5/21/04	7	15:45	21	Woods Hole	7	P
5/21/04	7	15:45	21	Woods Hole	55	U
5/21/04	7	15:45	21	Woods Hole	2	P
5/21/04	7	15:45	21	Woods Hole	61	P
5/21/04	7	15:48	20	W Falmouth	34	P
5/21/04	7	15:48	19	N Falmouth	2	P
5/21/04	7	15:48	19	N Falmouth	1	P
5/21/04	7	15:48	19	N Falmouth	4	P
5/21/04	7	15:48	19	N Falmouth	11	M
5/21/04	7	15:48	19	N Falmouth	72	M
5/21/04	7	15:48	19	N Falmouth	17	P
5/21/04	7	15:48	19	N Falmouth	4	P
5/21/04	7	15:48	19	N Falmouth	2	P
5/21/04	7	15:48	19	N Falmouth	1	P
5/21/04	7	15:48	19	N Falmouth	2	P
5/21/04	7	15:48	19	N Falmouth	12	P
5/21/04	7	15:55	18	Bourne	15	P
5/21/04	7	15:55	18	Bourne	1	P
5/21/04	7	15:55	18	Bourne	7	P
5/21/04	7	15:55	18	Bourne	23	P
5/21/04	7	15:55	18	Bourne	103	M
5/21/04	7	15:55	18	Bourne	42	M
5/21/04	7	15:55	18	Bourne	111	M
5/21/04	7	15:55	18	Bourne	4	P
5/21/04	7	15:55	18	Bourne	12	P
5/21/04	7	15:55	18	Bourne	10	P
5/21/04	7	15:55	18	Bourne	7	P
5/21/04	7	15:55	18	Bourne	1	P
5/21/04	7	15:55	18	Bourne	6	P

Activity	Code
Nearshore Boaters	N
Boats Docked at Marina	M
Boats Moored	W
Boats Moored off a Marina	MW
Private Boats	P
Unspecified Boats	U
Empty Trailers	T

Table C1-2: Estimated Baseline Inactive Boats

Segment	Township	Observed Inactive Boats			Date in 2003																														
		5/1/2004	5/21/2004	Haul Rate	4/28	4/29	4/30	5/1	5/2	5/3	5/4	5/5	5/6	5/7	5/8	5/9	5/10	5/11	5/12	5/13	5/14	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
1	RI	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	RI	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Westport	77	203	6.29	77.3	77.3	77.3	77.3	83.5	89.8	96.1	102.4	108.7	115.0	121.3	127.6	133.8	140.1	146.4	152.7	159.0	165.3	171.6	177.9	184.1	190.4	196.7	203.0	209.3	215.6	221.9	228.1
4	Westport/Dartmouth	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Dartmouth	3	7	0.22	2.7	2.7	2.7	2.7	2.9	3.1	3.3	3.5	3.7	4.0	4.2	4.4	4.6	4.8	5.0	5.3	5.5	5.7	5.9	6.1	6.3	6.6	6.8	7.0	7.2	7.4	7.7	7.9
6	Dartmouth	139	366	11.34	139.3	139.3	139.3	139.3	150.6	162.0	173.3	184.6	196.0	207.3	218.6	230.0	241.3	252.6	264.0	275.3	286.7	298.0	309.3	320.7	332.0	343.3	354.7	366.0	377.3	388.7	400.0	411.3
7	Dartmouth/Fairhaven	2	6	0.19	2.3	2.3	2.3	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.7
8	Fairhaven	90	447	17.85	90.0	90.0	90.0	90.0	107.9	125.7	143.6	161.4	179.3	197.1	215.0	232.8	250.7	268.5	286.4	304.2	322.1	339.9	357.8	375.6	393.5	411.3	429.2	447.0	464.9	482.7	500.6	518.4
9	Fairhaven	32	98	3.30	32.0	32.0	32.0	32.0	35.3	38.6	41.9	45.2	48.5	51.8	55.1	58.4	61.7	65.0	68.3	71.6	74.9	78.2	81.5	84.8	88.1	91.4	94.7	98.0	101.3	104.6	107.9	111.2
10	Mattapoisett	24	153	6.45	24.0	24.0	24.0	24.0	30.5	36.9	43.4	49.8	56.3	62.7	69.2	75.6	82.1	88.5	95.0	101.4	107.9	114.3	120.8	127.2	133.7	140.1	146.6	153.0	159.5	165.9	172.4	178.8
11	Mattapoisett	3	12	0.45	3.0	3.0	3.0	3.0	3.5	3.9	4.4	4.8	5.3	5.7	6.2	6.6	7.1	7.5	8.0	8.4	8.9	9.3	9.8	10.2	10.7	11.1	11.6	12.0	12.5	12.9	13.4	13.8
12	Marion	155	357	10.10	155.0	155.0	155.0	155.0	165.1	175.2	185.3	195.4	205.5	215.6	225.7	235.8	245.9	256.0	266.1	276.2	286.3	296.4	306.5	316.6	326.7	336.8	346.9	357.0	367.1	377.2	387.3	397.4
13	Marion	8	51	2.15	8.0	8.0	8.0	8.0	10.2	12.3	14.5	16.6	18.8	20.9	23.1	25.2	27.4	29.5	31.7	33.8	36.0	38.1	40.3	42.4	44.6	46.7	48.9	51.0	53.2	55.3	57.5	59.6
14	Wareham	66	174	5.40	66.0	66.0	66.0	66.0	71.4	76.8	82.2	87.6	93.0	98.4	103.8	109.2	114.6	120.0	125.4	130.8	136.2	141.6	147.0	152.4	157.8	163.2	168.6	174.0	179.4	184.8	190.2	195.6
15	Wareham	0	17	0.85	0.0	0.0	0.0	0.0	0.9	1.7	2.6	3.4	4.3	5.1	6.0	6.8	7.7	8.5	9.4	10.2	11.1	11.9	12.8	13.6	14.5	15.3	16.2	17.0	17.9	18.7	19.6	20.4
16	Wareham	182	406	11.20	182.0	182.0	182.0	182.0	193.2	204.4	215.6	226.8	238.0	249.2	260.4	271.6	282.8	294.0	305.2	316.4	327.6	338.8	350.0	361.2	372.4	383.6	394.8	406.0	417.2	428.4	439.6	450.8
17	Bourne	24	118	4.70	24.0	24.0	24.0	24.0	28.7	33.4	38.1	42.8	47.5	52.2	56.9	61.6	66.3	71.0	75.7	80.4	85.1	89.8	94.5	99.2	103.9	108.6	113.3	118.0	122.7	127.4	132.1	136.8
18	Bourne	182	342	8.00	182.0	182.0	182.0	182.0	190.0	198.0	206.0	214.0	222.0	230.0	238.0	246.0	254.0	262.0	270.0	278.0	286.0	294.0	302.0	310.0	318.0	326.0	334.0	342.0	350.0	358.0	366.0	374.0
19	N Falmouth	79	128	2.45	79.0	79.0	79.0	79.0	81.5	83.9	86.4	88.8	91.3	93.7	96.2	98.6	101.1	103.5	106.0	108.4	110.9	113.3	115.8	118.2	120.7	123.1	125.6	128.0	130.5	132.9	135.4	137.8
20	W Falmouth	12	34	1.10	12.0	12.0	12.0	12.0	13.1	14.2	15.3	16.4	17.5	18.6	19.7	20.8	21.9	23.0	24.1	25.2	26.3	27.4	28.5	29.6	30.7	31.8	32.9	34.0	35.1	36.2	37.3	38.4
21	Woods Hole	80	125	2.25	80.0	80.0	80.0	80.0	82.3	84.5	86.8	89.0	91.3	93.5	95.8	98.0	100.3	102.5	104.8	107.0	109.3	111.5	113.8	116.0	118.3	120.5	122.8	125.0	127.3	129.5	131.8	134.0
22	S Falmouth	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	S Falmouth	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	S Falmouth	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		1,159	3,044		1,158.5	1,158.5	1,158.5	1,158.5	1,252.8	1,347.1	1,441.3	1,535.6	1,629.9	1,724.2	1,818.4	1,912.7	2,007.0	2,101.3	2,195.5	2,289.8	2,384.1	2,478.4	2,572.6	2,666.9	2,761.2	2,855.5	2,949.7	3,044.0	3,138.3	3,232.5	3,326.8	3,421.1

APPENDIX C2: DATA AND RESULTS OF THE MARINA COUNT STUDY

Table C2-1: Data and Calculations for Mattapoisett -- May 18

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration (minutes)	Other/Comments	Boat Type	Fishing (Yes/Unknown)	Number of Passengers	Exclude?	Reason	Left Before?	Still Out?	Total Boats	Start Count	Running Count	Proportion Active	Max	Inactive Boats at Peak Activity	Trips	Total Trips	Percentage of Boats Taking Trips	Trips per Peak Inactive Boat
0	5/18/2004	8:15			Arrived onsite-14 boats docked at the wharf, 2 boats docked in the parking lot, 6 rowboats/inflatable rafts were on land in the parking lot and 46 boats water docked.							0	62	60	-2	3.2%	4.8%	59	2	5	8.1%	0.08
1	5/18/2004	8:30			Medium sized boat trailing a raft	Recreational	Unknown	3				0			-3	4.8%			1			
2	5/18/2004		9:40		Came with boat on a trailer and put it in the water-drove around a bit, washed the boat and then water docked. Looks like he was getting the boat out from winter storage.	Recreational	Unknown	1	1	Initial put boat in water for season	0				-3	4.8%			0			
3	5/18/2004		9:57		Men onboard brought back tubs of fish and loaded it on a truck	Recreational	Yes	2			1				-2	3.2%			0			
4	5/18/2004		10:12		Smelled seafood-they took the boat out of the water	Recreational	Unknown	2			1				-1	1.6%			0			
5	5/18/2004	10:36			small jon boat-took fishing rod	Recreational	Yes	1				0			-2	3.2%			1			
6	5/18/2004		11:14	38	This is same boat from #4. Left at 10:36am and came back at 11:14 am.	Recreational	Yes	1			0				-1	1.6%			0			
7	5/18/2004	11:28			A small boat (possibly an inflatable raft) was going from the west side of Mattapoisett Harbor (boat yard) and stayed around the water docked boats. Too far out to see much.	Recreational	Unknown		1	Maintenance		0			-1	1.6%			0			
-999	5/18/2004	12:20	12:40		break - lunch				1	break	0	0			-1	1.6%			0			
8	5/18/2004	13:35			Large sailboat departed-unknown purpose-This boat came to the wharf on a trailer and was put in the water at 11:09 am.	Sailboat	Unknown	2				0			-2	3.2%			1			
9	5/18/2004	14:01			A small boat (possibly an inflatable raft) went from the west side of Mattapoisett Harbor (boat yard) to the water docked boats and back again. Too far out to see much.	Recreational	Unknown		1	Maintenance		0			-2	3.2%			0			
10	5/18/2004		14:13	12	same as #11	Recreational	Unknown		1	Maintenance	0				-2	3.2%			0			
11	5/18/2004		14:50		A large sailboat arrived on a trailer and was put in the water. At 4:03 pm a boat from the Mattapoisett Boat Yard came to tow it. See 11:28	Sailboat	Unknown	1	1	Initial put boat in water for season	0				-2	3.2%			0			
12	5/18/2004	15:06			A small boat (possibly an inflatable raft) was going from the west side of Mattapoisett Harbor (boat yard) and stayed around the water docked boats. Too far out to see much.	Recreational	Unknown		1	Maintenance		0			-2	3.2%			0			
13	5/18/2004		16:03		Came from Mattapoisett Boat Yard to tow a boat from Mattapoisett Town Wharf-See 14:50	Recreational	No	2	1	Maintenance	0				-2	3.2%			0			
14	5/18/2004		16:30		A large sailboat arrived on a trailer and was left on the trailer in the parking lot.	Sailboat	Unknown		1	Not launched	0				-2	3.2%			0			
-999	5/18/2004		17:30		end time				1	end	0				-2	3.2%			0			

Table C2-2: Data and Calculations for Mattapoisett -- May 22

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration	Other/Comments	Boat Type	Fishing (Yes/Unknown)	Number of Passengers	Exclude?	Reason	Left Before?	Still Out?	Total Boats	Helicopter Count	Running Count	Proportion Active	Max	Inactive Boats at Peak Activity	Trips	Total Trips	Percentage of Boats Taking Trips	Trips per Peak Inactive Boat
0	5/22/2004	7:30			Start time							0	161	153	0	0.0%	5.0%	153	0	21	13.0%	0.14
1	5/22/2004	9:35			sailboat-about 25' or so	Sailboat	Unknown	2				0			-1	0.6%			1			
2	5/22/2004	9:37			"Miss Jillian", 35' cruiser-See ID #39	Recreational	Unknown	2				0		Time	-2	1.2%			1			
3	5/22/2004	10:12			20' sailboat, looked like Joint Venture	Sailboat	Unknown	2				0		13:30	-3	1.9%			1			
4	5/22/2004	10:35			20' sailboat	Sailboat	Unknown	2.5				0			-4	2.5%			1			
5	5/22/2004		10:37		20' sailboat	Sailboat	Unknown				0				-3	1.9%			0			
6	5/22/2004	11:00			Small (20') crabber style-See ID #8	Recreational	Unknown					0			-4	2.5%			1			
7	5/22/2004	11:10			Small (15') skiff-pass-fished off point-See ID #16	Recreational	Yes	4				0			-5	3.1%			1			
8	5/22/2004		11:17	0:17	Small (20') crabber style -Same boat as #6	Recreational	Unknown				0				-4	2.5%			0			
9	5/22/2004	11:17			19' runabout	Recreational	Unknown					0			-5	3.1%			1			
10	5/22/2004	11:20			19-21' runabout w coverall middle. Maybe commercial	Commercial	Unknown					0			-6	3.7%			1			
11	5/22/2004	11:22			19-21' runabout w coverall middle. Maybe commercial	Commercial	Unknown					0			-7	4.3%			1			
12	5/22/2004		11:25		19' runabout center console-sportfishing	Recreational	Yes	3			0				-6	3.7%			0			
13	5/22/2004		11:37		30' front cabin apparently commercial-Promise	Commercial	Unknown	1			0				-5	3.1%			0			
14	5/22/2004		11:57		19' runabout	Recreational	Unknown				0				-4	2.5%			0			
15	5/22/2004		11:57		25-30' front cabin apparently commercial	Commercial	Unknown				0				-3	1.9%			0			
16	5/22/2004		12:05	0:55	Same as ID # 7-Small (15') skiff-pass-fished off point	Recreational	Yes				0				-2	1.2%			0			
17	5/22/2004	12:15			25-30' commercial low cabin in front half	Commercial	Unknown					0			-3	1.9%			1			
18	5/22/2004	12:18			25-30' sailboat-sailed around harbor and went back out	Sailboat	Unknown					0			-4	2.5%			1			
19	5/22/2004	12:30			30' sailboat	Sailboat	Unknown					0			-5	3.1%			1			
20	5/22/2004	13:00			25' sailboat	Sailboat	Unknown					0			-6	3.7%			1			
21	5/22/2004	13:05			25' sailboat	Sailboat	Unknown					0			-7	4.3%			1			
22	5/22/2004		13:10		25' commercial	Commercial	Unknown				0				-6	3.7%			0			
23	5/22/2004	13:20			25' sailboat	Sailboat	Unknown					0			-7	4.3%			1			
24	5/22/2004	13:22			25' sailboat	Sailboat	Unknown					0			-8	5.0%			1			
18	5/22/2004		13:30	1:12	25-30' sailboat-sailed around harbor and went back out	Sailboat	Unknown		1	is a continuation of a previous trip	0				-8	5.0%			0			
25	5/22/2004		14:05		18' runabout-fishing	Recreational	Yes	2			0				-7	4.3%			0			
26	5/22/2004	14:05			18' runabout-fishing	Recreational	Yes	3				0			-8	5.0%			1			
27	5/22/2004	14:10			jetski-spoke to a boater who pointed them out of the harbor to the northwest	Recreational	No	2	1	Near-shore boat		0			-8	5.0%			0			
28	5/22/2004		14:07	0:03	jetski-spoke to a boater who pointed them out of the harbor to the northwest	Recreational	No	2	1	Near-shore boat	0				-8	5.0%			0			
29	5/22/2004		14:12		25' sailboat	Sailboat	Unknown				0				-7	4.3%			0			
30	5/22/2004		14:13		18' sailboat-fishing	Sailboat	Yes				0				-6	3.7%			0			
31	5/22/2004	14:15			25' sailboat	Sailboat	Unknown					0			-7	4.3%			1			
32	5/22/2004		14:21		16' Baycraft Speedboat	Recreational	Unknown				0				-6	3.7%			0			
33	5/22/2004		14:30		18' runabout-fishing	Recreational	Yes				0				-5	3.1%			0			
34	5/22/2004		14:40		18-runabout	Recreational	Unknown	3			0				-4	2.5%			0			
35	5/22/2004	14:44			16' skiff, center console-fishing-See ID #38	Recreational	Yes					0			-5	3.1%			1			
36	5/22/2004	15:12			25' sailboat	Sailboat	Unknown	2				0			-6	3.7%			1			
37	5/22/2004		15:35		20' commercial fish-(covered front half)	Commercial	Yes				0				-5	3.1%			0			
38	5/22/2004		15:45	1:01	Same as ID #35-16' skiff, center console-fishing	Recreational	Yes				0				-4	2.5%			0			
39	5/22/2004		16:20	6:43	Same as ID#2-"Miss Jillian", 35' cruiser	Recreational	Unknown	2			0				-3	1.9%			0			
40	5/22/2004	16:31			small skiff-~12'-fishing	Recreational	Yes	3				0			-4	2.5%			1			
-999	5/22/2004		19:00		end time				1	end	0				-4	2.5%			0			

Table C2-3: Data and Calculations for Marion -- May 18

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration	Other/Comments	Boat Type	Fishing (Yes/Unknown)	Number of Passengers	Exclude?	Reason	Left Before?	Still Out?	Total Boats	Burr Bros Boats (Start Count)	Running Count	Proportion Active	Max	Inactive Boats at Peak Activity	Trips	Total Trips	Percentage of Boats Taking Trips	Trips per Peak Inactive Boat
0	5/18/2004	8:45			Arrived onsite - 127 total boats (80 non-dinghy boats docked, 25 dinghys docked, and 22 moored).							0	105	102	-3	2.9%	4.8%	100	3	15	14.3%	0.15
1	5/18/2004	8:53				Recreational	Yes	1				0			-4	3.8%			1			
2	5/18/2004	8:55				Recreational	Yes	2				0			-5	4.8%			1			
3	5/18/2004		8:59			Recreational	Unknown	3			1				-4	3.8%			0			
4	5/18/2004	9:53			dinghy	dinghy	Yes	2	1	dinghy		0			-4	3.8%			0			
5	5/18/2004	9:56				Recreational	Yes	2				0			-5	4.8%			1			
6	5/18/2004		10:18		fishing	Recreational	Yes	1			1				-4	3.8%			0			
7	5/18/2004		10:27			Recreational	Unknown	1			1				-3	2.9%			0			
8	5/18/2004		11:04		fishing	Recreational	Yes	2			0				-2	1.9%			0			
9	5/18/2004	11:10			dinghy	dinghy	Unknown	1	1	dinghy		0			-2	1.9%			0			
10	5/18/2004		11:18		dinghy	dinghy	Unknown	1	1	dinghy	0				-2	1.9%			0			
-999	5/18/2004	11:30	11:45		break				1	break	0	0			-2	1.9%			0			
11	5/18/2004	12:00			recreational	Sailboat	Unknown					0			-3	2.9%			1			
12	5/18/2004		12:47			Recreational	Unknown	2			0				-2	1.9%			0			
13	5/18/2004	12:49			recreational	Sailboat	Unknown	1				0			-3	2.9%			1			
14	5/18/2004	12:51				Recreational	Unknown	1				0			-4	3.8%			1			
15	5/18/2004	12:55			dinghy	dinghy	Unknown	1	1	dinghy		0			-4	3.8%			0			
16	5/18/2004		12:57			Recreational	Unknown	2			0				-3	2.9%			0			
17	5/18/2004	13:00				Recreational	Unknown	1				0			-4	3.8%			1			
18	5/18/2004	13:04			fishing	Commercial	Yes	1				0			-5	4.8%			1			
19	5/18/2004		13:08			Recreational	Unknown	1			0				-4	3.8%			0			
20	5/18/2004		13:30			Recreational	Unknown	1			0				-3	2.9%			0			
21	5/18/2004	13:55				Recreational	Unknown	1				0			-4	3.8%			1			
22	5/18/2004		13:56			Recreational	Unknown	1			0				-3	2.9%			0			
23	5/18/2004	13:58			fishing pole	Recreational	Yes	2				0			-4	3.8%			1			
24	5/18/2004		13:59			Recreational	Unknown	2			0				-3	2.9%			0			
25	5/18/2004		14:11			Recreational	Unknown	2			0				-2	1.9%			0			
26	5/18/2004		14:46			Recreational	Unknown	1			0				-1	1.0%			0			
27	5/18/2004	14:51				Recreational	Unknown	1				0			-2	1.9%			1			
28	5/18/2004		15:05			Recreational	Unknown	5			0				-1	1.0%			0			
29	5/18/2004		15:11			Recreational	Unknown	1			0				0	0.0%			0			
30	5/18/2004		15:44			Recreational	Unknown	1			0				1	-1.0%			0			
31	5/18/2004		17:03		fishing	Recreational	Yes	1			0				2	-1.9%			0			
32	5/18/2004		17:06		fishing	Recreational	Yes	1			0				3	-2.9%			0			
33	5/18/2004	17:23				Recreational	Unknown	3				1			2	-1.9%			1			
-999	5/18/2004		17:30		end time				1	end	0				2	-1.9%			0			

Table C2-4: Data and Calculations for Marion -- May 22

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration	Other/Comments	Boat Type	Fishing (Yes/Unknown)	Number of Passengers	Exclude	Reason	Left Before?
0	5/22/2004	8:25			Arrived onsite at Burr Bros Marina - 174 total boats (87 boats docked, 25 dinghys docked, and 62 moored).						
1	5/22/2004		8:39		recreational	Sailboat	Unknown	2	1	Moved to different site - will include adjustment for trips prior to observer arriving	1
2	5/22/2004		8:40		fishing -small boat	Recreational	Yes	2	1	Moved to different site - will include adjustment for trips prior to observer arriving	1
3	5/22/2004		8:46		fishing-small boat	Recreational	Yes	2	1	Moved to different site - will include adjustment for trips prior to observer arriving	1
4	5/22/2004	8:49			sailboat-docked out in the water-recreational	Sailboat	Unknown	1	1	Moved to different site - will include adjustment for trips prior to observer arriving	
5	5/22/2004	9:05			small boat-fishing	Recreational	Yes	1	1	Moved to different site - will include adjustment for trips prior to observer arriving	
6	5/22/2004	9:07			small boat-fishing	Recreational	Yes	3	1	Moved to different site - will include adjustment for trips prior to observer arriving	
7	5/22/2004		9:11		dinghy-boat taken out of the water	Dinghy	No	1	1	Dinghy	1
8	5/22/2004	9:14			fishing	Recreational	Yes	2	1	Moved to different site - will include adjustment for trips prior to observer arriving	
-999	5/22/2004	9:28	9:40		moved from Burr Bros marina to beach site				1		
9	5/22/2004	9:43			fishing	Recreational	Yes	2			
10	5/22/2004		9:44		fishing	Recreational	Yes	1			1
11	5/22/2004	9:45			fishing	Recreational	Yes	2			
12	5/22/2004	9:48			fishing	Recreational	Yes	2			
13	5/22/2004	9:56			fishing	Recreational	Yes	1			
14	5/22/2004		9:59		fishing	Recreational	Yes	1			1
15	5/22/2004		10:03		fishing	Recreational	Yes	2			1
16	5/22/2004		10:10		fishing	Recreational	Yes	2			1
17	5/22/2004	10:11			boat pulling another boat-fishing	Recreational	Yes	2			
18	5/22/2004	10:12			canoe (small boat)-fishing	Recreational	Yes	2	1	Near-shore boat	
19	5/22/2004	10:12			small boat-fishing	Recreational	Yes	1			
20	5/22/2004		10:12		canoe brought in	Recreational	No	1	1	Near-shore boat	0
21	5/22/2004		10:15		fishing	Recreational	Yes	1			1
22	5/22/2004		10:15		fishing	Recreational	Yes	2			1
23	5/22/2004	10:15			fishing	Recreational	Yes	2			
24	5/22/2004	10:34			fishing	Recreational	Yes	1			
25	5/22/2004		11:07		fishing	Recreational	Yes	2			1
-999	5/22/2004	11:08	11:41		break				1	break	0
26	5/22/2004		11:52		fishing	Recreational	Yes	1			0
27	5/22/2004	11:53			recreational-fishing	Sailboat	Yes	2			
28	5/22/2004	11:56			fishing	Recreational	Yes	2			
29	5/22/2004	12:07			fishing-recreational	Sailboat	Yes	2			
30	5/22/2004	12:08			fishing-recreational	Sailboat	Yes	2			
31	5/22/2004	12:18			fishing	Recreational	Yes	3			
32	5/22/2004		12:25		fishing	Recreational	Yes	2			0
33	5/22/2004		12:25		fishing	Recreational	Yes	1			0
34	5/22/2004		12:34		fishing	Recreational	Yes	2			0
35	5/22/2004	12:46				Recreational	Unknown				
36	5/22/2004		12:50		fishing	Recreational	Yes	3			0
37	5/22/2004		13:05		fishing-recreational	Sailboat	Yes	2			0
38	5/22/2004	13:19			recreational	Sailboat	Unknown				
39	5/22/2004		13:23		fishing	Recreational	Yes				0
40	5/22/2004		13:24		fishing	Recreational	Yes	2			0
41	5/22/2004		13:25		fishing	Recreational	Yes				0
42	5/22/2004		13:30		fishing-recreational	Sailboat	Yes	2			0
43	5/22/2004	13:33			recreational	Sailboat	Unknown	2			
44	5/22/2004	13:36			recreational	Recreational	Unknown	3			
45	5/22/2004	13:42			recreational	Recreational	Unknown	3			
46	5/22/2004		13:43		fishing-recreational	Sailboat	Yes	2			0
47	5/22/2004		13:43		fishing	Recreational	Yes	3			0
48	5/22/2004	14:03			recreational	Sailboat	Unknown	2			
49	5/22/2004	14:04			fishing	Recreational	Yes	1			
50	5/22/2004		14:04		recreational	Sailboat	Unknown	2			0
51	5/22/2004		14:06		recreational	Sailboat	Unknown	2			0
52	5/22/2004		14:10		fishing	Recreational	Yes	3			0
53	5/22/2004		14:15			Recreational	Unknown	2			0
54	5/22/2004	14:26			recreational	Sailboat	Unknown				
55	5/22/2004		14:46		recreational	Sailboat	Unknown	2			0
56	5/22/2004		14:46		recreational	Sailboat	Unknown	2			0
57	5/22/2004		14:46		recreational	Sailboat	Unknown	2			0
58	5/22/2004		15:19		recreational	Sailboat	Unknown				0
59	5/22/2004		15:32		fishing	Recreational	Yes	1			0
60	5/22/2004		15:44		fishing	Recreational	Yes	3			0
61	5/22/2004	15:50			fishing	Recreational	Yes	1			
62	5/22/2004		16:00		fishing	Recreational	Yes	1			0
-999			17:00		end time				1	end	0

Table C2-4: Data and Calculations for Marion -- May 22

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration	Still Out?	Burr Bros Boats	Burr Bros Left Before	Burr Bros Left Before Proportion	Total Boats	Marion Boats (Helicopter Count)	Marion Left Before	Running Count	Proportion Active	Max	Inactive Boats at Peak Activity	Trips	Total Trips	Percentage of Boats Taking Trips	Trips per Peak Inactive Boat
0	5/22/2004	8:25			0	149	3	2.0%	376	357	14	-14	3.7%	5.1%	357	14	36	10%	0.10
1	5/22/2004		8:39									-14	3.7%			0			
2	5/22/2004		8:40							Time		-14	3.7%			0			
3	5/22/2004		8:46							13:55		-14	3.7%			0			
4	5/22/2004	8:49			0							-14	3.7%			0			
5	5/22/2004	9:05			0							-14	3.7%			0			
6	5/22/2004	9:07			0							-14	3.7%			0			
7	5/22/2004		9:11									-14	3.7%			0			
8	5/22/2004	9:14			0							-14	3.7%			0			
-999	5/22/2004	9:28	9:40		0							-14	3.7%			0			
9	5/22/2004	9:43			0							-15	4.0%			1			
10	5/22/2004		9:44									-14	3.7%			0			
11	5/22/2004	9:45			0							-15	4.0%			1			
12	5/22/2004	9:48			0							-16	4.3%			1			
13	5/22/2004	9:56			0							-17	4.5%			1			
14	5/22/2004		9:59									-16	4.3%			0			
15	5/22/2004		10:03									-15	4.0%			0			
16	5/22/2004		10:10									-14	3.7%			0			
17	5/22/2004	10:11			0							-15	4.0%			1			
18	5/22/2004	10:12			0							-15	4.0%			0			
19	5/22/2004	10:12			0							-16	4.3%			1			
20	5/22/2004		10:12									-16	4.3%			0			
21	5/22/2004		10:15									-15	4.0%			0			
22	5/22/2004		10:15									-14	3.7%			0			
23	5/22/2004	10:15			0							-15	4.0%			1			
24	5/22/2004	10:34			0							-16	4.3%			1			
25	5/22/2004		11:07									-15	4.0%			0			
-999	5/22/2004	11:08	11:41		0							-15	4.0%			0			
26	5/22/2004		11:52									-14	3.7%			0			
27	5/22/2004	11:53			0							-15	4.0%			1			
28	5/22/2004	11:56			0							-16	4.3%			1			
29	5/22/2004	12:07			0							-17	4.5%			1			
30	5/22/2004	12:08			0							-18	4.8%			1			
31	5/22/2004	12:18			0							-19	5.1%			1			
32	5/22/2004		12:25									-18	4.8%			0			
33	5/22/2004		12:25									-17	4.5%			0			
34	5/22/2004		12:34									-16	4.3%			0			
35	5/22/2004	12:46			0							-17	4.5%			1			
36	5/22/2004		12:50									-16	4.3%			0			
37	5/22/2004		13:05									-15	4.0%			0			
38	5/22/2004	13:19			0							-16	4.3%			1			
39	5/22/2004		13:23									-15	4.0%			0			
40	5/22/2004		13:24									-14	3.7%			0			
41	5/22/2004		13:25									-13	3.5%			0			
42	5/22/2004		13:30									-12	3.2%			0			
43	5/22/2004	13:33			0							-13	3.5%			1			
44	5/22/2004	13:36			0							-14	3.7%			1			
45	5/22/2004	13:42			0							-15	4.0%			1			
46	5/22/2004		13:43									-14	3.7%			0			
47	5/22/2004		13:43									-13	3.5%			0			
48	5/22/2004	14:03			0							-14	3.7%			1			
49	5/22/2004	14:04			0							-15	4.0%			1			
50	5/22/2004		14:04									-14	3.7%			0			
51	5/22/2004		14:06									-13	3.5%			0			
52	5/22/2004		14:10									-12	3.2%			0			
53	5/22/2004		14:15									-11	2.9%			0			
54	5/22/2004	14:26			0							-12	3.2%			1			
55	5/22/2004		14:46									-11	2.9%			0			
56	5/22/2004		14:46									-10	2.7%			0			
57	5/22/2004		14:46									-9	2.4%			0			
58	5/22/2004		15:19									-8	2.1%			0			
59	5/22/2004		15:32									-7	1.9%			0			
60	5/22/2004		15:44									-6	1.6%			0			
61	5/22/2004	15:50			1							-7	1.9%			1			
62	5/22/2004		16:00									-6	1.6%			0			
-999			17:00									-6	1.6%			0			

Table C2-5: Data and Calculations for New Bedford Harbor -- May 22

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration	Other/Comments	Boat Type	Fishing (Yes/Unknown)	Number of Passengers	Exclude?	Reason	Left Before?	Still Out?	Total Boats	Helicopter Count	Running Count	Proportion Active	Max	Inactive Boats at Peak Activity	Trips	Total Trips	Percentage of Boats Taking Trips	Trips per Peak Inactive Boat
0	5/22/2004	9:12			Arrived onsite-one boat fishing outside -2 people		Yes	2	1	Was outside hurricane barrier - don't know origin - there will be adjustment for trips before start of data collection		0	449	430	-10	2.2%	4.2%	430	10	48	10.7%	0.11
1	5/22/2004	9:12				Commercial			1	Commercial		0			-10	2.2%			0			
2	5/22/2004	9:15			departed from 1st marina on right	Recreational	Yes	1				0		Time	-11	2.4%			1			
3	5/22/2004	9:24			center console	Recreational	Unknown	2				0		13:10	-12	2.7%			1			
4	5/22/2004		9:25		center console, fishing poles. Went fishing just inside the barrier.	Recreational	Yes	2			1				-11	2.4%			0			
5	5/22/2004	9:27			small outboard	Recreational		1				0			-12	2.7%			1			
6	5/22/2004	9:36			big boat	Recreational	Unknown	3.5				0			-13	2.9%			1			
7	5/22/2004	9:36			small boat	Recreational	Unknown	2				0			-14	3.1%			1			
8	5/22/2004	9:38				Commercial	Unknown		1	Commercial		0			-14	3.1%			0			
9	5/22/2004	9:40			fishing poles, ? People	Recreational	Yes					0			-15	3.3%			1			
10	5/22/2004	9:41			could be tour boat holds ~20 people, completely covered	Recreational	Unknown	~20	1	Not likely recreational even though that is what was indicated		0			-15	3.3%			0			
11	5/22/2004		9:45		fishing poles, ? People	Recreational	Yes				1				-14	3.1%			0			
12	5/22/2004	10:03			big boat	Recreational						0			-15	3.3%			1			
13	5/22/2004	10:04			could be harbor master-red center console	Recreational	Unknown	2				0			-16	3.6%			1			
14	5/22/2004	10:05			medium boat	Recreational	Unknown	1				0			-17	3.8%			1			
15	5/22/2004	10:05			small boat	Recreational	Unknown	1				0			-18	4.0%			1			
16	5/22/2004		10:05		small boat-fishing poles	Recreational	Yes	2			1				-17	3.8%			0			
17	5/22/2004	10:06			large boat-"Nantucket"	Commercial	Unknown	3.5	1	Commercial		0			-17	3.8%			0			
18	5/22/2004	10:06			medium boat-fishing-turned around and came back in	Commercial	Yes	3	1	Commercial		0			-17	3.8%			0			
18	5/22/2004		10:06		medium boat-fishing-turned around and came back in	Commercial	Yes	3	1	Commercial	0				-17	3.8%			0			
19	5/22/2004		10:10		medium boat	Recreational	Unknown	2			1				-16	3.6%			0			
20	5/22/2004	10:10			small boat	Recreational	Unknown	1				0			-17	3.8%			1			
21	5/22/2004	10:11			large boat-"Westport"	Commercial	Unknown	4	1	Commercial		0			-17	3.8%			0			
22	5/22/2004	10:16			medium boat	Recreational	Unknown	3				0			-18	4.0%			1			
23	5/22/2004		10:25		small boat-fishing	Recreational	Yes	1			1				-17	3.8%			0			
24	5/22/2004	10:32			medium boat	Recreational	Unknown	1				0			-18	4.0%			1			
25	5/22/2004		10:35		small boat	Recreational	Unknown	2			1				-17	3.8%			0			
26	5/22/2004	10:42			small state boat-"Environmental Police"	Other	Unknown	2	1	State boat		0			-17	3.8%			0			
27	5/22/2004	10:47			center console	Recreational	Unknown	2				0			-18	4.0%			1			
28	5/22/2004	10:48			medium boat-2+? People	Recreational	Unknown					0			-19	4.2%			1			
29	5/22/2004		10:58		small boat-fishing poles	Recreational	Yes	3			1				-18	4.0%			0			
30	5/22/2004		11:00		medium boat	Recreational	Unknown	1			1				-17	3.8%			0			
31	5/22/2004	11:03			small boat	Commercial	Unknown	1	1	Commercial		0			-17	3.8%			0			
32	5/22/2004	11:05			medium boat	Recreational	Unknown	1				0			-18	4.0%			1			
33	5/22/2004		11:06		small boat-fishing poles	Recreational	Yes	1			1				-17	3.8%			0			
34	5/22/2004		11:10		small boat	Recreational	Unknown	1			1				-16	3.6%			0			
35	5/22/2004		11:20		small boat	Recreational	Unknown	1			0				-15	3.3%			0			
36	5/22/2004	11:22			large boat-"Sea Ranger"	Commercial	Unknown	3	1	Commercial		0			-15	3.3%			0			
37	5/22/2004		11:26		medium boat-fishing	Recreational	Yes	1			0				-14	3.1%			0			
38	5/22/2004	11:26			medium boat	Recreational	Unknown	1				0			-15	3.3%			1			
39	5/22/2004		11:37			Recreational	Unknown				0				-14	3.1%			0			
40	5/22/2004		11:45			Commercial	Unknown		1	Commercial	0				-14	3.1%			0			
41	5/22/2004	11:45			Boston whaler type-recreational-or possible small commercial	Recreational	Unknown					0			-15	3.3%			1			
42	5/22/2004		11:48			Recreational	Unknown				0				-14	3.1%			0			
43	5/22/2004		11:50			Recreational	Unknown				0				-13	2.9%			0			
44	5/22/2004	12:02			sailboat-recreational	Sailboat	Unknown	2.5				0			-14	3.1%			1			
45	5/22/2004		12:13			Recreational	Unknown	6			0				-13	2.9%			0			
46	5/22/2004		12:23			Recreational	Unknown				0				-12	2.7%			0			
47	5/22/2004		12:25		didn't go all the way in-came in 12:25 pm 2 fishing	Recreational	Yes	2			0				-11	2.4%			0			
48	5/22/2004	12:26			big s.b.	Sailboat	Unknown	7				0			-12	2.7%			1			
49	5/22/2004	12:28			big boat-maybe commercial	Recreational	Unknown					0			-13	2.9%			1			
50	5/22/2004	12:29				Commercial	Unknown		1	Commercial		0			-13	2.9%			0			
51	5/22/2004		12:30		Boston whaler type-maybe commercial	Recreational	Unknown	1			0				-12	2.7%			0			
52	5/22/2004		12:37			Recreational	Unknown				0				-11	2.4%			0			
53	5/22/2004		12:39			Recreational	Unknown				0				-10	2.2%			0			
54	5/22/2004		12:58		medium boat	Recreational	Unknown				0				-9	2.0%			0			
55	5/22/2004		13:03		small s.b.	Sailboat	Unknown				0				-8	1.8%			0			
56	5/22/2004		13:05		medium b.w.t.	Recreational	Unknown				0				-7	1.6%			0			
57	5/22/2004		13:11		small s.b.	Recreational	Unknown				0				-6	1.3%			0			
58	5/22/2004		13:11		the red? Poss. Harbor master boat?	Recreational	Unknown				0				-5	1.1%			0			
59	5/22/2004	13:15			medium boat	Recreational	Unknown					0			-6	1.3%			1			
60	5/22/2004		13:25		medium boat	Recreational	Unknown				0				-5	1.1%			0			
61	5/22/2004	13:30			big boat-possibly commercial	Recreational	Unknown					0			-6	1.3%			1			
62	5/22/2004		13:30		medium boat	Recreational	Unknown				0				-5	1.1%			0			
63	5/22/2004		13:32	3:51	the tour-boat thing-See ID #11	Commercial	Unknown		1	Commercial	0				-5	1.1%			0			
64	5/22/2004		13:58			Commercial	Unknown		1	Commercial	0				-5	1.1%			0			
65	5/22/2004		14:11			Commercial	Unknown		1	Commercial	0				-5	1.1%			0			
66	5/22/2004		14:17		medium boat	Recreational	Unknown				0				-4	0.9%			0			
67	5/22/2004	14:18			small boat	Recreational	Unknown					0			-5	1.1%			1			
68	5/22/2004		14:21		medium s.b.	Recreational	Unknown				0				-4	0.9%			0			
69	5/22/2004		14:37		small boat	Recreational	Unknown				0				-3	0.7%			0			
70	5/22/2004		14:39		medium boat	Recreational	Unknown				0				-2	0.4%			0			
71	5/22/2004	14:40			medium boat	Recreational	Unknown					0			-3	0.7%			1			

Table C2-5: Data and Calculations for New Bedford Harbor -- May 22

ID	Date	Time Out (Departure)	Time In (Arrival)	Duration	Other/Comments	Boat Type	Fishing (Yes/Unknown)	Number of Passengers	Exclude?	Reason	Left Before?	Still Out?	Total Boats	Helicopter Count	Running Count	Proportion Active	Max	Inactive Boats at Peak Activity	Trips	Total Trips	Percentage of Boats Taking Trips	Trips per Peak Inactive Boat
72	5/22/2004		14:41		medium boat	Recreational	Unknown				0				-2	0.4%			0			
73	5/22/2004		14:50			Recreational	Unknown				0				-1	0.2%			0			
74	5/22/2004	14:51				Recreational	Unknown					0			-2	0.4%			1			
75	5/22/2004	14:54			medium s.b.	Sailboat	Unknown					0			-3	0.7%			1			
76	5/22/2004		14:57		medium boat	Recreational	Unknown				0				-2	0.4%			0			
77	5/22/2004		14:57		may be harbor master-red. Looks like the red one (harbor master?) might be pulling the other	Recreational	Unknown				0				-1	0.2%			0			
78	5/22/2004	14:58			medium boat	Recreational	Unknown					0			-2	0.4%			1			
79	5/22/2004		15:03			Commercial	Unknown		1	Commercial	0				-2	0.4%			0			
80	5/22/2004		15:06		medium boat	Recreational	Unknown				0				-1	0.2%			0			
81	5/22/2004	15:10			small boat	Recreational	Unknown					0			-2	0.4%			1			
82	5/22/2004		15:12		medium boat	Recreational	Unknown				0				-1	0.2%			0			
83	5/22/2004		15:17		medium boat	Recreational	Unknown				0				0	0.0%			0			
84	5/22/2004		15:25			Commercial	Unknown		1	Commercial	0				0	0.0%			0			
85	5/22/2004	15:26			small boat	Recreational	Unknown					0			-1	0.2%			1			
86	5/22/2004		15:29		medium s.b.	Commercial	Unknown		1	Commercial	0				-1	0.2%			0			
87	5/22/2004		15:30		medium boat	Recreational	Unknown				0				0	0.0%			0			
88	5/22/2004		15:33		medium boat	Recreational	Unknown				0				1	-0.2%			0			
89	5/22/2004	15:36			large s.b.	Sailboat	Unknown					0			0	0.0%			1			
90	5/22/2004		15:36		medium boat	Recreational	Unknown				0				1	-0.2%			0			
91	5/22/2004	15:37			small boat	Recreational	Unknown					0			0	0.0%			1			
92	5/22/2004		15:42		medium boat	Recreational	Unknown				0				1	-0.2%			0			
93	5/22/2004	15:46			large boat	Recreational	Unknown					1			0	0.0%			1			
94	5/22/2004	15:46			medium s.b.-may be 3.29 pm arrival just going back out	Recreational	Unknown					1			-1	0.2%			1			
95	5/22/2004		15:51		small boat	Recreational	Unknown				0				0	0.0%			0			
96	5/22/2004		15:54		small boat	Recreational	Unknown				0				1	-0.2%			0			
97	5/22/2004		16:01		large boat	Recreational	Unknown				0				2	-0.4%			0			
98	5/22/2004		16:09		medium boat	Recreational	Unknown				0				3	-0.7%			0			
99	5/22/2004		16:18		medium boat	Recreational	Unknown				0				4	-0.9%			0			
100	5/22/2004	16:30				Commercial	Unknown		1	Commercial		0			4	-0.9%			0			
101	5/22/2004	16:37			medium boat	Recreational	Unknown					1			3	-0.7%			1			
102	5/22/2004	16:40			medium boat	Recreational	Unknown					1			2	-0.4%			1			
103	5/22/2004		16:52		medium s.b.	Sailboat	Unknown				0				3	-0.7%			0			
104	5/22/2004		16:56		medium boat	Recreational	Unknown				0				4	-0.9%			0			
105	5/22/2004		17:10		medium boat	Recreational	Unknown				0				5	-1.1%			0			
106	5/22/2004		17:15		medium boat	Recreational	Unknown				0				6	-1.3%			0			
107	5/22/2004		17:23		medium boat	Commercial	Unknown		1	Commercial	0				6	-1.3%			0			
108	5/22/2004		17:27		medium boat	Recreational	Unknown				0				7	-1.6%			0			
109	5/22/2004	17:28			medium boat	Recreational	Unknown					1			6	-1.3%			1			
110	5/22/2004		17:30		large boat	Recreational	Unknown				0				7	-1.6%			0			
111	5/22/2004	17:31			medium boat	Recreational	Unknown					1			6	-1.3%			1			
112	5/22/2004		17:31		medium s.b.	Recreational	Unknown				0				7	-1.6%			0			
-999	5/22/2004		17:45		end time				1	end	0				7	-1.6%			0			

Table C2-6: Results of the Marina Count Study

Results -- Trips per Peak Boat

Site-Day	Trips per Peak Boat	Total # Boats Tracked
Marion1	0.150	105
Marion2	0.101	376
Mattapoisett1	0.085	62
Mattapoisett2	0.137	161
New Bedford1	0	92
New Bedford2	0.112	449
Tue Wtd Avg	0.081	
Sat Wtd Avg	0.112	

Results -- Average People per Boat

Sire-Day	Number	Observations
Marion1	1.571	28
Marion2	1.891	46
Mattapoisett1	1.833	6
Mattapoisett2	2.423	13
New Bedford2	1.933	30
Wtd Avg	1.882	

APPENDIX C3: DAY TYPE AND WEATHER ADJUSTMENTS

Based on analysis of the state park data, foul weather days were defined as any day on which any of the following occurred:

- Average daily cloud cover > 50%
- Precipitation, storms, or ice > 10% of daylight hours; or
- Wind gusts over 20 knots > 50% of daylight hours.

The TWG estimated two types of regressions, one based only on 2002 data and one based on 2002 and 2003 data. Each park (South Cape Beach, Horseneck Beach, Demerast Lloyd, and Fort Phoenix) was estimated separately. The TWG ran several specifications of the regressions. For all, the dependent variable was daily use, in the form *ln(use+1)*. The independent variables of the preferred specification included seasonality (bi-weekly shifters interacted with temperature), day type shifters (weekdays, weekend days, Fridays, and holidays), a foul weather day shifter, and interactions of day type and foul weather. The models that used both 2002 and 2003 data also had 2003 spill shifters interacting with the bi-weekly shifters.

Non-foul weekdays were omitted for model estimation, so the resulting coefficients are relative to non-foul weekdays. Also note that a foul weekend (relative to a non-foul weekday) would be represented by $\alpha + WE + FWD + WEF$, where α represents a non-foul weekday, *WE* is weekend, *FWD* is foul weather day, and *WEF* is the weekend-foul interaction.

The TWG calculated the non-foul to foul ratios for each park and then averaged the foul to non-foul ratios over parks. This method results in non-foul to foul ratios of 1.52 for weekdays and 2.33 for weekends. These ratios are similar to what has been found in previous oil spill assessments. As the ratio for Friday was less than that for weekdays (potentially due to limited data for Fridays), the TWG applied the weekday non-foul to foul ratio to Fridays.

As the marina count study did not collect data on a Friday, but it was expected that Friday might have had a higher launch rate than weekdays, the TWG included an adjustment to estimate a launch rate for Friday that was between the weekday and weekend launch rates. The TWG calculated the Friday launch rate adjustment in a similar manner as described above (calculating the ratios for each park and then averaging over parks). This results in a Friday launch rate of 1.42 times between the weekday and weekend launch rates (a launch rate of 0.094).

The state park data used in the regressions is presented in Appendix B. Other data and regression results are presented in the tables below.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1/1/02	2002	1	1	0	10.00	0	0	0	0	0	0	0	0
1/2/02	2002	1	2	0	10.00	0	0	0	0	0	0	0	0
1/3/02	2002	1	3	0	10.00	0	0	0	0	0	0	0	0
1/4/02	2002	1	4	0	10.00	0	0	0	0	0	0	0	0
1/5/02	2002	1	5	0.24	10.00	0	0	0	0	0	0	0	0
1/6/02	2002	1	6	0.10	9.77	0	0	0	0	0	0	0	0
1/7/02	2002	1	7	0.96	7.00	0	0	0.13	0	0.63	0	0	0
1/8/02	2002	1	8	0.06	10.00	0	0	0	0	0	0	0	0
1/9/02	2002	1	9	0.59	10.00	0	0	0	0	0.07	0	0	0
1/10/02	2002	1	10	0.17	10.00	0	0	0	0	0	0	0	0
1/11/02	2002	1	11	0.80	8.06	0	0	0	0.18	0.53	0	0	0
1/12/02	2002	1	12	0.52	10.00	0	0	0	0	0	0	0	0
1/13/02	2002	1	13	0.67	5.90	0.04	0	0.30	0.30	0.61	0	0.04	0
1/14/02	2002	1	14	0.10	10.00	0	0	0	0	0	0	0	0
1/15/02	2002	1	15	0.95	1.67	0	0	0	0	0.89	0	0.14	0
1/16/02	2002	1	16	0.10	10.00	0	0	0	0	0	0	0	0
1/17/02	2002	1	17	0.62	5.30	0	0	0.45	0	0.64	0	0	0
1/18/02	2002	1	18	0.36	10.00	0	0	0	0	0	0	0	0
1/19/02	2002	1	19	0.57	5.49	0	0	0.57	0	0.48	0	0	0
1/20/02	2002	1	20	0	9.54	0	0	0	0	0.08	0	0	0
1/21/02	2002	1	21	0.71	3.71	0	0	0	0.09	0.74	0	0.17	0
1/22/02	2002	1	22	0.17	10.00	0	0	0	0	0	0	0	0
1/23/02	2002	1	23	0.69	7.06	0	0	0	0	0.50	0	0	0
1/24/02	2002	1	24	0.61	4.48	0	0	0	0	0.81	0	0.03	0
1/25/02	2002	1	25	0.27	10.00	0	0	0	0	0.07	0	0	0
1/26/02	2002	1	26	0.03	10.00	0	0	0	0	0	0	0	0
1/27/02	2002	1	27	0	10.00	0	0	0	0	0	0	0	0
1/28/02	2002	1	28	0.04	5.78	0	0	0.05	0	0.45	0	0	0
1/29/02	2002	1	29	0	9.77	0	0	0	0	0	0	0	0
1/30/02	2002	1	30	0.99	7.60	0	0	0	0	0.20	0	0	0
1/31/02	2002	1	31	0.84	7.25	0	0	0.32	0	0.54	0	0	0
2/1/02	2002	2	1	0.96	2.97	0	0	0	0.04	0.70	0.07	0	0
2/2/02	2002	2	2	0	10.00	0	0	0	0	0	0	0	0
2/3/02	2002	2	3	0.43	10.00	0	0	0	0	0.08	0	0	0
2/4/02	2002	2	4	0.28	10.00	0	0	0	0	0	0	0	0
2/5/02	2002	2	5	0.15	10.00	0	0	0	0	0	0	0	0
2/6/02	2002	2	6	0	10.00	0	0	0	0	0	0	0	0
2/7/02	2002	2	7	0.80	8.30	0	0	0	0	0.40	0	0	0
2/8/02	2002	2	8	0	10.00	0	0	0	0	0	0	0	0
2/9/02	2002	2	9	0	10.00	0	0	0	0	0	0	0	0
2/10/02	2002	2	10	0.86	9.00	0	0	0	0	0.21	0	0	0
2/11/02	2002	2	11	0.71	7.41	0	0	0.44	0	0.48	0	0	0
2/12/02	2002	2	12	0.17	10.00	0	0	0	0	0	0	0	0
2/13/02	2002	2	13	0.05	10.00	0	0	0	0	0	0	0	0
2/14/02	2002	2	14	0	10.00	0	0	0	0	0	0	0	0
2/15/02	2002	2	15	0.29	10.00	0	0	0	0	0	0	0	0
2/16/02	2002	2	16	0.34	10.00	0	0	0	0	0	0	0	0
2/17/02	2002	2	17	0.91	8.62	0	0	0	0	0.43	0	0	0
2/18/02	2002	2	18	0.07	10.00	0	0	0	0	0	0	0	0
2/19/02	2002	2	19	0.06	10.00	0	0	0	0	0	0	0	0
2/20/02	2002	2	20	0.33	10.00	0	0	0	0	0	0	0	0
2/21/02	2002	2	21	0.91	2.72	0	0	0	0	0.77	0	0.13	0
2/22/02	2002	2	22	0.62	10.00	0	0	0	0	0	0	0	0
2/23/02	2002	2	23	0.13	10.00	0	0	0	0	0	0	0	0
2/24/02	2002	2	24	0.33	10.00	0	0	0	0	0	0	0	0
2/25/02	2002	2	25	0	10.00	0	0	0	0	0	0	0	0
2/26/02	2002	2	26	0.43	9.84	0	0	0	0	0	0	0	0
2/27/02	2002	2	27	0.67	5.27	0	0	0.35	0.15	0.65	0	0	0
2/28/02	2002	2	28	0	10.00	0	0	0	0	0	0	0	0
3/1/02	2002	3	1	0.06	10.00	0	0	0	0	0	0	0	0
3/2/02	2002	3	2	0.13	9.79	0	0	0	0	0	0	0	0
3/3/02	2002	3	3	1.00	2.78	0.16	0	0.16	0.32	0.06	0.32	0.03	0
3/4/02	2002	3	4	0.23	10.00	0	0	0	0	0	0	0	0
3/5/02	2002	3	5	0.01	10.00	0	0	0	0	0	0	0	0
3/6/02	2002	3	6	0.42	10.00	0	0	0	0	0	0	0	0
3/7/02	2002	3	7	0.01	9.54	0	0	0	0	0.08	0	0	0
3/8/02	2002	3	8	0.64	6.94	0	0	0	0	0.44	0.06	0	0
3/9/02	2002	3	9	0.20	7.19	0.06	0	0	0	0	0.24	0.12	0
3/10/02	2002	3	10	0.36	10.00	0	0	0	0	0	0	0	0
3/11/02	2002	3	11	0.14	10.00	0	0	0	0	0	0	0	0
3/12/02	2002	3	12	0.55	10.00	0	0	0	0	0	0	0	0
3/13/02	2002	3	13	0.91	6.88	0	0	0	0.63	0.44	0	0	0
3/14/02	2002	3	14	0	9.36	0	0	0	0	0	0.14	0	0
3/15/02	2002	3	15	0.66	6.62	0	0	0	0	0.30	0	0.13	0
3/16/02	2002	3	16	0.79	7.60	0	0	0	0.20	0.35	0	0	0
3/17/02	2002	3	17	0.01	10.00	0	0	0	0	0	0	0	0
3/18/02	2002	3	18	0.77	2.45	0	0	0.15	0.09	0.06	0	0.15	0
3/19/02	2002	3	19	0.79	9.39	0	0	0	0.24	0.09	0	0	0
3/20/02	2002	3	20	0.64	6.97	0.06	0	0	0.56	0.56	0	0	0
3/21/02	2002	3	21	0	10.00	0	0	0	0	0	0	0	0
3/22/02	2002	3	22	0.11	10.00	0	0	0	0	0	0	0	0
3/23/02	2002	3	23	0.21	10.00	0	0	0	0	0	0	0	0
3/24/02	2002	3	24	0.14	10.00	0	0	0	0	0	0	0	0
3/25/02	2002	3	25	0.50	10.00	0	0	0	0	0	0	0	0
3/26/02	2002	3	26	0.97	6.32	0	0	0	0.68	0.53	0	0	0
3/27/02	2002	3	27	0.79	6.68	0	0	0	0.45	0.40	0	0	0
3/28/02	2002	3	28	0.01	10.00	0	0	0	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3/29/02	2002	3	29	0.02	10.00	0	0	0	0	0	0	0	0
3/30/02	2002	3	30	0.85	6.38	0	0	0	0.19	0.44	0.06	0	0
3/31/02	2002	3	31	0.54	9.62	0	0	0	0.15	0.08	0	0	0
4/1/02	2002	4	1	0.70	9.58	0	0	0	0	0.16	0	0	0
4/2/02	2002	4	2	0.16	10.00	0	0	0	0	0	0	0	0
4/3/02	2002	4	3	0.91	6.28	0	0	0	0	0.52	0	0	0
4/4/02	2002	4	4	0.18	10.00	0	0	0	0	0	0	0	0
4/5/02	2002	4	5	0.92	10.00	0	0	0	0	0	0	0	0
4/6/02	2002	4	6	0.50	10.00	0	0	0	0	0	0	0	0
4/7/02	2002	4	7	0.06	10.00	0	0	0	0	0	0	0	0
4/8/02	2002	4	8	0.70	10.00	0	0	0	0	0	0	0	0
4/9/02	2002	4	9	0.65	9.43	0	0	0	0	0	0	0	0
4/10/02	2002	4	10	0.17	10.00	0	0	0	0	0	0	0	0
4/11/02	2002	4	11	0	10.00	0	0	0	0	0	0	0	0
4/12/02	2002	4	12	0.65	9.88	0	0	0	0	0	0	0	0
4/13/02	2002	4	13	0.60	9.34	0	0	0	0.05	0.14	0	0	0
4/14/02	2002	4	14	0.08	9.86	0	0	0	0	0	0	0	0
4/15/02	2002	4	15	0.71	8.01	0	0	0	0	0.20	0	0	0
4/16/02	2002	4	16	0.23	7.55	0	0	0	0	0.19	0	0.13	0
4/17/02	2002	4	17	0.20	9.92	0	0	0	0	0	0	0	0
4/18/02	2002	4	18	0.04	10.00	0	0	0	0	0.08	0	0	0
4/19/02	2002	4	19	0.68	6.85	0	0	0	0	0.38	0	0	0
4/20/02	2002	4	20	0.24	10.00	0	0	0	0	0.21	0	0	0
4/21/02	2002	4	21	0.03	10.00	0	0	0	0	0	0	0	0
4/22/02	2002	4	22	0.80	6.60	0.04	0	0	0	0.67	0	0	0
4/23/02	2002	4	23	0.81	9.90	0	0	0	0	0	0	0	0
4/24/02	2002	4	24	0.47	10.00	0	0	0	0	0	0	0	0
4/25/02	2002	4	25	0.42	8.00	0.17	0	0	0.11	0.44	0	0	0
4/26/02	2002	4	26	0.47	10.00	0	0	0	0	0	0	0	0
4/27/02	2002	4	27	0	10.00	0	0	0	0	0	0	0	0
4/28/02	2002	4	28	0.93	2.97	0	0	0	0.29	1.00	0	0	0
4/29/02	2002	4	29	0.89	10.00	0	0	0	0	0.22	0	0	0
4/30/02	2002	4	30	0.54	9.73	0	0	0	0	0.20	0	0	0
5/1/02	2002	5	1	0.04	10.00	0	0	0	0	0	0	0	0
5/2/02	2002	5	2	0.93	3.62	0	0	0	0.12	0.77	0	0.12	0
5/3/02	2002	5	3	0.25	10.00	0	0	0	0	0	0	0	0
5/4/02	2002	5	4	0.02	10.00	0	0	0	0	0	0	0	0
5/5/02	2002	5	5	0.01	10.00	0	0	0	0	0	0	0	0
5/6/02	2002	5	6	0	10.00	0	0	0	0	0	0	0	0
5/7/02	2002	5	7	0.68	10.00	0	0	0	0	0	0	0	0
5/8/02	2002	5	8	0	10.00	0	0	0	0	0	0	0	0
5/9/02	2002	5	9	0.67	10.00	0	0	0	0	0	0	0	0
5/10/02	2002	5	10	0.03	10.00	0	0	0	0	0	0	0	0
5/11/02	2002	5	11	0.01	10.00	0	0	0	0	0	0	0	0
5/12/02	2002	5	12	0.85	7.24	0.11	0	0	0.16	0.63	0	0	0
5/13/02	2002	5	13	0.87	3.62	0.32	0	0	0.12	0.95	0	0	0
5/14/02	2002	5	14	0.66	9.67	0	0	0	0	0.11	0	0	0
5/15/02	2002	5	15	0.63	10.00	0	0	0	0	0	0	0	0
5/16/02	2002	5	16	0	10.00	0	0	0	0	0	0	0	0
5/17/02	2002	5	17	0.39	10.00	0	0	0	0	0	0	0	0
5/18/02	2002	5	18	0.86	5.66	0.34	0	0	0.19	0.78	0	0	0
5/19/02	2002	5	19	0.05	10.00	0	0	0	0	0	0	0	0
5/20/02	2002	5	20	0.73	10.00	0	0	0	0	0	0	0	0
5/21/02	2002	5	21	0.35	10.00	0	0	0	0	0.08	0	0	0
5/22/02	2002	5	22	0.01	10.00	0	0	0	0	0	0	0	0
5/23/02	2002	5	23	0.02	10.00	0	0	0	0	0	0	0	0
5/24/02	2002	5	24	0.03	10.00	0	0	0	0	0	0	0	0
5/25/02	2002	5	25	0	10.00	0	0	0	0	0	0	0	0
5/26/02	2002	5	26	0.79	9.88	0	0	0	0	0	0	0	0
5/27/02	2002	5	27	0.44	8.93	0	0	0	0	0.07	0	0	0
5/28/02	2002	5	28	0.35	8.70	0.10	0	0	0	0.15	0	0	0
5/29/02	2002	5	29	0.58	8.16	0	0	0	0	0.23	0	0	0
5/30/02	2002	5	30	0.72	7.75	0	0	0	0	0.21	0	0.05	0
5/31/02	2002	5	31	0.78	10.00	0.04	0	0	0	0	0	0	0
6/1/02	2002	6	1	0.06	9.92	0	0	0	0	0	0	0	0
6/2/02	2002	6	2	0.27	9.80	0.07	0	0	0	0.13	0	0	0
6/3/02	2002	6	3	0.01	10.00	0	0	0	0	0	0	0	0
6/4/02	2002	6	4	0.04	10.00	0	0	0	0	0	0	0	0
6/5/02	2002	6	5	0.93	9.53	0	0	0	0	0.18	0	0	0
6/6/02	2002	6	6	0.93	7.58	0	0	0	0	0.42	0	0	0
6/7/02	2002	6	7	0.87	8.58	0.04	0	0	0.08	0.60	0	0	0
6/8/02	2002	6	8	0.11	10.00	0	0	0	0	0	0	0	0
6/9/02	2002	6	9	0.02	10.00	0	0	0	0	0	0	0	0
6/10/02	2002	6	10	0.01	10.00	0	0	0	0	0	0	0	0
6/11/02	2002	6	11	0.12	9.71	0	0	0	0	0	0	0	0
6/12/02	2002	6	12	0.90	8.53	0.05	0	0	0.05	0.23	0	0	0
6/13/02	2002	6	13	0.99	10.00	0	0	0	0	0	0	0	0
6/14/02	2002	6	14	0.45	10.00	0	0	0	0	0.32	0	0	0
6/15/02	2002	6	15	0.92	8.30	0	0	0	0.10	0.35	0	0	0
6/16/02	2002	6	16	0.72	8.68	0.05	0	0	0.09	0.23	0	0	0
6/17/02	2002	6	17	0.03	10.00	0	0	0	0	0	0	0	0
6/18/02	2002	6	18	0.05	10.00	0	0	0	0	0	0	0	0
6/19/02	2002	6	19	0.42	10.00	0	0	0	0	0	0	0	0
6/20/02	2002	6	20	0.02	9.92	0	0	0	0	0	0	0	0
6/21/02	2002	6	21	0	10.00	0	0	0	0	0	0	0	0
6/22/02	2002	6	22	0.25	8.92	0	0	0	0	0	0	0	0
6/23/02	2002	6	23	0.37	6.61	0	0	0	0	0.32	0.21	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
6/24/02	2002	6	24	0.10	9.69	0	0	0	0	0	0.08	0	0
6/25/02	2002	6	25	0.02	10.00	0	0	0	0	0	0	0	0
6/26/02	2002	6	26	0.33	5.10	0	0	0	0	0.19	0.67	0	0
6/27/02	2002	6	27	0.09	7.92	0	0	0	0	0	0.08	0	0
6/28/02	2002	6	28	0.31	8.57	0.07	0	0	0	0.13	0	0	0
6/29/02	2002	6	29	0.05	10.00	0	0	0	0	0	0	0	0
6/30/02	2002	6	30	0.28	9.00	0	0	0	0	0.12	0	0	0
7/1/02	2002	7	1	0.07	9.08	0	0	0	0	0	0.31	0	0
7/2/02	2002	7	2	0.04	3.93	0	0	0	0	0	1.00	0	0
7/3/02	2002	7	3	0.17	9.08	0	0	0	0	0	0.62	0	0
7/4/02	2002	7	4	0.07	9.92	0	0	0	0	0	0	0	0
7/5/02	2002	7	5	0.23	10.00	0	0	0	0	0	0	0	0
7/6/02	2002	7	6	0.15	9.23	0	0	0	0	0	0.46	0	0
7/7/02	2002	7	7	0.01	4.04	0	0	0	0	0	1.00	0	0
7/8/02	2002	7	8	0.05	8.77	0	0	0	0	0	0.08	0	0
7/9/02	2002	7	9	0.01	4.92	0	0	0	0	0	1.00	0	0
7/10/02	2002	7	10	0.13	8.92	0	0	0	0	0	0.23	0	0
7/11/02	2002	7	11	0.11	10.00	0	0	0	0	0	0	0	0
7/12/02	2002	7	12	0.08	10.00	0	0	0	0	0.08	0	0	0
7/13/02	2002	7	13	0.03	10.00	0	0	0	0	0	0	0	0
7/14/02	2002	7	14	0.13	10.00	0	0	0	0	0	0	0	0
7/15/02	2002	7	15	0.06	9.92	0	0	0	0	0	0	0	0
7/16/02	2002	7	16	0.42	10.00	0	0	0	0	0	0	0	0
7/17/02	2002	7	17	0.08	10.00	0	0	0	0	0	0	0	0
7/18/02	2002	7	18	0.02	7.85	0	0	0	0	0	0.38	0	0
7/19/02	2002	7	19	0.63	4.31	0	0	0	0	0.17	0.67	0	0
7/20/02	2002	7	20	0.81	7.94	0	0	0	0	0.28	0	0	0
7/21/02	2002	7	21	0.22	10.00	0	0	0	0	0	0	0	0
7/22/02	2002	7	22	0.05	10.00	0	0	0	0	0	0	0	0
7/23/02	2002	7	23	0.15	7.56	0.06	0	0	0	0	0.75	0	0
7/24/02	2002	7	24	0.57	10.00	0	0	0	0	0	0.18	0	0
7/25/02	2002	7	25	0.12	10.00	0	0	0	0	0	0	0	0
7/26/02	2002	7	26	0.38	10.00	0	0	0	0	0	0	0	0
7/27/02	2002	7	27	0.77	10.00	0	0	0	0	0	0	0	0
7/28/02	2002	7	28	0.92	6.70	0	0	0	0	0.22	0.35	0	0
7/29/02	2002	7	29	0.22	7.60	0.07	0	0	0	0.13	0.20	0	0
7/30/02	2002	7	30	0.20	8.92	0	0	0	0	0	0.08	0	0
7/31/02	2002	7	31	0.25	10.00	0	0	0	0	0	0	0	0
8/1/02	2002	8	1	0.07	9.08	0	0	0	0	0	0.31	0	0
8/2/02	2002	8	2	0.04	3.93	0	0	0	0	0	1.00	0	0
8/3/02	2002	8	3	0.17	9.08	0	0	0	0	0	0.62	0	0
8/4/02	2002	8	4	0.07	9.92	0	0	0	0	0	0	0	0
8/5/02	2002	8	5	0.23	10.00	0	0	0	0	0	0	0	0
8/6/02	2002	8	6	0.14	9.23	0	0	0	0	0	0.46	0	0
8/7/02	2002	8	7	0.01	4.04	0	0	0	0	0	1.00	0	0
8/8/02	2002	8	8	0.05	8.77	0	0	0	0	0	0.08	0	0
8/9/02	2002	8	9	0.01	4.92	0	0	0	0	0	1.00	0	0
8/10/02	2002	8	10	0.13	8.92	0	0	0	0	0	0.23	0	0
8/11/02	2002	8	11	0.11	10.00	0	0	0	0	0	0	0	0
8/12/02	2002	8	12	0.08	10.00	0	0	0	0	0.08	0	0	0
8/13/02	2002	8	13	0.03	10.00	0	0	0	0	0	0	0	0
8/14/02	2002	8	14	0.13	10.00	0	0	0	0	0	0	0	0
8/15/02	2002	8	15	0.06	9.92	0	0	0	0	0	0	0	0
8/16/02	2002	8	16	0.42	10.00	0	0	0	0	0	0	0	0
8/17/02	2002	8	17	0.08	10.00	0	0	0	0	0	0	0	0
8/18/02	2002	8	18	0.02	7.85	0	0	0	0	0	0.38	0	0
8/19/02	2002	8	19	0.63	4.31	0	0	0	0	0.17	0.67	0	0
8/20/02	2002	8	20	0.81	7.94	0	0	0	0	0.28	0	0	0
8/21/02	2002	8	21	0.22	10.00	0	0	0	0	0	0	0	0
8/22/02	2002	8	22	0.05	10.00	0	0	0	0	0	0	0	0
8/23/02	2002	8	23	0.15	7.56	0.06	0	0	0	0	0.75	0	0
8/24/02	2002	8	24	0.57	10.00	0	0	0	0	0	0.18	0	0
8/25/02	2002	8	25	0.12	10.00	0	0	0	0	0	0	0	0
8/26/02	2002	8	26	0.38	10.00	0	0	0	0	0	0	0	0
8/27/02	2002	8	27	0.74	10.00	0	0	0	0	0	0	0	0
8/28/02	2002	8	28	0.92	6.70	0	0	0	0	0.22	0.35	0	0
8/29/02	2002	8	29	0.22	7.60	0.07	0	0	0	0.13	0.20	0	0
8/30/02	2002	8	30	0.18	8.92	0	0	0	0	0	0.08	0	0
8/31/02	2002	8	31	0.25	10.00	0	0	0	0	0	0	0	0
9/1/02	2002	9	1	0.28	10.00	0	0	0	0	0	0	0	0
9/2/02	2002	9	2	0.80	5.73	0.11	0	0	0.26	0.86	0	0	0
9/3/02	2002	9	3	0.89	5.94	0	0	0	0	0.54	0	0	0
9/4/02	2002	9	4	0.65	6.47	0.30	0	0	0	0.52	0	0	0
9/5/02	2002	9	5	0.28	10.00	0	0	0	0	0	0	0	0
9/6/02	2002	9	6	0.04	10.00	0	0	0	0	0	0	0	0
9/7/02	2002	9	7	0.04	10.00	0	0	0	0	0	0	0	0
9/8/02	2002	9	8	0.09	10.00	0	0	0	0	0	0	0	0
9/9/02	2002	9	9	0.03	10.00	0	0	0	0	0	0	0	0
9/10/02	2002	9	10	0.10	10.00	0	0	0	0	0	0	0	0
9/11/02	2002	9	11	0.72	8.35	0	0	0	0	0.22	0	0	0
9/12/02	2002	9	12	0	10.00	0	0	0	0	0	0	0	0
9/13/02	2002	9	13	0.01	10.00	0	0	0	0	0	0	0	0
9/14/02	2002	9	14	0.19	9.57	0	0	0	0	0.07	0	0	0
9/15/02	2002	9	15	0.85	8.23	0	0	0	0	0.23	0	0	0
9/16/02	2002	9	16	0.82	5.16	0.03	0	0	0.10	0.84	0	0	0
9/17/02	2002	9	17	0.55	9.12	0	0	0	0	0.12	0	0	0
9/18/02	2002	9	18	0.15	10.00	0	0	0	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
9/19/02	2002	9	19	0.29	10.00	0	0	0	0	0	0	0	0
9/20/02	2002	9	20	0.08	10.00	0	0	0	0	0	0	0	0
9/21/02	2002	9	21	0.40	10.00	0	0	0	0	0	0	0	0
9/22/02	2002	9	22	0.65	9.94	0	0	0	0	0.06	0	0	0
9/23/02	2002	9	23	0.74	7.38	0.07	0	0	0.10	0.41	0	0	0
9/24/02	2002	9	24	0.85	10.00	0	0	0	0	0	0	0	0
9/25/02	2002	9	25	0.37	10.00	0	0	0	0	0	0	0	0
9/26/02	2002	9	26	0.55	10.00	0	0	0	0	0.18	0	0	0
9/27/02	2002	9	27	0.97	6.96	0	0	0	0.11	0.47	0	0	0
9/28/02	2002	9	28	0.44	10.00	0	0	0	0	0	0	0	0
9/29/02	2002	9	29	0.01	10.00	0	0	0	0	0	0	0	0
9/30/02	2002	9	30	0.25	10.00	0	0	0	0	0	0	0	0
10/1/02	2002	10	1	0.02	10.00	0	0	0	0	0	0	0	0
10/2/02	2002	10	2	0	5.92	0	0	0	0	0.23	0.46	0	0
10/3/02	2002	10	3	0.56	8.90	0	0	0	0	0.30	0.10	0	0
10/4/02	2002	10	4	0.89	10.00	0	0	0	0	0	0	0	0
10/5/02	2002	10	5	0.53	6.88	0	0	0	0	0.35	0.12	0	0
10/6/02	2002	10	6	0	10.00	0	0	0	0	0	0	0	0
10/7/02	2002	10	7	0.57	9.77	0	0	0	0	0	0	0	0
10/8/02	2002	10	8	0	10.00	0	0	0	0	0	0	0	0
10/9/02	2002	10	9	0.22	10.00	0	0	0	0	0	0	0	0
10/10/02	2002	10	10	0.05	10.00	0	0	0	0	0	0	0	0
10/11/02	2002	10	11	0.81	8.15	0	0	0	0	0.85	0	0	0
10/12/02	2002	10	12	0.91	3.28	0	0	0	0	0.94	0	0	0
10/13/02	2002	10	13	0.98	3.51	0	0	0	0	0.93	0	0	0
10/14/02	2002	10	14	0	10.00	0	0	0	0	0	0	0	0
10/15/02	2002	10	15	0.31	10.00	0	0	0	0	0	0	0	0
10/16/02	2002	10	16	0.81	4.26	0.17	0	0	0.26	0.93	0	0	0
10/17/02	2002	10	17	0	10.00	0	0	0	0	0	0	0	0
10/18/02	2002	10	18	0	10.00	0	0	0	0	0	0	0	0
10/19/02	2002	10	19	0.54	10.00	0	0	0	0	0	0	0	0
10/20/02	2002	10	20	0.03	10.00	0	0	0	0	0	0	0	0
10/21/02	2002	10	21	0	10.00	0	0	0	0	0	0	0	0
10/22/02	2002	10	22	0.02	10.00	0	0	0	0	0	0	0	0
10/23/02	2002	10	23	0.65	9.17	0	0	0	0.06	0.28	0	0	0
10/24/02	2002	10	24	0	10.00	0	0	0	0	0	0	0	0
10/25/02	2002	10	25	0.14	10.00	0	0	0	0	0	0	0	0
10/26/02	2002	10	26	0.80	5.22	0.22	0	0	0.19	0.89	0	0	0
10/27/02	2002	10	27	0.14	10.00	0	0	0	0	0	0	0	0
10/28/02	2002	10	28	0.13	10.00	0	0	0	0	0	0	0	0
10/29/02	2002	10	29	0	10.00	0	0	0	0	0	0	0	0
10/30/02	2002	10	30	0.84	10.00	0	0	0	0	0	0	0	0
10/31/02	2002	10	31	0.09	10.00	0	0	0	0	0	0	0	0
11/1/02	2002	11	1	0.20	10.00	0	0	0	0	0	0	0	0
11/2/02	2002	11	2	0.08	10.00	0	0	0	0	0	0	0	0
11/3/02	2002	11	3	0.36	10.00	0	0	0	0	0	0	0	0
11/4/02	2002	11	4	0.71	10.00	0	0	0	0	0.29	0	0	0
11/5/02	2002	11	5	0.03	9.62	0	0	0	0	0.08	0	0	0
11/6/02	2002	11	6	0.95	3.73	0	0	0	0.07	0.96	0	0	0
11/7/02	2002	11	7	0.10	10.00	0	0	0	0	0	0	0	0
11/8/02	2002	11	8	0.01	9.92	0	0	0	0	0	0	0	0
11/9/02	2002	11	9	0.23	9.50	0	0	0	0	0	0	0	0
11/10/02	2002	11	10	0.64	7.98	0	0	0	0.05	0.33	0	0	0
11/11/02	2002	11	11	0.95	7.39	0	0	0	0	0.27	0	0	0
11/12/02	2002	11	12	0.71	8.10	0	0	0	0.25	0.50	0	0	0
11/13/02	2002	11	13	0.86	8.32	0	0	0	0.18	1.00	0	0	0
11/14/02	2002	11	14	0	10.00	0	0	0	0	0	0	0	0
11/15/02	2002	11	15	0	10.00	0	0	0	0	0	0	0	0
11/16/02	2002	11	16	0.88	7.13	0	0	0	0.07	0.93	0	0	0
11/17/02	2002	11	17	0.98	7.35	0	0	0	0.12	0.71	0	0	0
11/18/02	2002	11	18	0.91	10.00	0	0	0	0	0	0	0	0
11/19/02	2002	11	19	0.45	9.88	0	0	0	0	0	0	0	0
11/20/02	2002	11	20	0	9.77	0	0	0	0	0	0	0	0
11/21/02	2002	11	21	0.72	6.21	0	0	0	0	0.22	0	0.19	0
11/22/02	2002	11	22	0.98	5.43	0	0	0	0.09	0.77	0	0.05	0
11/23/02	2002	11	23	0.39	9.93	0	0	0.07	0	0.07	0	0	0
11/24/02	2002	11	24	0.25	10.00	0	0	0	0	0	0	0	0
11/25/02	2002	11	25	0.53	9.38	0	0	0	0	0	0	0	0
11/26/02	2002	11	26	0.03	9.69	0	0	0	0	0	0	0	0
11/27/02	2002	11	27	0.87	3.55	0	0	0.78	0	0.74	0	0.04	0
11/28/02	2002	11	28	0	10.00	0	0	0	0	0	0	0	0
11/29/02	2002	11	29	0.48	8.17	0	0	0.06	0	0.50	0	0	0
11/30/02	2002	11	30	0.49	10.00	0	0	0	0	0	0	0	0
12/1/02	2002	12	1	0.12	10.00	0	0	0	0	0	0	0	0
12/2/02	2002	12	2	0.60	10.00	0	0	0	0	0	0	0	0
12/3/02	2002	12	3	0.04	9.08	0	0	0.08	0	0	0	0	0
12/4/02	2002	12	4	0	10.00	0	0	0	0	0	0	0	0
12/5/02	2002	12	5	0.44	3.04	0	0	0.80	0	0.56	0	0	0
12/6/02	2002	12	6	0.69	6.25	0	0	0.50	0	0.50	0	0	0
12/7/02	2002	12	7	0.01	9.54	0	0	0	0	0	0	0	0
12/8/02	2002	12	8	0.06	10.00	0	0	0	0	0	0	0	0
12/9/02	2002	12	9	0	10.00	0	0	0	0	0	0	0	0
12/10/02	2002	12	10	0	10.00	0	0	0	0	0	0	0	0
12/11/02	2002	12	11	0.26	10.00	0	0	0	0	0	0	0	0
12/12/02	2002	12	12	0.94	7.11	0	0	0	0	0.43	0	0	0
12/13/02	2002	12	13	0.09	8.34	0	0	0	0	0.19	0	0	0
12/14/02	2002	12	14	0.92	4.67	0.10	0	0	0.13	0.80	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.

(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.

(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.

(7) Strong storm.

(8) Storm.

(9) Ice.

(10) Regular precipitation.

(11) Light precipitation.

(12) Other visibility.

(13) Fog.

(14) Heavy fog.

(20) Considered FWD based on cover if average daily cover was > 50%.

(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.

(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.

(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
12/15/02	2002	12	15	0.12	10.00	0	0	0	0	0	0	0	0
12/16/02	2002	12	16	0.85	4.21	0	0	0.54	0.04	0.79	0	0	0
12/17/02	2002	12	17	0.36	10.00	0	0	0	0	0	0	0	0
12/18/02	2002	12	18	0	10.00	0	0	0	0	0	0	0	0
12/19/02	2002	12	19	0.30	10.00	0	0	0	0	0	0	0	0
12/20/02	2002	12	20	0.87	4.83	0.15	0	0	0.19	0.85	0	0	0
12/21/02	2002	12	21	0.41	10.00	0	0	0	0	0	0	0	0
12/22/02	2002	12	22	0.28	10.00	0	0	0	0	0	0	0	0
12/23/02	2002	12	23	0.69	10.00	0	0	0	0	0	0	0	0
12/24/02	2002	12	24	0.18	10.00	0	0	0	0	0	0	0	0
12/25/02	2002	12	25	0.88	5.91	0.13	0	0.03	0.26	0.71	0	0	0
12/26/02	2002	12	26	0.14	9.77	0	0	0	0	0	0	0	0
12/27/02	2002	12	27	0	10.00	0	0	0	0	0	0	0	0
12/28/02	2002	12	28	0.02	10.00	0	0	0	0	0	0	0	0
12/29/02	2002	12	29	0.26	10.00	0	0	0	0	0	0	0	0
12/30/02	2002	12	30	0.01	10.00	0	0	0	0	0	0	0	0
12/31/02	2002	12	31	0.86	5.30	0	0	0	0	0.67	0	0.07	0
1/1/03	2003	1	1	0.85	8.43	0	0	0	0	0.64	0	0	0
1/2/03	2003	1	2	0.93	7.16	0	0	0.41	0	0.41	0	0	0
1/3/03	2003	1	3	0.95	6.97	0	0	0.33	0.06	0.56	0	0	0
1/4/03	2003	1	4	0.89	6.20	0	0	0.42	0	0.62	0	0	0
1/5/03	2003	1	5	0.18	10.00	0	0	0	0	0	0	0	0
1/6/03	2003	1	6	0.75	3.86	0	0	0.69	0	0.72	0	0	0
1/7/03	2003	1	7	0.65	8.44	0	0	0.29	0	0.18	0	0	0
1/8/03	2003	1	8	0.68	6.61	0	0	0.41	0	0.45	0	0	0
1/9/03	2003	1	9	0.73	9.62	0	0	0	0	0.08	0	0	0
1/10/03	2003	1	10	0.38	9.46	0	0	0	0	0.08	0	0	0
1/11/03	2003	1	11	0.30	10.00	0	0	0	0	0	0	0	0
1/12/03	2003	1	12	0	10.00	0	0	0	0	0	0	0	0
1/13/03	2003	1	13	0.19	10.00	0	0	0	0	0	0	0	0
1/14/03	2003	1	14	0	10.00	0	0	0	0	0	0	0	0
1/15/03	2003	1	15	0.26	10.00	0	0	0	0	0	0	0	0
1/16/03	2003	1	16	0	10.00	0	0	0	0	0	0	0	0
1/17/03	2003	1	17	0.53	7.35	0	0	0.41	0	0.41	0	0	0
1/18/03	2003	1	18	0	10.00	0	0	0	0	0	0	0	0
1/19/03	2003	1	19	0.24	10.00	0	0	0	0	0	0	0	0
1/20/03	2003	1	20	0.25	10.00	0	0	0	0	0	0	0	0
1/21/03	2003	1	21	0.02	10.00	0	0	0	0	0	0	0	0
1/22/03	2003	1	22	0	10.00	0	0	0	0	0	0	0	0
1/23/03	2003	1	23	0.01	10.00	0	0	0	0	0	0	0	0
1/24/03	2003	1	24	0	10.00	0	0	0	0	0	0	0	0
1/25/03	2003	1	25	0.30	10.00	0	0	0	0	0	0	0	0
1/26/03	2003	1	26	0.29	10.00	0	0	0	0	0	0	0	0
1/27/03	2003	1	27	0.33	10.00	0	0	0	0	0	0	0	0
1/28/03	2003	1	28	0.19	10.00	0	0	0	0	0	0	0	0
1/29/03	2003	1	29	0.74	3.99	0	0	0.72	0	0.55	0.03	0	0
1/30/03	2003	1	30	0.78	9.77	0	0	0	0	0	0	0	0
1/31/03	2003	1	31	0.99	5.15	0	0	0	0	0.87	0	0	0
2/1/03	2003	2	1	1.00	3.03	0	0	0	0	0.91	0	0	0
2/2/03	2003	2	2	0.81	7.80	0	0	0.36	0	0.59	0	0	0
2/3/03	2003	2	3	0.07	10.00	0	0	0	0	0	0	0	0
2/4/03	2003	2	4	0.70	7.30	0.04	0	0	0.08	0.40	0	0	0
2/5/03	2003	2	5	0.03	10.00	0	0	0	0	0	0	0	0
2/6/03	2003	2	6	0.10	10.00	0	0	0	0	0	0	0	0
2/7/03	2003	2	7	0.34	1.21	0	0	1.00	0	0.48	0	0	0
2/8/03	2003	2	8	0	10.00	0	0	0	0	0	0	0	0
2/9/03	2003	2	9	0	10.00	0	0	0	0	0	0	0	0
2/10/03	2003	2	10	0.71	2.68	0	0	0.84	0	0.76	0	0.03	0
2/11/03	2003	2	11	0.12	10.00	0	0	0	0	0	0	0	0
2/12/03	2003	2	12	0.50	5.36	0	0	0.47	0	0.40	0	0.03	0
2/13/03	2003	2	13	0.41	10.00	0	0	0	0	0	0	0	0
2/14/03	2003	2	14	0.13	10.00	0	0	0	0	0	0	0	0
2/15/03	2003	2	15	0.08	10.00	0	0	0	0	0	0	0	0
2/16/03	2003	2	16	0	10.00	0	0	0	0	0	0	0	0
2/17/03	2003	2	17	0.73	1.03	0	0	0.95	0	0.19	0	0	0
2/18/03	2003	2	18	0.86	4.89	0	0	0.56	0	0.64	0	0	0
2/19/03	2003	2	19	0.06	6.01	0	0	0.10	0	0.38	0	0	0
2/20/03	2003	2	20	0	9.38	0	0	0	0	0.08	0	0	0
2/21/03	2003	2	21	0	9.54	0	0	0	0	0.08	0	0	0
2/22/03	2003	2	22	0.80	3.61	0.25	0	0	0.13	0.94	0	0	0
2/23/03	2003	2	23	0.95	2.54	0.05	0	0	0.02	0.73	0	0.29	0
2/24/03	2003	2	24	0.37	10.00	0	0	0	0	0	0	0	0
2/25/03	2003	2	25	0	10.00	0	0	0	0	0	0	0	0
2/26/03	2003	2	26	0.01	10.00	0	0	0	0	0	0	0	0
2/27/03	2003	2	27	0.24	10.00	0	0	0	0	0	0	0	0
2/28/03	2003	2	28	0.82	10.00	0	0	0	0	0	0	0	0
3/1/03	2003	3	1	0.83	9.73	0	0	0	0	0	0	0	0
3/2/03	2003	3	2	0.84	3.97	0.18	0	0	0.27	0.88	0	0.03	0
3/3/03	2003	3	3	0	10.00	0	0	0	0	0	0	0	0
3/4/03	2003	3	4	0.07	10.00	0	0	0	0	0	0	0	0
3/5/03	2003	3	5	0.95	3.70	0	0	0	0	0.81	0	0.11	0
3/6/03	2003	3	6	0.63	2.82	0	0	0.88	0	0.44	0	0	0
3/7/03	2003	3	7	0.28	9.51	0	0	0	0	0	0.06	0	0
3/8/03	2003	3	8	0	9.85	0	0	0	0	0	0	0	0
3/9/03	2003	3	9	0.03	9.69	0	0	0	0	0	0	0	0
3/10/03	2003	3	10	0.12	10.00	0	0	0	0	0	0	0	0
3/11/03	2003	3	11	0.14	10.00	0	0	0	0	0	0	0	0

Notes

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Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3/12/03	2003	3	12	0.14	9.92	0	0	0	0	0	0	0	0
3/13/03	2003	3	13	0.69	3.06	0	0	0.82	0	0.61	0	0.03	0
3/14/03	2003	3	14	0	10.00	0	0	0	0	0	0	0	0
3/15/03	2003	3	15	0.40	10.00	0	0	0	0	0	0	0	0
3/16/03	2003	3	16	0	8.60	0	0	0	0	0.20	0	0	0
3/17/03	2003	3	17	0.40	6.31	0	0	0	0	0.33	0	0.14	0
3/18/03	2003	3	18	0.70	5.70	0	0	0	0	0.50	0	0	0
3/19/03	2003	3	19	0	10.00	0	0	0	0	0	0	0	0
3/20/03	2003	3	20	0.49	10.00	0	0	0	0	0	0	0	0
3/21/03	2003	3	21	0.87	2.82	0	0	0	0.03	0.71	0	0.19	0
3/22/03	2003	3	22	0.84	3.64	0	0	0	0	0.62	0	0.10	0
3/23/03	2003	3	23	0.26	10.00	0	0	0	0	0	0	0	0
3/24/03	2003	3	24	0.49	7.33	0	0	0	0	0.37	0	0	0
3/25/03	2003	3	25	0.90	6.92	0	0	0	0	0.38	0	0	0
3/26/03	2003	3	26	0.53	9.21	0	0	0	0	0.14	0	0	0
3/27/03	2003	3	27	0	10.00	0	0	0	0	0	0	0	0
3/28/03	2003	3	28	0	10.00	0	0	0	0	0	0	0	0
3/29/03	2003	3	29	0.73	7.61	0	0	0	0	0.43	0	0	0
3/30/03	2003	3	30	0.82	5.17	0.33	0	0	0.24	0.90	0	0	0
3/31/03	2003	3	31	0.75	6.42	0	0	0.47	0	0.26	0	0	0
4/1/03	2003	4	1	0.57	8.05	0	0	0.33	0	0.19	0	0	0
4/2/03	2003	4	2	0.40	9.88	0	0	0	0	0	0	0	0
4/3/03	2003	4	3	1.00	7.06	0	0	0	0	0.50	0	0	0
4/4/03	2003	4	4	0.96	4.21	0	0	0	0	0.90	0	0	0
4/5/03	2003	4	5	1.00	7.69	0	0	0	0	0.44	0	0	0
4/6/03	2003	4	6	0	10.00	0	0	0	0	0	0	0	0
4/7/03	2003	4	7	0.55	4.36	0	0	0.68	0	0.61	0	0	0
4/8/03	2003	4	8	0.87	5.30	0	0	0.32	0	0.68	0	0	0
4/9/03	2003	4	9	0.93	7.90	0	0	0	0.05	0.90	0	0	0
4/10/03	2003	4	10	0	10.00	0	0	0	0	0	0	0	0
4/11/03	2003	4	11	0.87	3.59	0.25	0	0	0.09	0.88	0	0	0
4/12/03	2003	4	12	0.71	6.20	0.22	0	0	0.11	0.67	0	0	0
4/13/03	2003	4	13	0.28	10.00	0	0	0	0	0	0	0	0
4/14/03	2003	4	14	0	10.00	0	0	0	0	0	0	0	0
4/15/03	2003	4	15	0.01	10.00	0	0	0	0	0	0	0	0
4/16/03	2003	4	16	0.02	10.00	0	0	0	0	0	0	0	0
4/17/03	2003	4	17	0.29	10.00	0	0	0	0	0	0	0	0
4/18/03	2003	4	18	0.10	10.00	0	0	0	0	0	0	0	0
4/19/03	2003	4	19	0.11	9.92	0	0	0	0	0	0	0	0
4/20/03	2003	4	20	0.01	10.00	0	0	0	0	0	0	0	0
4/21/03	2003	4	21	0	10.00	0	0	0	0	0	0	0	0
4/22/03	2003	4	22	0.90	4.21	0.12	0	0	0.19	0.92	0	0	0
4/23/03	2003	4	23	0.90	7.59	0	0	0	0	0.32	0	0	0
4/24/03	2003	4	24	0.71	10.00	0	0	0	0	0	0	0	0
4/25/03	2003	4	25	0.06	10.00	0	0	0	0	0	0	0	0
4/26/03	2003	4	26	0.91	3.65	0.13	0	0	0.26	0.94	0	0	0
4/27/03	2003	4	27	0.53	9.94	0	0	0	0	0	0	0	0
4/28/03	2003	4	28	0	10.00	0	0	0	0	0	0	0	0
4/29/03	2003	4	29	0.13	9.77	0	0	0	0	0.08	0	0	0
4/30/03	2003	4	30	0.03	10.00	0	0	0	0	0	0	0	0
5/1/03	2003	5	1	0.94	5.28	0	0	0	0	0.54	0	0.13	0
5/2/03	2003	5	2	0.36	9.75	0	0	0	0	0	0	0	0
5/3/03	2003	5	3	0.22	10.00	0	0	0	0	0	0	0	0
5/4/03	2003	5	4	0.02	10.00	0	0	0	0	0	0	0	0
5/5/03	2003	5	5	0	10.00	0	0	0	0	0	0	0	0
5/6/03	2003	5	6	0.92	4.12	0	0	0	0	0.71	0	0	0
5/7/03	2003	5	7	0.30	6.84	0	0	0	0	0.50	0	0	0
5/8/03	2003	5	8	0.87	9.57	0	0	0	0	0.19	0	0	0
5/9/03	2003	5	9	0.75	9.06	0	0	0	0	0.11	0	0	0
5/10/03	2003	5	10	0.01	10.00	0	0	0	0	0	0	0	0
5/11/03	2003	5	11	0.28	10.00	0	0	0	0	0	0	0	0
5/12/03	2003	5	12	0.83	9.47	0	0	0	0	0	0.07	0	0
5/13/03	2003	5	13	0.69	9.79	0	0	0	0	0.21	0	0	0
5/14/03	2003	5	14	0.81	10.00	0	0	0	0	0.13	0	0	0
5/15/03	2003	5	15	0.77	10.00	0	0	0	0	0	0	0	0
5/16/03	2003	5	16	0.96	10.00	0	0	0	0	0	0	0	0
5/17/03	2003	5	17	0.32	10.00	0	0	0	0	0	0	0	0
5/18/03	2003	5	18	0.02	10.00	0	0	0	0	0.08	0	0	0
5/19/03	2003	5	19	0.05	10.00	0	0	0	0	0.08	0	0	0
5/20/03	2003	5	20	0.02	10.00	0	0	0	0	0	0	0	0
5/21/03	2003	5	21	0.63	5.32	0	0	0	0	0.76	0	0	0
5/22/03	2003	5	22	0.90	8.81	0	0	0	0	0.25	0	0	0
5/23/03	2003	5	23	1.00	6.46	0	0	0	0	0.53	0	0	0
5/24/03	2003	5	24	0.99	7.69	0	0	0	0.06	0.50	0	0	0
5/25/03	2003	5	25	1.00	10.00	0	0	0	0	0	0	0	0
5/26/03	2003	5	26	0.86	5.24	0.13	0	0	0.20	0.93	0	0	0
5/27/03	2003	5	27	0.75	8.58	0	0	0	0	0.20	0	0	0
5/28/03	2003	5	28	0.73	10.00	0	0	0	0	0.08	0	0	0
5/29/03	2003	5	29	0.12	9.31	0	0	0	0	0	0.08	0	0
5/30/03	2003	5	30	0.40	9.23	0	0	0	0	0.08	0	0	0
5/31/03	2003	5	31	0.29	6.97	0.06	0	0	0	0.44	0	0	0
6/1/03	2003	6	1	0.79	4.40	0.14	0	0	0.45	0.86	0	0	0
6/2/03	2003	6	2	0.09	10.00	0	0	0	0	0	0	0	0
6/3/03	2003	6	3	0.02	10.00	0	0	0	0	0	0	0	0
6/4/03	2003	6	4	0.89	3.75	0	0	0	0	0.93	0	0	0
6/5/03	2003	6	5	0.94	2.61	0	0	0	0.06	0.97	0	0.03	0
6/6/03	2003	6	6	0.21	10.00	0	0	0	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
6/7/03	2003	6	7	0.48	3.11	0.04	0	0	0.21	0.79	0.13	0	0
6/8/03	2003	6	8	0.92	8.33	0	0	0	0	0.22	0	0	0
6/9/03	2003	6	9	0.73	9.94	0	0	0	0	0.06	0	0	0
6/10/03	2003	6	10	0.02	10.00	0	0	0	0	0	0	0	0
6/11/03	2003	6	11	0.76	5.72	0	0	0	0	0.32	0	0.14	0
6/12/03	2003	6	12	0.62	4.64	0	0	0	0	0.83	0	0	0
6/13/03	2003	6	13	0.95	7.29	0	0	0	0	0.47	0	0	0
6/14/03	2003	6	14	0.76	8.70	0	0	0	0	0.20	0	0	0
6/15/03	2003	6	15	0.57	8.24	0	0	0	0	0.21	0	0.04	0
6/16/03	2003	6	16	0.42	10.00	0	0	0	0	0	0	0	0
6/17/03	2003	6	17	0.04	9.92	0	0	0	0	0	0	0	0
6/18/03	2003	6	18	0.74	6.92	0	0	0	0.11	0.71	0	0	0
6/19/03	2003	6	19	0.53	8.32	0.05	0	0	0	0.11	0.05	0	0
6/20/03	2003	6	20	0.19	9.86	0	0	0	0	0	0	0	0
6/21/03	2003	6	21	0.67	8.39	0.04	0	0	0	0.33	0	0	0
6/22/03	2003	6	22	0.89	5.89	0.14	0	0	0.07	0.75	0	0	0
6/23/03	2003	6	23	0.58	9.22	0	0	0	0	0.06	0	0	0
6/24/03	2003	6	24	0.04	9.85	0	0	0	0	0	0	0	0
6/25/03	2003	6	25	0.06	8.85	0	0	0	0	0	0.08	0	0
6/26/03	2003	6	26	0.08	6.62	0	0	0	0	0	0.46	0	0
6/27/03	2003	6	27	0.05	2.67	0	0	0	0	0	1.00	0	0
6/28/03	2003	6	28	0.11	10.00	0	0	0	0	0	0	0	0
6/29/03	2003	6	29	0.03	10.00	0	0	0	0	0	0	0	0
6/30/03	2003	6	30	0.13	6.44	0.13	0	0	0	0.13	0.38	0	0
7/1/03	2003	7	1	0.21	10.00	0	0	0	0	0	0	0	0
7/2/03	2003	7	2	0.07	10.00	0	0	0	0	0	0	0	0
7/3/03	2003	7	3	0.74	4.45	0.06	0	0	0.28	0.78	0	0	0
7/4/03	2003	7	4	0.48	8.47	0	0	0	0	0	0.18	0	0
7/5/03	2003	7	5	0.02	5.07	0	0	0	0	0	0.86	0	0
7/6/03	2003	7	6	0.14	9.62	0	0	0	0	0	0.08	0	0
7/7/03	2003	7	7	0.08	9.23	0	0	0	0	0.08	0.08	0	0
7/8/03	2003	7	8	0.30	6.29	0	0	0	0	0.18	0.41	0	0
7/9/03	2003	7	9	0.57	7.49	0	0	0	0.15	0.50	0	0	0
7/10/03	2003	7	10	0.39	8.43	0	0	0	0	0.12	0	0.06	0
7/11/03	2003	7	11	0.90	3.00	0.39	0	0	0.03	0.81	0	0.06	0
7/12/03	2003	7	12	0.38	6.99	0	0	0	0	0.37	0	0.05	0
7/13/03	2003	7	13	0.09	9.54	0	0	0	0	0.08	0	0	0
7/14/03	2003	7	14	0.16	9.43	0	0	0	0	0	0	0	0
7/15/03	2003	7	15	0.24	8.80	0	0	0	0	0.13	0	0	0
7/16/03	2003	7	16	0.93	9.88	0	0	0	0	0.12	0	0	0
7/17/03	2003	7	17	0.18	10.00	0	0	0	0	0	0	0	0
7/18/03	2003	7	18	0.08	9.62	0	0	0	0	0.08	0	0	0
7/19/03	2003	7	19	0.30	9.42	0	0	0	0	0.05	0	0	0
7/20/03	2003	7	20	0.07	10.00	0	0	0	0	0	0	0	0
7/21/03	2003	7	21	0.38	8.81	0	0	0	0	0.19	0	0	0
7/22/03	2003	7	22	1.00	3.55	0.05	0	0	0	0.95	0	0	0
7/23/03	2003	7	23	0.84	6.85	0	0	0	0	0.58	0.04	0	0
7/24/03	2003	7	24	0.78	7.14	0.11	0	0	0.05	0.32	0	0	0
7/25/03	2003	7	25	0.04	9.77	0	0	0	0	0	0	0	0
7/26/03	2003	7	26	0.05	9.38	0	0	0	0	0	0	0	0
7/27/03	2003	7	27	0.10	6.23	0	0	0	0	0	0.62	0	0
7/28/03	2003	7	28	0.06	10.00	0	0	0	0	0	0	0	0
7/29/03	2003	7	29	0.29	9.64	0	0	0	0	0.21	0	0	0
7/30/03	2003	7	30	0.02	8.90	0	0	0	0	0	0.13	0	0
7/31/03	2003	7	31	0.09	10.00	0	0	0	0	0	0	0	0
8/1/03	2003	8	1	0.87	3.98	0	0	0	0.08	0.81	0	0.05	0
8/2/03	2003	8	2	0.58	7.12	0	0	0	0	0.41	0.06	0	0
8/3/03	2003	8	3	0.75	9.18	0	0	0	0	0.14	0	0	0
8/4/03	2003	8	4	0.85	5.72	0	0	0	0.06	0.55	0	0	0
8/5/03	2003	8	5	0.80	8.75	0	0	0	0.03	0.50	0	0	0
8/6/03	2003	8	6	0.68	9.75	0	0	0	0	0	0	0	0
8/7/03	2003	8	7	0.61	9.71	0	0	0	0	0.10	0	0	0
8/8/03	2003	8	8	0.75	6.84	0.03	0	0	0.14	0.50	0	0	0
8/9/03	2003	8	9	0.66	9.37	0	0	0	0	0.20	0	0	0
8/10/03	2003	8	10	0.73	7.60	0.14	0	0	0.07	0.36	0	0	0
8/11/03	2003	8	11	0.38	9.95	0	0	0	0	0.05	0	0	0
8/12/03	2003	8	12	0.56	9.58	0	0	0	0	0.04	0	0	0
8/13/03	2003	8	13	0.61	3.26	0.30	0	0	0	0.52	0.48	0	0
8/14/03	2003	8	14	0.07	10.00	0	0	0	0	0	0	0	0
8/15/03	2003	8	15	0.05	10.00	0	0	0	0	0	0	0	0
8/16/03	2003	8	16	0.13	8.15	0	0	0	0	0	0.23	0	0
8/17/03	2003	8	17	0.72	7.32	0.20	0	0	0.24	0.52	0	0	0
8/18/03	2003	8	18	0.43	10.00	0	0	0	0	0	0	0	0
8/19/03	2003	8	19	0.10	10.00	0	0	0	0	0	0	0	0
8/20/03	2003	8	20	0.04	9.36	0.06	0	0	0	0	0.06	0	0
8/21/03	2003	8	21	0.03	8.36	0.07	0	0	0	0	0.21	0	0
8/22/03	2003	8	22	0.06	4.31	0	0	0	0	0.23	0.77	0	0
8/23/03	2003	8	23	0.13	10.00	0	0	0	0	0	0	0	0
8/24/03	2003	8	24	0.08	10.00	0	0	0	0	0	0	0	0
8/25/03	2003	8	25	0.53	9.77	0	0	0	0	0	0	0	0
8/26/03	2003	8	26	0.06	8.69	0	0	0	0	0	0.08	0	0
8/27/03	2003	8	27	0.03	8.72	0	0	0	0	0.07	0.13	0	0
8/28/03	2003	8	28	0.02	9.31	0	0	0	0	0	0.08	0	0
8/29/03	2003	8	29	0.25	10.00	0	0	0	0	0	0	0	0
8/30/03	2003	8	30	0.41	7.54	0	0	0	0	0.14	0.21	0	0
8/31/03	2003	8	31	0.04	10.00	0	0	0	0	0	0	0	0
9/1/03	2003	9	1	0.80	9.62	0	0	0	0	0.15	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
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(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
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Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
9/2/03	2003	9	2	0.73	8.40	0.07	0	0	0.07	0.34	0	0	0
9/3/03	2003	9	3	0.55	10.00	0	0	0	0	0	0	0	0
9/4/03	2003	9	4			0	0	0	0	0	0	0	0
9/5/03	2003	9	5			0	0	0	0	0	0	0	0
9/6/03	2003	9	6			0	0	0	0	0	0	0	0
9/7/03	2003	9	7			0	0	0	0	0	0	0	0
9/8/03	2003	9	8			0	0	0	0	0	0	0	0
9/9/03	2003	9	9			0	0	0	0	0	0	0	0
9/10/03	2003	9	10			0	0	0	0	0	0	0	0
9/11/03	2003	9	11			0	0	0	0	0	0	0	0
9/12/03	2003	9	12			0	0	0	0	0	0	0	0
9/13/03	2003	9	13			0	0	0	0	0	0	0	0
9/14/03	2003	9	14			0	0	0	0	0	0	0	0
9/15/03	2003	9	15			0	0	0	0	0	0	0	0
9/16/03	2003	9	16			0	0	0	0	0	0	0	0
9/17/03	2003	9	17			0	0	0	0	0	0	0	0
9/18/03	2003	9	18			0	0	0	0	0	0	0	0
9/19/03	2003	9	19			0	0	0	0	0	0	0	0
9/20/03	2003	9	20			0	0	0	0	0	0	0	0
9/21/03	2003	9	21			0	0	0	0	0	0	0	0
9/22/03	2003	9	22			0	0	0	0	0	0	0	0
9/23/03	2003	9	23			0	0	0	0	0	0	0	0
9/24/03	2003	9	24			0	0	0	0	0	0	0	0
9/25/03	2003	9	25			0	0	0	0	0	0	0	0
9/26/03	2003	9	26			0	0	0	0	0	0	0	0
9/27/03	2003	9	27			0	0	0	0	0	0	0	0
9/28/03	2003	9	28			0	0	0	0	0	0	0	0
9/29/03	2003	9	29			0	0	0	0	0	0	0	0
9/30/03	2003	9	30			0	0	0	0	0	0	0	0
10/1/03	2003	10	1			0	0	0	0	0	0	0	0
10/2/03	2003	10	2			0	0	0	0	0	0	0	0
10/3/03	2003	10	3			0	0	0	0	0	0	0	0
10/4/03	2003	10	4			0	0	0	0	0	0	0	0
10/5/03	2003	10	5			0	0	0	0	0	0	0	0
10/6/03	2003	10	6			0	0	0	0	0	0	0	0
10/7/03	2003	10	7			0	0	0	0	0	0	0	0
10/8/03	2003	10	8			0	0	0	0	0	0	0	0
10/9/03	2003	10	9	0.03		0	0	0	0	0.08	0	0	0
10/10/03	2003	10	10	0.76		0	0	0	0	0.50	0.17	0.08	0
10/11/03	2003	10	11	0.50		0	0	0	0	0.53	0	0	0
10/12/03	2003	10	12	0.97		0	0	0	0.05	0.17	0	0	0
10/13/03	2003	10	13	0.10		0	0	0	0	0	0	0	0
10/14/03	2003	10	14	0.02		0	0	0	0	0	0	0	0
10/15/03	2003	10	15	0.67		0	0	0	0	0	0	0	0
10/16/03	2003	10	16	0.13		0	0	0	0	0	0	0	0
10/17/03	2003	10	17	0.25		0	0	0	0	0	0	0	0
10/18/03	2003	10	18	0.23		0	0	0	0	0	0	0	0
10/19/03	2003	10	19	0.76		0	0	0	0.06	0.06	0	0	0
10/20/03	2003	10	20	0		0	0	0	0	0	0	0	0
10/21/03	2003	10	21	0.55		0	0	0	0	0.33	0.17	0	0
10/22/03	2003	10	22	0.92		0	0	0	0	0.22	0	0	0
10/23/03	2003	10	23	0.86		0	0	0	0	0	0	0	0
10/24/03	2003	10	24	0.43		0	0	0	0	0	0	0	0
10/25/03	2003	10	25	0		0	0	0	0	0	0	0	0
10/26/03	2003	10	26	0.83		0	0	0	0	0.07	0	0	0
10/27/03	2003	10	27	0.80		0	0	0	0.12	0.12	0	0	0
10/28/03	2003	10	28	0.30		0	0	0	0	0	0	0	0
10/29/03	2003	10	29	0.81		0	0	0	0	0.27	0	0	0
10/30/03	2003	10	30	0		0	0	0	0	0	0	0	0
10/31/03	2003	10	31	0		0	0	0	0	0.07	0.07	0	0
11/1/03	2003	11	1	0.14	9.85	0	0	0	0	0	0	0	0
11/2/03	2003	11	2	0.40	9.92	0	0	0	0	0.08	0	0	0
11/3/03	2003	11	3	0.35	6.53	0	0	0	0	0.40	0.07	0	0
11/4/03	2003	11	4	0.88	4.09	0	0	0	0	0.88	0	0	0
11/5/03	2003	11	5	0.93	1.07	0.03	0	0	0.03	0.71	0	0.29	0
11/6/03	2003	11	6	0.45	9.00	0	0	0	0	0.35	0	0	0
11/7/03	2003	11	7	0.34	8.18	0	0	0	0	0.29	0	0	0
11/8/03	2003	11	8	0.07	10.00	0	0	0	0	0	0	0	0
11/9/03	2003	11	9	0	10.00	0	0	0	0	0	0	0	0
11/10/03	2003	11	10	0	10.00	0	0	0	0	0	0	0	0
11/11/03	2003	11	11	0.39	9.27	0	0	0	0	0.40	0	0	0
11/12/03	2003	11	12	0.80	3.33	0	0	0	0	1.00	0	0	0
11/13/03	2003	11	13	0.62	9.47	0	0	0	0	0.13	0	0	0
11/14/03	2003	11	14	0.03	10.00	0	0	0	0	0	0	0	0
11/15/03	2003	11	15	0	10.00	0	0	0	0	0	0	0	0
11/16/03	2003	11	16	0.34	10.00	0	0	0	0	0.08	0	0	0
11/17/03	2003	11	17	0.86	9.07	0	0	0	0	0.13	0	0	0
11/18/03	2003	11	18	0	8.71	0	0	0	0	0.21	0	0	0
11/19/03	2003	11	19	0.82	9.88	0	0	0	0	0	0	0	0
11/20/03	2003	11	20	0.90	5.58	0	0	0	0.07	0.63	0.10	0	0
11/21/03	2003	11	21	0.77	8.60	0	0	0	0	0.35	0	0	0
11/22/03	2003	11	22	0	10.00	0	0	0	0	0	0	0	0
11/23/03	2003	11	23	0	10.00	0	0	0	0	0	0	0	0
11/24/03	2003	11	24	0.79	8.47	0	0	0	0	0.05	0	0	0
11/25/03	2003	11	25	0.01	10.00	0	0	0	0	0	0	0	0
11/26/03	2003	11	26	0	9.77	0	0	0	0	0	0	0	0
11/27/03	2003	11	27	0	9.46	0	0	0	0	0.08	0	0	0

Notes

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(20) Considered FWD based on cover if average daily cover was > 50%.
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(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

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Date	Year	Month	Day	Cover	Visibility (nautical mi.)	SS	S	I	RP	LP	OV	F	HF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
11/28/03	2003	11	28	0.68	1.91	0	0	0	0	0.48	0	0.48	0
11/29/03	2003	11	29	0.67	10.00	0	0	0	0	0	0	0	0
11/30/03	2003	11	30	0.26	10.00	0	0	0	0	0	0	0	0
12/1/03	2003	12	1	0.30	10.00	0	0	0	0	0	0	0	0
12/2/03	2003	12	2	0.24	10.00	0	0	0	0	0	0	0	0
12/3/03	2003	12	3	0	10.00	0	0	0	0	0	0	0	0
12/4/03	2003	12	4	0.51	10.00	0	0	0	0	0	0	0	0
12/5/03	2003	12	5	0.58	6.09	0	0	0.47	0	0.42	0	0	0
12/6/03	2003	12	6	0.92	1.91	0	0	0.92	0.03	1.00	0	0	0
12/7/03	2003	12	7	0.76	4.25	0	0	0.52	0	0.62	0	0	0
12/8/03	2003	12	8	0	10.00	0	0	0	0	0	0	0	0
12/9/03	2003	12	9	0.38	10.00	0	0	0	0	0	0	0	0
12/10/03	2003	12	10	0.71	9.59	0	0	0	0	0	0	0	0
12/11/03	2003	12	11	0.86	4.15	0.03	0	0	0.22	0.83	0	0	0
12/12/03	2003	12	12	0	10.00	0	0	0	0	0	0	0	0
12/13/03	2003	12	13	0.08	10.00	0	0	0	0	0	0	0	0
12/14/03	2003	12	14	0.63	4.72	0	0	0.64	0	0.24	0	0	0
12/15/03	2003	12	15	0.80	5.08	0	0	0.30	0	0.67	0	0	0
12/16/03	2003	12	16	0	10.00	0	0	0	0	0	0	0	0
12/17/03	2003	12	17	0.67	7.67	0	0	0	0.13	0.40	0	0	0
12/18/03	2003	12	18	0.13	10.00	0	0	0	0	0	0	0	0
12/19/03	2003	12	19	0.09	10.00	0	0	0	0	0	0	0	0
12/20/03	2003	12	20	0.30	10.00	0	0	0	0	0	0	0	0
12/21/03	2003	12	21	0.08	10.00	0	0	0	0	0	0	0	0
12/22/03	2003	12	22	0	10.00	0	0	0	0	0	0	0	0
12/23/03	2003	12	23	0.11	10.00	0	0	0	0	0	0	0	0
12/24/03	2003	12	24	0.80	7.71	0.10	0	0	0.05	0.38	0	0	0
12/25/03	2003	12	25	0.74	8.04	0	0	0	0.05	0.23	0	0.09	0
12/26/03	2003	12	26	0.48	8.78	0	0	0.26	0	0.21	0	0	0
12/27/03	2003	12	27	0	10.00	0	0	0	0	0	0	0	0
12/28/03	2003	12	28	0	10.00	0	0	0	0	0	0	0	0
12/29/03	2003	12	29	0	10.00	0	0	0	0	0	0	0	0
12/30/03	2003	12	30	0.64	9.17	0	0	0	0	0.11	0	0	0
12/31/03	2003	12	31	0.03	10.00	0	0	0	0	0	0	0	0

Notes
(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
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(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1/1/02	0.15	35	8.54	12.33	0	0	0	0	0
1/2/02	0	38	10.69	13.33	0	0	0	0	0
1/3/02	0	37	5.31	8.00	0	0	0	0	0
1/4/02	0	35	6.23	11.67	0	0	0	0	0
1/5/02	0	40	5.85	9.00	0	0	0	0	0
1/6/02	0	47	2.31	7.00	0	0	0	0	0
1/7/02	0	37	7.25	8.33	0.05	1	1	0	1
1/8/02	0	34	6.38	10.00	0.04	0	0	0	0
1/9/02	0.40	43	12.13	16.00	0.01	1	0	0	1
1/10/02	0.23	51	10.08	14.33	0	0	0	0	0
1/11/02	0	43	2.35	8.33	0.37	1	1	0	1
1/12/02	0	43	8.08	11.67	0	1	0	0	1
1/13/02	0.61	40	15.57	21.33	0.80	1	1	1	1
1/14/02	0	41	7.00	12.33	0	0	0	0	0
1/15/02	0	41	3.56	7.67	0.01	1	1	0	1
1/16/02	0.15		9.69	16.00	0	0	0	0	0
1/17/02	0		2.91	10.33	0.07	1	1	0	1
1/18/02	0		8.62	11.00	0	0	0	0	0
1/19/02	0		4.57	9.33	0	1	1	0	1
1/20/02	0		5.15	9.33	0.36	0	0	0	0
1/21/02	0.09		3.26	12.00	0.27	1	1	0	1
1/22/02	0.23		9.62	12.67	0	0	0	0	0
1/23/02	0.67		13.39	18.00	0.02	1	1	1	1
1/24/02	0		3.87	9.00	0.11	1	1	0	1
1/25/02	0.07		9.93	13.67	0	0	0	0	0
1/26/02	0.15		11.31	14.33	0	0	0	0	0
1/27/02	0		4.31	9.67	0	0	0	0	0
1/28/02	0		2.59	7.33	0	0	1	0	1
1/29/02	0		6.46	9.33	0	0	0	0	0
1/30/02	0		6.40	10.00	0.02	1	1	0	1
1/31/02	0		6.61	10.00	0.04	1	1	0	1
2/1/02	0.04	52	4.33	13.33	0.11	1	1	0	1
2/2/02	0.31		14.00	16.67	0	0	0	0	0
2/3/02	0	38	5.92	9.33	0	0	0	0	0
2/4/02	0	42	5.69	10.33	0	0	0	0	0
2/5/02	0.23	30	12.85	15.67	0	0	0	0	0
2/6/02	0	39	7.92	13.33	0	0	0	0	0
2/7/02	0	44	3.20	8.00	0.03	1	1	0	1
2/8/02	0	48	8.31	11.00	0	0	0	0	0
2/9/02	0.08	40	6.85	10.00	0	0	0	0	0
2/10/02	0	48	8.00	13.67	0.03	1	1	0	1
2/11/02	0.56	47	13.12	16.00	0.02	1	1	1	1
2/12/02	0.54	42	12.69	19.33	0	0	0	1	1
2/13/02	0.46	41	12.62	17.67	0	0	0	0	0
2/14/02	0	32	5.69	10.67	0	0	0	0	0
2/15/02	0.71	45	13.64	20.00	0	0	0	1	1
2/16/02	0	54	6.69	11.33	0	0	0	0	0
2/17/02	0	42	5.90	11.00	0.02	1	1	0	1
2/18/02	0.46	40	12.00	17.67	0	0	0	0	0
2/19/02	0	50	3.23	6.33	0	0	0	0	0
2/20/02	0	52	5.62	9.00	0	0	0	0	0
2/21/02	0	55	4.32	6.67	0	1	1	0	1
2/22/02	0.23	49	10.62	14.33	0	1	0	0	1
2/23/02	0	43	4.54	8.00	0	0	0	0	0
2/24/02	0	43	6.72	8.33	0	0	0	0	0
2/25/02	0	46	5.54	8.67	0	0	0	0	0
2/26/02	0.11	58	9.21	12.67	0	0	0	0	0
2/27/02	0.09	50	6.00	14.00	0.43	1	1	0	1
2/28/02	0.69	37	15.69	21.00	0	0	0	1	1
3/1/02	0.23	42	10.15	15.67	0	0	0	0	0
3/2/02	0	72	8.79	11.67	0	0	0	0	0
3/3/02	0.48	7	12.68	18.33	0.17	1	1	0	1
3/4/02	0.08	40	12.08	16.00	0	0	0	0	0
3/5/02	0	32	10.00	12.00	0	0	0	0	0
3/6/02	0.31	49	13.92	22.00	0	0	0	0	0
3/7/02	0	58	5.15	9.67	0	0	0	0	0
3/8/02	0	49	6.81	8.33	0	1	1	0	1
3/9/02	0	65	6.41	11.00	0	0	0	0	0
3/10/02	0.80	53	15.67	19.67	0	0	0	1	1
3/11/02	0.31	39	10.46	12.67	0	0	0	0	0
3/12/02	0	45	5.83	11.33	0	1	0	0	1
3/13/02	0	46	4.25	6.67	0.21	1	1	0	1
3/14/02	0	65	6.36	10.00	0	0	0	0	0
3/15/02	0	56	5.61	10.33	0	1	1	0	1
3/16/02	0.15	55	7.60	15.67	0.06	1	1	0	1
3/17/02	0	44	7.85	11.33	0	0	0	0	0
3/18/02	0	34	6.64	10.00	0.30	1	1	0	1
3/19/02	0	41	3.09	6.67	0.08	1	1	0	1
3/20/02	0.44	41	12.50	17.33	0.55	1	1	0	1
3/21/02	0	49	7.69	9.33	0	0	0	0	0
3/22/02	0.92	31	17.54	20.33	0	0	0	1	1
3/23/02	0.85	40	16.92	19.33	0	0	0	1	1
3/24/02	0.31	49	10.77	12.33	0	0	0	0	0
3/25/02	0	42	7.08	9.00	0	1	0	0	1
3/26/02	0	42	10.84	13.00	0.27	1	1	0	1
3/27/02	0	53	5.20	8.67	0.57	1	1	0	1
3/28/02	0	54	8.15	10.33	0	0	0	0	0

Notes

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Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
3/29/02	0.08	53	7.85	13.00	0	0	0	0	0
3/30/02	0.44	58	11.19	17.33	0.10	1	1	0	1
3/31/02	0	61	4.23	8.00	0.06	1	1	0	1
4/1/02	0.37	60	11.11	16.00	0.05	1	1	0	1
4/2/02	0.08	53	8.77	11.67	0	0	0	0	0
4/3/02	0.52	59	12.83	15.67	0.02	1	1	1	1
4/4/02	0.08	51	10.23	13.00	0	0	0	0	0
4/5/02	0	43	4.69	7.00	0	1	0	0	1
4/6/02	0.08	45	10.23	11.67	0	0	0	0	0
4/7/02	0	42	9.50	13.00	0	0	0	0	0
4/8/02	0.31	51	11.85	16.67	0	1	0	0	1
4/9/02	0.78	62	14.74	19.00	0	1	0	1	1
4/10/02	0	66	7.79	10.33	0	0	0	0	0
4/11/02	0	55	8.08	10.33	0	0	0	0	0
4/12/02	0	60	9.76	12.67	0	1	0	0	1
4/13/02	0.32	70	10.50	15.67	0.03	1	1	0	1
4/14/02	0	75	9.79	12.67	0.01	0	0	0	0
4/15/02	0	72	8.76	12.33	0.01	1	1	0	1
4/16/02	0	78	1.88	6.33	0	0	1	0	1
4/17/02	0	92	0	0	0	0	0	0	0
4/18/02	0	78	0	0	0	0	0	0	0
4/19/02	0	68	0	0	0	1	1	0	1
4/20/02	0	71	0	0	0.01	0	1	0	1
4/21/02	0	60	0	0	0	0	0	0	0
4/22/02	0	46	9.00	12.67	0.25	1	1	0	1
4/23/02	0	45	8.35	10.67	0.01	1	0	0	1
4/24/02	0	56	7.93	9.33	0	0	0	0	0
4/25/02	0.33	54	11.94	15.67	0.27	0	1	0	1
4/26/02	0.77	52	13.92	16.33	0	0	0	1	1
4/27/02	0.08	54	8.92	11.33	0	0	0	0	0
4/28/02	0	53	8.45	13.67	0.62	1	1	0	1
4/29/02	0	45	5.50	8.33	0.01	1	1	0	1
4/30/02	0	51	8.67	12.33	0.01	1	1	0	1
5/1/02	0.38	61	11.15	13.67	0	0	0	0	0
5/2/02	0.04	54	7.35	12.33	0.34	1	1	0	1
5/3/02	0.93	58	18.13	22.00	0	0	0	1	1
5/4/02	0.23	63	12.77	16.00	0	0	0	0	0
5/5/02	0	65	7.92	11.00	0	0	0	0	0
5/6/02	0.38	65	11.23	17.33	0	0	0	0	0
5/7/02	0.04	69	8.74	11.33	0	1	0	0	1
5/8/02	0.08	63	9.85	13.00	0	0	0	0	0
5/9/02	0	57	9.14	12.00	0	1	0	0	1
5/10/02	0.31	74	12.23	17.67	0	0	0	0	0
5/11/02	0.15	69	10.23	12.33	0	0	0	0	0
5/12/02	0	57	6.26	10.00	0.41	1	1	0	1
5/13/02	0.05	50	9.68	12.67	1.13	1	1	0	1
5/14/02	0.56	62	12.39	18.00	0	1	1	1	1
5/15/02	0.85	63	18.08	23.33	0	1	0	1	1
5/16/02	0.46	72	14.77	20.67	0	0	0	0	0
5/17/02	0	76	9.92	12.00	0	0	0	0	0
5/18/02	0.69	45	14.63	21.33	1.05	1	1	1	1
5/19/02	0.08	60	9.77	13.00	0	0	0	0	0
5/20/02	0	55	5.85	7.33	0	1	0	0	1
5/21/02	0	59	9.08	10.67	0	0	0	0	0
5/22/02	0	63	7.85	13.33	0	0	0	0	0
5/23/02	0	69	10.69	13.00	0	0	0	0	0
5/24/02	0	80	7.92	11.67	0	0	0	0	0
5/25/02	0	61	8.85	12.33	0	0	0	0	0
5/26/02	0	63	8.50	12.33	0	1	0	0	1
5/27/02	0	75	6.20	9.33	0	0	0	0	0
5/28/02	0	72	6.10	10.33	0.03	0	1	0	1
5/29/02	0	74	5.77	8.00	0.01	1	1	0	1
5/30/02	0	73	6.95	10.67	0	1	1	0	1
5/31/02	0	72	11.17	13.00	0	1	0	0	1
6/1/02	0.46	81	13.92	18.00	0	0	0	0	0
6/2/02	0.40	77	9.33	17.00	0.01	0	1	0	1
6/3/02	0	70	8.85	12.00	0	0	0	0	0
6/4/02	0	66	7.92	10.33	0	0	0	0	0
6/5/02	0.35	69	11.35	14.33	0.05	1	1	0	1
6/6/02	0.16	70	9.95	14.33	0.05	1	1	0	1
6/7/02	0.24	56	12.00	13.67	0.28	1	1	0	1
6/8/02	0	67	7.27	8.33	0	0	0	0	0
6/9/02	0	73	10.00	11.67	0	0	0	0	0
6/10/02	0	72	6.92	8.33	0	0	0	0	0
6/11/02	0.43	79	13.79	17.67	0	0	0	0	0
6/12/02	0	64	8.00	12.67	0.19	1	1	0	1
6/13/02	0	61	5.76	10.33	0	1	0	0	1
6/14/02	0	63	7.26	8.67	0.02	0	1	0	1
6/15/02	0.05	58	10.85	13.67	0.21	1	1	0	1
6/16/02	0	69	6.86	10.67	0.18	1	1	0	1
6/17/02	0.08	75	10.31	13.67	0	0	0	0	0
6/18/02	0	77	8.93	12.00	0	0	0	0	0
6/19/02	0	77	4.92	9.00	0	0	0	0	0
6/20/02	0	75	6.54	9.33	0	0	0	0	0
6/21/02	0	77	7.77	11.33	0	0	0	0	0
6/22/02	0.08	82	8.08	9.33	0	0	0	0	0
6/23/02	0.05	79	6.05	13.33	0.01	0	1	0	1

Notes

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(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
6/24/02	0.15	86	10.85	14.00	0	0	0	0	0
6/25/02	0	79	6.85	9.67	0	0	0	0	0
6/26/02	0	87	9.00	11.67	0	0	1	0	1
6/27/02	0.23	86	12.23	14.67	0	0	0	0	0
6/28/02	0.07	84	8.00	10.67	0.23	0	1	0	1
6/29/02	0	82	8.69	10.67	0	0	0	0	0
6/30/02	0	78	6.71	11.00	0	0	1	0	1
7/1/02	0.08	85	10.54	12.33	0	0	0	0	0
7/2/02	0	93	7.64	9.33	0	0	0	0	0
7/3/02	0	95	5.77	7.33	0	0	0	0	0
7/4/02	0	96	6.85	11.00	0	0	0	0	0
7/5/02	0.08	83	11.69	14.00	0	0	0	0	0
7/6/02	0	80	7.31	13.00	0.11	0	0	0	0
7/7/02	0	75	4.85	7.00	0	0	0	0	0
7/8/02	0	87	7.77	10.00	0	0	0	0	0
7/9/02	0	83	11.31	13.00	0	0	0	0	0
7/10/02	0	80	11.08	13.33	0	0	0	0	0
7/11/02	0.08	75	11.00	13.00	0	0	0	0	0
7/12/02	0	78	7.69	12.33	0	0	0	0	0
7/13/02	0	78	10.46	12.67	0	0	0	0	0
7/14/02	0	80	8.62	11.00	0	0	0	0	0
7/15/02	0	82	10.62	12.33	0	0	0	0	0
7/16/02	0	78	9.92	13.33	0	0	0	0	0
7/17/02	0	80	6.31	10.67	0	0	0	0	0
7/18/02	0	93	7.92	10.67	0	0	0	0	0
7/19/02	0	80	7.94	10.33	0	1	1	0	1
7/20/02	0	72	8.94	11.00	0	1	1	0	1
7/21/02	0	77	5.88	10.33	0	0	0	0	0
7/22/02	0.15	80	10.15	13.67	0	0	0	0	0
7/23/02	0.50	86	14.75	19.00	0	0	0	0	0
7/24/02	0	72	11.82	14.33	0	1	0	0	1
7/25/02	0	76	9.15	11.67	0	0	0	0	0
7/26/02	0	72	8.46	10.67	0	0	0	0	0
7/27/02	0	71	5.35	7.00	0	1	0	0	1
7/28/02	0	76	4.91	7.00	0.01	1	1	0	1
7/29/02	0	93	8.60	13.33	0	0	1	0	1
7/30/02	0	94	8.69	10.33	0	0	0	0	0
7/31/02	0	93	6.77	9.00	0	0	0	0	0
8/1/02	0.08	85	10.54	12.33	0	0	0	0	0
8/2/02	0	93	7.64	9.33	0	0	0	0	0
8/3/02	0	95	5.77	7.33	0	0	0	0	0
8/4/02	0	96	6.85	11.00	0	0	0	0	0
8/5/02	0.08	83	11.69	14.00	0	0	0	0	0
8/6/02	0	80	7.31	13.00	0.11	0	0	0	0
8/7/02	0	75	4.85	7.00	0	0	0	0	0
8/8/02	0	87	7.77	10.00	0	0	0	0	0
8/9/02	0	83	11.31	13.00	0	0	0	0	0
8/10/02	0	80	11.08	13.33	0	0	0	0	0
8/11/02	0.08	75	11.00	13.00	0	0	0	0	0
8/12/02	0	78	7.69	12.33	0	0	0	0	0
8/13/02	0	78	10.46	12.67	0	0	0	0	0
8/14/02	0	80	8.62	11.00	0	0	0	0	0
8/15/02	0	82	10.62	12.33	0	0	0	0	0
8/16/02	0	78	9.92	13.33	0	0	0	0	0
8/17/02	0	80	6.31	10.67	0	0	0	0	0
8/18/02	0	93	7.92	10.67	0	0	0	0	0
8/19/02	0	80	7.94	10.33	0	1	1	0	1
8/20/02	0	72	8.94	11.00	0	1	1	0	1
8/21/02	0	77	5.88	10.33	0	0	0	0	0
8/22/02	0.15	80	10.15	13.67	0	0	0	0	0
8/23/02	0.50	86	14.75	19.00	0	0	0	0	0
8/24/02	0	72	11.82	14.33	0	1	0	0	1
8/25/02	0	76	9.15	11.67	0	0	0	0	0
8/26/02	0	72	8.46	10.67	0	0	0	0	0
8/27/02	0	71	5.35	7.00	0	1	0	0	1
8/28/02	0	76	4.91	7.00	0.01	1	1	0	1
8/29/02	0	93	8.60	13.33	0	0	1	0	1
8/30/02	0	94	8.69	10.33	0	0	0	0	0
8/31/02	0	93	6.77	9.00	0	0	0	0	0
9/1/02	0	70	7.20	9.33	0.01	0	0	0	0
9/2/02	0	69	6.89	9.33	0.77	1	1	0	1
9/3/02	0	74	6.12	7.67	0.03	1	1	0	1
9/4/02	0	80	5.91	10.33	0.21	1	1	0	1
9/5/02	0.15	77	10.38	12.67	0	0	0	0	0
9/6/02	0	78	5.85	7.33	0	0	0	0	0
9/7/02	0	81	4.21	7.00	0	0	0	0	0
9/8/02	0	80	5.92	7.67	0	0	0	0	0
9/9/02	0	86	5.22	8.00	0	0	0	0	0
9/10/02	0	82	10.25	12.00	0	0	0	0	0
9/11/02	0.35	80	12.09	27.33	0	1	1	0	1
9/12/02	0.15	71	10.31	14.00	0.04	0	0	0	0
9/13/02	0.23	79	12.38	15.00	0	0	0	0	0
9/14/02	0	78	6.93	9.00	0	0	0	0	0
9/15/02	0.18	77	10.64	16.67	0.02	1	1	0	1
9/16/02	0.13	73	9.29	14.33	0.38	1	1	0	1
9/17/02	0	73	5.65	7.67	0	1	1	0	1
9/18/02	0	75	4.92	6.67	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
9/19/02	0	75	5.67	8.00	0	0	0	0	0
9/20/02	0.08	74	8.69	13.00	0	0	0	0	0
9/21/02	0	78	8.88	11.00	0	0	0	0	0
9/22/02	0	79	7.13	10.00	0.01	1	0	0	1
9/23/02	0	77	3.14	5.67	0.36	1	1	0	1
9/24/02	0	67	9.85	12.33	0	1	0	0	1
9/25/02	0	71	8.06	10.67	0	0	0	0	0
9/26/02	0	66	7.00	8.67	0.03	1	1	0	1
9/27/02	0	67	5.79	8.00	0.29	1	1	0	1
9/28/02	0.38	74	9.88	15.00	0	0	0	0	0
9/29/02	0	65	4.62	6.00	0	0	0	0	0
9/30/02	0	67	7.77	13.00	0	0	0	0	0
10/1/02	0.08	76	12.46	15.00	0	0	0	0	0
10/2/02	0	83	9.15	10.33	0	0	1	0	1
10/3/02	0	75	9.15	12.67	0	1	1	0	1
10/4/02	0	65	10.80	12.67	0	1	0	0	1
10/5/02	0.24	83	11.53	14.00	0.02	1	1	0	1
10/6/02	0	65	8.69	12.33	0	0	0	0	0
10/7/02	0	72	8.05	10.67	0.02	1	0	0	1
10/8/02	0	61	6.69	12.33	0	0	0	0	0
10/9/02	0	59	4.69	6.67	0	0	0	0	0
10/10/02	0	62	5.31	6.33	0	0	0	0	0
10/11/02	0	61	6.40	8.00	0.17	1	1	0	1
10/12/02	0.18	60	11.24	13.33	0.20	1	1	0	1
10/13/02	0	62	6.00	8.00	0.09	1	1	0	1
10/14/02	0.31	56	10.77	15.67	0	0	0	0	0
10/15/02	0	55	4.46	6.67	0	0	0	0	0
10/16/02	0.62	67	12.74	15.67	1.01	1	1	1	1
10/17/02	0	65	6.38	9.33	0	0	0	0	0
10/18/02	0	58	8.38	11.00	0	0	0	0	0
10/19/02	0.62	62	12.08	17.33	0	1	0	1	1
10/20/02	0	58	8.62	11.67	0	0	0	0	0
10/21/02	0	56	6.00	10.00	0	0	0	0	0
10/22/02	0	54	4.23	7.00	0	0	0	0	0
10/23/02	0.06	45	7.44	12.33	0.14	1	1	0	1
10/24/02	0	51	4.92	7.33	0	0	0	0	0
10/25/02	0	52	5.15	7.67	0	0	0	0	0
10/26/02	0.35	58	13.86	20.00	0.94	1	1	0	1
10/27/02	0	59	9.23	12.00	0	0	0	0	0
10/28/02	0	52	6.77	9.00	0	0	0	0	0
10/29/02	0	46	6.38	9.33	0	0	0	0	0
10/30/02	0	44	7.23	11.00	0	1	0	0	1
10/31/02	0	50	5.54	9.67	0	0	0	0	0
11/1/02	0.23	54	9.15	13.33	0	0	0	0	0
11/2/02	0.31	42	10.62	15.33	0	0	0	0	0
11/3/02	0	43	4.64	7.33	0	0	0	0	0
11/4/02	0	49	5.07	8.67	0	1	1	0	1
11/5/02	0	49	6.77	11.67	0	0	0	0	0
11/6/02	0.32	53	12.25	17.67	0.25	1	1	0	1
11/7/02	0.46	47	12.23	16.67	0	0	0	0	0
11/8/02	0.62	57	16.77	24.33	0	0	0	1	1
11/9/02	0.19	62	10.75	13.00	0	0	0	0	0
11/10/02	0.29	67	10.43	13.00	0.19	1	1	0	1
11/11/02	0.73	70	13.86	18.00	0.09	1	1	1	1
11/12/02	0	61	9.50	11.67	0.30	1	1	0	1
11/13/02	0	48	10.36	11.33	0.51	1	1	0	1
11/14/02	0	52	5.77	8.33	0	0	0	0	0
11/15/02	0.46	60	11.15	18.33	0	0	0	0	0
11/16/02	0.40	47	12.40	14.33	0.45	1	1	0	1
11/17/02	0.71	50	14.82	16.33	0.31	1	1	1	1
11/18/02	0.95	47	16.26	18.33	0	1	0	1	1
11/19/02	0	46	5.06	9.33	0	0	0	0	0
11/20/02	0	57	3.77	8.33	0	0	0	0	0
11/21/02	0	54	4.75	8.33	0	1	1	0	1
11/22/02	0	53	5.95	9.33	0.20	1	1	0	1
11/23/02	0.93	42	18.60	23.67	0	0	1	1	1
11/24/02	0.54	50	13.08	18.67	0	0	0	1	1
11/25/02	0	51	3.62	6.67	0	1	0	0	1
11/26/02	0.15	47	7.08	14.00	0	0	0	0	0
11/27/02	0.19	34	10.63	14.33	0.21	1	1	0	1
11/28/02	0.08	29	9.31	12.00	0	0	0	0	0
11/29/02	0.17	38	9.72	13.67	0.14	0	1	0	1
11/30/02	0	52	7.31	10.00	0	0	0	0	0
12/1/02	0.92	37	17.54	21.00	0	0	0	1	1
12/2/02	0	41	9.54	11.33	0	1	0	0	1
12/3/02	0.54	24	14.69	18.00	0	0	0	1	1
12/4/02	0	32	6.69	8.00	0	0	0	0	0
12/5/02	0	28	6.28	9.33	0.13	0	1	0	1
12/6/02	0	33	5.82	7.67	0.04	1	1	0	1
12/7/02	0.38	38	9.46	15.00	0	0	0	0	0
12/8/02	0	43	9.15	11.67	0	0	0	0	0
12/9/02	0	24	4.00	8.33	0	0	0	0	0
12/10/02	0	41	4.46	11.00	0	0	0	0	0
12/11/02	0	44	6.31	9.00	0	0	0	0	0
12/12/02	0.48	43	12.00	17.00	0.06	1	1	0	1
12/13/02	0	47	2.31	5.33	0	0	1	0	1
12/14/02	0.13	50	9.53	15.67	0.57	1	1	0	1

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
12/15/02	0.31	46	12.15	17.00	0	0	0	0	0
12/16/02	0.29	38	9.75	17.00	0.23	1	1	0	1
12/17/02	0.08	28	8.69	13.00	0	0	0	0	0
12/18/02	0	41	4.31	8.00	0	0	0	0	0
12/19/02	0.06	46	8.94	11.67	0	0	0	0	0
12/20/02	0.62	59	12.31	17.00	1.07	1	1	1	1
12/21/02	0.69	47	14.15	18.00	0	0	0	1	1
12/22/02	0	52	9.38	12.67	0	0	0	0	0
12/23/02	0	43	8.69	12.33	0	1	0	0	1
12/24/02	0	40	7.23	11.67	0	0	0	0	0
12/25/02	0.55	42	13.63	19.33	0.88	1	1	1	1
12/26/02	0.69	37	17.46	22.00	0	0	0	1	1
12/27/02	0	36	6.38	12.00	0	0	0	0	0
12/28/02	0	36	6.54	10.00	0	0	0	0	0
12/29/02	0.08	42	10.08	13.33	0	0	0	0	0
12/30/02	0	34	6.77	12.33	0	0	0	0	0
12/31/02	0	49	6.19	7.67	0.04	1	1	0	1
1/1/03	0	46	6.21	10.67	0.14	1	1	0	1
1/2/03	0.68	32	15.36	21.67	0	1	1	1	1
1/3/03	0	39	9.22	12.67	0.13	1	1	0	1
1/4/03	0.54	39	13.08	18.33	0.01	1	1	1	1
1/5/03	0	35	4.38	7.00	0	0	0	0	0
1/6/03	0	32	5.93	9.33	0.04	1	1	0	1
1/7/03	0.06	29	11.06	12.33	0	1	1	0	1
1/8/03	0.05	39	9.41	11.00	0.02	1	1	0	1
1/9/03	0.15	45	9.31	13.67	0	1	0	0	1
1/10/03	0.15	44	9.77	14.67	0	0	0	0	0
1/11/03	0.54	32	12.31	15.33	0	0	0	1	1
1/12/03	0.54	36	13.00	14.67	0	0	0	1	1
1/13/03	0.54	38	13.69	19.67	0	0	0	1	1
1/14/03	0	26	9.31	14.00	0	0	0	0	0
1/15/03	0	28	8.62	12.00	0	0	0	0	0
1/16/03	0.46	30	11.54	17.33	0	0	0	0	0
1/17/03	0	30	7.47	10.67	0.02	1	1	0	1
1/18/03	0	19	3.54	8.33	0	0	0	0	0
1/19/03	0	27	5.62	10.00	0	0	0	0	0
1/20/03	0.62	32	14.00	16.67	0	0	0	1	1
1/21/03	0.92	22	15.62	17.67	0	0	0	1	1
1/22/03	0.85	19	17.23	21.33	0	0	0	1	1
1/23/03	0	16	8.46	11.33	0	0	0	0	0
1/24/03	0.23	29	12.62	14.00	0	0	0	0	0
1/25/03	0	30	7.54	10.00	0	0	0	0	0
1/26/03	0.08	55	6.62	13.33	0	0	0	0	0
1/27/03	0.38		14.46	17.33	0	0	0	0	0
1/28/03	0		8.31	11.00	0	0	0	0	0
1/29/03	0	30	2.24	5.00	0.03	1	1	0	1
1/30/03	0	36	4.69	7.33	0	1	0	0	1
1/31/03	0	38	9.39	11.33	0.04	1	1	0	1
2/1/03	0.09	38	10.04	16.33	0.06	1	1	0	1
2/2/03	0.50	39	13.59	20.67	0.16	1	1	0	1
2/3/03	0.08	49	9.54	13.67	0	0	0	0	0
2/4/03	0.12	51	11.48	15.67	0.19	1	1	0	1
2/5/03	0.85	37	14.23	16.00	0	0	0	1	1
2/6/03	0	31	8.08	10.33	0	0	0	0	0
2/7/03	0	29	7.45	12.67	0.34	0	1	0	1
2/8/03	0	29	10.38	11.67	0	0	0	0	0
2/9/03	0	36	8.62	11.00	0	0	0	0	0
2/10/03	0	37	6.14	9.33	0.11	1	1	0	1
2/11/03	0.15	22	9.62	14.33	0	0	0	0	0
2/12/03	0.47	34	12.30	21.67	0.02	0	1	0	1
2/13/03	0.15	21	9.77	15.00	0	0	0	0	0
2/14/03	0.38	22	10.69	15.67	0	0	0	0	0
2/15/03	0	18	8.31	11.00	0	0	0	0	0
2/16/03	0	16	7.08	8.67	0	0	0	0	0
2/17/03	0.59	30	13.43	16.00	0.51	1	1	1	1
2/18/03	0.04	28	10.08	12.33	0.02	1	1	0	1
2/19/03	0	39	3.71	9.67	0	0	1	0	1
2/20/03	0	49	6.77	8.67	0	0	0	0	0
2/21/03	0	51	5.46	8.00	0	0	0	0	0
2/22/03	0.09	41	7.41	13.33	1.37	1	1	0	1
2/23/03	0.20	49	6.73	16.67	0.37	1	1	0	1
2/24/03	0	35	8.31	11.33	0	0	0	0	0
2/25/03	0.46	29	12.77	17.67	0	0	0	0	0
2/26/03	0	22	3.85	7.00	0	0	0	0	0
2/27/03	0	31	6.19	8.00	0	0	0	0	0
2/28/03	0	33	8.70	10.67	0	1	0	0	1
3/1/03	0	38	6.20	9.00	0	1	0	0	1
3/2/03	0.03	46	8.48	12.67	1.30	1	1	0	1
3/3/03	0.54	21	14.85	21.00	0	0	0	1	1
3/4/03	0.31	34	9.08	14.33	0	0	0	0	0
3/5/03	0	47	4.07	9.00	0.12	1	1	0	1
3/6/03	0.06	35	11.18	13.67	0.15	1	1	0	1
3/7/03	0	28	5.71	9.33	0	0	0	0	0
3/8/03	0	44	5.54	9.33	0	0	0	0	0
3/9/03	0.69	53	14.85	17.67	0	0	0	1	1
3/10/03	0.46	27	12.15	15.67	0	0	0	0	0
3/11/03	0.15	35	11.54	14.67	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.

(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.

(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.

(7) Strong storm.

(8) Storm.

(9) Ice.

(10) Regular precipitation.

(11) Light precipitation.

(12) Other visibility.

(13) Fog.

(14) Heavy fog.

(20) Considered FWD based on cover if average daily cover was > 50%.

(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.

(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.

(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
3/12/03	0	47	10.85	13.33	0	0	0	0	0
3/13/03	0	38	8.47	12.00	0.16	1	1	0	1
3/14/03	0.15	31	10.15	15.33	0	0	0	0	0
3/15/03	0.31	42	9.85	15.67	0	0	0	0	0
3/16/03	0	60	5.93	9.33	0	0	1	0	1
3/17/03	0	67	3.05	7.67	0	0	1	0	1
3/18/03	0	53	9.00	10.67	0	1	1	0	1
3/19/03	0.08	38	10.85	15.00	0	0	0	0	0
3/20/03	0	44	7.47	9.33	0	0	0	0	0
3/21/03	0.06	53	7.45	13.33	0.03	1	1	0	1
3/22/03	0	59	4.72	7.33	0	1	1	0	1
3/23/03	0.29	56	11.00	15.33	0	0	0	0	0
3/24/03	0	57	7.05	9.67	0	0	1	0	1
3/25/03	0	42	7.58	9.33	0	1	1	0	1
3/26/03	0.21	58	9.43	13.67	0	1	1	0	1
3/27/03	0.08	61	9.38	11.67	0	0	0	0	0
3/28/03	0	59	8.08	11.33	0	0	0	0	0
3/29/03	0.48	63	11.35	15.00	0.02	1	1	0	1
3/30/03	0.26	53	12.29	16.67	1.35	1	1	0	1
3/31/03	0.32	40	13.58	15.67	0.03	1	1	0	1
4/1/03	0	40	8.33	12.67	0.01	1	1	0	1
4/2/03	0	51	7.06	8.33	0.01	0	0	0	0
4/3/03	0	44	6.75	7.67	0	1	1	0	1
4/4/03	0	36	9.95	11.00	0.01	1	1	0	1
4/5/03	0	39	7.39	9.33	0.10	1	1	0	1
4/6/03	0.54	45	14.54	19.67	0	0	0	1	1
4/7/03	0	38	6.82	8.67	0.06	1	1	0	1
4/8/03	0.07	35	12.11	14.00	0.02	1	1	0	1
4/9/03	0	38	10.00	13.67	0.34	1	1	0	1
4/10/03	0.15	47	10.54	14.67	0	0	0	0	0
4/11/03	0.28	44	13.53	16.67	1.10	1	1	0	1
4/12/03	0.37	58	11.63	16.00	0.76	1	1	0	1
4/13/03	0	53	8.54	10.33	0	0	0	0	0
4/14/03	0	53	7.08	10.67	0	0	0	0	0
4/15/03	0.62	63	16.17	18.00	0	0	0	1	1
4/16/03	0.43	80	13.07	19.67	0	0	0	0	0
4/17/03	0.54	38	13.23	15.67	0	0	0	1	1
4/18/03	0	48	8.69	11.00	0	0	0	0	0
4/19/03	0.08	53	11.08	13.00	0	0	0	0	0
4/20/03	0	59	9.31	12.00	0	0	0	0	0
4/21/03	0	58	8.00	11.67	0	0	0	0	0
4/22/03	0	46	5.81	9.67	1.01	1	1	0	1
4/23/03	0	54	6.27	11.67	0	1	1	0	1
4/24/03	0.69	51	14.38	16.67	0	1	0	1	1
4/25/03	0	55	8.08	10.67	0	0	0	0	0
4/26/03	0.58	52	14.26	17.33	1.19	1	1	1	1
4/27/03	0.25	66	10.44	14.00	0	1	0	0	1
4/28/03	0.54	72	11.62	18.33	0	0	0	1	1
4/29/03	0	76	6.85	8.67	0	0	0	0	0
4/30/03	0	60	8.38	10.67	0	0	0	0	0
5/1/03	0.04	62	8.79	13.33	0.10	1	1	0	1
5/2/03	0	68	8.31	12.67	0	0	0	0	0
5/3/03	0.56	61	15.25	22.67	0	0	0	1	1
5/4/03	0	61	7.15	10.00	0	0	0	0	0
5/5/03	0	59	6.00	8.67	0	0	0	0	0
5/6/03	0	55	6.74	9.33	0.16	1	1	0	1
5/7/03	0	74	6.81	11.00	0	0	1	0	1
5/8/03	0	49	9.62	12.67	0.06	1	1	0	1
5/9/03	0	63	6.28	9.33	0	1	1	0	1
5/10/03	0	68	9.38	13.33	0	0	0	0	0
5/11/03	0	60	9.85	12.67	0	0	0	0	0
5/12/03	0	58	7.00	9.33	0	1	0	0	1
5/13/03	0	61	8.64	9.67	0.03	1	1	0	1
5/14/03	0	64	6.47	8.33	0.04	1	1	0	1
5/15/03	0	62	8.15	11.00	0	1	0	0	1
5/16/03	0.06	50	11.69	14.00	0	1	0	0	1
5/17/03	0.15	54	11.85	15.00	0	0	0	0	0
5/18/03	0	68	5.92	9.00	0	0	0	0	0
5/19/03	0	76	6.46	9.33	0	0	0	0	0
5/20/03	0	72	6.62	9.00	0	0	0	0	0
5/21/03	0	65	5.00	8.33	0.12	1	1	0	1
5/22/03	0	56	9.56	12.33	0.02	1	1	0	1
5/23/03	0	54	8.94	10.67	0.03	1	1	0	1
5/24/03	0	53	11.61	13.33	0.14	1	1	0	1
5/25/03	0	56	9.38	12.67	0	1	0	0	1
5/26/03	0	52	9.40	12.67	0.83	1	1	0	1
5/27/03	0	60	7.90	10.33	0	1	1	0	1
5/28/03	0.08	67	6.62	12.33	0	1	0	0	1
5/29/03	0.46	71	12.38	16.33	0	0	0	0	0
5/30/03	0	74	5.85	8.33	0	0	0	0	0
5/31/03	0	71	6.17	8.00	0.05	0	1	0	1
6/1/03	0.34	59	12.28	15.33	1.45	1	1	0	1
6/2/03	0.31	71	11.15	14.33	0	0	0	0	0
6/3/03	0	70	7.77	10.33	0	0	0	0	0
6/4/03	0	57	6.63	9.00	0.13	1	1	0	1
6/5/03	0	60	3.26	6.67	0.10	1	1	0	1
6/6/03	0	77	9.23	11.67	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
6/7/03	0	64	3.67	6.00	0.27	0	1	0	1
6/8/03	0	67	9.00	10.00	0	1	1	0	1
6/9/03	0	64	4.59	8.67	0	1	0	0	1
6/10/03	0	77	8.92	11.00	0.01	0	0	0	0
6/11/03	0	72	8.36	11.33	0	1	1	0	1
6/12/03	0	71	4.41	7.67	0.10	1	1	0	1
6/13/03	0	59	6.63	8.00	0.02	1	1	0	1
6/14/03	0	78	5.45	7.67	0	1	1	0	1
6/15/03	0	70	4.50	9.33	0	1	1	0	1
6/16/03	0	62	8.76	11.67	0	0	0	0	0
6/17/03	0	66	6.92	10.00	0	0	0	0	0
6/18/03	0	65	5.63	8.33	0.26	1	1	0	1
6/19/03	0	73	7.00	8.67	0	1	1	0	1
6/20/03	0.21	72	11.00	14.67	0	0	0	0	0
6/21/03	0	65	7.58	10.67	0.11	1	1	0	1
6/22/03	0.07	61	9.50	16.33	0.52	1	1	0	1
6/23/03	0	74	7.39	9.33	0	1	0	0	1
6/24/03	0	81	4.85	6.67	0	0	0	0	0
6/25/03	0	89	4.46	7.33	0	0	0	0	0
6/26/03	0	89	4.46	6.67	0	0	0	0	0
6/27/03	0	87	6.63	9.00	0	0	0	0	0
6/28/03	0	79	6.15	9.33	0	0	0	0	0
6/29/03	0	75	5.92	7.33	0	0	0	0	0
6/30/03	0	82	8.38	12.33	0	0	1	0	1
7/1/03	0	79	6.46	9.67	0	0	0	0	0
7/2/03	0	82	5.23	8.33	0	0	0	0	0
7/3/03	0	74	6.00	11.00	0.55	1	1	0	1
7/4/03	0	83	6.59	9.00	0	0	0	0	0
7/5/03	0	90	9.43	12.67	0	0	0	0	0
7/6/03	0	89	8.00	9.67	0	0	0	0	0
7/7/03	0	86	4.92	7.67	0	0	0	0	0
7/8/03	0	88	6.18	11.00	0	0	1	0	1
7/9/03	0	80	5.30	9.33	0.13	1	1	0	1
7/10/03	0	76	7.71	13.00	0.01	0	1	0	1
7/11/03	0	72	5.50	8.00	1.24	1	1	0	1
7/12/03	0.32	80	9.05	15.00	0	0	1	0	1
7/13/03	0.08	83	9.38	11.67	0	0	0	0	0
7/14/03	0	72	3.86	6.67	0	0	0	0	0
7/15/03	0	79	5.27	8.00	0	0	1	0	1
7/16/03	0.12	74	10.00	13.00	0	1	1	0	1
7/17/03	0	83	6.62	9.33	0	0	0	0	0
7/18/03	0	84	7.77	11.33	0	0	0	0	0
7/19/03	0	81	5.00	10.00	0	0	0	0	0
7/20/03	0	82	7.46	10.00	0	0	0	0	0
7/21/03	0.06	78	10.75	12.67	0	0	1	0	1
7/22/03	0.05	76	9.40	11.00	0	1	1	0	1
7/23/03	0.27	78	11.73	14.33	0	1	1	0	1
7/24/03	0.21	77	10.21	14.00	0.25	1	1	0	1
7/25/03	0	82	9.46	12.33	0	0	0	0	0
7/26/03	0.08	85	10.38	14.67	0	0	0	0	0
7/27/03	0.46	86	12.92	16.67	0	0	0	0	0
7/28/03	0	83	8.62	11.67	0	0	0	0	0
7/29/03	0	76	4.29	7.00	0.11	0	1	0	1
7/30/03	0	76	4.93	7.33	0	0	0	0	0
7/31/03	0	76	8.71	10.67	0	0	0	0	0
8/1/03	0	79	6.32	8.33	0.22	1	1	0	1
8/2/03	0	84	7.76	9.67	0.01	1	1	0	1
8/3/03	0	83	9.41	12.00	0	1	1	0	1
8/4/03	0.13	79	10.84	12.33	0.15	1	1	0	1
8/5/03	0	77	6.97	9.00	0.06	1	1	0	1
8/6/03	0.11	80	8.82	12.67	0	1	0	0	1
8/7/03	0	78	5.03	7.67	0.01	1	0	0	1
8/8/03	0	80	7.44	9.33	0.57	1	1	0	1
8/9/03	0	78	5.77	8.00	0.05	1	1	0	1
8/10/03	0.14	81	9.96	14.00	0.41	1	1	0	1
8/11/03	0	82	6.89	9.67	0.01	0	0	0	0
8/12/03	0	82	5.54	9.00	0.04	1	0	0	1
8/13/03	0	82	6.09	9.00	0.23	1	1	0	1
8/14/03	0	87	6.62	9.33	0	0	0	0	0
8/15/03	0	84	5.08	8.00	0	0	0	0	0
8/16/03	0.08	85	9.46	12.67	0	0	0	0	0
8/17/03	0	73	5.84	8.33	0.51	1	1	0	1
8/18/03	0	76	5.73	6.67	0	0	0	0	0
8/19/03	0	82	8.08	11.67	0	0	0	0	0
8/20/03	0	86	6.44	8.33	0	0	0	0	0
8/21/03	0	87	7.57	9.67	0	0	0	0	0
8/22/03	0.08	85	10.38	13.33	0	0	1	0	1
8/23/03	0.15	83	10.15	13.67	0	0	0	0	0
8/24/03	0.15	74	11.62	15.67	0	0	0	0	0
8/25/03	0.08	76	7.85	12.33	0	1	0	0	1
8/26/03	0	82	6.54	8.67	0	0	0	0	0
8/27/03	0.20	86	10.60	17.00	0	0	0	0	0
8/28/03	0	78	6.38	9.33	0	0	0	0	0
8/29/03	0	77	8.21	11.67	0	0	0	0	0
8/30/03	0	86	7.57	10.33	0	0	1	0	1
8/31/03	0	69	7.23	10.00	0	0	0	0	0
9/1/03	0	68	3.62	5.33	0.02	1	1	0	1

Notes

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(12) Other visibility.
(13) Fog.
(14) Heavy fog.
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(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
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(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

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Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
9/2/03	0	63	6.24	8.67	0.29	1	1	0	1
9/3/03	0.73	63	6.00	8.00	0	1	0	1	1
9/4/03					0	1	0	0	1
9/5/03					0	1	0	0	1
9/6/03					0	1	0	0	1
9/7/03					0	1	0	0	1
9/8/03					0	1	0	0	1
9/9/03					0	1	0	0	1
9/10/03					0	1	0	0	1
9/11/03					0	1	0	0	1
9/12/03					0	1	0	0	1
9/13/03					0	1	0	0	1
9/14/03					0	1	0	0	1
9/15/03					0	1	0	0	1
9/16/03					0	1	0	0	1
9/17/03					0	1	0	0	1
9/18/03					0	1	0	0	1
9/19/03					0	1	0	0	1
9/20/03					0	1	0	0	1
9/21/03					0	1	0	0	1
9/22/03					0	1	0	0	1
9/23/03					0	1	0	0	1
9/24/03					0	1	0	0	1
9/25/03					0	1	0	0	1
9/26/03					0	1	0	0	1
9/27/03					0	1	0	0	1
9/28/03					0	1	0	0	1
9/29/03					0	1	0	0	1
9/30/03					0	1	0	0	1
10/1/03					0	1	0	0	1
10/2/03					0	1	0	0	1
10/3/03					0	1	0	0	1
10/4/03					0	1	0	0	1
10/5/03					0	1	0	0	1
10/6/03					0	1	0	0	1
10/7/03					0	1	0	0	1
10/8/03					0	1	0	0	1
10/9/03	0.92	73	5.00	5.00	0	0	0	1	1
10/10/03		62			0	1	1	0	1
10/11/03		63			0	1	1	0	1
10/12/03		61			0.58	1	1	0	1
10/13/03		69			0	0	0	0	0
10/14/03		62			0	0	0	0	0
10/15/03		64			0.04	1	0	0	1
10/16/03		62			0	0	0	0	0
10/17/03	0.38	58	5.38	8.50	0	0	0	0	0
10/18/03	0	53	3.21	5.00	0	0	0	0	0
10/19/03	0	43	3.22	4.67	0.28	1	1	0	1
10/20/03	0	52	5.31	11.67	0	0	0	0	0
10/21/03	0.72	66	16.39	21.33	0.03	1	1	1	1
10/22/03	0	45	6.26	7.67	0.02	1	1	0	1
10/23/03	0	41	8.50	10.67	0	1	0	0	1
10/24/03	0	45	8.00	11.67	0	0	0	0	0
10/25/03	0	54	8.62	13.33	0	0	0	0	0
10/26/03	0.40	62	12.67	16.00	0.04	1	0	0	1
10/27/03	0.62	65	14.04	17.33	0.53	1	1	1	1
10/28/03	0	58	3.46	6.67	0	0	0	0	0
10/29/03	0.53	68	14.93	22.67	0.51	1	1	1	1
10/30/03	0	58	8.38	14.00	0	0	0	0	0
10/31/03	0	61	9.14	14.33	0.01	0	0	0	0
11/1/03	0	71	7.62	10.67	0	0	0	0	0
11/2/03	0	63	4.62	8.33	0	0	0	0	0
11/3/03	0	74	6.27	9.00	0.02	0	1	0	1
11/4/03	0.03	51	10.09	12.00	0.01	1	1	0	1
11/5/03	0	62	5.41	9.00	0.34	1	1	0	1
11/6/03	0	61	3.88	6.00	0.16	0	1	0	1
11/7/03	0	56	4.76	7.67	0	0	1	0	1
11/8/03	0.15	43	9.08	12.33	0	0	0	0	0
11/9/03	0	40	4.77	8.00	0	0	0	0	0
11/10/03	0	46	5.38	8.00	0	0	0	0	0
11/11/03	0	50	5.33	8.00	0.07	0	1	0	1
11/12/03	0	55	2.75	7.00	0.05	1	1	0	1
11/13/03	0.87	59	17.73	21.33	0.01	1	1	1	1
11/14/03	1.00	40	19.69	21.33	0	0	0	1	1
11/15/03	0.64	44	13.36	16.33	0	0	0	1	1
11/16/03	0	46	5.38	7.33	0	0	0	0	0
11/17/03	0	45	2.87	4.67	0.01	1	1	0	1
11/18/03	0	51	4.21	7.67	0	0	1	0	1
11/19/03	0.29	58	12.65	15.33	0	1	0	0	1
11/20/03	0	57	8.23	10.33	0.20	1	1	0	1
11/21/03	0	48	6.20	8.00	0.08	1	1	0	1
11/22/03	0	53	5.38	8.67	0	0	0	0	0
11/23/03	0	52	5.69	8.67	0.01	0	0	0	0
11/24/03	0	47	4.32	9.67	0	1	0	0	1
11/25/03	0	46	6.69	10.33	0	0	0	0	0
11/26/03	0	48	5.62	10.33	0	0	0	0	0
11/27/03	0	53	2.54	4.33	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-1: Weather Data and Foul Weather Days Used in State Park Data Analysis

Date	Gusts >=20 knots	Max Temp (F)	Avg Wind (mph)	Max 3-Hour Wind	Total Precip (in)	Cover Exceeds FWD Criteria	Weather Exceeds FWD Criteria	Wind Gusts Exceed FWD Criteria	FWD
(1)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
11/28/03	0.03	56	8.03	13.33	0.01	1	1	0	1
11/29/03	1.00	48	18.46	21.00	0	1	0	1	1
11/30/03	0.15	47	9.85	13.33	0	0	0	0	0
12/1/03	0.46	53	14.46	17.33	0	0	0	0	0
12/2/03	0.80	35	13.40	15.67	0	0	0	1	1
12/3/03	0	30	8.31	10.33	0	0	0	0	0
12/4/03	0	40	7.23	12.33	0	1	0	0	1
12/5/03	0	31	7.79	12.00	0.03	1	1	0	1
12/6/03	0.79	36	13.61	16.67	0.72	1	1	1	1
12/7/03	0.24	29	10.31	12.33	0.05	1	1	0	1
12/8/03	0	35	3.69	6.00	0.30	0	0	0	0
12/9/03	0	36	0.69	3.00	0	0	0	0	0
12/10/03	0	40	4.12	7.67	0	1	0	0	1
12/11/03	0.67	52	16.31	22.33	0.59	1	1	1	1
12/12/03	0.38	41	12.38	15.33	0	0	0	0	0
12/13/03	0.23	31	7.92	13.00	0	0	0	0	0
12/14/03	0.04	32	8.80	14.00	0	1	1	0	1
12/15/03	0.70	41	12.93	20.33	0.02	1	1	1	1
12/16/03	0	43	5.85	9.33	0	0	0	0	0
12/17/03	0.80	53	17.47	24.00	0.18	1	1	1	1
12/18/03	0.62	40	12.62	15.00	0	0	0	1	1
12/19/03	0	38	4.23	8.67	0	0	0	0	0
12/20/03	0	39	3.62	7.00	0	0	0	0	0
12/21/03	0.08	36	9.23	12.00	0	0	0	0	0
12/22/03	0	49	8.46	11.33	0	0	0	0	0
12/23/03	0	52	8.85	12.00	0	0	0	0	0
12/24/03	0.81	55	15.76	19.67	0.23	1	1	1	1
12/25/03	0	49	5.77	12.00	0.07	1	1	0	1
12/26/03	0.26	39	11.42	16.33	0	0	1	0	1
12/27/03	0	49	5.15	8.33	0	0	0	0	0
12/28/03	0	53	3.08	6.00	0	0	0	0	0
12/29/03	0	56	8.92	11.67	0	0	0	0	0
12/30/03	0.61	53	13.94	16.33	0.05	1	1	1	1
12/31/03	0	46	8.23	10.33	0	0	0	0	0

Notes

(5) Average cloud cover (proportion from 0 to 1) during daylight hours of each day.
(6) Average visibility (in nautical miles) during daylight hours of each day. 10 is considered unlimited.
(7) to (14) Values represent the proportions of the daylight hours on each day during which the weather condition occurred.
(7) Strong storm.
(8) Storm.
(9) Ice.
(10) Regular precipitation.
(11) Light precipitation.
(12) Other visibility.
(13) Fog.
(14) Heavy fog.
(20) Considered FWD based on cover if average daily cover was > 50%.
(21) Considered FWD based on weather if 10% or more of daylight hours had either storms, precipitation, or ice.
(22) Considered FWD based on wind gusts if wind gusts > 20 knots occurred for 50% or more of the daylight hours.
(23) Considered a FWD if the sum of (20) to (22) is greater than 0.

Table C3-2: Partial Results of Shoreline Regression Models

Based on 2002 Data Only ("Separate" regression method)

South Cape Beach State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.583405	0.089536	6.51591	1.21E-09
F	0.039822	0.123295	0.322978	0.747194
H	0.653599	0.148933	4.38853	2.23E-05
FWD	-0.149563	0.079509	-1.88108	0.062038
WEF	-0.48483	0.152827	-3.17241	0.001858
FF	0.078158	0.164817	0.474211	0.636089
HF	-0.475415	0.269679	-1.76289	0.080101

Horseneck Beach State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.70743	0.179793	3.9347	0.000131
F	-0.331311	0.244303	-1.35615	0.177234
H	0.56703	0.180297	3.14498	0.002029
FWD	-0.707118	0.171184	-4.13075	6.19E-05
WEF	-0.528628	0.349098	-1.51427	0.132212
FF	0.280742	0.386237	0.726865	0.468522
HF	-0.811025	0.326544	-2.48366	0.014184

Fort Phoenix State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.537355	0.09846	5.45759	2.13E-07
F	0.324409	0.103981	3.11989	0.002197
H	0.258797	0.094241	2.74613	0.006823
FWD	0.034735	0.061218	0.567408	0.571345
WEF	-0.022104	0.130227	-0.169736	0.865463
FF	-0.224308	0.139321	-1.61	0.10965
HF	-0.350829	0.43008	-0.81573	0.41604

Demersast Lloyd State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.774888	0.172288	4.49762	1.43E-05
F	0.499907	0.232471	2.1504	0.033241
H	1.11405	0.298642	3.73038	0.000277
FWD	-0.201396	0.165676	-1.2156	0.226184
WEF	0.062591	0.243385	0.25717	0.797425
FF	-0.0005	0.324663	-0.001541	0.998773
HF	-1.26673	0.399855	-3.16799	0.001885

Based on 2002 and 2003 Data ("Combined" regression method)

South Cape Beach State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.638151	0.089108	7.16156	1.63E-11
F	0.049908	0.104278	0.478603	0.632763
H	0.726295	0.13803	5.26187	3.77E-07
FWD	-0.184893	0.086789	-2.13038	0.034406
WEF	-0.57454	0.156361	-3.67445	0.000309
FF	-0.026983	0.167061	-0.161514	0.871857
HF	-0.515102	0.255799	-2.0137	0.04543

Horseneck Beach State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.597572	0.164717	3.62787	0.000366
F	-0.286483	0.221371	-1.29413	0.197167
H	0.535237	0.199442	2.68368	0.007914
FWD	-1.18897	0.182426	-6.51752	6.08E-10
WEF	-0.517489	0.351714	-1.47134	0.142828
FF	0.372083	0.362743	1.02575	0.306294
HF	-0.787051	0.453008	-1.73739	0.083914

Fort Phoenix State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.455398	0.087107	5.22804	4.43E-07
F	0.333246	0.093698	3.55661	0.000473
H	0.352871	0.103957	3.39437	0.000835
FWD	-0.049169	0.062133	-0.791357	0.429707
WEF	-0.212341	0.141127	-1.50461	0.134059
FF	-0.357624	0.129906	-2.75294	0.00647
HF	-0.737183	0.156912	-4.69806	4.98E-06

Demersast Lloyd State Park				
Parameter	Coeff.	Std.Err.	t-ratio	P-value
WE	0.713423	0.166783	4.27754	2.97E-05
F	0.322678	0.214129	1.50693	0.133463
H	0.988685	0.269187	3.67285	0.000311
FWD	-0.145273	0.164921	-0.880864	0.379487
WEF	-0.603846	0.270244	-2.23445	0.026601
FF	-0.230301	0.292444	-0.787505	0.431952
HF	-0.948057	0.334451	-2.83467	0.005076

Parameter Codes	
WE	Weekend day
F	Friday
H	Holiday
FWD	Foul weather day
WEF	Foul weekend day
FF	Foul Friday
HF	Foul holiday

Table C3-3: Small Craft Advisory Data

Date	Day	Time	Comments	Advisory	Time Upper	Advisory During Times
4/28/03	Monday	2:45	Small craft advisory	1	6:00	0
4/28/03	Monday	10:05	Small craft advisory	1		1
4/28/03	Monday	21:37	Small craft advisory may be required Tue for seas	0	**Time Lower**	0
4/29/03	Tuesday	3:30	Small craft advisory for seas	1	15:00	0
4/29/03	Tuesday	10:08	Small craft advisory for seas	1		1
4/29/03	Tuesday	16:38	Small craft advisory may be required Thu	0		0
4/29/03	Tuesday	21:56	Small craft advisory may be required Thu	0		0
4/30/03	Wednesday	3:50	Small craft advisory may be required Thu	0		0
4/30/03	Wednesday	10:06	Small craft advisory may be required Thu	0		1
4/30/03	Wednesday	15:11	Small craft advisory may be required Thu night	0		0
4/30/03	Wednesday	22:00	Small craft advisory may be required Thu	0		0
5/1/03	Thursday	4:30	Small craft advisory	1		0
5/1/03	Thursday	4:45	Small craft advisory	1		0
5/1/03	Thursday	10:30	Small craft advisory may be needed tonight	0		1
5/1/03	Thursday	15:30	Small craft advisory may be needed tonight	0		0
5/1/03	Thursday	15:30	Small craft advisory may be needed Sat	0		0
5/1/03	Thursday	22:09	Small craft advisory may be needed Sat	0		0
5/2/03	Friday	11:00	Small craft advisory may be needed tonight	0		1
5/2/03	Friday	16:10	Gale warning	1		0
5/2/03	Friday	21:25	Gale warning	1		0
5/3/03	Saturday	4:30	Small craft advisory	1		0
5/3/03	Saturday	8:59	Gale warning	1		1
5/3/03	Saturday	13:41	Small craft advisory	1		1
5/3/03	Saturday	15:44	Small craft advisory	1		0
5/3/03	Saturday	16:40	Small craft advisory	1		0
5/4/03	Sunday		none	0		0
5/5/03	Monday	4:15	none	0		0
5/5/03	Monday	10:15	none	0		1
5/5/03	Monday	15:55	visability less than 1 NM	0		0
5/5/03	Monday	22:44	visability less than 1 NM	0		0
5/6/03	Tuesday	5:17	none	0		0
5/6/03	Tuesday	10:15	none	0		1
5/6/03	Tuesday	11:20	none	0		1
5/6/03	Tuesday	15:15	Small craft advisory may be required Thursday	0		0
5/6/03	Tuesday	22:28	Small craft advisory may be required Thursday	0		0
5/7/03	Wednesday	4:39	Small craft advisory may be required Thursday	0		0
5/7/03	Wednesday	7:40	Small craft advisory may be required Thursday	0		1
5/7/03	Wednesday	10:40	Small craft advisory may be required Thursday	0		1
5/7/03	Wednesday	15:15	Small craft advisory for seas	1		0
5/7/03	Wednesday	17:03	Small craft advisory for seas	1		0
5/7/03	Wednesday	22:02	Small craft advisory for seas	1		0
5/8/03	Thursday	5:13	Small craft advisory	1		0
5/8/03	Thursday	10:05	Small craft advisory	1		1
5/8/03	Thursday	14:45	none	0		1
5/8/03	Thursday	21:57	none	0		0
5/9/03	Friday	4:45	none	0		0
5/9/03	Friday	10:24	none	0		1
5/9/03	Friday	15:28	none	0		0
5/9/03	Friday	21:58	none	0		0
5/10/03	Saturday	3:55	none	0		0
5/10/03	Saturday	10:15	none	0		1
5/10/03	Saturday	15:15	Small craft advisory may be required Monday	0		0
5/10/03	Saturday	21:43	Small craft advisory may be required Monday	0		0
5/11/03	Sunday	4:30	none	0		0
5/11/03	Sunday	10:18	none	0		1
5/11/03	Sunday	15:15	Small craft advisory for seas may be required Monday	0		0
5/11/03	Sunday	15:44	Small craft advisory for seas may be required Monday	0		0
5/11/03	Sunday	22:14	Small craft advisory for seas may be required Monday	0		0
5/12/03	Monday	3:54	Small craft advisory	1		0
5/12/03	Monday	10:51	none	0		1
5/12/03	Monday	15:15	none	0		0
5/12/03	Monday	10:15	none	0		1
5/13/03	Tuesday	3:53	none	0		0
5/13/03	Tuesday	10:15	none	0		1
5/13/03	Tuesday	15:15	Small craft advisory	1		0
5/13/03	Tuesday	21:55	none	0		0

Table C3-3: Small Craft Advisory Data

Date	Day	Time	Comments	Advisory	Time Upper	Advisory During Times
5/14/03	Wednesday	3:49	none	0		0
5/14/03	Wednesday	10:15	none	0		1
5/14/03	Wednesday	15:26	Small craft advisory may be required Friday	0		0
5/14/03	Wednesday	22:15	Small craft advisory may be required Friday	0		0
5/15/03	Thursday	4:00	Small craft advisory may be required Friday	0		0
5/15/03	Thursday	10:23	Small craft advisory may be required Friday	0		1
5/15/03	Thursday	14:56	Small craft advisory may be required Friday	0		1
5/15/03	Thursday	22:15	Small craft advisory may be required Friday	0		0
5/16/03	Friday	3:15	Small craft advisory	1		0
5/16/03	Friday	10:17	Small craft advisory	1		1
5/16/03	Friday	15:16	Small craft advisory	1		0
5/16/03	Friday	21:51	Small craft advisory	1		0
5/17/03	Saturday	2:55	Small craft advisory for seas	1		0
5/17/03	Saturday	10:37	Small craft advisory	1		1
5/17/03	Saturday	15:04	Small craft advisory	1		0
5/17/03	Saturday	21:20	Small craft advisory for seas	1		0
5/18/03	Sunday	3:10	Small craft advisory for seas	1		0
5/18/03	Sunday	10:00	Small craft advisory for seas	1		1
5/18/03	Sunday	15:05	none	0		0
5/18/03	Sunday	21:20	none	0		0
5/19/03	Monday	2:53	none	0		0
5/19/03	Monday	10:23	none	0		1
5/19/03	Monday	15:36	none	0		0
5/19/03	Monday	21:19	none	0		0
5/19/03	Monday	10:14	none	0		1
5/20/03	Tuesday	3:47	none	0		0
5/20/03	Tuesday	10:15	none	0		1
5/20/03	Tuesday	15:15	none	0		0
5/20/03	Tuesday	17:43	none	0		0
5/20/03	Tuesday	21:30	none	0		0
5/21/03	Wednesday	5:38	none	0		0
5/21/03	Wednesday	10:15	none	0		1
5/21/03	Wednesday	15:46	none	0		0
5/21/03	Wednesday	22:15	none	0		0
5/22/03	Thursday	5:01	none	0		0
5/22/03	Thursday	10:14	none	0		1
5/22/03	Thursday	16:17	Small craft advisory may be required Saturday	0		0
5/22/03	Thursday	21:45	Small craft advisory may be required Saturday	0		0
5/23/03	Friday	5:26	Small craft advisory may be required Saturday night	0		0
5/23/03	Friday	10:19	Small craft advisory may be required Saturday night	0		1
5/23/03	Friday	15:57	Small craft advisory may be required Saturday	0		0
5/23/03	Friday	22:15	Small craft advisory may be required Saturday	0		0
5/24/03	Saturday	8:14	Small craft advisory	1		1
5/24/03	Saturday	10:38	Small craft advisory	1		1
5/24/03	Saturday	10:38	Small craft advisory	1		1
5/24/03	Saturday	16:01	Small craft advisory	1		0
5/24/03	Saturday	21:45	Small craft advisory	1		0
5/25/03	Sunday	4:36	Small craft advisory	1		0
5/25/03	Sunday	10:07	Small craft advisory for seas	1		1
5/25/03	Sunday	15:39	none	0		0
5/25/03	Sunday	21:55	none	0		0
5/26/03	Monday	4:13	Small craft advisory	1		0
5/26/03	Monday	10:35	Small craft advisory	1		1
5/26/03	Monday	15:47	Small craft advisory	1		0
5/26/03	Monday	22:15	Small craft advisory	1		0
5/27/03	Tuesday	4:02	none	0		0
5/27/03	Tuesday	10:26	none	0		1
5/27/03	Tuesday	15:41	none	0		0
5/27/03	Tuesday	22:15	none	0		0
5/28/03	Wednesday	4:33	none	0		0
5/28/03	Wednesday	8:20	none	0		1
5/28/03	Wednesday	10:05	none	0		1
5/28/03	Wednesday	14:30	none	0		1
5/28/03	Wednesday	21:27	none	0		0
5/29/03	Thursday	0:15	none	0		0
5/29/03	Thursday	3:52	Small craft advisory	1		0

Table C3-3: Small Craft Advisory Data

Date	Day	Time	Comments	Advisory	Time Upper	Advisory During Times
5/29/03	Thursday	5:30	Small craft advisory	1		0
5/29/03	Thursday	9:45	Small craft advisory	1		1
5/29/03	Thursday	15:40	none	0		0
5/29/03	Thursday	21:51	none	0		0
5/30/03	Friday	4:15	Small craft advisory for seas may be required Saturday	0		0
5/30/03	Friday	10:00	Small craft advisory for seas may be required Saturday	0		1
5/30/03	Friday	16:05	Small craft advisory for seas may be required Saturday night	0		0
5/30/03	Friday	22:30	Small craft advisory for seas may be required Saturday night	0		0
5/31/03	Saturday	4:45	Small craft advisory for seas may be required Sunday	0		0
5/31/03	Saturday	10:15	Small craft advisory for seas may be required Sunday	0		1
5/31/03	Saturday	16:30	Small craft advisory for seas	1		0

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
4/28/03	28	653	AO2	-	CLR	10SM	-	52	11.1	49	9.2	45	7.2	77	3	240	-	0	29.92	3	160	AA	-
4/28/03	28	753	AO2	-	CLR	10SM	-	60	15.6	50	10.1	40	4.4	48	6	230	-	0	29.92	-	159	AA	-
4/28/03	28	853	AO2	-	CLR	10SM	-	65	18.3	51	10.7	37	2.8	36	5	270	-	0	29.92	-	157	AA	-
4/28/03	28	953	AO2	-	CLR	10SM	-	68	20	52	11	35	1.7	30	6	VRB	-	0	29.91	8	153	AA	-
4/28/03	28	1053	AO2	-	CLR	10SM	-	71	21.7	53	11.6	34	1.1	26	8	250	G	16	29.88	-	145	AA	-
4/28/03	28	1153	AO2	-	CLR	10SM	-	70	21.1	52	11.3	34	1.1	27	13	210	G	20	29.86	-	137	AA	-
4/28/03	28	1253	AO2	-	CLR	10SM	-	72	22.2	56	13.2	41	5	33	19	230	G	22	29.83	6	129	AA	-
4/28/03	28	1353	AO2	-	CLR	10SM	-	70	21.1	55	13	42	5.6	37	20	230	G	25	29.82	-	123	AA	-
4/28/03	28	1453	AO2	-	CLR	10SM	-	69	20.6	54	12.1	39	3.9	33	16	230	G	23	29.79	-	115	AA	-
4/28/03	28	1553	AO2	-	CLR	10SM	-	69	20.6	53	11.7	37	2.8	31	17	220	G	21	29.77	8	109	AA	-
4/28/03	28	1653	AO2	-	CLR	10SM	-	67	19.4	51	10.6	34	1.1	30	16	220	G	21	29.76	-	103	AA	-
4/28/03	28	1753	AO2	-	CLR	10SM	-	63	17.2	49	9.4	33	0.6	33	11	210	G	20	29.76	-	105	AA	-
4/28/03	28	1853	AO2	-	CLR	10SM	-	59	15	47	8.5	34	1.1	39	11	230	-	0	29.77	5	109	AA	-
4/28/03	28	1953	AO2	-	CLR	10SM	-	58	14.4	48	8.9	37	2.8	46	11	220	-	0	29.78	-	110	AA	-
4/29/03	29	653	AO2	-	CLR	9SM	-	54	12.2	49	9.7	45	7.2	72	7	230	-	0	29.72	1	91	AA	-
4/29/03	29	753	AO2	-	CLR	10SM	-	58	14.4	52	11	46	7.8	65	5	210	-	0	29.72	-	90	AA	-
4/29/03	29	853	AO2	-	CLR	10SM	-	64	17.8	54	12.5	46	7.8	52	4	230	-	0	29.71	-	89	AA	-
4/29/03	29	953	AO2	-	CLR	10SM	-	72	22.2	59	14.8	48	8.9	43	3	VRB	-	0	29.71	8	87	AA	-
4/29/03	29	1053	AO2	-	CLR	10SM	-	69	20.6	60	15.8	54	12.2	59	8	110	-	0	29.69	-	81	AA	-
4/29/03	29	1153	AO2	-	CLR	10SM	-	76	24.4	60	15.6	48	8.9	37	9	230	-	0	29.67	-	74	AA	-
4/29/03	29	1253	AO2	-	CLR	10SM	-	75	23.9	60	15.7	49	9.4	40	7	190	-	0	29.67	6	73	AA	-
4/29/03	29	1353	AO2	-	CLR	10SM	-	71	21.7	58	14.3	47	8.3	42	5	VRB	-	0	29.66	-	70	AA	-
4/29/03	29	1453	AO2	-	SCT085	10SM	-	65	18.3	55	12.9	47	8.3	52	10	230	-	0	29.65	-	67	AA	-
4/29/03	29	1553	AO2	-	FEW095	10SM	-	66	18.9	57	13.7	49	9.4	54	8	230	-	0	29.65	6	67	AA	-
4/29/03	29	1653	AO2	-	BKN050 BKN090	8SM	-RA	65	18.3	59	15.1	55	12.8	70	8	240	-	0	29.68	-	77	AA	T
4/29/03	29	1753	AO2	-	SCT110	10SM	-	66	18.9	59	15.1	54	12.2	65	9	230	-	0	29.69	-	79	AA	T
4/29/03	29	1853	AO2	-	CLR	10SM	-	63	17.2	58	14.7	55	12.8	76	6	250	-	0	29.69	1	82	AA	-
4/29/03	29	1953	AO2	-	CLR	10SM	-	59	15	57	13.8	55	12.8	87	4	280	-	0	29.73	-	93	AA	-
4/30/03	30	653	AO2	-	CLR	10SM	-	54	12.2	46	7.6	36	2.2	51	6	360	-	0	29.99	1	184	AA	-
4/30/03	30	753	AO2	-	CLR	10SM	-	57	13.9	46	8	34	1.1	42	11	30	-	0	30.02	-	193	AA	-
4/30/03	30	853	AO2	-	CLR	10SM	-	58	14.4	47	8.1	33	0.6	39	7	90	-	0	30.04	-	201	AA	-
4/30/03	30	953	AO2	-	CLR	10SM	-	60	15.6	48	8.8	34	1.1	38	4	VRB	-	0	30.06	1	205	AA	-
4/30/03	30	1053	AO2	-	FEW090	10SM	-	60	15.6	48	8.8	34	1.1	38	5	VRB	-	0	30.05	-	202	AA	-
4/30/03	30	1153	AO2	-	CLR	10SM	-	60	15.6	48	9.1	35	1.7	39	11	140	-	0	30.04	-	200	AA	-
4/30/03	30	1253	AO2	-	CLR	10SM	-	60	15.6	48	9.1	35	1.7	39	9	160	-	0	30.05	5	202	AA	-
4/30/03	30	1353	AO2	-	FEW090	10SM	-	60	15.6	48	9.1	35	1.7	39	10	150	-	0	30.05	-	203	AA	-
4/30/03	30	1453	AO2	-	FEW090	10SM	-	59	15	49	9.4	38	3.3	46	11	130	-	0	30.06	-	207	AA	-
4/30/03	30	1553	AO2	-	CLR	10SM	-	59	15	48	8.8	35	1.7	41	11	160	-	0	30.07	3	209	AA	-
4/30/03	30	1653	AO2	-	CLR	10SM	-	56	13.3	46	7.6	33	0.6	42	10	160	-	0	30.08	-	211	AA	-
4/30/03	30	1753	AO2	-	CLR	10SM	-	54	12.2	46	7.6	36	2.2	51	7	160	-	0	30.09	-	217	AA	-
4/30/03	30	1853	AO2	-	CLR	10SM	-	51	10.6	44	6.6	35	1.7	54	7	170	-	0	30.1	3	219	AA	-
4/30/03	30	1953	AO2	-	CLR	10SM	-	49	9.4	45	7.1	40	4.4	71	5	170	-	0	30.11	-	224	AA	-
5/1/03	1	653	AO2	-	OVC060	10SM	-	51	10.6	49	9.2	46	7.8	83	6	VRB	-	0	30.1	3	219	AA	-
5/1/03	1	753	AO2	-	OVC065	10SM	-RA	51	10.6	49	9.7	48	8.9	89	6	VRB	-	0	30.11	-	221	AA	T
5/1/03	1	853	AO2	-	SCT027 OVC065	5SM	-RA BR	51	10.6	50	10.3	50	10	96	7	170	-	0	30.1	-	218	AA	0.05
5/1/03	1	900	AO2	-	SCT014 BKN027 OVC060	5SM	-RA BR	-	-	-	-	-	-		6	150	-	0		-		SP	-
5/1/03	1	909	AO2	-	BKN014 BKN023 OVC060	6SM	-RA BR	-	-	-	-	-	-		9	150	-	0		-		SP	-
5/1/03	1	953	AO2	-	OVC010	7SM	-RA	51	10.6	50	10.3	50	10	96	7	170	-	0	30.09	8	217	AA	0.03
5/1/03	1	1011	AO2	-	OVC008	5SM	-RA BR	-	-	-	-	-	-		6	140	-	0		-		SP	-
5/1/03	1	1039	AO2	-	OVC006	5SM	-RA BR	-	-	-	-	-	-		4	VRB	-	0		-		SP	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/1/03	1	1053	AO2	-	OVC006	7SM	-	54	12.2	53	11.9	53	11.7	97	8	150	-	0	30.06	-	204	AA	0.02
5/1/03	1	1153	AO2	-	OVC006	7SM	-	56	13.3	55	13	55	12.8	97	11	160	G	16	30.01	-	190	AA	T
5/1/03	1	1253	AO2	-	OVC008	8SM	-	59	15	57	14	56	13.3	90	13	160	G	19	29.97	8	176	AA	-
5/1/03	1	1319	AO2	-	SCT008 OVC025	9SM	-	-	-	-	-	-	-		14	170	G	22		-		SP	-
5/1/03	1	1353	AO2	-	SCT013 BKN025	10SM	-	62	16.7	59	15.1	57	13.9	84	13	170	G	17	29.95	-	167	AA	-
5/1/03	1	1453	AO2	-	BKN013 OVC017	9SM	-	59	15	57	13.8	55	12.8	87	12	170	G	17	29.92	-	159	AA	-
5/1/03	1	1520	AO2	-	OVC009	7SM	-	-	-	-	-	-	-		8	190	-	0		-		SP	-
5/1/03	1	1540	AO2	-	OVC007	6SM	BR	-	-	-	-	-	-		8	190	G	18		-		SP	-
5/1/03	1	1553	AO2	-	OVC005	5SM	BR	57	13.9	56	13.3	55	12.8	93	11	200	G	17	29.9	6	151	AA	-
5/1/03	1	1625	AO2	-	OVC003	2SM	BR	-	-	-	-	-	-		11	200	G	17		-		SP	-
5/1/03	1	1653	AO2	-	OVC003	1SM	BR	56	13.3	56	13.3	56	13.3	100	7	180	-	0	29.88	-	145	AA	-
5/1/03	1	1702	AO2	-	OVC003	3/4SM	BR	-	-	-	-	-	-		8	200	-	0		-		SP	-
5/1/03	1	1735	AO2	-	OVC001	1/4SM	FG	-	-	-	-	-	-		9	200	-	0		-		SP	-
5/1/03	1	1753	AO2	-	OVC001	1/4SM	FG	56	13.3	56	13.3	56	13.3	100	9	190	-	0	29.87	-	141	AA	-
5/1/03	1	1838	AO2	-	OVC001	1/2SM	FG	-	-	-	-	-	-		9	210	G	16		-		SP	-
5/1/03	1	1853	AO2	-	OVC001	1SM	BR	54	12.2	54	12.2	54	12.2	100	9	210	G	17	29.86	6	139	AA	-
5/1/03	1	1933	AO2	-	OVC001	3/4SM	BR	-	-	-	-	-	-		8	210	-	0		-		SP	-
5/1/03	1	1953	AO2	-	OVC001	1 1/4SM	BR	54	12.2	54	12.2	54	12.2	100	10	220	-	0	29.88	-	144	AA	-
5/2/03	2	653	AO2	-	BKN005	9SM	-	56	13.3	55	12.7	54	12.2	93	7	210	-	0	29.83	5	126	AA	-
5/2/03	2	711	AO2	-	SCT005	9SM	-	-	-	-	-	-	-		6	210	-	0		-		SP	-
5/2/03	2	753	AO2	-	CLR	10SM	-	59	15	57	13.8	55	12.8	87	10	220	G	16	29.82	-	124	AA	-
5/2/03	2	853	AO2	-	CLR	10SM	-	61	16.1	58	14.2	55	12.8	81	7	210	-	0	29.81	-	121	AA	-
5/2/03	2	953	AO2	-	BKN034	10SM	-	65	18.3	60	15.7	57	13.9	76	8	180	G	14	29.8	6	119	AA	-
5/2/03	2	1053	AO2	-	FEW026 BKN036	10SM	-	66	18.9	61	16	57	13.9	73	14	220	-	0	29.78	-	112	AA	-
5/2/03	2	1153	AO2	-	FEW026	10SM	-	68	20	62	16.4	57	13.9	68	12	210	G	19	29.76	-	103	AA	-
5/2/03	2	1253	AO2	-	CLR	10SM	-	67	19.4	61	16.2	57	13.9	71	12	210	G	18	29.73	8	93	AA	-
5/2/03	2	1353	AO2	-	CLR	10SM	-	67	19.4	61	16.2	57	13.9	71	10	200	-	0	29.7	-	84	AA	-
5/2/03	2	1453	AO2	-	CLR	10SM	-	66	18.9	61	16	57	13.9	73	11	220	-	0	29.68	-	77	AA	-
5/2/03	2	1553	AO2	-	CLR	10SM	-	64	17.8	60	15.5	57	13.9	78	11	200	G	16	29.68	5	78	AA	-
5/2/03	2	1653	AO2	-	BKN030	10SM	-	63	17.2	60	15.3	57	13.9	81	8	230	-	0	29.68	-	78	AA	-
5/2/03	2	1753	AO2	-	CLR	10SM	-	62	16.7	59	15.1	57	13.9	84	3	VRB	-	0	29.66	-	69	AA	-
5/2/03	2	1845	AO2	-	BKN025	10SM	-	-	-	-	-	-	-		3	20	-	0		-		SP	-
5/2/03	2	1853	AO2	-	BKN025	10SM	-	62	16.7	60	15.4	58	14.4	86	4	20	-	0	29.68	3	78	AA	-
5/2/03	2	1946	AO2	-	BKN014 OVC023	10SM	-	-	-	-	-	-	-		14	10	G	19		-		SP	-
5/2/03	2	1953	AO2	-	BKN014 OVC023	10SM	-	54	12.2	52	11	50	10	87	15	10	-	0	29.71	-	87	AA	-
5/3/03	3	653	AO2	-	FEW025 OVC080	10SM	-	49	9.4	44	6.9	39	3.9	69	21	10	G	28	29.84	1	132	AA	-
5/3/03	3	728	AO2	-	BKN029 OVC080	10SM	-	-	-	-	-	-	-		21	20	G	30		-		SP	-
5/3/03	3	744	AO2	-	SCT029 BKN080	10SM	-	-	-	-	-	-	-		23	10	G	30		-		SP	-
5/3/03	3	753	AO2	-	SCT029 BKN080	10SM	-	51	10.6	45	7.5	39	3.9	64	24	20	G	29	29.86	-	138	AA	-
5/3/03	3	853	AO2	-	CLR	10SM	-	53	11.7	45	7.1	35	1.7	51	21	360	G	29	29.88	-	144	AA	-
5/3/03	3	953	AO2	-	CLR	10SM	-	54	12.2	45	7.4	35	1.7	49	19	20	G	26	29.91	3	154	AA	-
5/3/03	3	1053	AO2	-	CLR	10SM	-	56	13.3	45	7.1	31	-0.6	39	19	360	G	27	29.91	-	156	AA	-
5/3/03	3	1153	AO2	-	CLR	10SM	-	58	14.4	45	7.3	29	-1.7	33	19	10	G	23	29.91	-	154	AA	-
5/3/03	3	1253	AO2	-	CLR	10SM	-	59	15	44	6.8	24	-4.4	26	12	10	G	18	29.92	3	159	AA	-
5/3/03	3	1353	AO2	-	FEW090	10SM	-	61	16.1	46	8	28	-2.2	29	11	10	G	16	29.93	-	161	AA	-
5/3/03	3	1453	AO2	-	FEW090	10SM	-	61	16.1	48	8.7	32	0	34	12	30	-	0	29.92	-	159	AA	-
5/3/03	3	1553	AO2	-	CLR	10SM	-	60	15.6	47	8.4	32	0	35	8	40	-	0	29.93	3	162	AA	-
5/3/03	3	1653	AO2	-	CLR	10SM	-	60	15.6	47	8.4	32	0	35	8	40	-	0	29.94	-	165	AA	-
5/3/03	3	1753	AO2	-	CLR	10SM	-	56	13.3	44	6.6	28	-2.2	34	8	50	-	0	29.96	-	173	AA	-
5/3/03	3	1853	AO2	-	CLR	10SM	-	53	11.7	43	6	29	-1.7	40	3	120	-	0	29.99	3	184	AA	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/3/03	3	1953	AO2	-	CLR	10SM	-	51	10.6	43	6.4	34	1.1	52	4	310	-	0	30.02	-	193	AA	-
5/4/03	4	653	AO2	-	CLR	10SM	-	49	9.4	44	6.4	37	2.8	64	4	10	-	0	30.14	1	233	AA	-
5/4/03	4	753	AO2	-	CLR	10SM	-	56	13.3	45	7.3	32	0	40	7	50	-	0	30.13	-	230	AA	-
5/4/03	4	853	AO2	-	CLR	10SM	-	57	13.9	45	7.3	30	-1.1	36	6	70	-	0	30.13	-	231	AA	-
5/4/03	4	953	AO2	-	CLR	10SM	-	59	15	46	7.8	30	-1.1	33	8	50	-	0	30.14	5	232	AA	-
5/4/03	4	1053	AO2	-	CLR	10SM	-	60	15.6	46	7.9	29	-1.7	31	4	VRB	-	0	30.12	-	227	AA	-
5/4/03	4	1153	AO2	-	FEW095	10SM	-	60	15.6	47	8.3	31	-0.6	33	9	110	-	0	30.11	-	223	AA	-
5/4/03	4	1253	AO2	-	FEW090	10SM	-	60	15.6	47	8.5	32	0	35	10	130	-	0	30.1	6	219	AA	-
5/4/03	4	1353	AO2	-	CLR	10SM	-	61	16.1	48	8.7	32	0	34	7	150	-	0	30.09	-	215	AA	-
5/4/03	4	1453	AO2	-	CLR	10SM	-	58	14.4	46	7.9	32	0	38	12	150	-	0	30.08	-	214	AA	-
5/4/03	4	1553	AO2	-	CLR	10SM	-	57	13.9	46	7.6	32	0	39	10	130	-	0	30.08	6	213	AA	-
5/4/03	4	1653	AO2	-	CLR	10SM	-	54	12.2	44	6.6	31	-0.6	42	8	130	-	0	30.07	-	211	AA	-
5/4/03	4	1753	AO2	-	CLR	10SM	-	54	12.2	43	6.2	29	-1.7	38	5	150	-	0	30.06	-	207	AA	-
5/4/03	4	1853	AO2	-	CLR	10SM	-	51	10.6	43	6	32	0	48	3	250	-	0	30.08	5	212	AA	-
5/4/03	4	1953	AO2	-	CLR	10SM	-	47	8.3	42	5.6	36	2.2	66	0	0	-	0	30.11	-	224	AA	-
5/5/03	5	653	AO2	-	CLR	10SM	-	49	9.4	44	6.6	38	3.3	66	4	220	-	0	30.13	1	231	AA	-
5/5/03	5	753	AO2	-	CLR	10SM	-	54	12.2	43	6.2	29	-1.7	38	3	VRB	-	0	30.14	-	232	AA	-
5/5/03	5	853	AO2	-	CLR	10SM	-	57	13.9	46	7.8	33	0.6	41	3	VRB	-	0	30.12	-	227	AA	-
5/5/03	5	953	AO2	-	CLR	10SM	-	57	13.9	46	8	34	1.1	42	9	120	-	0	30.12	8	226	AA	-
5/5/03	5	1053	AO2	-	CLR	10SM	-	59	15	46	7.8	30	-1.1	33	9	150	-	0	30.12	-	226	AA	-
5/5/03	5	1153	AO2	-	CLR	10SM	-	59	15	44	6.8	24	-4.4	26	8	130	-	0	30.12	-	226	AA	-
5/5/03	5	1253	AO2	-	CLR	10SM	-	58	14.4	47	8.5	35	1.7	42	8	120	-	0	30.12	8	224	AA	-
5/5/03	5	1353	AO2	-	CLR	10SM	-	58	14.4	47	8.1	33	0.6	39	7	160	-	0	30.1	-	218	AA	-
5/5/03	5	1453	AO2	-	CLR	10SM	-	57	13.9	45	7.3	30	-1.1	36	6	VRB	-	0	30.08	-	214	AA	-
5/5/03	5	1553	AO2	-	CLR	10SM	-	55	12.8	42	5.4	22	-5.6	28	7	180	-	0	30.08	6	214	AA	-
5/5/03	5	1653	AO2	-	CLR	10SM	-	55	12.8	43	5.8	25	-3.9	31	5	190	-	0	30.09	-	215	AA	-
5/5/03	5	1753	AO2	-	CLR	10SM	-	53	11.7	40	4.5	20	-6.7	27	5	190	-	0	30.08	-	213	AA	-
5/5/03	5	1853	AO2	-	CLR	10SM	-	50	10	40	4.4	25	-3.9	38	4	VRB	-	0	30.06	8	207	AA	-
5/5/03	5	1953	AO2	-	FEW120	10SM	-	48	8.9	40	4.7	30	-1.1	50	4	150	-	0	30.06	-	205	AA	-
5/6/03	6	653	AO2	-	FEW018 BKN026 OVC034	10SM	-	50	10	49	9.4	48	8.9	93	7	140	-	0	30.02	0	191	AA	-
5/6/03	6	735	AO2	-	BKN011 OVC020	9SM	-	-	-	-	-	-	-		6	130	-	0		-		SP	-
5/6/03	6	753	AO2	-	OVC009	8SM	-	51	10.6	50	10	49	9.4	92	8	140	-	0	30.02	-	193	AA	-
5/6/03	6	824	AO2	-	OVC007	2 1/2SM	BR	-	-	-	-	-	-		9	150	-	0		-		SP	-
5/6/03	6	853	AO2	-	OVC005	1 1/2SM	-RA BR	51	10.6	51	10.6	51	10.6	100	9	140	-	0	30.01	-	189	AA	0.01
5/6/03	6	913	AO2	-	OVC003	1 1/2SM	-RA BR	-	-	-	-	-	-		8	150	-	0		-		SP	-
5/6/03	6	953	AO2	-	OVC003	4SM	BR	52	11.1	52	11.1	52	11.1	100	10	140	-	0	29.99	8	183	AA	0.01
5/6/03	6	1005	AO2	-	BKN005 OVC019	9SM	-	-	-	-	-	-	-		9	140	-	0		-		SP	-
5/6/03	6	1023	AO2	-	FEW005 SCT011 OVC019	9SM	-	-	-	-	-	-	-		8	140	-	0		-		SP	-
5/6/03	6	1053	AO2	-	SCT012 OVC023	10SM	-	55	12.8	54	12.2	53	11.7	93	7	150	-	0	29.98	-	178	AA	-
5/6/03	6	1102	AO2	-	BKN012 BKN019 OVC023	10SM	-	-	-	-	-	-	-		8	150	-	0		-		SP	-
5/6/03	6	1119	AO2	-	SCT012 OVC018	10SM	-	-	-	-	-	-	-		7	130	-	0		-		SP	-
5/6/03	6	1153	AO2	-	OVC018	9SM	-	55	12.8	53	11.6	51	10.6	87	10	170	-	0	29.95	-	168	AA	-
5/6/03	6	1204	AO2	-	BKN011 OVC020	2 1/2SM	-RA BR	-	-	-	-	-	-		9	160	G	15		-		SP	-
5/6/03	6	1209	AO2	-	SCT007 BKN011 OVC020	1 3/4SM	-RA BR	-	-	-	-	-	-		9	150	G	15		-		SP	-
5/6/03	6	1218	AO2	-	BKN007 OVC013	1 1/2SM	-RA BR	-	-	-	-	-	-		8	140	-	0		-		SP	-
5/6/03	6	1253	AO2	-	BKN007 OVC011	1 1/4SM	-RA BR	53	11.7	53	11.7	53	11.7	100	9	130	-	0	29.94	6	166	AA	0.04
5/6/03	6	1353	AO2	-	OVC003	1SM	-RA BR	54	12.2	54	12.2	54	12.2	100	7	150	-	0	29.9	-	153	AA	0.05
5/6/03	6	1431	AO2	-	OVC003	3/4SM	-RA BR	-	-	-	-	-	-		6	150	-	0		-		SP	-
5/6/03	6	1438	AO2	-	OVC003	1SM	-RA BR	-	-	-	-	-	-		6	VRB	-	0		-		SP	-
5/6/03	6	1453	AO2	-	OVC003	1 3/4SM	-RA BR	54	12.2	54	12.2	54	12.2	100	8	150	-	0	29.88	-	146	AA	0.02

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/6/03	6	1553	AO2	-	OVC003	1 1/2SM	-RA BR	54	12.2	54	12.2	54	12.2	100	7	140	-	0	29.87	6	142	AA	0.03
5/6/03	6	1610	AO2	-	OVC003	3SM	BR	-	-	-	-	-	-		4	VRB	-	0		-		SP	-
5/6/03	6	1619	AO2	-	OVC003	2 1/2SM	BR	-	-	-	-	-	-		6	140	-	0		-		SP	-
5/6/03	6	1632	AO2	-	OVC003	3SM	BR	-	-	-	-	-	-		8	140	-	0		-		SP	-
5/6/03	6	1653	AO2	-	OVC003	3SM	BR	54	12.2	54	12.2	54	12.2	100	3	VRB	-	0	29.85	-	134	AA	T
5/6/03	6	1706	AO2	-	OVC003	2 1/2SM	BR	-	-	-	-	-	-		4	120	-	0		-		SP	-
5/6/03	6	1753	AO2	-	OVC003	2SM	BR	53	11.7	53	11.7	53	11.7	100	5	160	-	0	29.84	-	132	AA	-
5/6/03	6	1800	AO2	-	OVC003	1 1/2SM	BR	-	-	-	-	-	-		4	150	-	0		-		SP	-
5/6/03	6	1853	AO2	-	OVC003	2SM	BR	53	11.7	53	11.7	53	11.7	100	0	0	-	0	29.83	6	127	AA	-
5/6/03	6	1921	AO2	-	OVC003	1 3/4SM	BR	-	-	-	-	-	-		0	0	-	0		-		SP	-
5/6/03	6	1953	AO2	-	OVC003	1 1/2SM	BR	54	12.2	54	12.2	54	12.2	100	0	0	-	0	29.84	-	130	AA	0.01
5/7/03	7	653	AO2	-	OVC008	5SM	BR	55	12.8	55	12.8	55	12.8	100	3	230	-	0	29.81	0	121	AA	-
5/7/03	7	731	AO2	-	OVC006	6SM	BR	-	-	-	-	-	-		5	260	-	0		-		SP	-
5/7/03	7	753	AO2	-	OVC008	6SM	BR	58	14.4	57	13.8	56	13.3	93	6	250	-	0	29.83	-	129	AA	-
5/7/03	7	853	AO2	-	SCT008	6SM	BR	60	15.6	58	14.3	56	13.3	86	7	230	-	0	29.83	-	128	AA	-
5/7/03	7	953	AO2	-	CLR	8SM	-	65	18.3	61	16	58	14.4	78	6	240	-	0	29.81	0	122	AA	-
5/7/03	7	1053	AO2	-	FEW085	8SM	-	68	20	62	16.7	58	14.4	70	6	VRB	-	0	29.79	-	115	AA	-
5/7/03	7	1153	AO2	-	CLR	10SM	-	72	22.2	61	16.1	53	11.7	52	7	260	-	0	29.78	-	112	AA	T
5/7/03	7	1253	AO2	-	FEW095	10SM	-	74	23.3	62	16.8	54	12.2	50	7	230	-	0	29.77	6	109	AA	T
5/7/03	7	1353	AO2	-	CLR	10SM	-	71	21.7	61	16.2	54	12.2	55	10	210	-	0	29.77	-	109	AA	-
5/7/03	7	1453	AO2	-	CLR	10SM	-	69	20.6	60	15.5	53	11.7	57	11	220	G	19	29.77	-	109	AA	-
5/7/03	7	1553	AO2	-	CLR	10SM	-	68	20	59	15.3	53	11.7	59	12	230	-	0	29.77	8	109	AA	-
5/7/03	7	1653	AO2	-	CLR	10SM	-	65	18.3	59	14.8	54	12.2	68	5	VRB	-	0	29.79	-	115	AA	-
5/7/03	7	1753	AO2	-	FEW080	5SM	BR	52	11.1	52	11.1	52	11.1	100	7	120	-	0	29.82	-	123	AA	-
5/7/03	7	1845	AO2	-	FEW003	2SM	BR	-	-	-	-	-	-		6	110	-	0		-		SP	-
5/7/03	7	1853	AO2	-	FEW003	1 3/4SM	BR	50	10	50	10	50	10	100	6	110	-	0	29.82	1	123	AA	-
5/7/03	7	1906	AO2	-	BKN003	1 3/4SM	BR	-	-	-	-	-	-		5	120	-	0		-		SP	-
5/7/03	7	1945	AO2	-	OVC003	2SM	BR	-	-	-	-	-	-		4	120	-	0		-		SP	-
5/7/03	7	1953	AO2	-	OVC003	2 1/2SM	BR	50	10	50	10	50	10	100	4	150	-	0	29.83	-	128	AA	-
5/8/03	8	653	AO2	-	BKN090	9SM	-RA	48	8.9	48	8.9	48	8.9	100	10	70	-	0	29.84	3	132	AA	0.05
5/8/03	8	700	AO2	-	FEW008 OVC090	8SM	-RA	-	-	-	-	-	-		10	60	-	0		-		SP	-
5/8/03	8	715	AO2	-	BKN008 OVC090	8SM	-RA	-	-	-	-	-	-		11	70	-	0		-		SP	-
5/8/03	8	746	AO2	-	OVC006	10SM	-	-	-	-	-	-	-		9	40	-	0		-		SP	-
5/8/03	8	753	AO2	-	OVC006	10SM	-	49	9.4	49	9.4	49	9.4	100	8	40	-	0	29.84	-	130	AA	0.01
5/8/03	8	853	AO2	-	OVC006	10SM	-	49	9.4	49	9.4	49	9.4	100	8	60	-	0	29.83	-	129	AA	-
5/8/03	8	909	AO2	-	OVC004	9SM	-	-	-	-	-	-	-		6	50	-	0		-		SP	-
5/8/03	8	953	AO2	-	OVC004	8SM	-	49	9.4	49	9.4	49	9.4	100	12	50	-	0	29.85	3	133	AA	-
5/8/03	8	1053	AO2	-	OVC004	9SM	-	49	9.4	49	9.4	49	9.4	100	10	40	-	0	29.86	-	137	AA	T
5/8/03	8	1124	AO2	-	OVC006	10SM	-	-	-	-	-	-	-		10	40	-	0		-		SP	-
5/8/03	8	1153	AO2	-	OVC006	10SM	-	48	8.9	47	8.4	46	7.8	93	12	30	-	0	29.86	-	138	AA	-
5/8/03	8	1232	AO2	-	OVC010	10SM	-	-	-	-	-	-	-		14	30	-	0		-		SP	-
5/8/03	8	1253	AO2	-	OVC010	10SM	-	47	8.3	46	7.8	45	7.2	93	12	30	G	18	29.87	1	140	AA	-
5/8/03	8	1353	AO2	-	FEW010 OVC017	10SM	-RA	47	8.3	46	7.8	45	7.2	93	11	30	-	0	29.87	-	143	AA	T
5/8/03	8	1453	AO2	-	OVC019	10SM	-	48	8.9	46	7.8	44	6.7	86	9	30	-	0	29.89	-	147	AA	T
5/8/03	8	1553	AO2	-	OVC017	10SM	-	47	8.3	46	7.5	44	6.7	90	9	10	-	0	29.9	3	151	AA	T
5/8/03	8	1630	AO2	-	BKN012 OVC017	10SM	-	-	-	-	-	-	-		10	30	-	0		-		SP	-
5/8/03	8	1653	AO2	-	OVC010	10SM	-	46	7.8	45	7.3	44	6.7	93	9	20	-	0	29.9	-	153	AA	-
5/8/03	8	1736	AO2	-	SCT010 SCT019 OVC055	10SM	-	-	-	-	-	-	-		8	20	-	0		-		SP	-
5/8/03	8	1753	AO2	-	FEW010 SCT018 OVC050	10SM	-	46	7.8	46	7.5	45	7.2	96	9	10	-	0	29.91	-	154	AA	T
5/8/03	8	1853	AO2	-	FEW018 OVC060	10SM	-	46	7.8	45	7.3	44	6.7	93	5	20	-	0	29.91	1	155	AA	T

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/8/03	8	1953	AO2	-	BKN050 OVC060	10SM	-	46	7.8	46	7.5	45	7.2	96	4	300	-	0	29.93	-	161	AA	-
5/9/03	9	653	AO2	-	BKN034 OVC044	8SM	-	51	10.6	49	9.7	48	8.9	89	4	230	-	0	29.88	0	145	AA	-
5/9/03	9	729	AO2	-	BKN014 BKN070	10SM	-	-	-	-	-	-	-		8	250	-	0		-		SP	-
5/9/03	9	753	AO2	-	OVC014	10SM	-	53	11.7	51	10.5	49	9.4	86	8	250	-	0	29.87	-	140	AA	-
5/9/03	9	853	AO2	-	OVC012	10SM	-	54	12.2	52	11	50	10	87	6	300	-	0	29.86	-	139	AA	-
5/9/03	9	953	AO2	-	OVC016	10SM	-	56	13.3	53	11.6	50	10	81	7	300	-	0	29.86	6	137	AA	-
5/9/03	9	1053	AO2	-	BKN020 OVC036	10SM	-	58	14.4	54	12.4	51	10.6	78	5	260	-	0	29.85	-	134	AA	-
5/9/03	9	1115		-	FEW020 SCT025 BKN036	10SM	-	-	-	-	-	-	-		6	VRB	-	0		-		SP	-
5/9/03	9	1153	AO2	-	SCT028 SCT034	10SM	-	63	17.2	57	13.8	52	11.1	68	0	0	-	0	29.83	-	126	AA	-
5/9/03	9	1253	AO2	-	FEW044 BKN070	10SM	-	62	16.7	57	13.9	53	11.7	73	9	140	-	0	29.79	8	114	AA	-
5/9/03	9	1353	AO2	-	SCT025 BKN039 OVC050	10SM	-	61	16.1	56	13.4	52	11.1	72	8	180	-	0	29.8	-	117	AA	-
5/9/03	9	1453	AO2	-	SCT046 BKN055 OVC065	10SM	-	60	15.6	55	12.9	51	10.6	72	11	220	G	14	29.79	-	115	AA	-
5/9/03	9	1553	AO2	-	FEW028 BKN042 OVC065	10SM	-	59	15	55	12.9	52	11.1	78	9	70	-	0	29.8	3	119	AA	-
5/9/03	9	1638	AO2	-	BKN027 BKN080	9SM	-	-	-	-	-	-	-		8	110	-	0		-		SP	-
5/9/03	9	1653	AO2	-	BKN027	8SM	-	56	13.3	54	12.1	52	11.1	87	8	120	-	0	29.82	-	124	AA	-
5/9/03	9	1719	AO2	-	SCT029 BKN036	8SM	-	-	-	-	-	-	-		7	110	-	0		-		SP	-
5/9/03	9	1753	AO2	-	BKN038	8SM	-	54	12.2	52	11.4	51	10.6	90	6	110	-	0	29.83	-	126	AA	-
5/9/03	9	1835	AO2	-	BKN028	6SM	BR	-	-	-	-	-	-		0	0	-	0		-		SP	-
5/9/03	9	1853	AO2	-	OVC028	6SM	BR	55	12.8	53	11.9	52	11.1	90	3	70	-	0	29.83	1	128	AA	-
5/9/03	9	1953	AO2	-	BKN028	10SM	-	53	11.7	49	9.7	46	7.8	77	3	40	-	0	29.85	-	135	AA	-
5/10/03	10	653	AO2	-	CLR	10SM	-	53	11.7	48	9	43	6.1	69	8	340	-	0	29.83	0	127	AA	-
5/10/03	10	753	AO2	-	CLR	10SM	-	57	13.9	49	9.5	41	5	55	10	320	-	0	29.82	-	124	AA	-
5/10/03	10	853	AO2	-	CLR	10SM	-	60	15.6	50	9.9	39	3.9	46	12	290	-	0	29.8	-	117	AA	-
5/10/03	10	953	AO2	-	CLR	10SM	-	62	16.7	50	10.1	38	3.3	41	8	320	-	0	29.79	6	115	AA	-
5/10/03	10	1053	AO2	-	CLR	10SM	-	64	17.8	52	11.3	41	5	43	13	250	G	16	29.76	-	105	AA	-
5/10/03	10	1153	AO2	-	FEW090	10SM	-	66	18.9	53	11.8	41	5	40	7	300	-	0	29.73	-	93	AA	-
5/10/03	10	1253	AO2	-	CLR	10SM	-	68	20	55	12.9	44	6.7	42	11	270	G	16	29.7	6	85	AA	-
5/10/03	10	1353	AO2	-	CLR	10SM	-	65	18.3	54	12.4	45	7.2	49	15	230	-	0	29.71	-	88	AA	-
5/10/03	10	1453	AO2	-	CLR	10SM	-	64	17.8	55	13	48	8.9	56	14	220	-	0	29.7	-	85	AA	-
5/10/03	10	1553	AO2	-	CLR	10SM	-	62	16.7	54	12.2	47	8.3	58	10	230	-	0	29.68	8	78	AA	-
5/10/03	10	1653	AO2	-	CLR	10SM	-	63	17.2	54	12.5	47	8.3	56	7	220	-	0	29.67	-	72	AA	-
5/10/03	10	1753	AO2	-	CLR	10SM	-	62	16.7	55	12.8	49	9.4	62	4	220	-	0	29.67	-	73	AA	-
5/10/03	10	1853	AO2	-	CLR	10SM	-	58	14.4	54	12	50	10	75	3	150	-	0	29.69	3	79	AA	-
5/10/03	10	1953	AO2	-	CLR	10SM	-	56	13.3	53	11.9	51	10.6	84	0	0	-	0	29.7	-	82	AA	-
5/11/03	11	653	AO2	-	CLR	10SM	-	51	10.6	48	8.9	45	7.2	80	7	70	-	0	29.79	3	114	AA	-
5/11/03	11	753	AO2	-	CLR	10SM	-	55	12.8	49	9.5	43	6.1	64	4	VRB	-	0	29.78	-	112	AA	-
5/11/03	11	853	AO2	-	FEW055	10SM	-	58	14.4	50	10.2	43	6.1	58	7	50	-	0	29.77	-	107	AA	-
5/11/03	11	953	AO2	-	BKN050	10SM	-	60	15.6	51	10.8	43	6.1	53	7	70	-	0	29.77	6	106	AA	-
5/11/03	11	1053	AO2	-	CLR	10SM	-	59	15	52	11.3	46	7.8	62	8	150	-	0	29.75	-	100	AA	-
5/11/03	11	1153	AO2	-	CLR	10SM	-	58	14.4	51	10.7	45	7.2	62	11	140	-	0	29.75	-	102	AA	-
5/11/03	11	1253	AO2	-	CLR	10SM	-	58	14.4	52	11	46	7.8	65	12	120	-	0	29.73	8	93	AA	-
5/11/03	11	1353	AO2	-	CLR	10SM	-	56	13.3	50	9.7	43	6.1	62	12	130	-	0	29.71	-	88	AA	-
5/11/03	11	1453	AO2	-	CLR	10SM	-	55	12.8	48	9	41	5	59	11	140	-	0	29.72	-	89	AA	-
5/11/03	11	1553	AO2	-	CLR	10SM	-	53	11.7	49	9.4	45	7.2	74	11	120	-	0	29.71	6	88	AA	-
5/11/03	11	1653	AO2	-	BKN070	10SM	-	53	11.7	49	9.2	44	6.7	72	12	120	-	0	29.68	-	78	AA	-
5/11/03	11	1753	AO2	-	OVC065	10SM	-	50	10	47	8.1	43	6.1	77	15	120	-	0	29.67	-	73	AA	-
5/11/03	11	1853	AO2	-	OVC055	10SM	-	50	10	47	8.4	44	6.7	80	11	100	G	16	29.63	8	60	AA	-
5/11/03	11	1953	AO2	-	OVC038	10SM	-	50	10	46	7.6	41	5	71	11	100	-	0	29.62	-	58	AA	-
5/12/03	12	653	AO2	-	OVC005	10SM	-	46	7.8	45	7.3	44	6.7	93	10	350	-	0	29.45	3	0	AA	-
5/12/03	12	753	AO2	-	OVC007	10SM	-	46	7.8	45	7.3	44	6.7	93	9	350	-	0	29.47	-	5	AA	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/12/03	12	853	AO2	-	OVC009	10SM	-	47	8.3	46	7.8	45	7.2	93	8	340	-	0	29.46	-	3	AA	-
5/12/03	12	953	AO2	-	OVC009	10SM	-	49	9.4	47	8.3	45	7.2	86	7	310	-	0	29.47	1	6	AA	-
5/12/03	12	1053	AO2	-	OVC011	10SM	-	50	10	48	8.9	46	7.8	86	7	300	-	0	29.46	-	4	AA	-
5/12/03	12	1153	AO2	-	OVC015	6SM	HZ	53	11.7	49	9.7	46	7.8	77	6	240	-	0	29.46	-	3	AA	-
5/12/03	12	1253	AO2	-	SCT019	10SM	-	55	12.8	51	10.5	47	8.3	74	7	300	-	0	29.45	8	1	AA	-
5/12/03	12	1353	AO2	-	FEW110	10SM	-	58	14.4	53	11.5	48	8.9	70	4	VRB	-	0	29.44	-	997	AA	-
5/12/03	12	1453	AO2	-	FEW075 SCT100	10SM	-	57	13.9	52	11.3	48	8.9	72	7	210	-	0	29.42	-	990	AA	-
5/12/03	12	1553	AO2	-	SCT012 BKN055 OVC075	10SM	-	52	11.1	50	10.2	49	9.4	89	7	180	-	0	29.43	5	992	AA	-
5/12/03	12	1602	AO2	-	BKN009 BKN013 OVC070	10SM	-	-	-	-	-	-	-		5	190	-	0		-		SP	-
5/12/03	12	1619	AO2	-	OVC007	10SM	-	-	-	-	-	-	-		7	200	-	0		-		SP	-
5/12/03	12	1653	AO2	-	OVC007	10SM	-	51	10.6	50	10	49	9.4	92	8	210	-	0	29.43	-	991	AA	-
5/12/03	12	1753	AO2	-	OVC007	9SM	-	50	10	49	9.7	49	9.4	96	7	190	-	0	29.44	-	996	AA	-
5/12/03	12	1853	AO2	-	OVC005	7SM	-	49	9.4	49	9.4	49	9.4	100	6	180	-	0	29.44	0	995	AA	-
5/12/03	12	1953	AO2	-	OVC005	8SM	-	50	10	49	9.7	49	9.4	96	5	160	-	0	29.44	-	995	AA	-
5/13/03	13	653	AO2	-	CLR	10SM	-	55	12.8	49	9.7	44	6.7	67	9	270	-	0	29.44	1	996	AA	-
5/13/03	13	753	AO2	-	FEW060	10SM	-	56	13.3	50	10	44	6.7	65	11	280	-	0	29.45	-	0	AA	-
5/13/03	13	853	AO2	-	BKN055 OVC070	10SM	-	57	13.9	50	10.2	44	6.7	62	9	260	-	0	29.45	-	0	AA	-
5/13/03	13	953	AO2	-	BKN040 OVC070	10SM	-	59	15	51	10.8	44	6.7	58	8	240	-	0	29.45	0	998	AA	-
5/13/03	13	1053	AO2	-	BKN044 OVC055	10SM	-	60	15.6	52	11	44	6.7	56	8	260	-	0	29.44	-	995	AA	-
5/13/03	13	1153	AO2	-	OVC047	10SM	-	61	16.1	52	11	43	6.1	52	13	240	-	0	29.44	-	995	AA	-
5/13/03	13	1253	AO2	-	OVC050	10SM	-	60	15.6	52	11.2	45	7.2	58	8	230	-	0	29.45	5	998	AA	-
5/13/03	13	1255	AO2	-	BKN050	10SM	-	-	-	-	-	-	-		8	220	-	0		-		SP	-
5/13/03	13	1353	AO2	-	BKN050	10SM	-	61	16.1	52	11.2	44	6.7	54	9	260	-	0	29.45	-	998	AA	-
5/13/03	13	1453	AO2	-	BKN046 OVC060	10SM	-RA	57	13.9	53	11.5	49	9.4	75	9	240	-	0	29.46	-	3	AA	T
5/13/03	13	1553	AO2	-	SCT035 OVC055	7SM	-RA	55	12.8	53	11.6	51	10.6	87	9	240	-	0	29.48	3	8	AA	0.02
5/13/03	13	1653	AO2	-	SCT030 BKN042 OVC050	10SM	-RA	54	12.2	53	11.6	52	11.1	93	7	230	-	0	29.49	-	11	AA	0.01
5/13/03	13	1753	AO2	-	FEW060 BKN100	10SM	-	55	12.8	52	11	49	9.4	80	7	260	-	0	29.5	-	15	AA	T
5/13/03	13	1853	AO2	-	SCT044 OVC065	10SM	-	54	12.2	51	10.7	49	9.4	83	6	260	-	0	29.52	3	23	AA	-
5/13/03	13	1953	AO2	-	OVC050	10SM	-RA	53	11.7	50	10	47	8.3	80	8	270	-	0	29.55	-	32	AA	T
5/14/03	14	653	AO2	-	OVC075	10SM	-	53	11.7	49	9.7	46	7.8	77	7	270	-	0	29.66	1	69	AA	-
5/14/03	14	753	AO2	-	FEW033	10SM	-	55	12.8	50	10.2	46	7.8	72	9	270	-	0	29.67	-	73	AA	-
5/14/03	14	836	AO2	-	BKN028 BKN033 OVC095	10SM	-	-	-	-	-	-	-		7	300	-	0		-		SP	-
5/14/03	14	853	AO2	-	OVC028	10SM	-	57	13.9	51	10.8	46	7.8	67	7	270	-	0	29.68	-	78	AA	-
5/14/03	14	912	AO2	-	OVC030	10SM	-	-	-	-	-	-	-		8	270	-	0		-		SP	-
5/14/03	14	953	AO2	-	OVC032	10SM	-	60	15.6	53	11.8	47	8.3	62	6	VRB	-	0	29.69	1	81	AA	-
5/14/03	14	1053	AO2	-	BKN043 OVC050	10SM	-	61	16.1	54	12	47	8.3	60	5	VRB	-	0	29.69	-	82	AA	-
5/14/03	14	1153	AO2	-	BKN044 OVC060	10SM	-	63	17.2	54	12.2	46	7.8	54	9	250	-	0	29.69	-	81	AA	-
5/14/03	14	1253	AO2	-	BKN060 BKN080	10SM	-	64	17.8	55	12.7	47	8.3	54	11	250	-	0	29.7	3	84	AA	-
5/14/03	14	1353	AO2	-	FEW046 BKN070 OVC085	10SM	-	64	17.8	54	12.5	46	7.8	52	5	240	-	0	29.71	-	87	AA	-
5/14/03	14	1453	AO2	-	BKN046 BKN060 OVC075	10SM	-	61	16.1	55	12.5	49	9.4	65	5	30	-	0	29.73	-	94	AA	-
5/14/03	14	1553	AO2	-	OVC044	10SM	-RA	58	14.4	55	12.6	52	11.1	81	8	110	-	0	29.76	3	104	AA	T
5/14/03	14	1653	AO2	-	BKN038 BKN055 OVC065	10SM	-RA	57	13.9	55	13	54	12.2	90	4	160	-	0	29.79	-	115	AA	0.03
5/14/03	14	1753	AO2	-	BKN065 OVC080	10SM	-	57	13.9	54	12.4	52	11.1	83	3	110	-	0	29.82	-	123	AA	0.01
5/14/03	14	1853	AO2	-	FEW060 OVC095	10SM	-	55	12.8	54	12.5	54	12.2	96	3	130	-	0	29.84	1	130	AA	T
5/14/03	14	1953	AO2	-	BKN070 BKN100	10SM	-	53	11.7	52	11.1	51	10.6	93	0	0	-	0	29.86	-	137	AA	-
5/15/03	15	653	AO2	-	OVC090	10SM	-	52	11.1	51	10.5	50	10	93	5	20	-	0	30.06	1	204	AA	-
5/15/03	15	753	AO2	-	OVC090	10SM	-	58	14.4	54	12.4	51	10.6	78	4	VRB	-	0	30.08	-	212	AA	-
5/15/03	15	853	AO2	-	FEW030 OVC090	10SM	-	61	16.1	56	13.1	51	10.6	70	6	110	-	0	30.09	-	215	AA	-
5/15/03	15	953	AO2	-	SCT039 BKN048	10SM	-	62	16.7	55	12.8	49	9.4	62	6	VRB	-	0	30.1	1	219	AA	-
5/15/03	15	1053	AO2	-	SCT045 BKN050	10SM	-	61	16.1	55	12.5	49	9.4	65	8	140	-	0	30.11	-	222	AA	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/15/03	15	1153	AO2	-	BKN050 OVC060	10SM	-	60	15.6	54	12.1	48	8.9	65	10	130	-	0	30.11	-	224	AA	-
5/15/03	15	1253	AO2	-	OVC070	10SM	-	60	15.6	54	12.1	48	8.9	65	9	140	-	0	30.12	1	226	AA	-
5/15/03	15	1353	AO2	-	BKN070	10SM	-	61	16.1	54	12	47	8.3	60	10	130	-	0	30.13	-	230	AA	-
5/15/03	15	1453	AO2	-	BKN075	10SM	-	58	14.4	52	11.2	47	8.3	67	12	140	-	0	30.15	-	237	AA	-
5/15/03	15	1553	AO2	-	BKN080	10SM	-	58	14.4	52	11	46	7.8	65	10	150	-	0	30.16	1	240	AA	-
5/15/03	15	1653	AO2	-	SCT080	10SM	-	58	14.4	52	11.2	47	8.3	67	11	120	-	0	30.17	-	242	AA	-
5/15/03	15	1753	AO2	-	BKN085	10SM	-	57	13.9	51	10.8	46	7.8	67	8	140	-	0	30.19	-	251	AA	-
5/15/03	15	1853	AO2	-	OVC085	10SM	-	54	12.2	50	10.2	47	8.3	77	7	110	-	0	30.22	3	261	AA	-
5/15/03	15	1953	AO2	-	BKN085	10SM	-	53	11.7	49	9.5	45	7.2	74	5	70	-	0	30.25	-	269	AA	-
5/16/03	16	653	AO2	-	SCT013 OVC050	10SM	-	48	8.9	46	7.6	43	6.1	83	13	40	-	0	30.33	1	297	AA	-
5/16/03	16	738	AO2	-	BKN013 OVC050	10SM	-	-	-	-	-	-	-		15	20	G	21		-		SP	-
5/16/03	16	753	AO2	-	BKN013 BKN050	10SM	-	49	9.4	46	7.8	43	6.1	80	14	20	-	0	30.34	-	302	AA	-
5/16/03	16	853	AO2	-	OVC011	10SM	-	48	8.9	46	7.8	44	6.7	86	10	60	-	0	30.35	-	303	AA	-
5/16/03	16	916	AO2	-	OVC015	10SM	-	-	-	-	-	-	-		11	40	-	0		-		SP	-
5/16/03	16	953	AO2	-	OVC019	10SM	-	50	10	47	8.4	44	6.7	80	11	60	G	17	30.35	0	303	AA	-
5/16/03	16	1053	AO2	-	OVC017	10SM	-	49	9.4	46	7.8	43	6.1	80	12	60	-	0	30.36	-	306	AA	-
5/16/03	16	1153	AO2	-	OVC019	10SM	-	50	10	47	8.1	43	6.1	77	12	60	G	17	30.36	-	307	AA	-
5/16/03	16	1253	AO2	-	OVC021	10SM	-	49	9.4	46	7.6	42	5.6	77	12	60	-	0	30.37	3	312	AA	-
5/16/03	16	1353	AO2	-	OVC021	10SM	-	49	9.4	45	7.3	41	5	74	14	50	-	0	30.36	-	309	AA	-
5/16/03	16	1453	AO2	-	OVC021	10SM	-	49	9.4	45	7.3	41	5	74	11	50	-	0	30.36	-	307	AA	-
5/16/03	16	1553	AO2	-	OVC014	10SM	-	46	7.8	44	6.5	41	5	83	11	50	-	0	30.36	5	309	AA	-
5/16/03	16	1653	AO2	-	OVC014	10SM	-	46	7.8	44	6.5	41	5	83	7	50	-	0	30.35	-	306	AA	-
5/16/03	16	1753	AO2	-	OVC014	10SM	-	45	7.2	43	6.2	41	5	86	10	50	-	0	30.36	-	308	AA	-
5/16/03	16	1809	AO2	-	OVC016	10SM	-	-	-	-	-	-	-		12	50	-	0		-		SP	-
5/16/03	16	1853	AO2	-	OVC018	10SM	-	45	7.2	42	5.7	39	3.9	80	12	70	-	0	30.36	3	309	AA	-
5/16/03	16	1953	AO2	-	OVC014	10SM	-	44	6.7	42	5.4	39	3.9	83	9	50	-	0	30.36	-	307	AA	-
5/17/03	17	653	AO2	-	OVC016	10SM	-	44	6.7	41	5.2	38	3.3	79	11	30	-	0	30.36	1	308	AA	-
5/17/03	17	753	AO2	-	OVC016	10SM	-	46	7.8	43	6	39	3.9	77	14	40	-	0	30.35	-	303	AA	-
5/17/03	17	853	AO2	-	OVC020	10SM	-	49	9.4	44	6.9	39	3.9	69	14	50	G	20	30.36	-	309	AA	-
5/17/03	17	953	AO2	-	BKN022	10SM	-	50	10	45	7.2	39	3.9	66	15	20	-	0	30.36	3	309	AA	-
5/17/03	17	1053	AO2	-	SCT024	10SM	-	51	10.6	45	7.5	39	3.9	64	16	10	-	0	30.36	-	308	AA	-
5/17/03	17	1153	AO2	-	CLR	10SM	-	52	11.1	46	7.7	39	3.9	61	14	60	G	20	30.34	-	300	AA	-
5/17/03	17	1253	AO2	-	CLR	10SM	-	53	11.7	46	8	39	3.9	59	12	60	G	18	30.34	6	299	AA	-
5/17/03	17	1353	AO2	-	CLR	10SM	-	53	11.7	46	7.8	38	3.3	57	12	40	G	16	30.32	-	294	AA	-
5/17/03	17	1453	AO2	-	CLR	10SM	-	54	12.2	46	7.8	37	2.8	53	10	40	-	0	30.31	-	289	AA	-
5/17/03	17	1553	AO2	-	CLR	10SM	-	53	11.7	45	7.2	35	1.7	51	12	30	-	0	30.31	5	291	AA	-
5/17/03	17	1653	AO2	-	CLR	10SM	-	52	11.1	44	6.6	34	1.1	50	7	40	-	0	30.3	-	288	AA	-
5/17/03	17	1753	AO2	-	CLR	10SM	-	50	10	42	5.5	31	-0.6	48	10	20	-	0	30.3	-	286	AA	-
5/17/03	17	1853	AO2	-	CLR	10SM	-	46	7.8	40	4.3	31	-0.6	56	7	30	-	0	30.3	5	287	AA	-
5/17/03	17	1953	AO2	-	CLR	10SM	-	41	5	38	3.4	34	1.1	76	5	20	-	0	30.3	-	288	AA	-
5/18/03	18	653	AO2	-	CLR	10SM	-	48	8.9	44	6.6	39	3.9	71	6	20	-	0	30.28	0	280	AA	-
5/18/03	18	753	AO2	-	CLR	10SM	-	54	12.2	44	6.4	30	-1.1	40	6	70	-	0	30.28	-	280	AA	-
5/18/03	18	853	AO2	-	CLR	10SM	-	58	14.4	46	7.9	32	0	38	6	80	-	0	30.28	-	281	AA	-
5/18/03	18	953	AO2	-	CLR	10SM	-	62	16.7	48	8.8	31	-0.6	31	5	VRB	-	0	30.28	0	280	AA	-
5/18/03	18	1053	AO2	-	FEW085	10SM	-	64	17.8	50	9.9	34	1.1	33	5	40	-	0	30.28	-	279	AA	-
5/18/03	18	1153	AO2	-	CLR	10SM	-	66	18.9	51	10.6	35	1.7	32	0	0	-	0	30.26	-	274	AA	-
5/18/03	18	1253	AO2	-	FEW090	10SM	-RA	67	19.4	52	11.2	37	2.8	33	8	140	-	0	30.25	8	270	AA	T
5/18/03	18	1353	AO2	-	CLR	10SM	-	68	20	53	11.5	37	2.8	32	10	160	-	0	30.23	-	265	AA	T
5/18/03	18	1453	AO2	-	CLR	10SM	-	66	18.9	51	10.6	35	1.7	32	9	170	-	0	30.24	-	267	AA	-
5/18/03	18	1553	AO2	-	CLR	10SM	-	66	18.9	51	10.8	36	2.2	33	7	150	-	0	30.23	6	263	AA	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/18/03	18	1653	AO2	-	CLR	10SM	-	64	17.8	50	10.1	35	1.7	34	8	150	-	0	30.22	-	261	AA	-
5/18/03	18	1753	AO2	-	CLR	10SM	-	62	16.7	50	9.8	36	2.2	38	4	190	-	0	30.22	-	261	AA	-
5/18/03	18	1853	AO2	-	CLR	10SM	-	58	14.4	49	9.3	39	3.9	50	3	230	-	0	30.23	5	263	AA	-
5/18/03	18	1953	AO2	-	CLR	10SM	-	52	11.1	46	7.7	39	3.9	61	3	220	-	0	30.23	-	264	AA	-
5/19/03	19	653	AO2	-	CLR	10SM	-	58	14.4	51	10.3	43	6.1	58	0	0	-	0	30.25	3	270	AA	-
5/19/03	19	753	AO2	-	CLR	10SM	-	67	19.4	53	11.8	40	4.4	37	3	360	-	0	30.26	-	273	AA	-
5/19/03	19	853	AO2	-	CLR	10SM	-	73	22.8	55	12.7	37	2.8	27	0	0	-	0	30.26	-	273	AA	-
5/19/03	19	953	AO2	-	FEW095	10SM	-RA	76	24.4	56	13.5	38	3.3	25	8	20	-	0	30.25	0	271	AA	T
5/19/03	19	1053	AO2	-	FEW085	10SM	-	76	24.4	59	15	45	7.2	33	6	120	-	0	30.24	-	267	AA	T
5/19/03	19	1153	AO2	-	FEW085	10SM	-	76	24.4	57	14.1	41	5	29	9	140	-	0	30.23	-	263	AA	-
5/19/03	19	1253	AO2	-	FEW085	10SM	-	76	24.4	57	13.9	40	4.4	27	8	130	-	0	30.22	6	260	AA	-
5/19/03	19	1353	AO2	-	FEW095	10SM	-	76	24.4	56	13.5	38	3.3	25	10	150	-	0	30.21	-	257	AA	-
5/19/03	19	1453	AO2	-	CLR	10SM	-	75	23.9	56	13.5	39	3.9	27	10	140	-	0	30.21	-	256	AA	-
5/19/03	19	1553	AO2	-	CLR	10SM	-	73	22.8	55	13.1	39	3.9	29	8	140	-	0	30.2	6	254	AA	-
5/19/03	19	1653	AO2	-	CLR	10SM	-	71	21.7	54	12	36	2.2	28	10	120	-	0	30.2	-	254	AA	-
5/19/03	19	1753	AO2	-	CLR	10SM	-	64	17.8	53	11.8	43	6.1	46	8	130	-	0	30.22	-	259	AA	-
5/19/03	19	1853	AO2	-	CLR	10SM	-	61	16.1	52	11	43	6.1	52	4	150	-	0	30.22	3	262	AA	-
5/19/03	19	1953	AO2	-	CLR	10SM	-	59	15	53	11.5	47	8.3	64	4	200	-	0	30.23	-	263	AA	-
5/20/03	20	653	AO2	-	CLR	10SM	-	59	15	51	10.8	44	6.7	58	4	220	-	0	30.21	2	256	AA	-
5/20/03	20	753	AO2	-	CLR	10SM	-	64	17.8	55	12.5	46	7.8	52	0	0	-	0	30.2	-	253	AA	-
5/20/03	20	853	AO2	-	CLR	10SM	-	70	21.1	57	13.9	46	7.8	42	4	VRB	-	0	30.18	-	247	AA	-
5/20/03	20	953	AO2	-	CLR	10SM	-	70	21.1	60	15.4	52	11.1	53	8	120	-	0	30.17	8	244	AA	-
5/20/03	20	1053	AO2	-	CLR	10SM	-	71	21.7	59	15.1	50	10	47	10	120	-	0	30.16	-	241	AA	-
5/20/03	20	1153	AO2	-	CLR	10SM	-	72	22.2	57	13.9	44	6.7	37	9	150	-	0	30.17	-	242	AA	-
5/20/03	20	1253	AO2	-	CLR	10SM	-	72	22.2	56	13.2	41	5	33	8	200	-	0	30.15	8	238	AA	-
5/20/03	20	1353	AO2	-	CLR	10SM	-	72	22.2	55	12.8	39	3.9	30	6	VRB	-	0	30.15	-	235	AA	-
5/20/03	20	1453	AO2	-	FEW080	10SM	-	70	21.1	54	12.1	38	3.3	31	10	190	G	15	30.13	-	230	AA	-
5/20/03	20	1553	AO2	-	CLR	10SM	-	67	19.4	52	11.2	37	2.8	33	11	220	G	16	30.13	6	229	AA	-
5/20/03	20	1653	AO2	-	FEW080	10SM	-	66	18.9	52	11.4	39	3.9	37	6	200	-	0	30.11	-	224	AA	-
5/20/03	20	1753	AO2	-	CLR	10SM	-	63	17.2	52	11.1	41	5	45	6	VRB	-	0	30.1	-	221	AA	-
5/20/03	20	1853	AO2	-	CLR	10SM	-	60	15.6	52	11.1	44	6.7	56	4	VRB	-	0	30.09	6	216	AA	-
5/20/03	20	1953	AO2	-	CLR	10SM	-	56	13.3	50	10.2	45	7.2	67	3	VRB	-	0	30.09	-	216	AA	-
5/21/03	21	653	AO2	-	CLR	10SM	-	54	12.2	52	11.4	51	10.6	90	6	200	-	0	30.04	3	198	AA	-
5/21/03	21	753	AO2	-	CLR	10SM	-	61	16.1	55	12.8	50	10	67	5	VRB	-	0	30.04	-	198	AA	-
5/21/03	21	853	AO2	-	CLR	10SM	-	60	15.6	55	12.6	50	10	70	7	210	-	0	30.03	-	197	AA	-
5/21/03	21	953	AO2	-	CLR	10SM	-	60	15.6	55	12.9	51	10.6	72	9	160	-	0	30.03	6	197	AA	-
5/21/03	21	1053	AO2	-	CLR	10SM	-	65	18.3	57	14	51	10.6	61	9	230	-	0	30.03	-	195	AA	-
5/21/03	21	1153	AO2	-	BKN050	10SM	-RA	62	16.7	57	13.9	53	11.7	73	7	220	-	0	30.03	-	195	AA	T
5/21/03	21	1253	AO2	-	SCT015	8SM	-RA	58	14.4	56	13.5	55	12.8	90	7	230	-	0	30.03	3	197	AA	0.02
5/21/03	21	1343	AO2	-	FEW007 BKN021 BKN050	4SM	-RA BR	-	-	-	-	-	-		7	230	-	0		-		SP	-
5/21/03	21	1353	AO2	-	FEW007 SCT019 OVC025	5SM	-RA BR	58	14.4	57	14.1	57	13.9	97	7	230	-	0	30.04	-	198	AA	0.03
5/21/03	21	1435	AO2	-	BKN006 OVC020	4SM	-RA BR	-	-	-	-	-	-		4	VRB	-	0		-		SP	-
5/21/03	21	1453	AO2	-	OVC006	3SM	-RA BR	58	14.4	58	14.4	58	14.4	100	5	220	-	0	30.04	-	199	AA	0.02
5/21/03	21	1553	AO2	-	SCT006 OVC014	4SM	-RA BR	58	14.4	58	14.4	58	14.4	100	4	VRB	-	0	30.05	3	202	AA	0.02
5/21/03	21	1602	AO2	-	FEW006 BKN016 OVC020	3SM	-RA BR	-	-	-	-	-	-		5	210	-	0		-		SP	-
5/21/03	21	1626	AO2	-	BKN004 OVC022	2 1/2SM	BR	-	-	-	-	-	-		4	220	-	0		-		SP	-
5/21/03	21	1653	AO2	-	OVC004	1 3/4SM	-RA BR	57	13.9	57	13.9	57	13.9	100	4	VRB	-	0	30.05	-	203	AA	0.01
5/21/03	21	1713	AO2	-	OVC004	2SM	-RA BR	-	-	-	-	-	-		4	220	-	0		-		SP	-
5/21/03	21	1730	AO2	-	OVC004	3SM	BR	-	-	-	-	-	-		4	200	-	0		-		SP	-
5/21/03	21	1753	AO2	-	OVC004	3SM	-RA BR	56	13.3	56	13.3	56	13.3	100	4	200	-	0	30.06	-	207	AA	0.02

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/21/03	21	1823	AO2	-	BKN002 OVC006	2 1/2SM	BR	-	-	-	-	-	-		3	220	-	0		-		SP	-
5/21/03	21	1846	AO2	-	OVC002	3SM	BR	-	-	-	-	-	-		0	0	-	0		-		SP	-
5/21/03	21	1853	AO2	-	OVC002	3SM	BR	56	13.3	56	13.3	56	13.3	100	0	0	-	0	30.07	3	209	AA	T
5/21/03	21	1953	AO2	-	BKN002 OVC006	3SM	BR	55	12.8	55	12.8	55	12.8	100	0	0	-	0	30.08	-	213	AA	-
5/22/03	22	653	AO2	-	OVC015	10SM	-	52	11.1	50	10	48	8.9	86	10	40	-	0	30.18	1	247	AA	-
5/22/03	22	753	AO2	-	OVC019	10SM	-	53	11.7	50	10	47	8.3	80	10	30	-	0	30.2	-	253	AA	-
5/22/03	22	853	AO2	-	OVC017	10SM	-	53	11.7	50	10	47	8.3	80	7	50	-	0	30.2	-	253	AA	-
5/22/03	22	953	AO2	-	OVC023	10SM	-	55	12.8	50	10.3	46	7.8	72	13	40	-	0	30.2	1	254	AA	T
5/22/03	22	1053	AO2	-	SCT027 OVC039	10SM	-	56	13.3	50	10	44	6.7	65	13	60	G	16	30.2	-	254	AA	-
5/22/03	22	1153	AO2	-	OVC037	10SM	-	55	12.8	49	9.3	42	5.6	62	11	50	G	16	30.2	-	253	AA	-
5/22/03	22	1253	AO2	-	OVC035	10SM	-	54	12.2	50	9.7	45	7.2	72	9	40	-	0	30.2	5	254	AA	-
5/22/03	22	1353	AO2	-	OVC033	10SM	-RA	52	11.1	49	9.2	45	7.2	77	12	30	-	0	30.21	-	255	AA	T
5/22/03	22	1453	AO2	-	OVC033	4SM	-RA BR	50	10	49	9.2	47	8.3	89	8	40	-	0	30.22	-	258	AA	T
5/22/03	22	1553	AO2	-	OVC035	6SM	-RA BR	50	10	49	9.7	49	9.4	96	9	20	-	0	30.21	0	256	AA	0.01
5/22/03	22	1653	AO2	-	SCT011 OVC031	10SM	-	50	10	49	9.4	48	8.9	93	10	40	-	0	30.2	-	254	AA	0.01
5/22/03	22	1706	AO2	-	BKN011 OVC031	9SM	-	-	-	-	-	-	-		10	30	-	0		-		SP	-
5/22/03	22	1728	AO2	-	SCT011 OVC029	8SM	-	-	-	-	-	-	-		11	30	-	0		-		SP	-
5/22/03	22	1753	AO2	-	FEW011 OVC029	8SM	-	50	10	49	9.4	48	8.9	93	8	40	G	14	30.19	-	251	AA	-
5/22/03	22	1853	AO2	-	OVC029	9SM	-	50	10	49	9.4	48	8.9	93	6	40	-	0	30.2	5	252	AA	T
5/22/03	22	1930	AO2	-	BKN010 OVC029	7SM	-RA	-	-	-	-	-	-		6	40	-	0		-		SP	-
5/22/03	22	1945	AO2	-	BKN008 OVC029	7SM	-RA	-	-	-	-	-	-		7	40	-	0		-		SP	-
5/22/03	22	1953	AO2	-	BKN008 OVC027	7SM	-RA	49	9.4	48	9.1	48	8.9	97	9	40	-	0	30.2	-	255	AA	0.02
5/23/03	23	653	AO2	-	OVC006	5SM	-RA BR	49	9.4	48	9.1	48	8.9	97	9	20	-	0	30.17	0	243	AA	0.02
5/23/03	23	713	AO2	-	OVC004	2SM	-RA BR	-	-	-	-	-	-		8	30	-	0		-		SP	-
5/23/03	23	724	AO2	-	OVC004	1 3/4SM	-RA BR	-	-	-	-	-	-		7	30	-	0		-		SP	-
5/23/03	23	742	AO2	-	OVC004	2SM	-RA BR	-	-	-	-	-	-		7	30	-	0		-		SP	-
5/23/03	23	753	AO2	-	OVC004	3SM	-RA BR	50	10	50	10	50	10	100	9	20	-	0	30.17	-	242	AA	0.01
5/23/03	23	853	AO2	-	OVC004	4SM	BR	51	10.6	51	10.6	51	10.6	100	6	40	-	0	30.16	-	241	AA	T
5/23/03	23	953	AO2	-	OVC004	4SM	BR	52	11.1	51	10.8	51	10.6	97	10	40	-	0	30.16	6	240	AA	-
5/23/03	23	1053	AO2	-	OVC004	8SM	-	52	11.1	51	10.8	51	10.6	97	11	30	-	0	30.16	-	239	AA	-
5/23/03	23	1153	AO2	-	OVC004	6SM	BR	53	11.7	52	11.4	52	11.1	96	10	20	-	0	30.15	-	238	AA	-
5/23/03	23	1253	AO2	-	OVC004	9SM	-	53	11.7	52	11.4	52	11.1	96	9	20	-	0	30.15	5	238	AA	-
5/23/03	23	1332	AO2	-	OVC006	10SM	-	-	-	-	-	-	-		10	40	-	0		-		SP	-
5/23/03	23	1353	AO2	-	OVC006	10SM	-	54	12.2	52	11.4	51	10.6	90	12	30	-	0	30.15	-	235	AA	-
5/23/03	23	1453	AO2	-	OVC006	10SM	-	53	11.7	51	10.8	50	10	89	10	30	-	0	30.13	-	231	AA	-
5/23/03	23	1553	AO2	-	OVC006	10SM	-	52	11.1	51	10.5	50	10	93	8	30	-	0	30.13	6	231	AA	-
5/23/03	23	1653	AO2	-	OVC004	8SM	-	51	10.6	50	10.3	50	10	96	9	40	-	0	30.13	-	229	AA	-
5/23/03	23	1753	AO2	-	OVC004	10SM	-	50	10	49	9.7	49	9.4	96	10	30	-	0	30.14	-	233	AA	-
5/23/03	23	1853	AO2	-	OVC004	7SM	-RA	49	9.4	49	9.4	49	9.4	100	7	30	-	0	30.14	3	233	AA	T
5/23/03	23	1953	AO2	-	OVC004	10SM	-RA	49	9.4	48	9.1	48	8.9	97	10	20	-	0	30.14	-	232	AA	0.01
5/24/03	24	653	AO2	-	OVC006	10SM	-	48	8.9	48	8.9	48	8.9	100	8	30	-	0	30.05	5	203	AA	0.05
5/24/03	24	753	AO2	-	OVC006	7SM	-RA	48	8.9	48	8.9	48	8.9	100	8	30	-	0	30.05	-	203	AA	0.01
5/24/03	24	853	AO2	-	OVC006	8SM	-	49	9.4	48	9.1	48	8.9	97	12	30	-	0	30.04	-	201	AA	T
5/24/03	24	953	AO2	-	OVC006	4SM	BR	50	10	49	9.7	49	9.4	96	10	30	-	0	30.04	8	198	AA	-
5/24/03	24	1022	AO2	-	OVC004	4SM	BR	-	-	-	-	-	-		12	30	G	15		-		SP	-
5/24/03	24	1053	AO2	-	OVC004	10SM	-	50	10	49	9.7	49	9.4	96	11	30	-	0	30.03	-	196	AA	-
5/24/03	24	1139	AO2	-	OVC006	10SM	-	-	-	-	-	-	-		12	20	-	0		-		SP	-
5/24/03	24	1153	AO2	-	OVC006	10SM	-	52	11.1	51	10.5	50	10	93	12	30	-	0	30.02	-	192	AA	-
5/24/03	24	1253	AO2	-	OVC008	10SM	-	53	11.7	51	10.8	50	10	89	14	20	-	0	30	8	187	AA	-
5/24/03	24	1353	AO2	-	OVC008	10SM	-	52	11.1	50	10.2	49	9.4	89	13	30	-	0	29.99	-	181	AA	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/24/03	24	1453	AO2	-	OVC008	10SM	-	52	11.1	51	10.5	50	10	93	13	30	-	0	29.96	-	171	AA	T
5/24/03	24	1530	AO2	-	OVC006	2 1/2SM	RA BR	-	-	-	-	-	-		12	20	-	0		-		SP	-
5/24/03	24	1545	AO2	-	OVC006	7SM	-RA	-	-	-	-	-	-		12	20	-	0		-		SP	-
5/24/03	24	1553	AO2	-	OVC008	10SM	-	50	10	49	9.7	49	9.4	96	14	10	-	0	29.95	6	170	AA	0.02
5/24/03	24	1618	AO2	-	BKN006 OVC010	10SM	-RA	-	-	-	-	-	-		13	10	-	0		-		SP	-
5/24/03	24	1653	AO2	-	OVC004	6SM	-RA BR	49	9.4	49	9.4	49	9.4	100	13	10	-	0	29.95	-	167	AA	0.03
5/24/03	24	1753	AO2	-	OVC004	4SM	-RA BR	49	9.4	49	9.4	49	9.4	100	10	10	G	18	29.92	-	159	AA	0.02
5/24/03	24	1853	AO2	-	OVC004	6SM	-RA BR	49	9.4	48	9.1	48	8.9	97	10	10	-	0	29.91	8	155	AA	0.01
5/24/03	24	1953	AO2	-	BKN004 OVC007	5SM	-RA BR	49	9.4	49	9.4	49	9.4	100	10	360	-	0	29.88	-	146	AA	0.03
5/25/03	25	653	AO2	-	OVC007	10SM	-	49	9.4	48	9.1	48	8.9	97	10	330	-	0	29.92	1	158	AA	-
5/25/03	25	753	AO2	-	OVC007	10SM	-	50	10	49	9.4	48	8.9	93	11	350	G	16	29.94	-	166	AA	-
5/25/03	25	853	AO2	-	OVC009	10SM	-	52	11.1	50	10.2	49	9.4	89	11	350	-	0	29.94	-	167	AA	-
5/25/03	25	946	AO2	-	OVC011	10SM	-	-	-	-	-	-	-		15	360	G	18		-		SP	-
5/25/03	25	953	AO2	-	OVC011	10SM	-	54	12.2	51	10.7	49	9.4	83	12	10	G	18	29.96	1	171	AA	-
5/25/03	25	1053	AO2	-	OVC013	10SM	-	55	12.8	52	11.3	50	10	83	8	350	-	0	29.97	-	177	AA	-
5/25/03	25	1143	AO2	-	OVC015	10SM	-	-	-	-	-	-	-		13	10	G	17		-		SP	-
5/25/03	25	1153	AO2	-	OVC015	10SM	-	56	13.3	53	11.6	50	10	81	12	30	-	0	29.97	-	175	AA	-
5/25/03	25	1237	AO2	-	OVC013	10SM	-	-	-	-	-	-	-		13	10	G	19		-		SP	-
5/25/03	25	1253	AO2	-	OVC013	10SM	-	55	12.8	52	11.3	50	10	83	13	350	G	17	29.96	0	173	AA	-
5/25/03	25	1353	AO2	-	OVC013	10SM	-	55	12.8	52	11.3	50	10	83	7	350	-	0	29.99	-	181	AA	-
5/25/03	25	1453	AO2	-	OVC013	10SM	-	55	12.8	52	11.3	50	10	83	6	10	-	0	29.99	-	180	AA	-
5/25/03	25	1553	AO2	-	OVC013	10SM	-	54	12.2	52	11	50	10	87	6	30	-	0	29.99	1	183	AA	-
5/25/03	25	1653	AO2	-	OVC013	10SM	-	53	11.7	51	10.8	50	10	89	7	60	-	0	29.99	-	184	AA	-
5/25/03	25	1753	AO2	-	OVC011	10SM	-	53	11.7	51	10.5	49	9.4	86	6	70	-	0	30	-	187	AA	-
5/25/03	25	1853	AO2	-	OVC011	10SM	-	53	11.7	51	10.5	49	9.4	86	0	0	-	0	30.03	3	195	AA	-
5/25/03	25	1953	AO2	-	OVC013	10SM	-	53	11.7	51	10.5	49	9.4	86	3	70	-	0	30.02	-	194	AA	-
5/18/04	18	653	AO2	-	OVC001	3/4SM	BR	59	15	59	15	59	15	100	10	200	-	0	30.18	8	246	AA	-
5/18/04	18	735	AO2	-	OVC001	1 1/4SM	BR	-	-	-	-	-	-		11	200	-	0		-		SP	-
5/18/04	18	746	AO2	-	OVC001	2 1/2SM	BR	-	-	-	-	-	-		9	200	-	0		-		SP	-
5/18/04	18	753	AO2	-	OVC001	4SM	BR	60	15.6	60	15.6	60	15.6	100	10	200	-	0	30.17	-	242	AA	-
5/18/04	18	802	AO2	-	OVC001	2SM	BR	-	-	-	-	-	-		11	210	-	0		-		SP	-
5/18/04	18	853	AO2	-	OVC001	2SM	BR	59	15	59	15	59	15	100	12	210	-	0	30.16	-	239	AA	-
5/18/04	18	953	AO2	-	OVC001	2SM	BR	60	15.6	60	15.6	60	15.6	100	13	200	-	0	30.14	8	232	AA	-
5/18/04	18	958	AO2	-	OVC003	5SM	BR	-	-	-	-	-	-		9	210	-	0		-		SP	-
5/18/04	18	1053	AO2	-	OVC003	6SM	BR	62	16.7	61	16.3	61	16.1	96	14	210	-	0	30.11	-	223	AA	-
5/18/04	18	1153	AO2	-	OVC003	3SM	BR	63	17.2	62	16.9	62	16.7	97	16	210	G	21	30.09	-	214	AA	-
5/18/04	18	1216	AO2	-	OVC005	5SM	BR	-	-	-	-	-	-		15	200	-	0		-		SP	-
5/18/04	18	1253	AO2	-	OVC005	5SM	BR	64	17.8	63	17.1	62	16.7	93	15	210	G	21	30.06	7	205	AA	-
5/18/04	18	1353	AO2	-	OVC009	5SM	BR	67	19.4	65	18.1	63	17.2	87	13	200	-	0	30.04	-	198	AA	-
5/18/04	18	1430	AO2	-	OVC011	5SM	BR	-	-	-	-	-	-		12	200	-	0		-		SP	-
5/18/04	18	1453	AO2	-	OVC011	5SM	BR	67	19.4	65	18.1	63	17.2	87	14	220	-	0	30.01	-	189	AA	-
5/18/04	18	1526	AO2	-	BKN009	5SM	BR	-	-	-	-	-	-		14	200	-	0		-		SP	-
5/18/04	18	1553	AO2	-	BKN009	6SM	BR	65	18.3	63	17.3	62	16.7	90	12	210	-	0	29.98	8	179	AA	-
5/18/04	18	1607	AO2	-	SCT009	6SM	BR	-	-	-	-	-	-		11	210	-	0		-		SP	-
5/18/04	18	1653	AO2	-	FEW011	6SM	BR	65	18.3	63	17	61	16.1	87	13	220	G	19	29.96	-	174	AA	-
5/18/04	18	1714	AO2	-	BKN011	6SM	BR	-	-	-	-	-	-		11	220	G	22		-		SP	-
5/18/04	18	1753	AO2	-	BKN011	5SM	BR	63	17.2	62	16.5	61	16.1	93	15	230	G	19	29.95	-	168	AA	-
5/18/04	18	1825	AO2	-	SCT011	5SM	BR	-	-	-	-	-	-		11	200	-	0		-		SP	-
5/18/04	18	1853	AO2	-	SCT011	5SM	BR	62	16.7	61	16.1	60	15.6	93	12	230	-	0	29.93	8	162	AA	-
5/18/04	18	1916	AO2	-	BKN011	6SM	BR	-	-	-	-	-	-		12	220	-	0		-		SP	-

Table C3-4: Hourly Weather Data for Boating Assessment

Date	Day	Time	Station Type	Maint Indic	Sky Conditions	Visibility	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (KT)	Wind Dir	Wind Char. Gusts (KT)	Val. for Wind Char.	Station Pressure	Press Tend	Sea Level Pressure	Report Type	Precip. Total
5/18/04	18	1953	AO2	-	BKN011	6SM	BR	61	16.1	60	15.5	59	15	93	11	230	-	0	29.92	-	159	AA	-
5/22/04	22	653	AO2	-	OVC001	1 1/4SM	BR	57	13.9	57	13.9	57	13.9	100	0	0	-	0	29.9	3	153	AA	-
5/22/04	22	743	AO2	-	OVC003	1SM	BR	-	-	-	-	-	-		5	250	-	0		-		SP	-
5/22/04	22	753	AO2	-	OVC003	1SM	BR	59	15	59	15	59	15	100	3	VRB	-	0	29.92	-	158	AA	-
5/22/04	22	844	AO2	-	OVC005	1 1/2SM	BR	-	-	-	-	-	-		0	0	-	0		-		SP	-
5/22/04	22	853	AO2	-	OVC005	3SM	BR	61	16.1	60	15.8	60	15.6	97	0	0	-	0	29.9	-	150	AA	-
5/22/04	22	953	AO2	-	OVC005	3SM	BR	63	17.2	62	16.9	62	16.7	97	0	0	-	0	29.89	8	147	AA	-
5/22/04	22	1030	AO2	-	OVC005	2 1/2SM	BR	-	-	-	-	-	-		3	210	-	0		-		SP	-
5/22/04	22	1046	AO2	-	OVC005	1 1/4SM	BR	-	-	-	-	-	-		6	120	-	0		-		SP	-
5/22/04	22	1053	AO2	-	OVC005	1SM	BR	61	16.1	61	16.1	61	16.1	100	5	130	-	0	29.89	-	149	AA	-
5/22/04	22	1153	AO2	-	OVC005	2SM	BR	56	13.3	56	13.3	56	13.3	100	9	10	-	0	29.89	-	150	AA	0.01
5/22/04	22	1240	AO2	-	OVC005	3SM	BR	-	-	-	-	-	-		5	20	-	0		-		SP	-
5/22/04	22	1253	AO2	-	OVC005	4SM	BR	55	12.8	54	12.5	54	12.2	96	6	360	-	0	29.89	8	147	AA	-
5/22/04	22	1353	AO2	-	OVC007	7SM	-	52	11.1	51	10.5	50	10	93	10	10	G	16	29.9	-	152	AA	-
5/22/04	22	1453	AO2	-	OVC007	8SM	-	51	10.6	50	10	49	9.4	92	6	360	-	0	29.88	-	146	AA	-
5/22/04	22	1553	AO2	-	OVC007	8SM	-	50	10	49	9.4	48	8.9	93	9	360	-	0	29.88	8	146	AA	-
5/22/04	22	1653	AO2	-	OVC007	10SM	-	50	10	49	9.4	48	8.9	93	5	10	-	0	29.9	-	151	AA	-
5/22/04	22	1753	AO2	-	OVC009	10SM	-	50	10	48	9.1	47	8.3	89	6	20	-	0	29.88	-	146	AA	-
5/22/04	22	1853	AO2	-	OVC009	10SM	-	49	9.4	48	8.9	47	8.3	93	6	20	-	0	29.88	8	144	AA	-
5/22/04	22	1911	AO2	-	OVC007	9SM	-	-	-	-	-	-	-		5	360	-	0		-		SP	-
5/22/04	22	1953	AO2	-	OVC007	5SM	BR	48	8.9	48	8.9	48	8.9	100	5	10	-	0	29.89	-	149	AA	-

Table C3-5: Weather and Day Type Adjusted Launch Rates

Period	Days	Day of Week	Day Type	Weather	Summary	Small Craft Advisory	Weather Summary	Weather Factor	Launches Taken per Inactive Peak Boat (Includes Day Type Factor)	Launches Taken per Inactive Peak Boat (Weather-Adjusted)
Baseline	5/18/2004	Tue	WD	foul	wind, weather	n/a	n/a	n/a	n/a	0.081
	5/22/2004	Sat	WE	foul	weather	n/a	n/a	n/a	n/a	0.112
With Spill	4/28/2003	Mon	WD	foul	wind	1	foul	1.000	0.081	0.081
	4/29/2003	Tue	WD	fair	afternoon rain and clouds	1	foul	1.000	0.081	0.081
	4/30/2003	Wed	WD	good	n/a	0	non-foul	1.518	0.081	0.123
	5/1/2003	Thu	WD	foul	wind, weather	0	foul	1.000	0.081	0.081
	5/2/2003	Fri	F	foul	wind	0	foul	1.000	0.094	0.094
	5/3/2003	Sat	WE	foul	wind	1	foul	1.000	0.112	0.112
	5/4/2003	Sun	WE	good	n/a	0	non-foul	2.334	0.112	0.261
	5/5/2003	Mon	WD	good	n/a	0	non-foul	1.518	0.081	0.123
	5/6/2003	Tue	WD	fair	wind, weather	0	non-foul	1.518	0.081	0.123
	5/7/2003	Wed	WD	good	n/a	0	non-foul	1.518	0.081	0.123
	5/8/2003	Thu	WD	foul	weather	1	foul	1.000	0.081	0.081
	5/9/2003	Fri	F	good	n/a	0	non-foul	1.518	0.094	0.143
	5/10/2003	Sat	WE	fair	wind	0	non-foul	2.334	0.112	0.261
	5/11/2003	Sun	WE	good	n/a	0	non-foul	2.334	0.112	0.261
	5/12/2003	Mon	WD	good	n/a	0	non-foul	1.518	0.081	0.123
	5/13/2003	Tue	WD	fair	afternoon rain and clouds	0	non-foul	1.518	0.081	0.123
	5/14/2003	Wed	WD	fair	afternoon rain and clouds	0	non-foul	1.518	0.081	0.123
	5/15/2003	Thu	WD	good	n/a	0	non-foul	1.518	0.081	0.123
	5/16/2003	Fri	F	foul	wind	1	foul	1.000	0.094	0.094
	5/17/2003	Sat	WE	foul	wind	1	foul	1.000	0.112	0.112
	5/18/2003	Sun	WE	good	n/a	1	foul	1.000	0.112	0.112
	5/19/2003	Mon	WD	good	n/a	0	non-foul	1.518	0.081	0.123
	5/20/2003	Tue	WD	fair	wind	0	non-foul	1.518	0.081	0.123
	5/21/2003	Wed	WD	foul	weather	0	foul	1.000	0.081	0.081
	5/22/2003	Thu	WD	foul	wind, weather	0	foul	1.000	0.081	0.081
	5/23/2003	Fri	F	foul	weather	0	foul	1.000	0.094	0.094
	5/24/2003	Sat	WE	fair	wind, weather	1	foul	1.000	0.112	0.112
	5/25/2003	Sun	WE	foul	wind, weather	1	foul	1.000	0.112	0.112

APPENDIX C4: SURVEYS AND PROPORTION OF TRIPS FOREGONE

Buzzards Bay Boating Use Assessment

Interview Questions:

- Response/Actions during and after spill
- Effects of the spill on recreational boating
- Figures regarding cancellations, boats in water, trips per week
- Records available

Note: the following is taken from the TWG log of conversations with marina personnel and harbormasters. Any information that could lead to identification of individuals or businesses has been redacted.

Block Island, RI to Westport, MA

[redacted]

Spoke to [redacted] *who indicated there were no effects of spill.*

[redacted]

[redacted]

[redacted]

Spoke with [redacted] *– very minimal effect – couple of boats were oiled while taking trips – not really effect on recreation – up in the river is where most of the boats are located*

Dartmouth, MA to Fairhaven, MA

[redacted]

Calls, questions, locally okay. A few people may have delayed putting boats in the water.

[redacted]

[redacted]

[redacted]

– she said there was no effect of spill and no complaints from boaters.

[redacted]

Impact not severe. No effect on boats or boaters. By the time they were launching boats, oil had come ashore.

[redacted]

[redacted]

Customers had a few comments about the oil, little effects.

[redacted]

[redacted]

Spoke with [redacted] *said there possibly some effect on people putting boats in the water and trips – noted that some boats that did take trips were oiled – no "major" changes in use, no oil at this location.*

[redacted]

Spoke with [redacted] *one person delayed for two weeks – no other delays – no boats oiled – marina not oiled.*

[redacted]

Some delays in putting boats in the water. A few oiled boats. Some didn't put boats in because of shellfishing restrictions. Booms kept oil out of area for the most part.

[redacted]

[redacted]

No effects in the harbor. Several boats were oiled, including a catamaran and some fiberglass boats. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

No impact.

[redacted]

[redacted]

S*poke with* [redacted] *– 1 person out of* [redacted] *delayed putting boat in the water – there were a few concerns about boats potentially getting oiled if trips were taken – no oil at the marina – a few people who took trips saw apparent surface oiling, but were able to avoid it*

Mattapoisett, MA to Marion, MA

[redacted]

Held off a week or two. No boats went out for at least a week, by recommendation of the marina. Six boats were oiled, moorings were oiled. One or two weekends were affected. An inconvenience, not a big impact.

[redacted]

[redacted]

S*poke with* [redacted] *– some people postponed putting boats in the water – some boats had to be cleaned – guessed effects lasted up to a month, but noted that it was hard to recall – thought that it corresponded to when the area was cleaned – said that they might be able to produce records of people putting boats in the water, but it would require substantial effort*

[redacted]

Spoke with [redacted] people couldn't put their boats in for about a month. [redacted]

[redacted]

Spoke with [redacted] – some boats were oiled, some moorings had to be replaced – th [redacted]

[redacted]

Spoke with [redacted] there were effects, both people taking trips and putting boats in water, some boats had to be pulled out and cleaned – delays on putting boats in a month to 6 weeks, 2 weeks to a month of people who's boats were in water not taking trips because worried they would be oiled

[redacted]

Town boomed off area. Stopped boating use for two days. Boats in the water could not be used. Effects lasted up to a week. There was a no-wake restriction [redacted].

[redacted]

[redacted]

Didn't get much oil. Harbormaster placed a boom across north end of Harbor. [redacted]. *A few customers asked to hold off launching their boats.*

[redacted]

[redacted]

[redacted]

Spoke with [redacted] boomed off for 7 days so boats couldn't launch or be put in water – there was a wake restriction afterwards – no oiling at the marina – a couple of weeks of total impact.

[redacted]

[redacted] *– harbor closed to all boating traffic for almost a week – season got off to a slow start*

Wareham, MA to Gosnold, MA

[redacted]

Booms were ready, no oiling in our area, no restrictions were imposed or requested by the marina.

[redacted]

No actions, no oil, no effect.

[redacted]

[redacted]

[redacted] *– spoke with* [redacted] *- little bit of oiling in the area – didn't hear of boats being oiled – everything was same as normal.*

[redacted]

Some concern, didn't stop anyone from going out. A couple of people got cleanup equipment stuck in their propellers and had to fix that.

[redacted]

[redacted]

[redacted]

Some calls from people postponing putting boats in water. No oiling impacts.

[redacted]

[redacted]

No Impacts

[redacted]

3) [redacted]

No oil impacts in their location.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] *No traces of oil, or oiling of boats*

No advisories or restrictions [redacted]

[redacted]

No effects.

[redacted]

[redacted]

No effects.

[redacted]

[redacted]

[redacted]

No effects

[redacted]

4) [redacted].

[redacted] *spoke to* [redacted] *no oil or effects.*

[redacted]

[redacted]

[redacted] *spoke with* [redacted] *–no effect of oiling – no delays in people putting in boats – no oiling – there was a little concern early on that the oil would head that direction*

[redacted]

[redacted] *spoke* [redacted] *didn't hear of any complaints – effects possible, but not aware of any from Bourne to Woods Hole*

[redacted]

Spoke with [redacted] *– no effect* [redacted]

Table C4-1: Proportion of Baseline Trips Foregone

Segment	Township	Proportion of Segment Open																											
		4/28/03	*4/29/03*	*4/30/03*	*5/1/03*	*5/2/03*	*5/3/03*	*5/4/03*	*5/5/03*	*5/6/03*	*5/7/03*	*5/8/03*	*5/9/03*	*5/10/03*	*5/11/03*	*5/12/03*	*5/13/03*	*5/14/03*	*5/15/03*	*5/16/03*	*5/17/03*	*5/18/03*	*5/19/03*	*5/20/03*	*5/21/03*	*5/22/03*	*5/23/03*	*5/24/03*	*5/25/03*
1	RI	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2	RI	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3	Westport	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
4	Westport/Dartmouth	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
5	Dartmouth	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
6	Dartmouth	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
7	Dartmouth/Fairhaven	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
8	Fairhaven	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
9	Fairhaven	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
10	Mattapoisett	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%	14.3%	21.4%	28.6%	35.7%	42.9%	50.0%	53.6%	57.1%	60.7%	64.3%	67.9%	71.4%	75.0%	78.6%	82.1%	85.7%	89.3%	92.9%	96.4%	100.0%
11	Mattapoisett	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%	14.3%	21.4%	28.6%	35.7%	42.9%	50.0%	53.6%	57.1%	60.7%	64.3%	67.9%	71.4%	75.0%	78.6%	82.1%	85.7%	89.3%	92.9%	96.4%	100.0%
12	Marion	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	28.6%	42.9%	57.1%	71.4%	85.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
13	Marion	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	28.6%	42.9%	57.1%	71.4%	85.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
14	Wareham	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
15	Wareham	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
16	Wareham	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
17	Bourne	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
18	Bourne	80.0%	83.3%	86.7%	90.0%	93.3%	96.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
19	N Falmouth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
20	W Falmouth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
21	Woods Hole	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
22	S Falmouth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
23	S Falmouth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
24	S Falmouth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Elapsed Weeks								1							2							3							4

APPENDIX C5: CALCULATION OF LOSSES FROM FIXED LOCATIONS

Table C5-1: Baseline Boats Launched

Segment	Township	Baseline Boats Launched																													
		4/28	4/29	4/30	5/1	5/2	5/3	5/4	5/5	5/6	5/7	5/8	5/9	5/10	5/11	5/12	5/13	5/14	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
1	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Westport	6	6	10	6	8	10	25	13	13	14	10	18	35	37	18	19	20	20	16	20	21	23	24	16	17	20	25	25
4	Westport/Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Dartmouth	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Dartmouth	11	11	17	11	14	18	45	23	24	26	18	33	63	66	32	34	35	37	29	36	37	42	44	30	31	37	45	46
7	Dartmouth/Fairhaven	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1
8	Fairhaven	7	7	11	7	10	14	37	20	22	24	17	33	65	70	35	37	40	42	34	42	44	51	53	36	38	45	56	58
9	Fairhaven	3	3	4	3	3	4	11	6	6	6	4	8	16	17	8	9	9	10	8	9	10	11	12	8	8	10	12	12
10	Mattapoisett	2	2	3	2	3	4	11	6	7	8	6	11	21	23	12	12	13	14	11	14	15	17	18	12	13	16	19	20
11	Mattapoisett	0	0	0	0	0	0	1	1	1	1	0	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2
12	Marion	13	13	19	13	16	20	48	24	25	27	18	34	64	67	33	34	35	36	29	35	36	41	43	29	30	36	43	44
13	Marion	1	1	1	1	1	1	4	2	2	3	2	4	7	8	4	4	4	5	4	5	5	6	6	4	4	5	6	7
14	Wareham	5	5	8	5	7	9	21	11	11	12	8	16	30	31	15	16	17	17	14	17	18	20	21	14	15	17	21	22
15	Wareham	0	0	0	0	0	0	1	0	1	1	0	1	2	2	1	1	1	1	1	2	2	2	2	1	1	2	2	2
16	Wareham	15	15	22	15	18	23	56	28	29	31	21	39	74	77	38	39	40	42	33	40	42	47	49	33	34	40	49	50
17	Bourne	2	2	3	2	3	4	10	5	6	6	5	9	17	19	9	10	10	11	9	11	12	13	14	10	10	12	15	15
18	Bourne	15	15	22	15	18	22	54	26	27	28	19	35	66	68	33	34	35	36	28	35	36	40	41	28	28	34	41	42
19	N Falmouth	6	6	10	6	8	9	23	11	11	12	8	14	26	27	13	13	14	14	11	13	13	15	15	10	11	13	15	15
20	W Falmouth	1	1	1	1	1	2	4	2	2	2	2	3	6	6	3	3	3	3	3	3	3	4	4	3	3	3	4	4
21	Woods Hole	6	6	10	6	8	9	23	11	11	12	8	14	26	27	13	13	13	14	11	13	13	15	15	10	10	12	15	15
22	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		94	94	143	94	118	150	376	189	201	212	147	274	523	548	270	282	293	305	242	298	308	352	363	247	255	305	372	382

Table C5-2: With Spill Boats Launched

Segment	Township	With Spill Boats Launched																													
		4/28	4/29	4/30	5/1	5/2	5/3	5/4	5/5	5/6	5/7	5/8	5/9	5/10	5/11	5/12	5/13	5/14	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25		
1	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	Westport	5	5	8	6	7	10	25	13	13	14	10	18	35	37	18	19	20	20	16	20	21	23	24	16	17	20	25	25		
4	Westport/Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5	Dartmouth	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
6	Dartmouth	9	9	15	10	13	17	45	23	24	26	18	33	63	66	32	34	35	37	29	36	37	42	44	30	31	37	45	46		
7	Dartmouth/Fairhaven	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1		
8	Fairhaven	6	6	10	7	9	14	37	20	22	24	17	33	65	70	35	37	40	42	34	42	44	51	53	36	38	45	56	58		
9	Fairhaven	2	2	3	2	3	4	11	6	6	6	4	8	16	17	8	9	9	10	8	9	10	11	12	8	8	10	12	12		
10	Mattapoisett	0	0	0	0	0	0	0	0	1	2	2	4	9	12	6	7	8	9	8	10	11	14	15	11	12	15	19	20		
11	Mattapoisett	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2		
12	Marion	0	0	0	0	0	0	0	3	7	11	10	24	55	67	33	34	35	36	29	35	36	41	43	29	30	36	43	44		
13	Marion	0	0	0	0	0	0	0	0	1	1	1	3	6	8	4	4	4	5	4	5	5	6	6	4	4	5	6	7		
14	Wareham	4	4	7	5	6	8	21	11	11	12	8	16	30	31	15	16	17	17	14	17	18	20	21	14	15	17	21	22		
15	Wareham	0	0	0	0	0	0	1	0	1	1	0	1	2	2	1	1	1	1	1	2	2	2	2	1	1	2	2	2		
16	Wareham	12	12	19	13	17	22	56	28	29	31	21	39	74	77	38	39	40	42	33	40	42	47	49	33	34	40	49	50		
17	Bourne	2	2	3	2	3	4	10	5	6	6	5	9	17	19	9	10	10	11	9	11	12	13	14	10	10	12	15	15		
18	Bourne	12	12	19	13	17	21	54	26	27	28	19	35	66	68	33	34	35	36	28	35	36	40	41	28	28	34	41	42		
19	N Falmouth	6	6	10	6	8	9	23	11	11	12	8	14	26	27	13	13	14	14	11	13	13	15	15	10	11	13	15	15		
20	W Falmouth	1	1	1	1	1	2	4	2	2	2	2	3	6	6	3	3	3	3	3	3	3	4	4	3	3	3	4	4		
21	Woods Hole	6	6	10	6	8	9	23	11	11	12	8	14	26	27	13	13	13	14	11	13	13	15	15	10	10	12	15	15		
22	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
23	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
24	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total		66	68	106	72	93	121	311	160	174	189	134	255	500	535	264	276	288	300	239	294	304	348	360	245	253	303	371	382		

Table C5-3: Reduction in Launches and Trips

Date	Baseline Launches	With Spill Launches	Reduction in Launches	Trips per launched Boat	Reduction in Trips
4/28	94	66	28	1.88	53
4/29	94	68	26		49
4/30	143	106	36		69
5/1	94	72	22		41
5/2	118	93	25		47
5/3	150	121	29		55
5/4	376	311	65		121
5/5	189	160	29		54
5/6	201	174	26		49
5/7	212	189	23		44
5/8	147	134	13		24
5/9	274	255	18		34
5/10	523	500	23		44
5/11	548	535	13		24
5/12	270	264	6		11
5/13	282	276	6		11
5/14	293	288	6		11
5/15	305	300	5		10
5/16	242	239	4		7
5/17	298	294	4		8
5/18	308	304	4		8
5/19	352	348	4		8
5/20	363	360	3		7
5/21	247	245	2		4
5/22	255	253	1		3
5/23	305	303	1		2
5/24	372	371	1		1
5/25	382	382	0		0
Totals	7,437	7,012	425		799

APPENDIX C6: CALCULATION OF LOSSES FROM BOAT RAMPS

Table C6-1: Empty Trailers at Peak Time

Segment	Township	Empty Trailers at Peak Time
1	RI	0
2	RI	0
3	Westport	0
4	Westport/Dartmouth	0
5	Dartmouth	0
6	Dartmouth	0
7	Dartmouth/Fairhaven	0
8	Fairhaven	8
9	Fairhaven	0
10	Mattapoisett	0.5
11	Mattapoisett	0
12	Marion	0.5
13	Marion	0
14	Wareham	14
15	Wareham	0
16	Wareham	0
17	Bourne	5
18	Bourne	0
19	N Falmouth	0
20	W Falmouth	0
21	Woods Hole	0
22	S Falmouth	0
23	S Falmouth	0
24	S Falmouth	0

Table C6-2: Baseline Boat Ramp Launches

Segment	Township	Baseline Boats Launched																												
		4/28	4/29	4/30	5/1	5/2	5/3	5/4	5/5	5/6	5/7	5/8	5/9	5/10	5/11	5/12	5/13	5/14	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
1	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Westport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Westport/Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Dartmouth/Fairhaven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Fairhaven	5	5	8	5	5	7	17	8	8	8	5	8	17	17	8	8	8	8	5	7	7	8	8	5	5	5	7	7
9	Fairhaven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Mattapoisett	0.3	0.3	0.5	0.3	0.3	0.5	1.1	0.5	0.5	0.5	0.3	0.5	1.1	1.1	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.5	0.5
11	Mattapoisett	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Marion	0.3	0.3	0.5	0.3	0.3	0.5	1.1	0.5	0.5	0.5	0.3	0.5	1.1	1.1	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.5	0.5
13	Marion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Wareham	9	9	14	9	9	13	30	14	14	14	9	14	30	30	14	14	14	14	9	13	13	14	14	9	9	9	13	13
15	Wareham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Wareham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Bourne	3	3	5	3	3	5	11	5	5	5	3	5	11	11	5	5	5	5	3	5	5	5	5	3	3	3	5	5
18	Bourne	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	N Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	W Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Woods Hole	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		18	18	28	18	18	25	59	28	28	28	18	28	59	59	28	28	28	28	18	25	25	28	28	18	18	18	25	25

Table C6-3: With Spill Boat Ramp Launches

Segment	Township	With Spill Boats Launched																												
		4/28	4/29	4/30	5/1	5/2	5/3	5/4	5/5	5/6	5/7	5/8	5/9	5/10	5/11	5/12	5/13	5/14	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
1	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Westport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Westport/Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Dartmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Dartmouth/Fairhaven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Fairhaven	4	4	7	5	5	7	17	8	8	8	5	8	17	17	8	8	8	8	5	7	7	8	8	5	5	5	7	7
9	Fairhaven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Mattapoisett	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.5
11	Mattapoisett	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Marion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.9	1.1	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.5	0.5
13	Marion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Wareham	7	8	12	8	9	12	30	14	14	14	9	14	30	30	14	14	14	14	9	13	13	14	14	9	9	9	13	13
15	Wareham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Wareham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Bourne	3	3	4	3	3	4	11	5	5	5	3	5	11	11	5	5	5	5	3	5	5	5	5	3	3	3	5	5
18	Bourne	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	N Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	W Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Woods Hole	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	S Falmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		14	15	23	16	17	24	57	27	27	27	18	28	59	59	28	28	28	28	18	25	25	28	28	18	18	18	25	25

Table C6-4: Reduction in Boat Ramp Launches and Trips

Date	Baseline Launches	With Spill Launches	Foregone Launches	Trips per launched Boat	Foregone Trips
4/28/03	18	14	4	7.0876	30
4/29/03	18	15	4		26
4/30/03	28	23	5		33
5/1/03	18	16	2		17
5/2/03	18	17	2		13
5/3/03	25	24	2		12
5/4/03	59	57	2		15
5/5/03	28	27	1		6
5/6/03	28	27	1		6
5/7/03	28	27	1		5
5/8/03	18	18	0		3
5/9/03	28	28	0		3
5/10/03	59	59	1		5
5/11/03	59	59	1		4
5/12/03	28	28	0		2
5/13/03	28	28	0		2
5/14/03	28	28	0		1
5/15/03	28	28	0		1
5/16/03	18	18	0		1
5/17/03	25	25	0		1
5/18/03	25	25	0		1
5/19/03	28	28	0		1
5/20/03	28	28	0		1
5/21/03	18	18	0		0
5/22/03	18	18	0		0
5/23/03	18	18	0		0
5/24/03	25	25	0		0
5/25/03	25	25	0		0
Totals	779	752	27		188

APPENDIX C7: BOATING TRIP VALUE BENEFIT TRANSFER

Table C7-1: Boating Value Transfer

Activity	Study	Author	Year	Type	Substitutes (1=Yes,0=No,0.5= Undetermined)	Notes on Substitutes	Location	Value	Year of Value	Adj Value (Feb 2009$)	Substitute Adjustment (Multiplier)	Site Value	Study Average	Activity Avg	Composite Value
Fishing	"Economic Value of Marine Recreational Fishing in the Southeast United States"	Haab, Whitehead, McConnell	2000	RUM - site access	0	Closure of South Atlantic (North Carolina to Florida Atlantic Coast); could only substitute to gulf coast (considerable cost). May to June values reported.	South Atlantic	113.33	2000	139.65	1.00	139.65	118.68	86.05	77.15
Fishing	"Economic Value of Marine Recreational Fishing in the Southeast United States"	Haab, Whitehead, McConnell	2000	RUM - site access	0	Similar to above, but closure is for Gulf.	Gulf Coast	79.29	2000	97.70	1.00	97.70			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	NY	61.43	1989	105.12	1.09	114.58	91.58		
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	NJ	32.24	1989	55.17	1.09	60.14			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	DE	9.05	1989	15.49	1.09	16.88			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	MD	23.68	1989	40.52	1.09	44.17			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	VA	45.97	1989	78.67	1.09	85.75			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	NC	73.97	1989	126.58	1.09	137.97			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	SC	65.31	1989	111.76	1.09	121.82			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	GA	46.47	1989	79.52	1.09	86.68			
Fishing	"The Economic Value of Mid and South Atlantic Sportfishing"	McConnell and Strand	1994	RUM - site access	0.5	Close a state during May/Jun. Substitutes vary by state.	FL	83.77	1989	143.35	1.09	156.25			
Fishing	"Estuary Management and Recreational Fishing Benefits"	Bergstrom, Dorfman, Loomis	2004	TCM/ Intended Behavior	0	Subsitutes not included (had to drop substitute variable due to correlation problems)	LA	30.73	2002	36.25	1.00	54.67	54.67		
Fishing	"Estuary Management and Recreational Fishing Benefits"	Bergstrom, Dorfman, Loomis	2004	TCM/ Intended Behavior	0	Subsitutes not included (had to drop substitute variable due to correlation problems)	LA	49.28	2002	58.13	1.00				
Fishing	"Estuary Management and Recreational Fishing Benefits"	Bergstrom, Dorfman, Loomis	2004	TCM/ Intended Behavior	0	Subsitutes not included (had to drop substitute variable due to correlation problems)	LA	59.04	2002	69.64	1.00				
Fishing	"Substitute Site Measures in a Varying Parameter Model with Application to Recreational Fishing"	Agnello and Han	1993	VPTCM	0	Value presented does not include substitutes. The value is 18% higher than those estimated including substitutes.	NY	22.23	1984	45.40	1.00	45.40	45.40		
Fishing	"An Analysis of the Demand for and Value of Outdoor Recreation in the United States"	Bergstrom and Cordell	1991	Meta	1	Include a substitute index in the meta analysis model.	Saltwater - Nationwide	26.5	1987	49.50	1.18	58.41	58.41		
Fishing	"Benefit Transfer of Outdoor Recreation Demand Studies, 1968-1988"	Walsh, Johnson, McKean	1992	Average Value	Unknown	Multiple studies	Saltwater - Nationwide	72.49	1987	135.40	1.09	147.59	147.59		
Boating (Motorized)	"An Analysis of the Demand for and Value of Outdoor Recreation in the United States"	Bergstrom and Cordell	1991	Meta	1	Include a substitute index in the meta analysis model. May capture substitute activities more than site.	Nationwide	16.32	1987	30.48	1.18	35.97	35.97	66.21	
Boating (Motorized)	"Benefit Transfer of Outdoor Recreation Demand Studies, 1968-1988"	Walsh, Johnson, McKean	1992	Average Value	Unknown	Multiple studies	Nationwide	31.56	1987	58.95	1.09	64.26	64.26		
Boating (Motorized)	"Benefit Transfer of Outdoor Recreation Use Values"	Rosenberger and Loomis	1996	Average Value	Unknown	Multiple studies	NE	66.75	1996	90.27	1.09	98.40	98.40		
Boating (High Value)	"An Analysis of the Demand for and Value of Outdoor Recreation in the United States"	Bergstrom and Cordell	1991	Meta	1	Include a substitute index in the meta analysis model. May capture substitute activities more than site.	Nationwide	27.39	1987	51.16	1.18	60.37	60.37	79.20	
Boating (Non-Motorized)	"Benefit Transfer of Outdoor Recreation Demand Studies, 1968-1988"	Walsh, Johnson, McKean	1992	Average Value	Unknown	Multiple studies	Nationwide	48.68	1987	90.93	1.09	99.11	99.11		
Boating (Float)	"Benefit Transfer of Outdoor Recreation Use Values"	Rosenberger and Loomis	1996	Average Value	Unknown	Multiple studies	NE	52.99	1996	71.66	1.09	78.11	78.11		

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