Cook Inlet Beluga Whale Recovery Team  
Science Panel Meeting #4 Summary  
Federal Building, Anchorage, Alaska  
January 11-13, 2012

Science Panel members present: Tamara McGuire (Team Leader), Bill Bechtol, Pierre Beland, Carrie Goertz, Dan Goodman, Rod Hobbs, Robert Suydam, Robert Michaud, Greg O’Corry-Crowe, and Randy Standifer.

Science Panel Members Unable to Attend: Manolo Castellote and Craig Matkin. Manolo was able to call in for part of the meeting.

Others present: Mandy Migura (NMFS Cook Inlet Beluga Whale Recovery Coordinator) and Erin Dunable (URS, meeting support).

Wednesday, January 11, 2012

Welcome and Introduction:
The team leader began the meeting by welcoming the members of the Cook Inlet Beluga Whale Recovery Team (CIBRT) Science Panel (SCI) and making them aware that several members were unable to attend all three days of meetings due to scheduling conflicts, but would participate to the extent they were able.

The team leader welcomed the observers and briefly reminded them of the rules, asked everyone to quiet their electronic equipment, refrain from the use of flash photography and video, and to please respect the panel members by allowing panel members to use the designated break times as breaks, rather than engaging them in discussion.

Erin Dunable, the URS representative, gave a brief presentation regarding her role, meeting summaries, travel reimbursement, and safety.

The NMFS liaison announced a staffing change in the regional office. Kaja Brix will be taking a leave of absence and Kim Rivera will be acting as the Assistant Regional Administrator for the Protected Resources Division until the position has been filled.

The team leader reviewed the agenda for the next three days and reviewed past CIBRT activities.

Summary of Events with Recovery Team Member Participation:
- March 30-April 1, 2010 was the first meeting of the CIBRT and included a joint meeting of both panels as well as a separate meeting of each panel. The questions addressed by the stakeholder panel (STK) at that meeting were reviewed.
- September 30, 2010 was the second STK meeting and featured invited speakers Dr. Carrie Goertz (SCI member) and Dr. Kathy Burek-Huntington, who spoke about Cook Inlet beluga whale (CIB) strandings and the Alaska Stranding Network. The questions addressed by the panel members at that meeting were reviewed.
• October 11-12, 2010 a National Marine Fisheries Service (NMFS)-sponsored CIB science conference was held, exhibiting the results of recent Cook Inlet beluga whale research projects and included presentations by CIBRT members from both panels. The abstracts and most of the presentations are available on NMFS’ Cook Inlet beluga whale website: www.alaskafisheries.noaa.gov/protectedresources/whales/beluga/workshop/default.htm.

• On November 16, 2010, the State of Alaska and the Resource Development Council (RDC) co-sponsored a half-day workshop titled “An Endangered Species Act Primer”, at which two members of the CIBRT STK, Doug Vincent-Lang and Jason Brune, gave presentations, although not on behalf of the recovery team. Those presentations are available on RDC’s website.

• December 8-10, 2010 was the second meeting of the SCI. The questions addressed by the panel members at that meeting were reviewed. There was a discussion of, and agreement to abide by the Terms of Reference. Rod Hobbs gave a presentation on NMML’s Cook Inlet beluga whale aerial surveys for population and calf estimates. The SCI discussed the rough drafts of the background sections, which will be submitted to the STK for an internal review. After reviewing the background sections, the SCI reviewed the recovery criteria (RC) of other NMFS recovery plans and identified types of criteria used in those plans (e.g., population trends vs. absolute numbers; biological vs. threats-based criteria, etc.), and made recommendations for the types of criteria to use in the CIB recovery plan (RP); the same topic was discussed by the STK at their meeting on January 14, 2011.

• January 14, 2011 was the third meeting of the STK and featured presentations by Rod Hobbs on 2010 Population Estimate and Calf Counts, and Mark Willette on CIB prey abundance/distribution and the physical habitat of Cook Inlet, with an update by Mandy Migura on the status of the CIB Critical Habitat designation. The questions addressed by the panel members at that meeting were reviewed.

• April 2011 meeting was cancelled due to possible federal government shutdown.

• November 7-10, 2011 was the third meeting of the SCI and the fourth meeting of the STK panel. The questions addressed by the STK panel members at that meeting were reviewed. Rod Hobbs, Barbara Mahoney, and Robert Michaud gave presentations regarding annual calf indices for beluga whales in Cook Inlet, marine mammal health and stranding response, and the recovery strategy for the St. Lawrence beluga population, respectively. The panel discussed RC, Threats Assessment (TA), and research gaps/priorities for inclusion in the CIB RP.

Meeting summaries for the above referenced meetings and can be found on NMFS’ CIBRT website: www.alaskafisheries.noaa.gov/protectedresources/whales/beluga/recovery/ci.htm.
Rod Hobbs, National Marine Mammal Laboratory (NMML): 2011 Cook Inlet Beluga Abundance Estimate Update

Rod Hobbs provided an update on the 2011 CIB abundance estimates that were recently released by NMML. He reviewed the methodologies used for developing the abundance estimate and the challenges the research team faced when collecting data in 2011. A change in planes impacted the surveys, but those factors were adjusted for within the analysis. The 2011 population estimate of 284 belugas is the second lowest estimate since 1993. The data also shows a continuing decline of 1.1% per year over the last 10 years. Rod also commented that there was an unusually low number of carcasses found this year (three) compared to recent years. Funding has not been allocated as of yet, so it is not clear what surveys may be conducted in 2012.

Rod fielded questions from the team regarding the methods he used to overcome the challenges presented by the new plane and the methods used for estimating abundance. There were discussions regarding what can be inferred from the low abundance estimate and from strandings.

The 2011 Cook Inlet Beluga Abundance Estimation report may be found on NMFS’ website:

Following Rod’s update, the team leader clarified the difference between the RP and the Conservation Plan (CP). The team leader reviewed the five factors required to list a species as endangered or threatened under the endangered species act (ESA), aka “listing factors”, and how they are to be incorporated within the RP.

A species may be listed as threatened or endangered because of any of the following five factors:
1. the present or threatened destruction, modification, or curtailment of its habitat or range;
2. overutilization for commercial, recreational, scientific, or educational purposes;
3. disease or predation;
4. the inadequacy of existing regulatory mechanisms; or
5. other natural or manmade factors are affecting its continued existence.

The team leader stated that the goals of the CIB RP are to down-list, then delist the CIBs based on specified criteria and shared NMFS guidance on RC.

The team leader shared a draft timeline for completing the RP, the goal of which is to have a draft RP by the fall, to share with and receive comments from the STK, and have a final draft of the RP to NMFS in roughly one year.
Upcoming meeting dates were announced and are as follows:

- April 10-13, 2012 - There will be a slight change to the April meeting schedule due to the Easter holiday. The STK will meet in the morning of 4/10 and there will be a joint meeting of the STK and SCI in the afternoon; the SCI will meet 4/11-13. The STK will receive the draft RC in advance of the April meeting and will be asked to provide comments during the STK meeting.
- October 30 - November 2, 2012

*Please note: CIBRT meetings are now open to the public to observe; therefore, all future CIBRT meetings will be held in the federal building in Anchorage, AK.*

The team leader updated the SCI on the status of the background sections, discussed pending assignments, and shared updates that authors intend to make based on papers that are currently awaiting publication, etc. Authors then made suggestions on ways to organize the different sections, such as combining the movement and habitat sections. The team leader shared that she intends for the early draft of the background section to include more information than may be necessary, and once the remaining sections have been drafted, will then edit and finalize the background section to remove extraneous information. The team leader asked for feedback on this process and there was consensus amongst the panel that this was a good approach.

*This discussion transitioned into discussion of Recovery Criteria for Cook Inlet Belugas.*

**Draft Recovery Criteria Discussion:**
The team leader began the discussion by reviewing the NMFS guidance for drafting RC, which led several panel members to question the clarity of the language. This discussion transitioned into a review of the preliminary RC a SCI member had drafted. The team leader reviewed a list of key reference documents that could be helpful in the RC discussion. She further clarified that although the Workshop\(^1\) which influenced the preliminary RC used large whales as an example, the recommendations provided from the Workshop could still be useful for a discussion of CIBs.

The panel then took the opportunity to read the revised preliminary RC (which was provided during the meeting) in order discuss it as a group. Once everyone had finished reading, the team leader asked the panel members to each share their thoughts on the draft RC. A panel member suggested that since the proposed criteria for CIBs were derived from the Workshop\(^1\), it would be worthwhile to review the reasons the Workshop participants made the choices they did. One of the SCI panel members participated in the Workshop, so the team leader asked him to please share his recollection of the discussion. He explained that the purpose of the Workshop was to standardize RC, which although are a required component of recovery plans in accordance with the ESA, are not defined by the

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ESA. This lack of a definition has led to high diversity and inconsistency of RC across recovery plans. The ESA discusses RC in terms of extinction, so the Workshop focused on the percent probability of extinction within a certain time frame.

The SCI member shared additional background on how the Workshop participants arrived at 100 years as the timeframe and briefly discussed the literature they reviewed to shape their decisions, along with the agency experience that influenced the length of time required to react to population changes.

There was a question regarding the criteria for delisting, and the same SCI panel member explained that the ESA was intended to be precautionary, which has since been supported by the courts. Because of this, the agency is required to give the species the “benefit of the doubt” and assume it needs protecting, rather than putting the burden on the agency to prove it needs protecting.

The panel discussed, at length, the use of a Population Viability Analysis (PVA) model in developing RC. The team discussed the availability of data for analysis and how a lack thereof would require a more cautious and careful approach for developing RC. They discussed in detail how the model uses the data, how a limited data set is extrapolated over a long period of time, and how the model deals with stochastic events.

A panel member said that he wanted to test the sensitivity of the PVA before deciding on it. This led to a discussion of the potential biological removal (PBR) and optimal sustainable population (OSP) levels, which do not look at extinction risks. The panel discussed the challenges of each approach. The team leader asked the panel to let her know if they wanted any additional information about PVAs, but reminded the group that she was working to arrange a presentation for the group about PVAs at the next meeting.

The team had extensive discussions about defining risk and the impacts to subsistence hunters, conservation, etc., based on the threshold set forth in the RC. This led to a discussion of how the lack of funding may affect scientific research and by extension, management decisions. The NMFS liaison urged the team to put forth any management/policy recommendations they have within the document, regardless of budget constraints. There was a lengthy discussion regarding a lack of continued funding and sources of new data from fishermen and historic data from Native hunters. This led to a lengthy discussion regarding the possible reasons for a range constriction and the potential trade-offs associated with this change, such as a change in sexual segregation patterns.

The panel began a point by point review of the preliminary RC, discussing and editing (i.e., clarifying, adding to or deleting aspects of) each proposed criterion. During this review, the PVA model was a recurring point of discussion which led to a discussion of the population and what growth rates the population would need in order to recover. Panel members agreed that any RC recommended must make sense and must be realistic and attainable.

The team leader mentioned the suggestion by the State of Alaska to supplement the CIB distinct population segment (DPS) with other stocks of belugas. This led to a brief discussion regarding how other RPs handled RC recommendations for species versus
DPSs. The team leader cautioned the panel that the RP should be clear that it is to recover this DPS of CIBs, not beluga whales, in general. This led the group to discuss issues relating to other stocks, such as mercury poisoning, etc.

The science panel discussion was concluded and as per the agenda, the last 30 minutes of the meeting was dedicated to observer questions.

The two observers present were members of the STK, and the team leader asked that they introduce themselves. After their introductions, they said they had no questions for the SCI, but one observer reminded the SCI of the importance of good communication with the public and a clear and easily understandable document, especially the executive summary.

The team leader thanked the STK members and with the time remaining, reviewed the agenda and the remaining tasks. The team then began a vigorous discussion regarding the down- and delisting factors. SCI members agreed that the steps need to be very clear on what is necessary to modify ESA listing status, including relisting should the population decline again after a down or delisting.

The team leader thanked everyone and adjourned the meeting for the day.

Thursday, January 12, 2012

The team leader opened day two of the SCI meeting of the CIBRT by reviewing the day’s agenda. The team leader briefly reviewed the pertinent aspects of the NMFS recovery planning guidance and the listing factors, since the RP must link back to the listing factors.

Preliminary Threats Assessment Discussion:
The team leader displayed the working spreadsheet of the TA table and briefly reviewed the headings and threat categories that were brainstormed at the previous meeting. Panel members discussed the TA spreadsheet, asked various clarifying questions about the definitions of some of the threats and headings; for example, should strandings, ship collisions, and other traumas all be in a single threat category or separated out into different categories. Several members agreed that quantifying the level of threat is difficult. One example of this difficulty was brought up in a discussion about how to characterize the level of the threat associated with undocumented activities, such as illegal hunting. Although there is speculation that some scars on CIBs are the result of healed gunshot wounds, uncertainty exists about if there could be other explanations for those scar patterns, or how old those scars. This led the team to discuss how to generally categorize threats based on the root cause, as opposed to the effect. The panel then discussed ways to present such distinctions, such as those than can or cannot be mitigated for, separating between acute and chronic, or by size and/or frequency.

A panel member suggested that perhaps a “strawman” diagram would help demonstrate the relationships of the source and effects of threats, as well as their relationships to other
sources or biological systems. One member gave a brief presentation on what such a diagram may look like, how it would work, and its potential usefulness within the RP. The panel all shared their thoughts on the application of this method. One member in particular thought that it would be tremendously helpful in the RP because it would essentially be a flow diagram for an ideal PVA model, and could visually show the lay person what is being analyzed in the model. Other panel members thought that it could delay progress and, though good for the lay person, it could get very large and unwieldy. There was consensus that a diagram should be worked on outside of the meeting, so as not to delay progress. Three panel members volunteered to work together outside of full-team meetings to developing this idea further.

The team then began a detailed review of the TA table and draft sections in order to clarify the intent behind the naming and grouping of different threats. The team discussed changes observed in the CIB range and possible causes for redistribution. The discussion of threats led the panel to discuss strandings and the level of response, problems with the existing system, and possible opportunities to improve response and data collection. The team leader asked if there were any final thoughts or comments regarding threats; since there were no responses, she summarized the assignments that panel members would be responsible for in regards to threats.

*This concluded the discussion about Threats Assessment. The team leader, following the revised agenda, returned to the discussion on Recovery Criteria.*

**Draft Recovery Criteria Discussion:**
The team leader transitioned back into a discussion about RC and the draft section prepared regarding range contraction. There was an extensive discussion regarding the different theories regarding the cause of the CIB range contraction. Discussion ensued regarding how to define recovery based on range, the uncertainty around the reason(s) for abandoning the historic range, and the possibility that the historic habitat is no longer suitable for CIBs. This led to a discussion regarding the unknowns related to the winter range of CIBs.

The team returned to a discussion regarding down and delisting criteria and the importance of clear language. There was an extensive discussion regarding using a method consistent with the ESA, and making the criteria not only clear, but realistic and attainable. There was debate among the panel about how the criteria would be received by the public if the RC were perceived as to be impossible to attain, and thus impossible to down or delist. There was a lengthy discussion regarding the language that should be used to allow for delisting and that it should be based on different scenarios rather than tying it only to one criterion. For example, instead of declaring a firm population number that must be reached, the plan could say that the CIBs must reach a growth rate equivalent to 2% population growth over 35 years. At the request of the panel during the previous day’s meeting, Rod Hobbs presented some sample scenarios which he used in the model in order to demonstrate how the outcomes changed when factors such as the timeframe, the quasi-extinction threshold, and killer whale predation were adjusted within the model. This request was made by some panel members who wanted to see how different levels of uncertainty in the variables affected the outcome of the model.
The panel engaged in a lengthy discussion regarding what recovery is actually characterized as. The panel questioned if they were recovering the CIB population to a certain number, percent of former range, or if they were just preventing extinction? And if the latter, was that enough, were they able to make recommendations in the plan to go farther for the conservation of the DPS of CIBs.

This led the group to discuss quasi extinction levels and ultimately, discuss the minimum population size from a genetic perspective. (Quasi-extinction is the population level at which the number of CIBs would be insufficient to assure persistence of the species.) The panel discussed the methods that would be used to determine the minimum population level and the scientific value of testing the allele distribution. The panel also discussed the possibility that there could already be genetic effects, as a result of the small population, that have not been detected yet.

This concluded the discussion about Recovery Criteria. The team leader then began a discussion regarding The Marine Mammal Commission’s (MMC) request for information and a presentation at their annual meeting two weeks hence.

The team leader asked members of the panel affiliated with MMC to share their experiences to give her an idea of what to expect when presenting, etc. One of the SCI members gave an extensive background of the organization’s history to share how the MMC was originated, its organizational structure, its power to influence change, and its mission. He shared that one of the MMC’s methods to affect change is through letter writing, which the agencies are required to respond to. The group continued to discuss the role the MMC plays in funding research and the role of the Scientific Review Group of the MMC.

The science panel discussion was concluded and, as per the agenda, the last 30 minutes of the meeting was dedicated to observer questions.

The team leader then opened the floor to the observers for the designated question and answer period. The panel fielded questions/comments from two of the five observers present regarding sources for information regarding the historic CIB range, questions regarding the CIBRT meeting schedule, meeting summaries, and if noise was discussed in the meetings.

The team leader thanked everyone for their questions/comments and briefly reviewed the agenda for the next day.

The meeting concluded for the day.
The team leader welcomed the group and reviewed the agenda for the day.

A panel member requested to see a copy of a letter the MMC sent to NMFS regarding CIB research priorities, so the team leader displayed the letter while the team briefly reviewed it (the team had been emailed this letter some months before the meeting). A panel member asked about the MMC recommendation to convene experts and evaluate biopsy sampling and asked if such a workshop had been conducted; it was determined that it had not. A SCI member shared that NMFS’ current research permit allows for biopsy sampling of CIBs, but the funding does not exist to conduct sampling. It was said that the NMFS Alaska Region was reluctant to authorize research involving the chase and capture of CIBs, so NMML is reviewing other research options. For instance, biopsy and genetic studies could be conducted to determine an individual’s reproductive status, diet, age, contaminants, body condition, etc. However, funding is a limiting factor regardless of the type of research study pursued.

The team leader asked the team’s genetics expert to discuss possible genetics research that could be conducted to better understand the CIB population. That SCI member listed the many types of data that could be obtain with genetics, such as, kinship and relatedness of individuals, the rate of genetic drift and loss of diversity over time, gene expression, etc. The panel then discussed the need for resampling and asked the researchers who have studied the St. Lawrence and Bristol Bay beluga whale populations to discuss their experience with genetic sampling and any negative associations with sampling that would affect the ability to approach for photo-identification. The researchers concluded that there were few, if any, noticeable negative associations with the sampling boat in either population despite the differences in the sampling methods.

The team leader asked other SCI members and the NMFS liaison to share more information about the budgeting process, so that the group could better understand the federal funding system. There was a lengthy discussion regarding the different ways NMFS programs receive funding and how funds are allocated to the different priorities. The team leader thanked everyone for sharing, since she thought it would be very helpful to make sure the recommendations the CIBRT make are realistic and effective.

The budget issue led to a discussion about prioritizing the annual aerial abundance surveys and ways to cut costs without losing a significant amount or quality of data. A panel member asked about the impact of reducing the frequency of the aerial surveys from an annual basis to some other level of frequency (e.g., every two or three years). It was mentioned that there appears to be a cycle in the abundance estimates of CIBs, and the numbers change depending on where (or when) you are within that cycle. Another member pointed out that there is an unexplained imbalance between the per capita birth and death rates and we are only aware of that because of the surveys are conducted on an annual basis. After some vigorous discussion, a panel member pointed out that because the population was so small the numbers need to be very accurate. A member clarified that this was because skipping data points (i.e., survey years) means you need to add more time to the data series (i.e., need to look at the data over a longer time span. The effects of reducing the survey frequency has been studied in other species; in grey whales, for
example, they found they could drop 10-20% of the data points and still maintain statistical robustness but losing 50% of the data points rendered the results invalid. However, it all depends on the length of the series. So, unless NMFS is willing to wait 35 years to see if the population goes extinct or not, they need to increase funding and continue conducting the abundance surveys on a yearly basis.

The panel then discussed survey data in general, what behaviors have been observed that confounded the survey protocols, the myth that doubling effort will double the results, and brainstorming about other survey methods. The team leader asked about how salmon surveys are handled in relation to frequency of sampling and yearly cycles, which led to a discussion about the CIB hunt and the historical hunt data which is included in the model. There was brief discussion among the panel about the overlap of aerial surveys and boat observations.

_The team leader then reviewed the remaining agenda items and asked the panel to consider research needs during the lunch break, so they could be ready to discuss upon their return._

**Research and Data Gaps Discussion**

The team leader resumed the meeting and began a discussion regarding research and data gaps and the panel proceeded to review the preliminary data gaps section previously prepared by a SCI member line by line, and to edit the document during the meeting. This led to a group discussion regarding the best way to group subject matter together (i.e., to lump or split) and how to review the data.

While reviewing the data gaps, the panel started discussing the primary data needs which led back to an earlier discussion of genetic diversity and the suggestion by a STK member of the translocation of animals from other beluga populations into Cook Inlet. The panel discussed the dangers of introducing new animals to the population when the current threats and lack of recovery are still so poorly understood. A panel member suggested that there could be factors that biologists aren’t seeing, such as the possibility of poaching events killing 6-12 animals per year, which could completely explain the lack of recovery.

Reviewing the data gaps led the panel to a discussion about using trajectory models of oil spills for use with strandings. It may be possible to model the flow patterns of waters in Cook Inlet to tell responders where a carcass would float and help target the search. The panel also discussed what is known regarding pathogens and parasites.

The panel discussed the stranding network in the St. Lawrence and how they created the volunteer network and reporting infrastructure. The St. Lawrence group suggested starting with public awareness first via TV, radio, and printed posters sent everywhere. Tell the public when and where to report and respond right away. You must have someone willing to respond right away. The panel members involved with Alaska strandings shared the challenges they face, such as timing delays between receiving the call and responding, availability of approved aircraft, permission from NMFS to respond (even for those within the stranding network), etc. The team leader shared that STK member, Paul Shadura, offered to start a volunteer response group in the Kenai area. The NMFS liaison suggested
that any recommended actions regarding improving the stranding program be specific and clear as to the goal to achieve, rather than just recommending a “better response”, for example.

The discussion turned to possible limitations of actions the team could recommend in the RP; such as, should the RP consider recommending for or against alterations to the habitat, etc. There was brief discussion regarding other management programs that use human intervention, such as the Hawaiian monk seal program (e.g., pup translocation, predator removal). A panel member suggested that it is possible for a species to become dependent on the intervention, such as with some salmon stocks and hatcheries; and if human intervention is required to maintain the species, can you truly call the species recovered?

*The science panel discussion was concluded and as per the agenda, the last 30 minutes of the meeting was dedicated to observer questions.*

The team leader then opened the floor to the observers for the designated question and answer period. The panel fielded questions/comments from two of the four observers present. The observers thanked the panel for allowing them to observe the process and made comments regarding the importance of ship traffic, the historical tradition of beluga hunting, exposure to lead and pollution from drilling muds, radioactive materials, acoustic noise, the need for a comprehensive watershed assessment, confusion about the meeting date, disappointment about decreased funding, tracking of research and funding, and seeking additional funding from STK members, Congress, etc.

The team leader thanked everyone for their questions/comments.

The NMFS liaison commented that tracking research and funding is an important need and in fact, a conservation coordinator was recommended in the Conservation Plan. A panel member contributed that the Stellar Sea Lion (SSL) program has research coordination meetings and perhaps the same could be done with CIBs. The team leader agreed that there is a real need and perhaps the RT can be the catalyst. A SCI member recommended mentioning the issue to the MMC during the CIBRT’s presentation. There was a brief discussion about the attempt for research coordination at the 2011 Alaska Marine Science Symposium.

To address the observer suggestion regarding funding, a panel member shared they had been seeking funding outside of the federal government and the feedback they have received was that Cook Inlet is too political, and the party they approached didn’t wish to be involved. Other potential funding organizations mentioned they worried CIBs would become very politically charged like SSLs.

This concluded the question and answer period. The team leader said that she would email the group with the list of assignments as well as the recommendations for the MMC for the group to edit/approve prior to the meeting. The team leader requested that panel members take note of when tasks are assigned to them during the meeting, so that all of the responsibility for follow-through does not later fall on her. The team leader shared what
agenda items she was working on and there was a brief discussion regarding potential candidates to speak regarding modeling at a future CIBRT meeting.

*The meeting concluded for the day.*