

# **SOUTHWEST ALASKA SEA OTTER RECOVERY TEAM**

Meeting Minutes  
for  
18-20 November 2008  
at the  
North Pacific Research Board Conference Room  
1007 West 3<sup>rd</sup> Avenue, Suite 100  
Anchorage, Alaska 99501

## Recovery Team Members in Attendance

Jim Bodkin, Douglas Burn, Jim Curland, Jim Estes, Lloyd Lowry, Tim Tinker, Kate Wynne, with Doug DeMaster, Lance Barrett-Lennard, Kathy Ralls, and Dave Benton via teleconference.

## Other Meeting Attendees

Ellen Lance, Sonja Jahrsdoerfer, Dana Jenski, Peggy Osterback, and Bob Small, Aaron Haines via teleconference.

## **Day One**

### **Update on Southwest Alaska sea otter (SWAK SO) management actions**

Burn reminded the team that the U. S. Fish and Wildlife Service (USFWS) was under a court order to deliver a proposal for designation of critical habitat to the Federal Register by 30 November 2008. The Service expects to meet that deadline. The court order also stipulates that the Service will deliver a final rule to the Federal Register by 1 October 2009.

Estes offered to provide the Service with the names of some potential peer reviewers from outside the “sea otter community.” The team discussed whether we should submit public comments on the critical habitat proposal, but did not reach agreement. Lowry committed to continuing the discussion by e-mail.

Lowry asked if the proposed critical habitat designation was going to be a surprise to communities within the range of the DPS. Burn responded that the Service has been doing considerable outreach with communities and organizations in southwest Alaska, and that the proposal should not come as a shock to people within the region.

Burn reported on the Akutan airport Incidental Harassment Authorization (IHA) that was issued for a 1-year period beginning on 1 May 2009. Construction is scheduled to begin around that time, with testing and of the hovercraft to occur at a later unspecified date. Estes and Tinker noted that Akun Island (where the airstrip will be located) had some of the highest sea otter densities of any are they surveyed in 2008. There was some general discussion of the project, and what areas will be used for access to construction sites and hovercraft routes.

Ellen Lance gave the team an overview on an ESA Section 7 consultation with the Environmental Protection Agency (EPA) on mixing zones (discharge from industry-mining, fish processing, sewage, etc.) in southwest Alaska. Estes noted that the consultation should address the fact that the sea otter population is mobile, rather than static. Tinker suggested that Lance could do a spatial analysis using GIS data layers of outfall locations, otter survey data, dispersal kernels, average otter annual use, probability polygon and see how many otter locations overlap with outfall locations.

There was general discussion on reference materials of how to measure effects of contaminants on immune function, and consultation challenges.

### *Co-management partners*

Burn updated the team on the status of Marine Mammal Protection Act (MMPA) Section 119 implementation, noting that the Service has not entered into cooperative agreements in the last several years. The Service has been working to implement the recommendations from a November 2007 workshop on sea otter co-management, but has had limited success to date. Two of the prospective seven members have agreed to participate, three have declined, and the other two have been equivocal in their support. In the interim, the Service has spent some of their co-management funds on contracts with Alaska Native organizations and tribes on projects that meet the intention of Section 119. The remainder of the funds have been allocated to the Eskimo Walrus Commission and the Alaska Nanuq Commission.

Peggy Osterback stated that she was looking forward to getting a more positive structure in place. Some communities are still concerned about what this will all mean, and in some cases, personalities are a major obstacle.

Tinker asked if co-management might still include sea otter population monitoring, or was it limited to dealing with subsistence issues only. Burn responded that one of the projects the Service has been doing under contract was to continue the sea otter aerial surveys at the south Alaska Peninsula islands.

## **Results of 2008 SWAK SO research**

### *USFWS*

Burn reported that the Service did not conduct any surveys of sea otters in southwest Alaska in 2008. Their last skiff surveys were in 2007, which they plan to repeat in 2009. The Service did use funds from the Army Corps of Engineers for surveys in Kachemak Bay. Distribution surveys were done in the winter and summer, and abundance surveys in the summer. The results of the distribution surveys were similar to the data that has come from the radio-telemetry animals, and the results of the abundance survey were similar to the survey conducted by USGS in 2007. Burn also reported that of the 44 radios implanted in the summer of 2007, 40 were still on the air and being monitored regularly.

There was general discussion about the importance of monitoring sea otter populations; particularly in southwest Alaska. Lowry noted that the team had already sent a letter to the Regional Director (RD) underscoring the importance of population monitoring. There was discussion of the team sending another letter to the RD on this and other subjects.

### *U. S. Geological Survey (USGS)*

Bodkin reported that in 2008, USGS conducted aerial surveys along the coast of Katmai National Park. There are few historic data for this area, with approximately 400 otters having been recorded on helicopter surveys in 1989. The recent aerial surveys estimate the park now contains around 7,100 otters. Skiff surveys in the same area also indicate that the sea otter population has been increasing rapidly.

Burn noted that there were plans for USFWS to pay for USGS to also survey Kamishak Bay in 2008, but there wasn't enough time. Lance also stated that the Pebble Mine group may be in a position to fund surveys in that area. Lowry reiterated that the lack of funding for monitoring activities is complicating the recovery team's decision making.

Bodkin asked if we knew the status of the management units now and how that might dictate the priorities for monitoring, as different strategies for different units might be warranted. The team discussed several funding options and survey priorities. Bodkin noted the potential for funding from the North Pacific Research Board (NPRB).

#### *Alaska SeaLife Center (ASLC)*

Estes reported on ASLC activities, as well as research funded by the National Science Foundation (NSF) and NPRB. ASLC completed their work in the Commander Islands in Russia, having recaptured 2 out of approximately 20 animals instrumented with time-depth recorders. The dive data from those otters had yet to be analyzed.

The NSF-funded project is looking at increasing our understanding of the transition from kelp dominated to urchin dominated systems. Work was conducted in the Aleutians in 2008.

The NPRB-funded project was designed to collect information that would chronicle the collapse of sea otter population, including covariation in densities, diet, condition, mortality, etc. Data collected in 2008 suggest the eastern edge of the decline may be very abrupt. The distance from shore of sea otters was greater at the eastern end of the range, and they also saw the expected patterns of sea urchins and kelp abundance in relation to sea otter densities.

Estes finished by saying that ASLC is basically out of the sea otter business. Their primary activity will be to capture otters to look at condition and disease exposure, but he was not sure where this would happen yet. He also noted that Adak may likely shut down in the not too distant future, as electricity is getting very expensive there.

#### **Delisting and reclassification criteria**

Tinker led a discussion of his demographic model, previous work, limitations, and rationale for choosing a value for “foreseeable future.” Ralls stated she was comfortable with 50 years for foreseeable future, that 25 years would be too short. She also said that the team should consider a quasi-extinction threshold.

Tinker plans to run simulations for each management unit to find the proportion of carrying capacity (K) that will meet the 95% uplisting to endangered criteria within 50 yrs, and then calculate the number of simulations that would maintain a viable otter population. The team also discussed what criteria need to be met to consider a management unit to be recovered (i.e., threats, demographics, and/or ecosystem criteria)

There was considerable discussion about how this model will work and how parameters were determined. General agreement from the team that more data points are needed to have idea of what direction (uplisting/delisting) density is going. There was further discussion about how to determine K for management units where data are scarce.

Tinker discussed dispersion parameters in the population viability analysis (PVA) model. Based on varying levels of population and distance to the nearest island, what should the appropriate dispersal function be? The assumption is that dispersal is higher at higher population levels (relative to K), and also inversely proportional to distance between islands (i.e., dispersal is lower over longer distances between islands). The team estimated dispersal rates for populations at 50% and 100% of K, and for inter-island distances of 25km and 50km. Bodkin asked if sex

mattered for dispersal rates, and Tinker responded that it does. Juvenile/subadult males have the highest rates of dispersal, adult males and juvenile females are lower, and adult females are the lowest of all. Based on observed swimming speeds for otters, the distances being used are feasible for 1-2 days of travel.

The team revisited the de-listing criteria, and their application to the five management units. Estes expressed his belief that requiring all five units to meet their de-listing criteria would be too much. The discussion turned to “significant portion of the range”, and which units would need to recover such that the population would not meet the definition of “threatened”. Estes expressed some discomfort with the process, which seemed somewhat arbitrary.

Burn proposed starting at the most extreme requirement (all five units meet their recovery criteria), and work backwards (four units recovered) until we reach a threshold level that would not constitute a “recovered” population. Burn next diagrammed the different permutations, and the team determined that the threshold might be in the neighborhood of three recovered, and the other two no worse than threatened. The need for identifying an uplisting threshold was also discussed, but the decision was deferred until a later time.

## **Day Two**

Attendance include Kathy Ralls and Aaron Haines (Upper Iowa University) via teleconference.

Lowry briefly summarized the first day of the meeting for Kathy Ralls. Tinker then focused discussion on the PVA parameters that the team needs to decide on before he runs the model to completion (“significant likelihood of extinction” and “foreseeable future”). The current model is based on data for two of the five management units (western and eastern Aleutians). He has been running multiple iterations of the model at different starting densities to determine probability of extinction.

Haines noted that most recovery plans to date do not have PVAs in them, rather they just look for population increases over some period of time. Most PVAs use generation times to define “foreseeable future”, and the farther out the models go, the more unrealistic they become. The trend has been to cut back from the “standard” value of 100 years. The proposed 50 year timeframe seems to be where modelers are going, including the Quantitative Working Group.

Tinker found that in his model 25 years was too few generations to see any real change, noting that there appears to be practical bounds on both ends. Haines noted that the population decline occurred over a period of around 20 years/4 generations, and asked how do we pick a number of generations for recovery. Tinker and Ralls noted that the rate of decline in some areas exceeded the maximum growth rate. Haines suggested that estimating the time required for the population to grow (in the absence of any additional mortality) could be our “foreseeable future” – Tinker stated that it would not be difficult to calculate. Estes suggested that it might be something around 50 years.

The team turned their attention to the significant likelihood question, and Haines noted that most recovery plans used 95% chance of survival/5% chance of extinction levels. Lowry asked about the threshold for uplisting to endangered status. Haines stated that his review did not identify

plans that addressed this question. Tinker suggested using the same foreseeable future and significant likelihood values for uplisting.

Ralls brought up the subject of “significant portion of the range” – Lowry recapped the team’s discussion from Day 1 regarding the status of the various management units.

Burn recounted the rationale for listing the DPS, noting that the Kodiak Kamishak Alaska Peninsula unit had not shown a decline, and therefore modeling would not project the population would become extinct. Haines asked if the management units in the middle of the range were necessary for genetic diversity, and asked about what is the spatial scale that is important for recovery. Lowry stated that the management units were functionally the spatial scale for the plan.

Kathy Ralls needed to leave the teleconference for a prior commitment.

Tinker asked Haines about the use of “quasi-extinction” levels. Many plans are old, and pre-date the use of PVA models, so there isn’t much precedent on this subject. Haines noted that it was a good idea, but could not offer any guidance from other plans. Estes stated that there are empirical observations of populations as small as 10 animals have recovered and persisted, so the quasi-extinction modeling criteria needs to be balanced against these observations. Lowry also pointed out the geographic considerations of animals finding mates.

Haines asked if there were other recovery criteria besides demographics (population size, probability of extinction), and Lowry recapped the ecosystem criteria identified for the western and eastern Aleutian units. Lowry asked if Haines had come across any similar ecosystem de-listing criteria in any other recovery plans. Haines replied that there are ecosystem recovery plans that use a suite of individual species criteria to constitute recovery, but the proposed use of an ecosystem criteria to identify recovery of a species appears to be unique.

Haines left the teleconference, leaving DeMaster and Barrett-Lennard remaining online.

DeMaster joined the discussion regarding how many of the units need to recover to de-list. Estes opined that the areas that declined did so over the same time frame, and that if the cause of the decline were to mitigate throughout the range of the DPS, we would expect recovery to occur throughout all the units simultaneously. Therefore, the requirement that all five units achieve recovered status might be overly cautious.

Barrett-Lennard stated that he would be finished writing his remaining sections of the plan and sending them to Lowry in the very near future. He also re-capped the work of Katie Kucher, one of his graduate students, who looked at behavioral responses of sea otters to killer whale vocalizations, and said that he would like to send a draft of those results to the team.

Lowry brought up DeMaster’s comment regarding the use of unpublished information in the plan. To the degree possible, we should strive to use published sources wherever possible. Tinker asked if including the actual data in an appendix would be a reasonable compromise to address this issue.

Lowry displayed DeMaster's comments on the draft plan for further discussion by the team. Beginning with the predation hypothesis, Tinker asked if the range of the decline was on a scale that is comparable to the home range of transient killer whale pods. Barrett-Lennard noted that this area has not been very well studied, and that it could be comparable to the size of the home range for killer whales. The team also discussed the location of the eastward extent of the decline, noting that it is not known with a high degree of specificity, only that it occurs somewhere along the south side of the Alaska Peninsula, at Castle Cape or somewhat eastward.

DeMaster's comments regarding analysis of oil spills were discussed. Estes noted that rather than make the recovery plan contingent on this analysis, it should be identified as an action item within the plan, and given the appropriate priority level.

The team discussed DeMaster's final comment regarding identifying the killer whales that are preying on otters, and if that could be done, the possibility of removing those animals from the population. DeMaster and Barrett-Lennard discussed the status of fatty acid sampling and analysis. So far, no sea otter signatures have been detected in killer whale biopsies, however, at such low sea otter population levels, predation might be too rare to detect. Lowry asked if there was any information about prey-switching behavior; Barrett-Lennard replied that such switches appear to be very difficult to predict.

Lowry reviewed the action items in the plan related to predation, and asked if those items were sufficient. Barrett-Lennard brought up the uncertainties regarding shark predation, and that this source of mortality should not be disregarded.

Wynne asked if there was something in the text regarding population monitoring of other killer whale prey species (seals, sea lions), and what might be expected in the future. Estes underscored the complexity of the food web, and that increases in other prey species might not necessarily reduce predation on sea otters. Bob Small noted that the Steller Sea Lion Recovery Team wrestled with the same issues, and they ended up including something about this in their plan. Estes offered to draft some text for the plan with Wynne and provide it to Lowry for consideration.

Lowry notified DeMaster and Barrett-Lennard that the team's earlier discussions of recovery criteria will be written up as a "straw-man" and circulated to the entire team for review.

The team discussed including some time requirement in the de-listing criteria. Several members noted that the southern sea otter recovery plan includes the use of a moving average over a 3-year period. Tinker described a problem with the PVA, which assumes that age-independent mortality will increase as the population increases, therefore, recovery can never occur. After some discussion, it appeared that the delisting criteria will likely include a time-component (i.e. sea otter density rises above a threshold level and remains there for a specified period of time).

Bodkin raised some concerns regarding the definition of K in the demographic criteria, and that some metric regarding population trend might be useful as a check. Lowry noted that the inclusion of the ecosystem criteria already provides a check on the demographic criteria. Burn noted that it may be difficult to anticipate potential changes in habitat (and K) at this time, but that future revisions of the recovery plan could address this possibility.

Benton joined the meeting via teleconference. He stated that he had serious concerns with the inclusion of the ecosystem recovery criterion. He was concerned that factors other than otter abundance (e.g., populations of other urchin predators) might impact the urchin/kelp relationship, and that could lead to a recovery criteria that might not be attained despite otter recovery. Estes responded that the body of information on the otter/urchin/kelp relationship was fairly extensive, and while the possibility of other unknown factors exists, in his opinion the problem identified by Benton is unlikely. Burn added that the Service has the ability to revisit de-listing criteria in the future, and that this first version of the plan is not cast in stone. At this point, Benton had to leave the teleconference.

Wynne noted that she was not in attendance at the last team meeting, and asked for some additional detail about the ecosystem de-listing criteria. Estes and Tinker recounted the conceptual basis for these criteria. The team explored these ideas in greater detail for over an hour.

The team returned to a discussion of the number of management units required to achieve de-listing of the DPS.

Following an afternoon break, the team addressed some of the priority rankings in the Action Plan Narrative. Specifically, the team discussed the priority for item 3.2.1 regarding fisheries bycatch.

### **Day Three**

Tinker wrote on the room's whiteboard that one suggested delisting criteria could be less than a 5% probability of becoming endangered in the foreseeable future (25 yrs?). A suggested uplisting criteria could be a significant risk (> 5%) of becoming extinct within the foreseeable future. There was some discussion of the 5% threshold value, especially for the uplisting criteria. Tinker does not recommend adjusting delisting criteria until the simulations have been run.

Wynne asked about the rationale for choosing these values. There hasn't been much feedback from the interagency Quantitative Working Group so far. Basically the predicted chance of becoming endangered w/in 25 yrs is the one of more concern because if this criteria is met and species is delisted, they are no longer afforded the protection of ESA.

Tinker stated that he could send around a fairly basic simulation run that varies the probability value. DeMaster was uncomfortable with the 5% value, and noted that they elected to use a 3-year running average in the southern sea otter recovery plan.

Estes expressed some concern about these simulation parameters, and said the plan should state that these parameters were chosen based on current available data and that Quantitative Working Group is also evaluating these values. Bodkin stated that he was somewhat uncomfortable with the cumulative effect of the level of parameter uncertainty.

The team agreed to run the model using the sets of parameters and at least learn what these values will produce for de-listing criteria.

Tinker stated that this should take about a full week to finish prepping and then running the simulation, analysis and summarizing will take additional time (unspecified).

Bodkin expressed concern about the subsistence harvest section of that plan, noting that relatively small harvest rates can have large effects over time. This should be identified in the plan, even though harvest is not expected to effect the recovery of the DPS. Lowry added that Bodkin should write a discussion of small harvest effects and serial depletion for inclusion in the plan.

Curland questioned if it was accurate to say that management potential of subsistence harvest was high if marking, tagging, reporting program (MTRP) compliance is questionable. Burn responded that the level of uncertainty in the MTRP harvest data has little bearing on the management potential, and also noted that harvest management efforts have been successful for other marine mammal species and populations.

Bodkin suggested an ecosystem-based recovery criterion of having 50% of rocky habitats recovered to kelp dominated systems. Estes noted that we don't have any solid information regarding sea otter densities in soft-sediment habitats, and that kelp-dominated ecosystems provide a more measurable parameter. The ecosystem-based criteria would only be applicable to the two Aleutian management units because we have sufficient data for those areas. Estes stated that it was necessary to address the two Aleutian management units differently because they are different from the others in several physical features. Lowry stated that it will be necessary to say what the spatial requirement for kelp-dominated areas will be. The question was raised as to how index sites will be chosen within each management unit.

Estes stated that a paragraph on the ultimate causality needs to be in the plan somewhere. For every threat, there needs to be good amount of discussion at the end of the description which should be continuously scrutinized, updated, and re-evaluated.

Lowry responded that some of the write-ups for threats were supported with discussion, but others not as much. He expressed concern about putting too much unpublished/unreviewed data into the plan, particularly in the predation section. Someone suggested that we should list things that support and don't support threats at the end of each section. Also it might be useful to include one large summary of arguments with supporting and conflicting data.

Wynne asked why in the threats analysis the team had chosen the levels of severity that we had for illegal take and disturbance. Burn and Estes responded that if an otter is taken illegally, the likelihood of such an event being reported is much lower. It's more likely that disturbance events would get reported.

Burek asked about management potential for oilspill threats, and asked if the team has really looked at additional ways to prevent future spills. Estes noted that oil spills were a big issue for the southern sea otter after the *Exxon Valdez* oil spill. He also commented on the potential for

multiple small spills to have an impact, rather than just one large spill. Lowry questioned whether the oil spill section should be revised and given more detail.

Osterback noted that communities in southwest Alaska receive their fuel by barge, and asked if the recovery plan would require re-routing this traffic and affect these deliveries. Burn responded that tanker traffic was probably a greater concern than barges. Burek stated that she would like to see that precautionary measures were in place.

Burek asked about more Native involvement in marine mammal stranding response. Lowry stated that the recovery plan does mention this.

Burn noted that in the section on sea otter abundance, we don't necessarily have a current figure for each management unit, and that we need to make it clear why there is a difference. Lowry added that we need to use the available data to provide the best representation of what the population is doing within each unit.

Estes and Lowry stated that they were pleased the concept of the ecosystem recovery criteria was being considered, but wanted to remind the team that they would be taking a risk with this approach. Estes asked what the team might expect from the Service if the plan strays too far from the traditional model – would there be an opportunity for discussion, or would it simply be rejected? Burn responded that he thought there was sufficient flexibility within the ESA for this approach to work.

### **Discussion of actions needed to make the draft plan ready for submission to FWS**

Lowry stated that he was going to be compiling draft sections and editorial suggestions that he receives, but that he doesn't really want to keep sending copies of everything to everyone. Estes suggested we put the documents on the team's web internal web site.

Lowry asked if delisting criteria would be ready by early January, and suggested that there should be a clean draft ready by the end of that month. He also asked about the status of Margaret Roberts and Dick Jacobsen – did they still want to be considered part of the team? Burn made a commitment to contact them.

Someone asked what would happen if the USFWS rejects the plan, but Burn responded that he did not think that was likely to occur.

### **To Do List**

Estimate K for Bristol Bay, South Alaska Peninsula, and Kodiak Kamishak Alaska Peninsula units (Burn)

Revise Recovery Action Narrative for 1.1.1 and 1.1.2 (Burn with Bodkin and Tinker)

Revise ecosystem-based criteria appendix (analysis needed)

Develop specifics of ecosystem-based criteria for recovery criteria section of plan

Reach agreement on parameter values for PVA including time buffer for demographic criteria

Run PV and determine thresholds for recovered and endangered status