Independent evaluation of the scientific record pertaining to the allegations of Dr. Paul Houser

Prepared by RESOLVE
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With the assistance of the Science Review Panel

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Executive Summary

RESOLVE convened a panel of eminent scientific and technical experts to investigate the scientific substance of the allegations of scientific misconduct filed by Dr. Paul Houser, formerly Science Integrity Officer for the United State Department of the Interior (DOI) Bureau of Reclamation (BOR). The charge of the panel was to determine whether the allegations of Dr. Houser had merit based on the scientific record available on these issues. The panel was instructed not to consider the other aspects of the complaint.

RESOLVE selected four nationally prominent scientists representing ecology, the practice of natural resources decision-making, ichthyology, and water engineering. The panel was asked to read Dr. Houser's allegations and the many relevant documents in the scientific record. In order to expedite the task of the panel, Dr. Steven Courtney of RESOLVE prepared a summary of the materials and made suggestions as to findings. The panel was convened in Washington, DC with RESOLVE's Dr. Juliana Birkhoff serving as a neutral facilitator (to maintain independence from Dr. Courtney).

The panel members were not instructed to reach consensus but were encouraged to voice their individual opinions. Nevertheless, during the course of the meeting a consensus emerged on most issues and the Panel elected to write a single joint report, presented here.

Although the panelists accepted some of the proposed analysis of Dr. Courtney, their findings differed significantly from his initial proposals, which were presented at the panel meeting. This report therefore truly reflects the opinions of the independent evaluation panel.

The panel discussed the two substantive allegations of Dr. Houser. Regarding the press release issued by the Department of the Interior, the panelists uniformly found that the document was a typical press release with relatively little technical detail. It did not, just as Dr. Houser alleges, discuss uncertainty in any large degree. However, in this it followed the format typically used by DOI and its constituent agencies and bureaus. A survey of many other DOI science-related press releases indicates that uncertainty is almost never discussed in press releases. Hence there is no evidence that the particular press release subject to the complaint differed significantly from other press releases, although such a disclosure of uncertainty would have benefits.

Accompanying the press release was a *Summary of Key Conclusions*, also the subject of an allegation by Dr. Houser. The panel again noted that there was some discussion of uncertainty, and indeed the *Summary*, by suggesting that the benefits of dam removal were exactly quantifiable, could give an impression of 'false precision.' However the panel noted that this *Summary* was just that – a summary of salient points, released to accompany the press release. The *Summary* in no way represented a decision-making document. Indeed the decision-making process (which is on-going) has made extensive use of independent science and public comment. It has been crafted to ensure complete independence of the scientific evaluation –

indeed the process has focused considerable attention on issues of uncertainty. The very issues that were raised by Dr. Houser will therefore be considered in detail by the Department as a consequence of the DOI designed process which was put in place before his complaint. Hence the panel members are of the opinion that Dr. Houser's allegation regarding the *Summary* disregards the extensive scientific record developed to inform decision-making.

Although the panel found that Dr. Houser's allegations have not proven any deviation from normal scientific practice at DOI (and hence no evidence of conspiracy to misrepresent science), the panel nevertheless wish to comment on several aspects of the materials in this case. Firstly, although there is a DOI and (recently adopted) BOR Code of Scientific Integrity and these codes apply to all Departmental or Bureau personnel, it is apparent that the details of implementing this policy have yet to be fully worked out. For instance, the code calls for accurate representation of scientific opinion in all communications. It is unclear whether scientific uncertainty needs to be extensively discussed in all press releases. It is also desirable to avoid conveying 'false precision' when extracting salient points for press releases. Finally one panel member (of four) is concerned that the impacts of climate change and resultant hydrologic and economic uncertainty are not fully explored in the primary science documents (this issue is not relevant to the allegations of Dr. Houser, since the panel member's concerns are in regard to the original analyses, not the Summary or press release).

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I. Statement of Work and the Allegations of Dr. P. Houser

Dr. Paul R. Houser, formerly Science Integrity Officer for the Bureau of Reclamation, has filed allegations suggesting scientific misconduct. RESOLVE has been engaged to investigate these accusations against the scientific record. This is to be a detailed examination of the scientific record only, and will not consider other allegations. Nor will RESOLVE and its scientific advisors make any recommendation on action regarding the issue of whistleblower reprisal included in these allegations, or on whether a formal investigation of misconduct is merited.

From the statement of work provided by DOI:

> *The September 2011 summary document of the 50 federal science and technical reports entitled "Summary of Key Conclusions: Draft EIS/EIR and Related Scientific/Technical Reports" is being questioned and allegations are made that the document contains intentional bias and thus, the authors falsified the reporting of scientific results drawn from studies conducted on the Klamath River. The bias identified in the allegation is that the Summary misrepresented the strength of the case for removal of the Four Facilities. A determination must be made whether the authors of the Summary violated the DOI Scientific Integrity Policy.*

and:

> *In addition, allegations have been made that persons responsible for a draft press release entitled "Studies Show Removing Klamath Dams Could Add Thousands of Jobs and Boost Dwindling Salmon Runs Draft Environmental Analysis also Released, Public Comment Period Opens" violated the Scientific Integrity Policy by failing to explain the uncertainty that underlies such a large undertaking as removing the Four Facilities. In the version reviewed on September 14, 2011 by the Bureau of Reclamation's (BR) Science Advisor, he was concerned that the science be reported accurately including critical uncertainties and caveats although states that the "tone and bias of the final press release scientific reporting was improved" in response to his comments.*

RESOLVE was tasked with evaluating whether the allegations made by Dr. Hauser regarding breaches of DOI's scientific integrity policy are supported by the record.

II. Background information

The Klamath River, its water, and natural resources (including Endangered Species Act listed salmonids) face many challenges and demands. The ongoing controversy and negotiations over the use of water in the Klamath basin have been well documented. The possible removal of four dams and the consequent effects on the river, wildlife, and fish are the subject of much recent federal action. The most pertinent events are shown in the attached timeline (see Figure 1). Essentially, there has been a large effort to describe the system, and the possible effects of different management options on the various resources. This effort culminated in the production of numerous scientific studies and reports. These studies were then analyzed at the species level and reviewed by panels of experts, administered by Atkins Co. These original science documents and species level reviews were then used to prepare a draft Environmental Impact Statement on the issue of dam removal. At the same time an overall summary of all the science documents was prepared. In September 2011, a press release then announced the availability of both the draft Environmental Impact Statement (DEIS) and the underlying science documents. Accompanying this press release was a *Summary of Key Conclusions: Draft EIS/EIR and Related Scientific/Technical Reports* (hereinafter *Summary of Key Conclusions* or *Summary*).

Dr. Houser's allegations were made subsequent to that press release and the accompanying summary of key conclusions, and also the release of the DEIS and draft Science Summary report. Subsequently, numerous public comments were received on the DEIS. The draft Science Summary report was also subjected to rigorous peer review.

Hence it is important to note that Dr. Houser's allegations were filed *after* publication of a final press release, the associated *Summary of Key Conclusions* and *Draft EIS/EIR*, and a *Draft Klamath Dam Review Overview Report*, but before a peer review of the *Overview Report* or Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

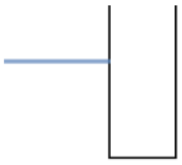

Figure 1. Process diagram of the scientific review process for the Klamath Dam removal studies

III. Procedure followed by RESOLVE

RESOLVE determined that analysis of Dr. Houser's allegations required a familiarity with all the underlying science documents, as well as with the specific subjects of the allegations. Given the scope of this work, it was determined that a two-phase process would be employed. Firstly, RESOLVE's Director of Science, Dr. Steven Courtney, familiarized himself with the entire scientific record, as well as with other ancillary material. He then prepared a written summary of his findings which was presented to an independent panel of experts for their evaluation.

The panel of scientific experts were selected by RESOLVE to cover subject expertise in the primary areas of concern in Dr. Houser's allegations: fish ecology, hydrology and dam operations, and the practice of decision-making in complex ecological management scenarios. Each potential panelist was interviewed for willingness to serve, competency in the areas of the review, and whether there are any potential conflicts of interest in the reviewer's involvement. In any event, five potential panelists were interviewed, with one identified as having a conflict (having worked on reviews of the Klamath system in recent years).

Each of the panelists is a nationally recognized eminent scientist, including a member of the National Academy of Engineering and others who have served on National Research Council boards and committees. Their vitas are attached.

The panel was provided with Dr. Courtney's written analysis and all the base materials, including the allegations of Dr. Houser, the DEIS, press release, *Summary of Key Conclusions*, and the large scientific literature on which all these were based.

The panel was then convened in Washington, DC. This meeting was administered by Dr. Juliana Birkhoff, Vice President of RESOLVE. Dr. Courtney attended to present his draft findings and to provide any materials relevant to the panel discussions. However the meeting was convened and facilitated by Dr. Birkhoff (who had played no role in the development of the initial analysis). In this way, panel discussions were generated by the panel themselves and neutrally facilitated by Dr. Birkhoff. This process was followed to ensure that Dr. Courtney (who had prepared the initial analysis) did not bias the panel in favor of his opinions. In any event, the panel members disagreed with Dr. Courtney's analysis on several issues, thus confirming the independence of their own analysis.

At the panel meeting, the panelists were instructed that their individual opinions were solicited. They were encouraged to discuss the allegations and the scientific record in order to clarify their understanding. However, it was not part of the panel's instructions to reach consensus, and it was made clear to the panelists that they could write individual reports or a joint report as they wished. Following their discussions at the meeting, the panel members reached substantive consensus and elected to write a single joint report, included here.

Full meeting notes of the panel meeting were prepared and are appended.

IV. Report of Science Evaluation Panel

Dr. Houser's two allegations focused primarily on two documents. He alleges:

1. Intentional falsification of scientific materials, designed to manufacture support for a Secretarial Determination in favor of removing dams on the Klamath River. He cites as an example of biased (falsified) reporting of scientific results the September 21, 2011 *Summary of Key Conclusions*
2. Intentionally circumventing policy that ensures the integrity of science in the draft and final press release of September 2011.

The essence of Dr. Houser's two allegations can be summarized thus:

A. The Summary of Key Conclusions does not capture the full range of uncertainty expressed by the species summary panels and their reports, and reports only positive results favorable to dam removal.

B. The Press release of September 14, 2011 does not report uncertainty and is biased towards reporting a favorable outcome from dam removal

C. By reference and appending documents, Dr. Houser includes in his allegations numerous other complaints of other parties. Many of these are letters to Secretary Salazar from interested parties, including public comments in the NEPA process and notices of lawsuits.

D. Dr. Houser alleges that there is a larger conspiracy to develop materials supportive of a pre-determined outcome (in favor of dam removal), and to suppress evidence against this.

We have examined the allegations by other persons appended and referenced by Dr. Houser (point C), and find no specific charge of scientific misconduct in them. Dr. Houser also does not indicate which of these documents show or charge intentional falsification. These additional submitted complaints are mostly public comments in the NEPA process or notices of legal challenges. Public comments are dealt with under NEPA processes which are still ongoing (as of August 2012); hence there can be no breach of ethics regarding the treatment of these comments until a decision has been made and a final EIS issued.

The panel, while aware of Dr. Houser's larger concerns (point D), are focused on the specific scientific issues raised in the two allegations, which is their charge and task here. The panel is not charged with investigating any alleged conspiracy (as this would fall outside our scientific areas of competency), and was not presented with substantive evidence of such conspiracy. However (as will be noted below, see summary section) the conduct and practice of DOI (which has numerous checks and balances, including independent peer review) does not easily allow misinterpretation of results.

Dr. Houser does refer to one document that he suggests represents suppression of evidence (see email of Christine Karas[1]). In this email, Ms. Karas warns Dr. Houser not to create a discoverable 'paper-trail'. Dr. Houser (in his complaint) relates that he received similar verbal instruction from his supervisor Ms. Kara Finkler.

[1] Attachment 11 to Dr. Houser's formal allegation

The email in question from Ms. Karas sets out in some detail the ongoing science effort on the Klamath, and suggests that Dr. Houser may not have been fully aware of all the processes then under way, including the high level of peer review. Her email in part states:

> *"The model in question was subject to Monte Carlo runs to identify the uncertainty and all of that was incorporated in the output. All of the documents we have produced explicitly recognize that this restoration program is not intended to restore historic conditions or solve all natural resource problems in the basin. Conclusions in the press release are supported by the data.*
>
> *As degreed government employees who may be called as expert witnesses, please carefully consider the depth of familiarity you have with the body of science surrounding Klamath dam removal before creating discoverable records of your personal opinions. All government e-mail is captured in a discoverable data base and the confidentiality notice you included is not valid on government correspondence."*

In our opinion, this email of Ms. Karas (who was not a supervisor of Dr. Houser) and any comparable verbal instruction from his supervisor (Ms. Finkler) is an administrative not a scientific issue, and outside our scope. We do, however, note that it is normal practice when dealing with many controversial issues, and where litigation is likely to follow or develop not to create a paper-trail documenting preliminary discussions – these records can be exploited by litigants to create confusion. This holds true in and out of government. Indeed many pre-decisional government documents are protected from discovery for precisely this reason. Moreover it is apparent that Ms. Karas at least is alert to the possibility that Dr. Houser was insufficiently familiar to the details of the Klamath effort to be fully informed as to whether his concerns were merited; she appears concerned that a possibly under-informed opinion would be used in litigation against the Department.

It is not our job to determine the actual intent of Ms. Karas in the case here. We note that she is not named by Dr. Houser as a person alleged to have breached scientific integrity. He does allege that Ms. Finkler, through her verbal instructions, attempted to silence his dissenting opinion. The Department must determine whether there are any grounds for further investigation – however we are not automatically alarmed by Ms. Karas's email or by the reported instructions of Ms. Finkler, nor do we assume that either the email or the reported conversation constitutes evidence that there was a conspiracy to suppress scientific discussion on the Klamath. On the contrary, avoiding documentation of preliminary discussions is relatively standard practice. It is not sufficiently unusual here to suggest that there was an effort to suppress or alter science on the Klamath issue.

Given the scope of the review, the panel therefore focused its attention on the two allegations regarding the two documents at the heart of Dr. Houser's complaint.

Allegation 1: Intentional falsification.

According to the Departmental Manual (305 DM 3) chapter on integrity of scientific and scholarly activities, falsification is defined as "manipulating research materials, equipment, or processes or changing or omitting data or results such that the research is not accurately represented in the research record."

The *Summary of Key Conclusions* is a short document intended to accompany the press release of September 2011, and which captures certain highlights of an ongoing science process. This extensive scientific literature includes:

- Fifty federal science reports released in September 2011
- A *Draft Environmental Impact Statement/Draft Environmental Impact Report (EIS/EIR)* that identified the effects of the proposed action (dam removal and implementation of the Klamath Basin Restoration Agreement, KBRA) and several alternatives, including no dam removal
- Four independent expert panel reports conducted their own assessment of the potential impacts of dam removal on the Klamath River fisheries; these reports were made public between January and July 2011
- A *Draft Klamath Dam Review Overview Report*
- An independent Peer Review Panel report on the *Overview Report* (The *Draft Overview Report* was made available for public comment on January 25, 2012, and the *Peer Review Panel Report* was completed in March 2012.)

All of these reports are readily available through the Klamath Restoration website (www.klamathrestoration.gov). The *Draft Overview Report* was accessible for approximately one month prior to Dr. Houser's submission of formal allegations of loss of scientific integrity on February 24, 2012. However, Dr. Houser's allegations deal only with the September 21, 2011 *Summary of Key Conclusions* and its alleged inconsistency with two of the four earlier expert panel reports on Coho salmon and steelhead and Chinook salmon, released in April and June, 2011, respectively. Thus, the allegations deal with just a segment of a Secretarial Determination process that has included several opportunities for scientific peer review and public comment.

We begin by noting that the Summary does report on costs, risks, and potential negative impacts of dam removal. That is, it is not the case that only positive impacts were included in the Summary. Examples include loss of reservoir recreation, and risks of flooding, as well as cost. Hence the Summary cannot be seen as a uniformly positively slanted document.

We find that the *Summary of Key Conclusions* is just that, a summary, and could not be reasonably expected to include in four pages all the information and caveats of the *Draft EIS/EIR* (1,864 pages) and the 50 federal science reports. We did not evaluate the *Summary of Key Conclusions* against the entire scientific record contained in these numerous and voluminous documents. However, we did investigate further and evaluated the five specific issues identified by Dr. Houser (on page 4 of his allegation): (1) climate change, (2) reliance of Chinook salmon recovery on nine contingencies, (3) reclamation of Coho salmon, (4) reduction of salmon disease, and (5) reclamation of Steelhead trout habitat.

In accepted professional practice, a summary is not regarded as a freestanding document, but is a representation of the full report that it summarizes. Where there is a difference or gap, it is the information and intent of the full report that prevails. So, we evaluated whether for these five issues there was evidence that the *Draft EIS/EIR*, not just the *Summary of Key Conclusions,* presented a substantively distorted, biased or incomplete report of the scientific results toward a more optimistic scientific story that supports dam removal, without the uncertainties or negatives.

With regard to the five issues about which Dr. Houser alleges were intentionally distorted and presented with biased view, we note the following:

Climate change. While it is true that the role of projected climate changes in fish recovery is not mentioned in the *Summary of Key Conclusions*, it is discussed as some length in the *Draft EIS/EIR* (section 3.10) along with the impacts of the considered alternatives on greenhouse gas emissions. The impacts of changes in precipitation and runoff, as well as the impacts of temperature increases, are assessed. It is acknowledged in the *Draft EIS/EIR* that warmer temperatures would result in changes in the salmon populations under both dam removal and no action alternatives and the scientific record is extensively referenced.

Chinook salmon. The *Summary of Key Conclusions* indicates: "removal of the dams, combined with restoration of aquatic habitats as anticipated in the KBRA, is expected to increase the median annual production of adult Chinook salmon by 81.4 percent." Dr. Houser alleges that neglecting the nine contingencies included in the *Klamath River Expert Panel Final Report* provides the public and the Secretary with a falsified and incomplete scientific summary. As stated, the claim of the *Summary of Key Conclusions* concerning the effects of removal of dams is clearly conditional on the "restoration of aquatic habitats as anticipated in the KBRA." Some of the referenced contingencies relate to achieving the goals of the KBRA habitat restoration, while others involve factors such as climate change and alleviation of disease mortality that are more difficult to address through management actions. The Expert Panel indicated that it had "strong reservations that KBRA, as presently described, will address these conditions to the extent required to achieve a substantial increase in the upper basin [emphasis added] Chinook salmon with reasonable certainty." However, the Expert Panel also "concluded that a substantial increase in Chinook salmon is possible in the reach between Iron Gate Dam and Keno Dam."

The source of the statement that the removal of dams is expected to increase the median annual production of adult Chinook salmon by 81.4 percent is unclear. The Draft IES/EIR is not that specific, indicating that the effects of the Proposed Action effects on fall-run and spring-run Chinook salmon would be significant or considerable in the short term and beneficial in the long term. Presumably the quantitative estimate is derived from other scientific and technical reports. Furthermore, the accuracy of this estimate implied by 81.4 percent is misleading. By any estimation, it could not be accurate to tenths of a percent. This is an example of 'false precision'. The final *Summary of Key Conclusions* indicated that the actions are expected to "increase the average annual production of adult Chinook salmon by 83 percent."

Coho salmon. Dr. Houser claims that stating that Coho salmon from the upper Klamath River population would be expected to reclaim 68 miles of habitat is at variance with the conclusion of the *Klamath River Expert Panel Final Report* that the effects of dam removal is expected to be "small, especially in the short term." As is the case for Chinook, this specific estimate is not included in the Draft EIS/EIR, but is presumably derived from other scientific and technical reports. The Expert Panel did not, in fact, question the estimate of the extent of habitat that would be reclaimed, thus the statement in *Summary of Key Conclusions* is not inconsistent with the *Expert Panel Report*. Rather, the Expert Panel pointed to uncertainties in the degree to which: newly-accessible habitat is suitable for spawning, egg incubation, and juvenile rearing; and fish in the newly-accessible habitats do not incur increased costs relative to downstream populations. While stating that the effects on Coho populations are expected to be small during the first ten years after dam removal, the Expert Panel concluded that "larger (moderate) responses are possible under the Proposed Action of the KRBA is fully and effectively implemented and mortality cause by the pathogen *C. shasta* is reduced."

Salmon disease. The *Summary of Key Conclusions* states that "dam removal would likely [emphasis added] alleviate many of the conditions conducive to disease outbreaks that currently occur downstream of Iron Gate Dam" and the *Draft EIS/EIR* provides rationale for likelihood because of improved water quality and reduce crowding in areas where fish can spawn. Dr. Houser alleges that this summary statement conceals what one of the Expert Panel's termed very high uncertainty about these effects. The statement in the *Summary of Key Conclusions* indicates the alleviation of disease is likely, not certain, and the discussion of disease effects and their alleviation in the *Draft EIS/EIR* makes this clear by describing the multiple factors that influence disease prevalence and mortality.

Steelhead. The *Summary of Key Conclusions* states that "access to approximately 420 miles of historical habitat is estimated to again be available for steelhead upstream of the lowest dam." Dr. Houser states that this spins an optimistic outlook because, as an Expert Panel pointed out, such success would be dependent of effective implementation of actions to reduce pollutant loading. As with Chinook, the statement about habitat access and the concerns about the importance of water quality improvements are not inconsistent. Actually, the *Expert Panel Report* was more optimistic that the Proposed Action would result in increased spatial distribution and numbers of steelhead than for Coho salmon. It states that "if the Proposed Action is implemented effectively, and other related actions occur [e.g., Total Maximum Daily Load (TMDL)], then the response of steelhead may be broader spatial distribution and increased numbers within the Klamath system." This assessment was based on the likelihood of steelhead being given access to substantial new habitat, the premise of the statement in the *Summary of Key Conclusions*.

Conclusion regarding Allegation 1:

Our detailed examination of the overall allegation and of five specific issues raised by Dr. Houser does not provide evidence of intentional falsification of the scientific record.

The *Summary of Key Conclusions* is indeed a summary. That it omits some materials or findings is not (in and of itself) evidence of bias. Since the Summary is just one document in a much more extensive deliberation process, it cannot reasonably be interpreted as being an important decision-making or influencing document. Instead, it is, as its name implies, a summary for those interested in understanding the overall scientific findings.

Of the five issues raised for particular concern by Dr. Houser, we find that the underlying scientific record for coho salmon, salmon disease, or steelhead do not at all conflict with the statements made in the *Summary of Key Conclusions*. The statements regarding Chinook salmon are more nuanced, and it appears that the Chinook salmon panel members were of the opinion that dam removal (while a positive step for Chinook salmon) would not alleviate all the concerns for that species in all areas. The Summary does not spell out all such specific geographic details. Nor does the Summary discuss all the contingencies; it does however make clear that the benefits of dam removal will accrue only after effective restoration of habitat (one of the contingencies). The panel feels that the Summary presents a reasonable précis of a complex situation. While Dr. Houser may feel that more detail should have been provided, we believe that this is a matter of opinion, rather than evidence of deliberate obfuscation of the facts.

The issue of climate change is not addressed in the Summary, as Dr. Houser correctly points out. Given the prominence of this issue and its acknowledged likely impact on salmonid recovery, and economic impacts on the project, this issue might appropriately have been mentioned in the Summary. However it

is discussed at great detail in the base science documents, including the *Draft Klamath Dam Review Overview Report*, and in the DEIS. It is also clear that climate change will impact salmonids under any scenario (with or without dams). While presentation of a discussion of climate change impacts would have certainly improved the comprehensive scope of the *Summary of Key Conclusions*, it is not clear that a summary is the appropriate place for a full discussion of such a complex and controversial issue. Again, we interpret this as a matter of opinion. Since the issue is dealt with exhaustively in the more important underlying decision documents, we do not see the absence of a discussion of climate change in the *Summary of Key Conclusions* as evidence of obfuscation of the facts.

For all these reasons, we do not find the analysis and reporting of scientific issues in the *Summary of Key Conclusions*, are consistent with an interpretation that there was intentional falsification of the scientific record.

Allegation 2. Intentionally circumventing policy that ensures the integrity of science and scholarship and actions that compromise scientific and scholarly integrity.

Dr. Houser expressed concern relating to the scientific integrity of: (a) a draft press release on the draft environmental analysis for removing four Klamath River dams and (b) (via verbal disclosure) the larger Klamath River dam removal Secretarial determination process. He alleged that Mr. Adam Fletcher, DOI Press Secretary, and Ms. Kira Finkler, BOR Deputy Commissioner, had committed the misconduct.

Regarding the scientific integrity of the Secretarial determination process, Dr. Houser states only that "I was concerned that if the department was summarizing the science in a biased manner [in the press release], that the same bias may infuse the March 2012 Klamath River dam removal Secretarial determination." Thus, there are no specific concerns related the process that were identified or documents, other than the press release, that we could evaluate, and our comments are restricted to the draft and final press release of September 2011.

Regarding scientific integrity, the Departmental Manual (305 DM 3) includes a Code of Scientific and Scholarly Conduct for *all* departmental employees, including the following: "I will clearly differentiate among facts, personal opinions, assumptions, hypotheses, and professional judgment in reporting the results of scientific and scholarly activities and characterizing associated uncertainties in using those results for decision making, and in representing those results to other scientists, decision makers and the public."

Regarding the scientific integrity of the press release, we evaluated the allegations of scientific misconduct and the scientific record regarding issues identified in a draft press release entitled "Studies Show Removing Klamath Dams Could Add Thousands of Jobs and Boost Dwindling Salmon Runs"[2]. This is the document about which Dr. Houser raised concerns in his September 15, 2011 email. We also considered the news release that was actually made public on September 21, 2011 entitled "Salazar Announces Release of Klamath Dam Removal Studies." In addition to its more neutral title, the final news release revised the second and third paragraphs of the draft, expanding them to paragraphs two through five in the ultimate release. A sentence was added: "The analysis and studies describe pluses and minuses to potential dam removal on the Klamath River." Others were added that indicate that dam

[2] Attachment 2 of Dr. Houser's formal allegation

removal would result in loss of recreational opportunities and decrease in nearby property values and that dam removal would result in loss of hydroelectric power generation and jobs in those facilities. The number of jobs that would be supported by the KBRA was reduced from 6,000 to 4,500. All in all, the claims of the draft press release were substantially moderated as a result of the internal review and it is against the final (September 21) press release not a working draft, that we must evaluate the scientific record.

The purpose of the September 21 news release was to announce the availability of the Draft Environmental Analysis and a 60-day public comment period. It was not intended as a document on which to base a Secretarial decision or to announce to the public such a decision. It is in this context of such a public announcement that the mention of the issues of fish recovery, which form the subject of "red flags" raised in Dr. Houser's September 15 email, is limited to one sentence: "[analyses and studies] reveal that, over the next few decades, dam removal and the implementation of a related watershed-wide restoration program could significantly increase salmon harvests in the river and ocean, . . . and restore more normal temperatures in the river, which is important for salmon." While this brief statement does not describe in any detail the associated uncertainties and contingencies, it does in a general sense convey the lack of surety in the use of the word "could." Furthermore, it is a reasonable news-release-length abstraction of the *Summary of Key Conclusions* regarding salmon and, in our opinion, does not conceal any essential information included in the *Summary of Key Conclusions*. Rather the scientific record related to Dr. Houser's allegation is more appropriately evaluated with regard to the *Summary of Key Conclusions* (Allegation 1), that was made publically available on the same day as the news release.

Dr. Courtney, in preparing for the panel evaluation reviewed numerous press releases from DOI and its constituent Bureaus and Agencies (see appendix). Such press releases usually announce the availability of scientific or evaluative documents, rather than discussing the details of them. Even the press releases dealing with the most scientifically complex or controversial issues (e.g. climate change impacts) rarely if ever mention uncertainty. Hence we find that there is nothing unusual about the scope or style of the press release regarding Klamath Dam removal. Indeed we discovered a similar press release (issued just two weeks prior) on removal of dams on the Elwha River. This press release is very similar in tone and scope to the Klamath press release, even describing the number of miles of habitat that are expected to be created. Hence this is strong evidence that the press release issued on the Klamath followed 'normal practice', and was not crafted with special intent to deceive on the Klamath issue.

Finally, it should be noted that the press release did not present different conclusions or a subset of conclusions from the science documents; nor did report only on positive benefits.

V. Summary of Findings

While some (but not all) of the factual assertions made by Dr. Houser regarding the *Summary* and *press release* are correct, the issues he raises do not appear to constitute intentional distortion or omission of scientific facts, falsification of science, or compromise of scientific integrity. For instance, failing to mention, in a brief summary document, all the potential issues raised in a voluminous scientific record does not constitute falsification. Well intentioned, ethical persons will make different decisions on which of the many possible issues to highlight. Similarly, a press release is not the appropriate vehicle for discussing the intricacies of scientific analysis. So, although Dr. Houser is correct that climate change is not mentioned in the *Summary*, we do not see this as clearly intended to deceive the public or the decision-making process. All the extensive discussions on climate change impacts were available in the base documents, and were discussed in the later public NEPA process, the Overall Science Summary, and the Peer Review of that Summary.

It is also true, as stated by Dr. Houser, that the *Summary* and *press release* make few references to the uncertainty regarding the scientific analyses being reported. In that this is standard practice for press releases at DOI, we do not find that this is evidence of scientific misconduct, or of a compromise of scientific integrity specifically aimed at distorting the record on Klamath dam removal.

The *Draft EIS/EIR* and the associated *Summary of Key Conclusions* are steps in the process leading to the Secretarial Determination, a process that includes several opportunities for scientific peer review and public comments. Because of the scale and controversy involved in this issue, the *Draft Klamath Dam Review Overview Report* was prepared for the Secretary (and was publically available one month prior to Dr. Houser's formal allegations). A Peer Review Panel was charged with an evaluation of whether the *Overview Report*:

1. Met expectations in terms of the scientific and technical subjects covered, the depth of that coverage, and the clarity of the report;
2. Provided the context needed to understand the issues, the technical content of the report, and the significance of the findings and conclusions;
3. Summarized the major findings in the main body of the report adequately; and
4. Based its conclusions on the best available science.

The *Peer Review Panel Report's* independent appraisal is an important step in ensuring the scientific integrity of processes supporting the Secretarial Determination. The *Peer Review Panel Report* makes recommendations for improvements. While we do not here discuss the details of the *Peer Review Panel Report*, we note that it found the *Overview Report* a particularly effective and accurate representation of the relevant science with regard to clarity, dam removal costs and engineering, production processes and water quality. It concluded "generally, the *Overview Report* connects to the sound science that underlies its conclusions" and "the science appears to be reliable for a Secretarial Determination." However, the *Peer Review Panel Report* also made several observations to improve the effectiveness of the *Overview Report*. Relevant to the key issue of portraying uncertainties, the report advises: "Be more explicit in describing the relative uncertainties associated with various ecosystem responses to the two restoration scenarios. The *Overview Report* does not discuss the potential range of outcomes and associated unknowns to the degree expressed in the original technical reports. Some responses are

known with high levels of confidence, while others involve substantial uncertainties." The specific contingencies and uncertainties regarding the magnitude of fish response to dam removal discussed in Comment 5a-1 of the *Peer Review Panel Report* are relevant to Dr. Houser's allegations. We underscore the Peer Review Panel's recommendation that uncertainties can be effectively communicated in the context of decisional documents by some qualitative distinction of their magnitude, for example by using terminology similar to that of the Intergovernmental Panel on Climate Change: virtually certain, highly likely, likely, as likely as not, etc.

In reality, the very complex, intense and open scientific effort invested in making accurate and considered assessments for the Klamath dam removal guard against any conspiracy to compromise scientific integrity. The DOI has developed and put in place peer review processes at every stage of the preparation of scientific materials. These peer review processes are entirely independent of control by DOI (as evidenced by questions posed to the contractor, Atkins – see appended materials), and have indeed raised substantive issues that the government scientists must address (including treatment and explanation of uncertainty). DOI's peer review process was transparent, well-documented and independent. Dr. Courtney questioned Atkins about their administration of the review. Their responses indicate that (after discussing scope of the review with DOI) Atkins was completely in control, without interference or influence by DOI. Reviewers were selected by Atkins, not the government, and moreover, the reviewers' frame of reference specifically asked that they discuss the quality of the data, and the strengths of inferences that can be drawn from them. This scope of work was actively encouraged and sought by DOI.

Hence the process designed and sought by DOI (for extensive independent peer review) was intended to be self-correcting for scientific errors of any type and dimension. This exhaustive (and expensive) review process worked – and *Peer Review Panel Report* and earlier reviews specifically identified the need to be more explicit in describing relative uncertainties.

Since DOI designed this corrective mechanism and sought an independent and well-documented set of reviews, there is no evidence apparent to this panel of actions to pervert the reporting of science, or to pre-determine the outcome of the analysis. Such perversion would be virtually impossible under the extensive review process. The Final Science Summary has yet to be released. It will (by law and practice) have to address the issues raised by the reviewers.

We believe that the level of independent oversight and scrutiny is such that it appears very unlikely that an unsupported or falsified analysis would escape detection.

VI. Commentary

Although not part of the formal review process, the panel has elected to comment on several issues. These comments are offered in the spirit of constructive criticism, or of suggestions for improvement in DOI practice, and are not part of the review of Dr. Houser's allegations. Notably, one reviewer (b)(6) in reviewing the extensive materials in the record had significant concerns about the treatment of climate change in the Klamath analyses – not in the context of the allegations raised by Dr. Houser (specifically the allegations of falsification in the *Summary*, and misrepresentation in the press release). Mr. (b)(6) concerns are in regard to the underlying scientific and management documents. We include this discussion here because it is necessary to establish that the substantive and technical issues noted by Mr. (b)(6) and the panel are separate and distinct from the issues raised by Dr. Houser. Mr. (b)(6) is aware that this peer review into very specific allegations is not intended for the receipt of public comment on other issues; he may elect to make the same points through appropriate public comment processes.

Climate Change analyses

At the panel meeting in Washington, DC, Mr. (b)(6) raised several concerns regarding the analysis of climate change in many of the prime documents regarding the Klamath Basin. Although Mr. (b)(6) attention to these issues was prompted by the task at hand (Dr. Houser's allegations), the panel unanimously concluded that the issues raised by Mr. (b)(6) were separate and unrelated to the allegations. Mr. (b)(6) concerns are that uncertainties regarding climate change (as identified in numerous documents by Mr. (b)(6) – see his attached notes, and the meeting notes) are not accurately reflected in the *Draft EIS/EIR*. He indicated this may represent a significant discontinuity between the available underlying database of technical studies and the contents of the science overview report and the *Draft EIS/EIR*.

He further suggested that these climate change uncertainties also affect issues not sufficiently analyzed in the supporting technical studies or in the overview/summary documents, including at least: lost hydropower (affecting significant variability in the present worth of lost hydropower); the costs and impacts of replacement; a classical engineering economy assessment which would evaluate alternatives based on variable climate change scenarios.

As an example of the potential importance of Mr. (b)(6) concerns, he notes that Hydropower Benefits Technical Report (August 2011) has 1) no discussion of variability related to climate change, 2) no discussion of the assumptions regarding energy costs related to current incremental costs of adding "comparable" sources of energy i.e. no replacement energy, including each sources schedule of power availability, and 3) no reference to compliance with the Water Conservation Initiative and Implementation of the Secure Water Act of the USBR, October 2009.

Others members of the panel do not share Mr. (b)(6) concerns, observing that the *Draft EIS/EIR* includes discussion on the effects of climate change on stream flow and the consequences of dam removal on greenhouse gas emissions, including those related to power replacement. In any case, the panel agreed that these issues did not provide supporting evidence for Dr. Houser's allegations regarding falsification of the scientific record, in particular the alleged inaccurate reporting of available information. Instead Mr. (b)(6) concerns raise questions about the adequacy of the underlying

analyses (and hence the later summaries which are based on them) in addressing climate change (as required by federal law and policy) and, thus, providing a decision support structure that adequately evaluates future variability (which could have significant economic and environmental impacts, factors to be considered in any dam removal decision).

Communication of Science

The communication of science and of conclusions reached from scientific analyses is central to any informed decision-making process, as well as to public understanding of important policy issues. The panel has identified two issues (somewhat related) that the Department may wish to consider further.

Firstly, as noted by Dr. Houser in his allegations, description of any important scientific uncertainty is a key component of the accurate reporting of science. Regarding the specific allegations of Dr. Houser, the panel did not find that either the *Summary* or the *press release* departed significantly from the facts or from standard practice. Some discussion of uncertainty was presented in the *Summary*, at a level appropriate to the purpose of that document and there was extensive discussion of uncertainty in the base science documents, and in the *Draft EIS/EIR*; hence the panel found no evidence of an attempt to falsify science by DOI employees. The *press release* has far less discussion of scientific uncertainty. Dr. Courtney analyzed many such press releases from DOI and other agencies and showed that this was standard practice, even for controversial issues such as climate change. Hence Dr. Houser's allegations that the Klamath press release was specifically altered to ignore uncertainty appear unfounded – the DOI employees who drafted this press release were following standard practice.

However, setting aside the specific allegations of Dr. Houser regarding the Klamath press release, it is by no means clear that this standard practice regarding reporting of uncertainty (or lack of such reporting) fully satisfies the Department's code of Scientific Integrity, which specifically notes that all employees must adhere to the following:

> *Section 3.7.A (2) I will communicate the results of scientific and scholarly activities clearly, honestly, objectively, thoroughly, accurately, and in a timely manner.*

and:

> *Section 3.7.A (7) I will clearly differentiate among facts, personal opinions, assumptions, hypotheses, and professional judgment in reporting the results of scientific and scholarly activities and characterizing associated uncertainties in using those results for decision making, and in representing those results to other scientists, decision makers, and the public.*

Given that the Department's Code has been adopted relatively recently (in 2011; the Bureau of Reclamation's code was adopted only in April of this year), it is possible that there has not yet been a full discussion of the implications of the Code for press releases. If so, it may be important for such an analysis to take place. It is important for instance to strike the appropriate balance between the 'two cultures' of a press officer and a scientist. A press officer may seek to draw press attention by highlighting important findings, and avoiding complexity; a scientist is appropriately concerned with accurate and complete dissemination of results. By contrast, a scientist may not understand the many factors that (in addition to science) must be considered in any policy decision, including those made in potentially litigious environments.

The issue of uncertainty is central to decision-making, and as such is an integral part of the accurate reporting of science (to the public or to policy-makers). However there does not yet appear to be a consistent policy, or set of guidelines, on how and when to report uncertainty. For instance: which uncertainties are important? Almost all science has some uncertainty – should every scientifically based statement always include caveats? This appears unworkable; however some uncertainties are indeed important, and need to be reported accurately. Failure to report high uncertainty critical to a decision clearly could violate the Code quoted above. Absent any guidelines and policy, there will continue to be opportunities for miscommunication, and for controversy and mistrust. While the panel does not find that Dr. Houser's allegations of scientific misconduct are supported by the scientific record, his complaint brings attention on a grey area that is in need of clarification.

As the Scientific Peer Review Panel recommended in its review of the *Draft Klamath Dam Overview Report*, the DOI should be more explicit in describing the relative uncertainties associated with the various ecosystem responses in the two restoration scenarios. This cuts both ways, including the risks to endangered fish and resources from *failing* to remove dams as much as the risks of not receiving the intended benefits from dam removal. As we have stated above, a full discussion of such key uncertainties is important to decision-makers and to the public discourse.

Related to the issue of accurate reporting of uncertainty is the issue of *false precision*. False precision occurs when numerical data are presented in a manner that implies better precision than is actually the case; since precision is a limit to accuracy, this often leads to overconfidence in the accuracy as well. The inclusion in a mean or median of non-significant digits (e.g. production of Chinook salmon is expected to increase 81.4 percent) and neglecting to convey variance in estimation provide examples. F

It is particularly instructive to compare the *Summary* with the press release regarding the removal of the Elwha dam in Washington state, a smaller and less controversial action than that contemplated for the Klamath, but is still directly comparable in concerning the effects on salmonids. This release was issued just two weeks prior to the Klamath press draft. Cursory examination shows a broad similarity in both tone and substance (and a similar tendency toward false precision).

Extract from Elwha dam removal press release:

> *"Biologists estimate that salmon populations will swell from 3,000 to more than 300,000 as five species of Pacific salmon return to more than 70 miles of river and stream."*

It is not clear whether the authors of the *Summary* were from the Department's press office, or elsewhere in the Department. It should be noted again that press officers may be unaware of the importance that scientists place on uncertainty, and may not understand that a detailed prediction (e.g. on the number of miles of salmon habitat that will result from dam removal) may not represent a *strong* prediction – that is, a press officer may not be attuned to the notion of false precision.

If the Department elects to clarify policy and practice on the description of uncertainty in public communications, there may need to be cross-training for technical as well as public relations staff. Some simple changes may be sufficient to address some issues. For instance including a statement such as "There is always some uncertainty in scientific analyses. In this case, the balance of analysis suggests that..., or suggests strongly that..." may meet the needs of accurate reportage. In some other cases, there will need to be dialog between scientists and communicators. Such dialog is already implied by the

Science Integrity policies of DOI, USFWS and other agencies, so that no change in policy would be required.

Department of the Interior Science Integrity Review Panel

July 27, 2012
Washington, DC

Meeting Notes

I. Introduction

RESOLVE was contracted by the Department of the Interior (DOI) to convene a scientific review panel to evaluate allegations of scientific misconduct raised by Dr. Paul R. Houser following his termination as a DOI Scientific Integrity Officer. Dr. Houser alleged that the draft September 21, 2011 press release "Studies Show Removing Klamath Dams Could Add Thousands of Jobs and Boost Dwindling Salmon Runs; Draft Environmental Analysis Also Release, Public Comment Period Opens" violated DOI's scientific integrity policy. The panel was tasked with evaluating these allegations of scientific misconduct against the scientific record.

RESOLVE contracted with four independent reviewers to participate in the panel. Reviewers were drawn from diverse areas of expertise that related to the scientific issues at play regarding the Klamath River Dams. These reviewers are:

- (b)(6)
- (b)(6)
- (b)(6)
- (b)(6)

On Friday, July 27, 2012, the four panelists met in person in Washington, DC to review and evaluate Dr. Houser's allegations. Prior to the meeting, RESOLVE provided each reviewer a copy of the allegations, the scientific reports DOI commissioned regarding removing the Klamath River dams, the overview report of the scientific reports (and related documents), and the press release in question and its attached "Summary of Key Conclusions." RESOLVE undertook a review of all the materials and prepared an initial analysis of his findings to present to the reviewers.

In addition to the four reviewers, the RESOLVE project team, Dr. Steven Courtney and Debbie Lee, were in attendance. Suzette Kimball, the Deputy Director for the U.S. Geological Survey and the DOI Scientific Integrity Officer, observed the meeting. RESOLVE's Vice President of Collaborative Practice, Juliana Birkhoff, led the meeting as a neutral facilitator.

II. Process

The reviewers were provided with two documents outlining the timing of the scientific process that is currently underway to reach a Secretarial Determination. The first was a timeline of release dates for the various documents related to the Klamath River dam removal. The second was a flow chart.[3]

Dr. Courtney walked the reviewers through the scientific process, noting that the scientific review panel was convened and is meeting before the process was completed. Final versions of both the Overview

[3] The flow chart and timeline are available as attachments to this document.

Report and the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) have not been released, and the Secretarial Determination has not yet been made.

III. Dr. Houser's Allegations

Dr. Courtney provided a summary of Dr. Houser's allegations. He noted that in addition to the two explicit allegations laid out in his February 24, 2012 letter to the DOI Office of the Executive Secretariat and Regulatory Affairs, Houser had two implicit allegations. These four allegations were:

(1) The "Summary of Key Conclusions" does not capture the underlying science.
(2) The press release does not capture the underlying science.
(3) The additional complaints laid out in the attachments to Dr. Houser's allegations letter.
(4) The existence of an underlying conspiracy to affect a pre-determined outcome in the removal of the Klamath River dams.

Dr. Houser specifically alleged that the press release and the summary did not accurately capture the uncertainty noted in the scientific reports; and that the press release omitted scientific findings that were not supportive of dam removal.

The panelists decided to focus on the two explicit allegations Dr. Houser laid out in his letter. They agreed that the two implicit allegations identified by Dr. Courtney lay outside the scope of their charge.

In addition to Dr. Houser's written allegations, the panelists were informed of a short video available online of Dr. Houser explaining his reasoning. One of the panelists had watched the video in full prior to the meeting and a second panelist had watched part of it. The reviewers briefly discussed whether to include a viewing of the video at the meeting. Each reviewer noted that he felt adequately informed and the panelists ultimately decided adding the video to the agenda was unnecessary.

IV. Scientific Integrity Policy

Related to the allegations, the panelists discussed the DOI's scientific integrity policy, which was adopted by the Department in January 2011 and was in effect at the time of the drafting of the press release in question. The policy defines "Scientific and Scholarly Misconduct" as

> *(1) Fabrication, falsification, or plagiarism in proposing, performing, or reviewing scientific and scholarly activities, or the products or reporting of the results of these activities… Misconduct also includes: (a) intentionally circumventing policy that ensures the integrity of science and scholarship, and (b) actions that comprise scientific and scholarly integrity. Scientific and scholarly misconduct does not include honest error or differences of opinion.*
> *(2) Fabrication, falsification, or plagiarism in the application of scientific and scholarly information to decision making, policy formulation, or preparation of materials for public information activities.*
> *(3) A finding of scientific and scholarly misconduct requires that:*
> *(a) There be a significant departure from accepted practices of the relevant scientific and scholarly community.*
> *(b) The misconduct be committed intentionally, knowingly, or recklessly.*

(c) The allegation be proven by a preponderance of evidence.[4]

"Fabrication" is defined as: "Making up data or results and recording or reporting them." "Falsification" is defined as: "Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record."[5]

V. Analysis of Complaints

The panelists discussed the two allegations raised by Dr. Houser. A summary of the main points of their deliberations and their conclusions are below.

Allegation 1: The science summary and other documents do not capture the full range of uncertainty

The panelists evaluated and discussed the summary document in the context of Dr. Houser's allegations of scientific misconduct. The allegations focused specifically on the questions of uncertainty and omission of negative scientific findings. Regarding uncertainty, one panelist noted that uncertainty was mentioned in a general fashion through the words chosen to qualify the scientific findings (e.g., may, could, likely, expected, estimated, etc.). On the issue of bias, one panelist noted that the summary was not 100 percent positive and did include negative findings, specifically related to recreational opportunities, jobs loss, property values, and possible loss of Native American cultural sites.

One reviewer observed that the summary document omitted any mention of climate change or energy production or cost. He expressed the opinion that given the importance of climate change to hydrology and therefore hydropower generation, these issues should have been mentioned in the summary. The panelists discussed the omission of climate change and energy in the summary document. They acknowledged that the issues were covered in the scientific reports, the overview report, and the environmental impact statement. One reviewer expressed the opinion that while climate change was not explicitly mentioned in the summary, it was embedded into the areas that the summary did highlight because the scientific conclusions took climate change into account. The issues would have been looked at again through the peer review process. Any omissions in the summary of key conclusions, which is an attachment to a press release, would be corrected through the process leading to the Secretarial Determination.

During the discussion, some of the panelists pointed to the need for integration of the different scientific processes within DOI. The panelists believed that any omissions in the summary report could have been the result of the process rather than any conscious scientific misconduct. The omission of climate change and energy – issues which were covered at length in the scientific documents – could be caused by the siloed approached in which the various reports were developed and the overview report was drafted.

All four panelists agreed that the "Summary of Key Conclusions" was poorly written. Three of the panelists did not believe the summary was inconsistent with the scientific determinations presented in the overview report and the EIS. One panelist was of the opinion that the summary was inadequate

[4] Excerpted from the DOI Departmental Manual, Chapter 3: Integrity of Scientific and Scholarly Activities, Effective January 28, 2011 (305 DM 3). The full DOI policy on scientific integrity is available online at http://www.usbr.gov/recman/cmp/cmp-p13.pdf.

[5] Excerpted from the DOI Departmental Manual, Chapter 3: Integrity of Scientific and Scholarly Activities.

because it omitted climate change, energy supply, and energy cost from the summary, but could not conclude if this omission constituted scientific misconduct. The panelists agreed that any shortfalls in the summary do not rise to the level of misrepresentation of the science. They agreed to recommend DOI improve integration of different scientific studies.

Allegation 2: The press release does not reflect scientific opinion

Dr. Courtney informed the panelists that as part of his analysis, he reviewed past press releases put out by DOI and its agencies from both the current and the previous administrations.[6] He stated that generally, the press releases did not mention uncertainty. He specifically pointed to a press release from a September 17, 2011, a few days prior to the Klamath River press release that is the subject of Dr. Houser's allegations, pertaining to the removal of the Elwha River dams.[7] That press release also does not explicitly mention uncertainty.

The panelists concluded that Dr. Houser's second allegation regarding the press release did not have any bearing. The press release in question was not a "significant departure from the accepted practices," one of the requirements for a determination of scientific misconduct. Additionally, the panelists agreed that Dr. Houser's objections appeared to be based on a difference of opinion, which the DOI scientific integrity policy specifically excludes from scientific and scholarly misconduct.

VI. Next Steps

The panelists believed their opinions were sufficiently similar that one report was adequate. They asked Dr. Courtney to develop the first draft. They would provide comments to Dr. Courtney of items and points for inclusion in the draft report. Following the completion of the first draft, the panelists would provide edits and comments.

At the end of the meeting, each panelist provided some thoughts on points to include in the report. These included:

- In drafting press releases and summaries, DOI should more clearly communicate uncertainty in any scientific findings. It should also recognize and communicate the difference between scientific uncertainty and policy uncertainty (e.g., how would the water temperature change is a science question; should the dams be removed is a policy question).
- There needs to be integration of different issues prior to drafting a summary.
- Communication should take into account the larger context of climate change.
- DOI and its agencies may want to reflect on the purpose of press releases. Are they meant to be solely informative? Are they meant to be persuasive – and if so, to whom? Are they outlining policy?
- Science communication is difficult, and this case highlights a need for DOI to better communicate technical and scientific information.

[6] Copies of these press releases were made available to the panelists at the meeting.

[7] The September 17, 2011 press release "Secretary Salazar Applauds Beginning of Restoration of Elwha River, Largest in U.S. History" is available on the DOI website at http://www.doi.gov/news/pressreleases/Secretary-Salazar-Applauds-Beginning-of-Restoration-of-Elwha-River-Largest-in-US-History.cfm.

[redacted] Comments to the Panel Report

Allegation 1: Intentional falsification.

1. Dr. Houser alleges that the Department of the Interior has followed a course of action to construct support for a Secretarial Determination in favor of removing four dams on the Klamath River. He cites as an example of biased (falsified) reporting of scientific results the September 21, 2011 *Summary of Key Conclusions: Draft EIS/EIR and Related Scientific/Technical Reports* (hereinafter *Summary of Key Conclusions*) and alleges that the persons who committed misconduct are the unreported authors of this summary and unnamed Department of the Interior officials.

2. Dr. Houser refers to other examples of intentional falsification included in documents provided by third parties. These documents are three letters from the Siskiyou County government (a July 2011 request for cessation of activities related to KBRA, January 2012 comments on the Overview Report, and a February 2012 notice of intent to sue), a letter from Tom Connick, and blog posting and a newspaper article. There are many issues raised in these documents, but Dr. Houser does not specifically indentify which he believes to relate to intentional falsification. It is beyond our charge and capacity to evaluate against the scientific record all of the allegations of these third party documents. Thus, we restrict our evaluation to issues raised by Dr. Houser related to the *Summary of Key Conclusions*.

3. According to the Departmental Manual (305 DM 3) chapter on integrity of scientific and scholarly activities, falsification is defined as "manipulating research materials, equipment, or processes or changing or omitting data or results such that the research is not accurately represented in the research record."

4. The *Summary of Key Conclusions* is but a part of a process through which, under the terms of the Klamath Hydroelectric Settlement Agreement (KHSA), the Secretary of the Interior is to make a determination as to whether removal of four private owned dams is in the public interest and will advance restoration of fisheries. Under the agreement, the Department of the Interior is responsible for conducting and sponsoring scientific studies to address information needs, leading to the completion of 50 federal science reports in September 2011 and the issuance of a *Draft Environmental Impact Statement/Draft Environmental Impact Report (EIS/EIR)* that identified the effects of the proposed action (dam removal and implementation of the Klamath Basin Restoration Agreement, KBRA) and several alternatives, including no dam removal. In addition, four independent expert panel reports conducted their own assessment of the potential impacts of dam removal on the Klamath River fisheries. These reports were made public between January and July 2011. Furthermore, a *Draft Klamath Dam Review Overview Report* was prepared for the Secretary of the Interior and, because Office of Management and Budget guidance requires rigorous peer review for highly influential scientific assessments for projects that could have a potential impact of more than $500 million in any one year or that are novel, controversial, precedent setting or of significant interagency interest, an independent Peer Review Panel prepared a review of the *Overview Report*. The *Draft Overview Report* was made available for public comment on January 25, 2012, and the *Peer Review Panel Report* was completed in March 2012. All of the reports mentioned here are readily available through the Klamath Restoration website

(klamathrestoration.gov). The *Draft Overview Report* was accessible for approximately one month prior to Dr. Houser's submission of formal allegations of scientific integrity on February 24, 2012. However, his allegations deal specifically with the September 21, 2011 *Summary of Key Conclusions* and its consistency with two of the four earlier expert panel reports on Coho salmon and steelhead and Chinook salmon, released in April and June, 2011, respectively. Thus, the allegations deal with just a segment of a Secretarial Determination process that has included several opportunities for scientific peer review and public comment.

5. The *Summary of Key Conclusions* is just that, a summary, and could not be reasonably expected to include in four pages all the information and caveats of the *Draft EIS/EIR* (1,864 pages) and the 50 federal science reports. Similarly, we could not within the limited time afforded evaluate the *Summary of Key Conclusions* against the complete scientific record contained in these numerous and voluminous documents. Rather, we evaluated just the five issues identified by Dr. Houser (on page 4 of his allegation): (1) climate change, (2) reliance of Chinook salmon recovery on nine contingencies, (3) reclamation of Coho salmon, (4) reduction of salmon disease, and (5) reclamation of Steelhead trout habitat. In accepted professional practice, a summary is not regarded as freestanding document, but is a representation of the full report that it summarizes. Where there is a difference or gap, it is the information and intent of the full report that prevails. So, we evaluated whether for these five issues there was evidence that the *Draft EIS/EIR*, not just the *Summary of Key Conclusions,* presented a substantively distorted, biased or incomplete report of the scientific results toward a more optimistic scientific story that supports dam removal, without the uncertainties or negatives.

6. With regard to the five issues about which Dr. Houser alleges were intentionally distorted and presented with biased view, we note the following:

   6.1. While it is true that the role of projected climate changes in fish recovery is not mentioned in the *Summary of Key Conclusions*, it is discussed as some length in the *Draft EIS/EIR* (section 3.10) along with the impacts of the considered alternatives on greenhouse gas emissions. The impacts of changes in precipitation and runoff, as well as the impacts of temperature increases, are assessed. It is acknowledged in the *Draft EIS/EIR* that warmer temperatures would result in changes in the salmon populations under both dam removal and no action alternatives and the scientific record is extensively referenced.

   6.2. The *Summary of Key Conclusions* indicates: "removal of the dams, combined with restoration of aquatic habitats as anticipated in the KBRA, is expected to increase the median annual production of adult Chinook salmon by 81.4 percent." Dr. Houser alleges that neglecting the nine contingencies included in the *Klamath River Expert Panel Final Report* provides the public and the Secretary with a falsified and incomplete scientific summary. As stated, the claim of the *Summary of Key Conclusions* concerning the effects of removal of dams is clearly conditional on the "restoration of aquatic habitats as anticipated in the KBRA." Some of the referenced contingencies relate to achieving the goals of the KBRA habitat restoration, while others involve factors such as climate change (see 6.1) and alleviation of disease mortality (6.4) that are more difficult to address through management actions. The Expert Panel indicated that it had "strong reservations that KBRA, as presently described, will address these conditions to the extent required to achieve a substantial increase in the upper basin [emphasis added] Chinook salmon with reasonable certainty." However, the Expert Panel also "concluded that a

substantial increase in Chinook salmon is possible in the reach between Iron Gate Dam and Keno Dam."

The source of the statement that the removal of dams is expected to increase the median annual production of adult Chinook salmon by 81.4 percent is unclear. The Draft IES/EIR is not that specific, indicating that the effects of the Proposed Action effects on fall-run and spring-run Chinook salmon would be significant or considerable in the short term and beneficial in the long term. Presumably the quantitative estimate is derived from other scientific and technical reports. Furthermore, the accuracy of this estimate implied by 81.4 percent is misleading. By any estimation, it could not be accurate to tenths of a percent. The final *Summary of Key Conclusions* indicated that the actions are expected to "increase the average annual production of adult Chinook salmon by 83 percent."

6.3. Dr. Houser claims that stating that coho salmon from the upper Klamath River population would be expected to reclaim 68 miles of habitat is at variance with the conclusion of the *Klamath River Expert Panel Final Report* that the effects of dam removal is expected to be "small, especially in the short term." As is the case for 6.2, this specific estimate is not included in the Draft EIS/EIR, but is presumably derived from other scientific and technical reports. The Expert Panel did not, in fact, question the estimate of the extent of habitat that would be reclaimed, thus the statement in *Summary of Key Conclusions* is not inconsistent with the *Expert Panel Report*. Rather, the Expert Panel pointed to uncertainties in the degree to which: newly-accessible habitat is suitable for spawning, egg incubation, and juvenile rearing; and fish in the newly-accessible habitats do not incur increased costs relative to downstream populations. While stating that the effects on coho populations is expected to be small during the first ten years after dam removal, the Expert Panel concluded that "larger (moderare) responses are possible under the Proposed Action of the KRBA is fully and effectively implemented and mortality cause by the pathogen *C. shasta* is reduced."

6.4. The *Summary of Key Conclusions* states that dam removal would <u>likely</u> (emphasis added) alleviate many of the conditions conducive to disease outbreaks that currently occur downstream of Iron Gate Dam and the *Draft EIS/EIR* provides rationale for likelihood because of improved water quality and reduce crowding in areas where fish can spawn. Dr. Houser alleges that this summary statement conceals what one of the Expert Panel's termed very high uncertainty about these effects. The statement in the *Summary of Key Conclusions* indicates the alleviation of disease is likely, not certain, and the discussion of disease effects and their alleviation in the *Draft EIS/EIR* makes this clear by describing the multiple factors that influence disease prevalence and mortality.

6.5. The *Summary of Key Conclusions* states that access to approximately 420 miles of historical habitat is estimated to again be available for steelhead upstream of the lowest dam. Dr. Houser states that this spins an optimistic outlook because, as an Expert Panel pointed out, such success would be dependent of effective implementation of actions to reduce pollutant loading. As with 6.4, the statement about habitat access and the concerns about the importance of water quality improvements are not inconsistent. Actually, the *Expert Panel Report* was more optimistic that the Proposed Action would result in increased spatial distribution and numbers of steelhead than for coho salmon. It states that "if the Proposed Action is implemented effectively, and other related actions occur [e.g., Total Maximum Daily Load (TMDL)}, then the response of steelhead may be broader spatial distribution and

increased numbers within the Klamath system." This assessment was based on the likelihood of steelhead being given access to substantial new habitat, the premise of the statement in the *Summary of Key Conclusions*.

7. As discussed under 4, the Draft EIS/EIR and the associated Summary of Key Conclusions were steps in the process leading to the Secretarial Determination, a process that included several opportunities for scientific peer review and public comments. Because of the scale and controversy involved the *Draft Klamath Dam Review Overview Report* was prepared for the Secretary and was publically available one month prior to Dr. Houser's formal allegations. A Peer Review Panel was charged with an evaluation of whether the *Overview Report*: (1) met expectations in terms of the scientific and technical subjects covered, the depth of that coverage, and the clarity of the report; (2) provided the context needed to understand the issues, the technical content of the report, and the significance of the findings and conclusions; (3) summarized the major findings in the main body of the report adequately; and (4) based its conclusions on the best available science. We commend the *Peer Review Panel Report* for its independent appraisal as it bears on the scientific integrity of this important step in the Secretarial Determination process and for its recommendations for improving. While we do not here discuss the details of the *Peer Review Panel Report*, we note that it found the *Overview Report* a particularly effective and accurate representation of the relevant science with regard to clarity, dam removal costs and engineering, production processes and water quality. It concluded "generally, the *Overview Report* connects to the sound science that underlies its conclusions" and "the science appears to be reliable for a Secretarial Determination." However, the *Peer Review Panel Report* also made several observations to improve the effectiveness of the Overview Report. Relevant to the key issue of portraying uncertainties, the report advises: "Be more explicit in describing the relative uncertainties associated with various ecosystem responses to the two restoration scenarios. The *Overview Report* does not discuss the potential range of outcomes and associated unknowns to the degree expressed in the original technical reports. Some responses are known with high levels of confidence, while others involve substantial uncertainties." The specific contingencies and uncertainties regarding the magnitude of fish response to dam removal discussed in Comment 5a-1 of the *Peer Review Panel Report* are relevant to Dr. Houser's allegations. We endorse and underscore the Peer Review Panel's recommendation that uncertainties can be effectively communicated in the context of decisional documents by some qualitative distinction of their magnitude, for example by using terminology similar to that of the Intergovernmental Panel on Climate Change: virtually certain, highly likely, likely, as likely as not, etc.

Allegation 2. Intentionally circumventing policy that ensures the integrity of science and scholarship and actions that compromise scientific and scholarly integrity.

1. Dr. Houser expressed concern relating to the scientific integrity of: (a) a draft press release on the draft environmental analysis for removing four Klamath River dams and (b) via verbal disclosure, the larger Klamath River dam removal Secretarial determination process. He alleged that(b)(6), and(b)(6), had committed the misconduct.

2. Regarding scientific integrity, the Departmental Manual (305 DM 3) includes a Code of Scientific and Scholarly Conduct for all departmental employees, including those named, including the following: "I will clearly differentiate among facts, personal opinions, assumptions, hypotheses, and professional judgment in reporting the results of scientific and scholarly activities and

characterizing associated uncertainties in using those results for decision making, and in representing those results to other scientists, decision makers and the public."

3. Regarding the scientific integrity of the Secretarial determination process(b), Dr. Houser states only that "I was concerned that if the department was summarizing the science in a biased manner [in the press release], that the same bias may infuse the March 2012 Klamath River dam removal Secretarial determination." Thus, there are no specific concerns related the process that were identified or documents, other than the press release, that we could evaluate.

4. Regarding the scientific integrity of the press release, we evaluated the allegations of scientific misconduct and the scientific record regarding issues identified in a draft press release entitled "Studies Show Removing Klamath Dams Could Add Thousands of Jobs and Boost Dwindling Salmon Runs" [attachment 2 of Houser's formal allegation]. This is the document about which Dr. Houser raised concerns in his September 15, 2011 email. We also considered the news release that was actually made public on September 21, 2011 entitled "Salazar Announces Release of Klamath Dam Removal Studies." In addition to its more neutral title, the final news release revised the second and third paragraphs of the draft, expanding them to paragraphs two through five in the ultimate release. A sentence was added: "The analysis and studies describe pluses and minuses to potential dam removal on the Klamath River." Others were added that indicate that dam removal would result in loss of recreational opportunities and decrease in nearby property values and that dam removal would result of loss of hydroelectric power generation and jobs in those facilities. The number of jobs that would be supported by the KBRA was reduced from 6,000 to 4,500. All in all, the claims of the draft press release were substantially moderated as a result of the internal review and it is against the final (September 21) press release, and not the earlier draft, that the scientific record should be evaluated.

5. The purpose of the September 21 news release was to announce the availability of the Draft Environmental Analysis and a 60-day public comment period. It was not intended as a document on which to base a Secretarial decision or to announce to the public such a decision. It is in this context of such a public announcement that the mention of the issues of fish recovery, which form the subject of "red flags" raised in Dr. Houser's September 15 email, is limited to one sentence: "[analyses and studies] reveal that, over the next few decades, dam removal and the implementation of a related watershed-wide restoration program could significantly increase salmon harvests in the river and ocean, . . . and restore more normal temperatures in the river, which is important for salmon." While this brief statement does not describe in any detail the associated uncertainties and contingencies, it does in a general sense convey the lack of surety in the use of the word "could." Furthermore, it is a reasonable news-release-length abstraction of the *Summary of Key Conclusions* regarding salmon and, in our opinion, does not conceal any essential information included in the *Summary of Key Conclusions*. Rather the scientific record related to Dr. Houser's allegation is more appropriately evaluated with regard to the *Summary of Key Conclusions* (Allegation 1), that was made publically available on the same day as the news release.

(b)(6) (b)(6) Comments to the Panel Report

Reference Notes on Klamath River Dam Removal Issues
(b)(6)
September 6, 2012

1. Compilation of Information to Inform US FWS Principles on the Potential Effects of the Proposed Klamath Basin Restoration Agreement. February 2010, Page 18, "Climate change would likely have gradual adverse effects on both suckers and salmon. However, these effects would be realized over a long time period while restoration of wetlands and water quality conditions and increased storage capacity are likely to occur more rapidly. “In addition, habitat-induced mortality, a frequently used term in the USGS Salmon Production Model, SALMOD, increases with decreasing flows that would be anticipated under climate change.

2. Press release: While the dam removal would result in the loss of hydroelectric power generation, which will have to be made up from other sources, and the loss of around 50 jobs from managing those facilities, it would also create a substantial number of jobs – varying in nature, duration, and location – estimated at approximately 1,400 during the short-term. It does not contain the value of lost power generation revenue, or increases in power bills to consumers. Both of these are uncertainties resulting from future ranges of watershed performance and related conditions including temperature.

3. Prepared for the U.S. Department of the Interior **"Peer Review Panel Report on Draft Klamath Dam Removal Overview Report for the Secretary of the Interior (2012)"** March 2012. Page 19, The magnitude of fish response to dam removal will depend on factors such as (1) whether peak flows will increase enough to produce sufficient stream bed-scour to reduce densities of polychaetes and the prevalence of myxozoan diseases, (2) whether water quality will: "6.0: Panel Responses to Review Questions for Specific Sections March 20, 2012 Peer Review Panel Report on Draft Klamath Dam Removal Overview Report improve enough to enable fish passage into the upper Klamath tributaries, including cold water refugia, and (3) the extent to which ongoing climate change will alter flow and thermal regimes in ways that affect salmon biology. Substantial uncertainties are associated with estimating how each of these various factors will play out, thereby producing even greater uncertainty in estimates of how fish will respond to either of the two restoration alternatives.

4. Uncertainties require the integrated analysis of alternative energy sources, carbon footprint, and cost; --the project database contains analyses focused on specific subjects, comprehensive comparison of alternatives is not present.

5. Final Biological Assessment October 2011. "Salmonid restoration efforts in the Klamath watershed cannot ignore the effects of climate change." "The effects of climate change on coldwater fishes (i.e., salmonids) are likely to be especially severe in the southern part of their ranges, such as in the Klamath River watershed. Increasing temperatures

will change conditions in all aquatic habitats, from rivers to estuaries to the Pacific Ocean. In rivers, climate change is expected to alter flow patterns, including the seasonality and magnitude of droughts and floods. Consequently, the suitability of rivers in the United States for supporting salmon and trout is expected to decrease four to 20% by 2030 and by as much as 60% by 2100 (Eaton and Scheller 1996), with the greatest losses projected for California and Oregon(O'Neal 2002)."

6. In a paper published in The National Academy of Sciences of the USA, Battin et al. (Battin et al.2007) used a series of linked models of climate, land cover, hydrology, and salmon population dynamics, to investigate the impacts of climate change on the effectiveness of proposed habitat restoration efforts designed to recover depleted Chinook salmon populations in a Pacific Northwest river basin. Model results indicated that climate change will have a large negative effect on freshwater salmon habitat. Additionally, (Battin et al. 2007) concluded that climate change will make salmon recovery targets much more difficult to attain.

7. Hydropower Benefits Technical Report-August 2011 (the reports deficiency creates a deficiency in the underlying database, not a gap between the underlying database and the overview report) The report presents three issues: 1) no discussion of variability related to climate change, 2) no discussion of the assumptions regarding energy costs related to current incremental costs of adding "comparable" sources of energy i.e. no omission energy, including each sources schedule of power availability, and 3) no reference to compliance with the Water Conservation Initiative and Implementation of the Secure Water Act of the USBR, October 2009. In sum, the no project alternative represents a "mean reduction in economic benefits of $1.3 billion or a loss of approximately 82%." This represents a baseline loss of revenue that is about four times the cost of removal.

8. The overview report lists benefits that are essentially in two categories: 1) relatively hard costs subject to normal estimating errors, and 2) conjectural benefits (opinion survey related) based on long-term economic assumptions of national and regional opinions. The two should be clearly separated for appropriate decision-making.

9. Proceedings of the Klamath Basin Science Conference, Medford, Oregon, February 1–5, 2010, Page 10
   "The effects of climate change on water temperature, water quantity, and water quality and linkages to atmospheric and meteorological events will bring profound changes to the Klamath Basin. Three key resource management issues in the Klamath Basin will be affected: agriculture, forestry, and fisheries, and these will generate new social, economic, and ecologic concerns overlying others in the Basin. The impacts of rising freshwater temperatures on the physiology of fishes, movement and migratory behaviors, and on physical habitats and their use must be determined to design and evaluate appropriate mitigation strategies. As flows change and temperatures increase, spring-fed rivers and streams and the underlying geology therein will be increasingly important to cold water fishes because of their resilience to changing precipitation, variable runoff, and warming. Groundwater effects on nutrient dynamics and aquatic productivity in spring-fed habitats will be critical for understanding changes in food webs."

Summary of issues related to failure to incorporate technical analyses in overview report for decision-making.

1. Uncertainties regarding climate change that are identified in numerous documents are not reflected in the decision-making document. Although the document includes a set of figures projecting a single climate change scenario, there is no discussion of the range of stream conditions, including flow (by reach), temperature, and climate change effects on upstream irrigation. This represents a major gap between the available underlying database of technical studies and the contents of the overview report and the EIS summary.

2. These climate change uncertainties also affect issues not sufficiently analyzed in the supporting technical studies or in the overview/summary documents they include:

    a. variations in lost hydropower resulting in major changes in present worth,

    b. the costs and impacts of replacement energy considering non-carbon alternatives and incremental costs,

    c. the format of the national survey that is the basis for the Overview/EIS statement of project benefits, the benefits include very large estimates to reflect and apparent national willingness to pay. Such a theoretical analysis does not produce results of the same credibility as professional estimates of future actual costs and benefits

    d. the Overview does not benefit from any classical engineering economy assessment which would consider alternatives based on variable climate change scenarios including a power benefit for continued operation based on the actual marginal cost of providing power that meets today's acceptable sources under Federal or State of California policy.

Draft possible language for consideration regarding panel's findings:

The panel did not find that a breach of "scientific integrity" was demonstrated by failure to include supporting evidence in summary documents based on the evidence it considered; it did however find that the Klamath River Dam Removal Project documentation summaries and overviews failed to adequately consider the subject of climate change, as required by federal law and policy (see above), and contained in supporting documents. This failure results in a decision support structure that fails to adequately consider expected future variability. This variability could have significant environmental, economic, and consumer cost impacts that should be evaluated in a decision to remove or alter these dams.

[redacted] [redacted] Comments to the Panel Report

Rough Draft of Comments
[redacted]
July 30, 2012

Allegation 1 Falsification of Scientific Information

The suggestion is that the press release falsified scientific literature and technical understanding in support of dam removal. There is little or no evidence for falsification. Three points support this conclusion. The first is that the scientific literature conclusions were not different from those presented in the press release. The second is that both positive benefits and negative impacts were presented in the press release. The third point is that while information was omitted from the press release, this is not evidence of breach of scientific integrity.

The Summary of Key Conclusions discussed how the dam removal would benefit numerous resources. These include different fish species- rainbow, steelhead, coho and other salmon. The benefits were reported in terms of how many miles of habitat would be restored. The press release appeared to me to copy and paste sentences out summary reports of scientific panels and or summary reports prepared by the dept of Interior. In doing so, the press release authors would suggest a type of precision in predicting the effects of dam removal that is not warranted. I think this is analogous to the problem of significant digits that every freshman must face in an introductory chemistry course. For example, in terms of trout restoration, rather than indicate that '420 miles of historical habitat' would be restored with dam removal, the authors should have indicated that hundreds of miles of habitat should be restored. In terms of the other elements of the summary, the project costs, regional economics, water quality and sediment, cultural impacts, flows and flooding, the summary as presented is not different from the various scientific and technical reports that were used as the basis of this summary.

The summary of Key Conclusions report also reports the costs, risks and negative impacts of dam removal. That is, not just the positive impacts were presented and all of the negative impacts left out of the summary. Examples include the loss of reservoir recreation, including bass and perch fishery and flat-water boating. The cost estimates of about 247 million reflect the technical report estimates as well. Other risks of flooding were also presented of the summary document.

I agree that the summary document did omit a number of key pieces of information, as alleged. These include no mention of climate change, and other sources of uncertainty, such the effects of ocean changes, diseases, silt and sediment on anadramous fish

recovery. The fact is that all of these issues are addressed in the larger and longer reports affiliated with this program. That is these issues are discussed in both the Draft Overview report and draft EIS report. Why they were omitted from the press release is unclear, but may have to do with the process by which press releases are developed and released.

Allegation 2. Intentional circumventing policy that ensures integrity of science, actions that compromise scientific integrity.

Most of this allegation is associated with comments and actions made on a press release. While the press release could be argued to be poorly written, and may have been an indication of omission of information to support a policy decision, the broader and more important document – the draft EIS (and subsequent Overview Documents) prepared by DOI do not. The EIS document was still in draft form in September 2011, and subject to subsequent review and comment. Moreover, the Overview document, which was intended to communicate impacts and uncertainties around the policy initiative to remove four dams was also in draft form. The fact that DOI was willing to strike an independent technical review panel to examine, evaluate and make recommendations about the Overview report is an indication that they are committed to maintaining integrity of scientific findings in the policy development process. While an ambiguous press release make have omitted key points, the processes around the development and publication of the critically important documents- the EIS and overview reports show no evidence that scientific integrity was compromised.

The edits and comments that were shared with this committee made by Dr. Houser were minor editorial comments and not substantive. That is there is no evidence that Dr. Houser made any comment or statement that challenged the scientific or technical information was changed to support the press release.

(b)(6) **Comments to the Panel Report**

a place of mind

University of British Columbia

D. Steven Courtney
RESOLVE
1255 23rd Street, NW, Suite 275
Washington, DC 20037

August 3, 2012.

Dear Steven,

Below are my comments from the meeting held on July 27 at RESOLVE's offices. Because the group of panelists assembled by you were unanimous in our conclusions on the following two allegations, namely:

1. *The draft Science Summary and other documents do not capture the full range of uncertainty expressed by scientists in primary documents, species summaries and public discussions.*
2. *The Press release of September 14, 2011 does not report uncertainty and is biased towards reporting a favorable outcome from dam removal,*

I have limited my comments/suggestions to the category of "commentary".

Much of the discussion among the panelists was centered on the quality of the document entitled "Summary of Key Conclusions – Scientific/Technical Reports for Secretarial Determination – published Sept. 2011." To this point I offer the following comments/suggestions:

- The summary of key conclusions was simply as stated a "summary" and that scientists would place little if any relevance to a non-scientific summary of conclusions
- Related to the above I would suggest that future summaries start off with an introduction that clearly states it is a " summary of chosen events " and should not

be viewed as necessarily reflecting the conclusions from all of the points reported in the supporting scientific studies.

- Future summaries need a caveat that states interested parties, for accuracy and relevance, should reference the scientific studies for points of discussion/publication.
- Future summaries should always qualify their conclusions using phrases such as "likely, appears, may show" and not as a matter of fact.

Sincerely,

[redacted]

Klamath River Dam Removal
Document Release Timeline

January 14, 2010	Expert Panel Report: Lamprey
April 11, 2011	Expert Panel Report: Resident Fish
April 25, 2011	Expert Panel Report: Coho Salmon and Steelhead
July 20, 2011	Addendum to Expert Panel Report: Chinook Salmon
September 2011	Draft Environmental Impact Statement/Environmental Impact Report
September 21, 2011	Press Release: Salazar Announces Release of Klamath Dam Removal Studies
September 21, 2011	Summary of Key Conclusions: Draft EIS/EIR and Related Scientific/Technical Report
September 22, 2011	Draft EIS/EIR Public Comment Period Opens
December 30, 2011	Draft EIS/EIR Public Comment Period Closes
January 23, 2012	Draft Overview Report for the Secretary of the Interior
January 23, 2012	Summary of Key Conclusions: Technical Reports
January 24, 2012	Press Release: Interior Issues Draft Overview Report on Klamath Dam Removal Studies
January 24, 2012	Summary Report Public Comment Period Opens
February 5, 2012	Summary Report Public Comment Period Closes
February 24, 2012	Paul R. Houser Allegations
March 13, 21012	Atkins Peer Review
TBD	Secretarial Determination

Responses to questions posed by Steven Courtney via email to Atkins on July 16, 2012
Prepared by Rebecca Burns, John Hefner and Tom St Clair, Atkins
July 19, 2012

1. **Was the peer review process, carried out by Atkins, independent of control and direction by the Department?**

The Department provided general guidance in the form of the Scope of Work for the task order contract for the reviews.

In addition, the Klamath Technical Management Team (TMT) developed a "Charge to the Peer Review Panel" as direction to the reviewers for the Secretarial Determination Overview Review (SDOR). This document outlined the scope of the peer review with a set of broad and specific questions, and stated that the review was to avoid matters of policy and law. On the first day of the in-person panel meeting, Dennis Lynch (USGS), the Program Manager for the Secretarial Determination and Contracting Officer's Technical Representative (COTR), and Rhea Graham (USBR), Program Manager with the Klamath Dams Project Office, attended to go over the charge and answer any questions from the panel. During the course of the one-week panel meeting, members of the Technical Management Team were contacted by the panel via telephone and email to answer any clarifying questions; all emails are part of the Administrative Record.

The USFWS provided a scope of work for the draft Biological Opinion (BO) peer review which provided direction to the reviewers on the questions to address in their reports. This guidance was clarified in subsequent emails from the USFWS field office staff responsible for managing the review; these emails are part of the Administrative Record.

With the exception of the guidance provided in the scopes of work and the charge, as well as in clarifying emails, the reviews were carried out independently by Atkins.

2. **Was the overall design of the process developed by the Department, by Atkins, or through discussions between the two?**

The overall design of the reviews was developed by the Department and provided to Atkins in the scopes of work for the task order.

The design of the in-person SDOR panel meeting was developed by Atkins and informed by and vetted with Department staff. Specifically, Dennis Lynch and Rhea Graham offered to attend the first day of the meeting as described in the response to question 1 above. Atkins designed the rest of the agenda to meet the goal of the in-person meeting: to develop a draft panel report. Atkins discussed the draft agenda with Dennis and Rhea prior to the meeting to obtain their input.

3. **Once the process was initiated, did the Department or other government agencies control your implementation of the independent review program in any way?**

Once the review process was initiated for each of the peer reviews, Atkins maintained control of its implementation and Department or other agency involvement was generally limited to addressing clarifying questions, with the exception noted below.
During the review of the draft BO, USFWS staff constrained the scope of review slightly after internal discussions about the need for significant revisions to one section of the BO. The USFWS asked that the reviewers not address that section of the review until a revised section could be provided; however, given the tight timeframe for the review, it was not possible to provide a revised section to the reviewers in time.

4. Who chose the reviewers?

With the exception of the SDOR and BO reviews, Atkins identified, evaluated, and chose the potential reviewers. The names of candidate reviewers, along with their resumes/CVs, were forwarded to the U.S. Fish and Wildlife Service for vetting and selection confirmation.

For the SDOR review, Atkins was provided a list of 34 potential reviewers developed by the TMT. Atkins contacted reviewers by discipline starting at the top of the list and progressing down through the list until reviewers who were available and willing to serve were identified.

The draft BO review had a very short turnaround time, which coincided with a major seabird conference that many potential reviewers were planning to attend. As a result, Atkins had difficulty securing an avian ecologist with expertise on the northern spotted owl and marbled murrelet for the panel who was available during the timeframe of the review. Atkins notified the staff at the USFWS field office responsible for managing the review and they provided suggestions of potential reviewers. Atkins contacted these individuals and submitted a proposed candidate to the USFWS for approval.

5. Were you, or the reviewers instructed or influenced, in any way, to reach particular conclusions?

No, there was absolutely no instruction or agency influence to reach particular conclusions during any of the reviews.

6. Were you, or the reviewers instructed, in any way, to either address or not to address scientific uncertainty? Did Atkins provide any guidance to reviewers on this issue?

Yes. The task order contract for the Klamath peer reviews states:
"Expert reviewers will be instructed to focus on major topics in the science documents, including but not limited to the following questions: are datea of high quality, are analytical methods well accepted, are conclusions supported by the data, are assumptions reasonable and well documented, and are limitations and uncertainties properly identified and quantified?"

The "Charge to the Peer Review Panel" for the SDOR review provided some instruction and specific questions related to scientific uncertainty. Specifically, the charge states that "For example, the reviewers should not provide advice on topics such as the amount of uncertainty that is acceptable for decision making or the amount of precaution that should be embedded in an analysis." Additionally, the charge contains several questions related to uncertainty and information gaps:

- In the judgment of the reviewers, are there any important information gaps that limit the fundamental understanding of the likely effects of implementing the agreements on Klamath fisheries and fish populations?

- Are there important information gaps that limit the understanding of the engineering, mitigations, or costs associated with dam removal?

- Are the possible risks and uncertainties of dam removal characterized in an understandable and defensible manner?

- Are there any important information gaps relative to potential risks associated with dam removal?

- Are there any important gaps in the information presented for a public interest determination?

During the in-person SDOR review meeting panelists raised several comments related to the descriptions of relative uncertainties in the report. The panel saw this as an important issue to bring up in their peer review report and collectively decided, with input from Atkins, to elevate it to the "General Comments" section of the report.

Additionally, the Scope of Work for the BO review included the following as one of the terms of reference:

Determine whether the draft BO appropriately addresses analytical assumptions, estimates, and uncertainty.

(b)(6) (b)(6)

BIO:

(b)(6)

RESEARCH INTERESTS:

(b)(6)

EDUCATION

(b)(6), Ph.D., Marine Science

(b)(6)

PUBLICATION HISTORY

(b)(6)

(b)(6)

(b)(6)

[redacted]

Wetlands

(b)(6)

[redacted]

(b)(6)

[redacted]

Oil Pollution

(b)(6)

[redacted]

Eutrophication

(b)(6)

[redacted]

Climate Change

(b)(6)

[redacted]

(b)(6)

(b)(6)
Consulting Engineer
(b)(6)
[redacted]

EXPERIENCE

(b)(6)
[redacted]

(b)(6)

[redacted]

EDUCATION

B.S. Civil Engineering, (b)(6)
M.S. Civil Engineering, (b)(6)

PROFESSIONAL

(b)(6)

[redacted]

OFFICES AND APPOINTMENTS--Recent

(b)(6)

[redacted]

OFFICES and APPOINTMENTS--PAST

(b)(6)

[redacted]

(b)(6)

[redacted]

SOCIETY MEMBERSHIPS

(b)(6)

[redacted]

AWARDS AND HONORS

(b)(6)

[redacted]

PUBLICATIONS AND PRESENTATIONS

(b)(6)

[redacted]

(b)(6)

(b)(6)

(b)(6)

(b)(6)

Personal:

Current Address: (b)(6)

Current email: (b)(6)

Education:

(b)(6) (b)(6)
B. S. Botany, (b)(6)
M.S. Botany, (b)(6)

(b)(6) (b)(6)
Ph.D., Environmental Engineering Sciences, (b)(6)

Work Experience:

(b)(6)

Awards and Honors

(b)(6)

Boards and Committees:

(b)(6)

[redacted]

PUBLICATIONS

Books:

[redacted]

Reports/Book Chapters:

[redacted]

(b)(6)

(b

(b)(6)

(b)(6)

[redacted]

(b)(6) [redacted]

Journal Publications:

(b)(6) [redacted]

(b)(6)

(b)(6)

Invited Presentations

(b)(6)

(b)(6)

(b)(6) [redacted]

Conferences and Symposia

(b)(6) [redacted]

(b)(6)

TEACHING

Courses Taught at (b)(6)

(b)(6)

(b)(6)

Other Courses

(b)(6)

SERVICE/ADMINISTRATION

(b)(6) College/University Service

Member Faculty Science Council

(b)(6)

Member planning committee joint BS/MPH degree

Chair- Departmental Review (b)(6)

Education Policy Committee- (b)(6)

General Education Requirements Task Force (b)(6)

Chair Grievance Committee (b)(6)

Departmental Service

Conducted faculty meetings

Member curriculum committee

Member graduate committee

Member undergraduate committee

Completed budget planning/implementation.

Completed staff and faculty evaluations.

Developed (b)(6)

Developed, (b)(6)

Reviewed Manuscripts:

Journals: Proceedings National Academy of Sciences, Ecosystems, Ecology, Environmental Management, Ecological Economics, Conservation Ecology, World Resources Institute, Trends in Ecology, Human Ecology, Journal of Forestry, Current Biology, Society and Natural Resources.

Book manuscripts for Oxford University Press, Island Press. Cambridge Press

National Academy of Science- National Research Council Report Reviews: (b)(6)

Other Service:

(b)(6)

(b)(6)

Contact: (b)(6)

Professor, (b)(6)

Education

Ph.D. (Environmental Science) (b)(6)

B.Sc. (Fisheries and Wildlife) (b)(6)

Research Interests

(b)(6)

(b)(6) research interests include (b)(6)

Publications

(b)(6)

(b)(6)

(b)(6)

(b)(6)