MARINE MAMMAL COMMISSION
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BETHESDA, MD 20814

2 May 2007

Mr. P. Michael Payne
Chief, Permits Division
National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

Re: Review of Permit Application Nos.782-1889 (National Marine Mammal Laboratory), 358-1888 (The Alaska Department of Fish and Game), 881-1890, 881-1745 (Alaska SeaLife Center), 881-1893 (University of Alaska Fairbanks and the Alaska SeaLife Center), 434-1892 (Oregon Department of Fish and Wildlife), 1049-1886 (Kate Wynne, University of Alaska Fairbanks), 1034-1887 (Dr. Markus Horning, Oregon State University), 715-1883, 715-1884 and 715-1885 (The North Pacific Universities Marine Mammal Research Consortium), 1118-1881 (Aleut Community of St. Paul Island), 1119-1882 (Aleut Community of St. George Island)

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit applications with regard to the goals, policies, and requirements of the Marine Mammal Protection Act. The applicants are seeking authorization to continue and/or initiate research on the ecology and biology of threatened and endangered Steller sea lions and depleted northern fur seals to better understand the cause(s) of their declines. The Commission provided comments on the Service's Draft Programmatic Environmental Impact Statement (DPEIS) concerning the proposed actions by letter of 2 April 2007 (enclosed and incorporated by reference).

The Commission appreciates the opportunity to comment on these 13 permit applications and gratefully acknowledges the difficult work of the Permit Office in facilitating their review. In this regard, the responsibilities of the Permit Office are often controversial and difficult. Nonetheless, those responsibilities, and the efforts of the Permit office to fulfill them, contribute substantially to the maintenance of high quality research in support of marine mammal conservation.

The Commission also wishes to convey its general support for research to investigate what have been and continue to be perplexing and serious declines of certain marine mammal species throughout large portions of Alaska. Understanding the causes of these declines and, more importantly, the factors that may slow or prevent recovery should be matters of concern to all those interested in restoring the health of those populations and their ecosystems. The research that has been conducted and new studies that are being proposed are our primary means of obtaining the information needed for more informed and effective management of human activities in these ecosystems. Such research is therefore central to achieving the goals of the Marine Mammal

Protection Act, the Endangered Species Act, and the Magnuson-Stevens Fishery Conservation and Management Act. The research programs applying for these permits have provided considerable information to support management efforts, and continuation of such research is vital for restoring and managing these populations and ecosystems.

That being said, achieving these research objectives within the applicable statutory framework requires a careful analysis to maximize the benefits of information while minimizing potential adverse effects. Such an analysis, if conducted thoroughly and objectively, should provide reasonable assurance that research-related effects, combined with the impacts of fishing activities, changes in environmental conditions, natural predation, subsistence harvesting, and other risk factors do not cumulatively exceed the ability of these populations to recover in a timely fashion. The recommendations and comments that follow are not intended to create obstacles to needed research efforts, as they are the principal means by which we gain essential information. Rather, our recommendations and comments are intended to avoid unnecessary or unwarranted impacts and to ensure the maximum net benefit is realized from the research.

GENERAL RECOMMENDATIONS

With the above considerations in mind, the Marine Mammal Commission recommends approval of the permit applications subject to the following conditions—

- The Service address the commission's recommendations concerning the DPEIS for the proposed actions;
- The Service appoint (1) implementation teams to develop implementation plans for the Steller sea lion recovery plan and northern fur seal conservation plan, and (2) a research review group to oversee and coordinate the combined activities of all the programs conducting research on these populations;
- When required by the Animal Welfare Act, research proposed in each of the subject permit applications be reviewed and approved by Institutional Animal Care and Use Committees (IACUCs), and, confirmation of IACUC review and approval be required as part of the application process for all scientific research permits;
- The Service require implementation plans and applicable permits to incorporate science-based methods for assessing the impact of research activities whenever there is a reasonable basis for concern about their impacts;
- Each research permit applicant be required to report on related research activities in the previous year, including information on what research was conducted, the number of animals that were taken, methods used for assessing potential effects of the research on the subject animals and the affected populations and the effects observed, including the number of serious injuries and deaths that occurred, the results of post-capture/tagging/branding monitoring activities, and—if deaths occurred—the measures proposed to avoid or reduce the occurrence of such injuries and deaths in the future;
- The Service establish and maintain a database on the various procedures (e.g., capture, anesthesia, instrument attachment, surgery) done on individually recognizable Steller sea lions and northern fur seals, and evaluate the information in that database to resolve uncertainties concerning the potential for adverse research effects; and

- The use of general anesthesia be required for branding activities and similarly painful procedures, with adequate justification and specific authorization required in advance for any proposed exceptions.

RATIONALE

Implementation team and plan—Since 2000 half or more of U.S. government funded research on endangered, threatened, or depleted marine mammals has been directed at Steller sea lions. The subject permits and the activities described therein are evidence of the extensive research effort focused primarily, although not exclusively, on the western population of the species. Despite the fact that the draft revised recovery plan provides important guidance for research, we do not see in these applications the expected evidence that the plan's guidance is being fully heeded or that the overall research effort is rigorously focused and coordinated. For such a controversial issue that consumes so much of the limited budget for listed or designated marine mammal species, we believe it is not only reasonable, but also essential, that the overall research effort be well integrated and directed. Such coordination also is warranted for the northern fur seal, where research effort can reasonably be expected to increase for reasons similar to those pertinent to Steller sea lions. Many of the same research questions being asked for Steller sea lions also apply to northern fur seals. To that end, the Marine Mammal Commission recommends that the National Marine Fisheries Service appoint implementation teams to develop implementation plans for the Steller sea lion recovery plan and northern fur seal conservation plan. In addition, a separate research oversight group, including not only those directly involved in carrying out the research, but also independent scientists with expertise in marine mammal biology and ecology, should be established to review, coordinate, and make recommendations concerning the combined activities of all the programs conducting research on these populations to maximize the benefits of the research for management purposes while minimizing unnecessary adverse effects. Implementation teams and plans provide an effective mechanism for addressing issues related to research coordination, geographic overlap of research (including excessive disturbance of more accessible rookeries), matters of statistical design, development of "best practices" for research techniques, and shared logistics and access to infrastructure.

IACUC approval—Our understanding is that the Service is developing regional IACUCs to comply with the requirements of the Animal Welfare Act and implementing regulations. We strongly support this action, believe it will provide an important safeguard with respect to humane treatment of animals involved in research, and believe it will facilitate the permit review process. A considerable portion of the research described in the subject permit applications involves invasive procedures or procedures that may harm or materially alter the behavior of the animals being studied. For that reason, the Marine Mammal Commission recommends that the Service require that all research potentially having such impacts in each of the subject permit applications be reviewed and approved by IACUCs for each of the subject permit applications, and that confirmation of IACUC review and approval be required as part of the application process for all scientific research permits.

Monitoring and reporting of adverse research effects—The applications do not provide explicit monitoring protocols or sufficient information to evaluate the potential adverse effects of the proposed research. This is of particular concern with respect to the proposed hot branding

activities, which pose risks associated with capture, handling, the infliction of burn wounds that may become infected, and disruption of rookeries. The utility of branding is compromised if adequate follow-up monitoring does not occur. Such monitoring is necessary for humane reasons to ensure that branding or other activities that cause some level of injury to animals do not result in unanticipated pain, suffering, or even death. Monitoring also is necessary for scientific reasons because unanticipated and undetected effects may skew research results, such as could occur with mark-recapture estimates of survival. Such a concern was noted in the application from the Alaska SeaLife Center in the context of branding very young pups and the impacts of the temporary inflammatory response on parameters being measured with telemetry instruments. As indicated in previous Commission letters (2 August 2002, 10 June 2005, and 2 April 2007), the Commission believes researchers using potentially harmful techniques on captured animals have both a humane and scientific obligation to understand the effects of their actions so that such information can be factored into decision-making such as cost-benefit analyses regarding various research methods. Therefore, the Marine Mammal Commission recommends that the Service require implementation plans and applicable permits to incorporate science-based methods for assessing the impact of research activities whenever there is a reasonable basis for concern about their impacts The implementation teams and the research review group could assist the Service by developing guidelines for how these assessments should be made and should monitor the results of these assessments.

To be useful in guiding research, such effects also should be reported and the information from those reports archived and analyzed to resolve uncertainties concerning possible impacts from proposed and ongoing research activities. We note, however, that reports of previous years' research activities, although required by existing permits, do not always accompany the applications. Therefore, important information that could be used to evaluate the benefits and the potential impacts of the research is missing. For that reason, the Marine Mammal Commission recommends that each research permit applicant be required to report on related research activities in the previous year, including information on what research was conducted, the number of animals that were taken, methods used for assessing potential effects of the research on the subject animals and deaths that occurred, the results of post-capture/tagging/branding monitoring activities, and—if deaths occurred—the measures proposed to avoid or reduce the occurrence of such injuries and deaths in the future. In addition, timely submission of such information should be made a requirement of any new permits that are issued and authorization to continue research activities in subsequent years should be made contingent on timely reports.

As noted above, the collection of such information is just a first step. To be most useful, that information should be maintained in a database and periodically analyzed to track research efforts and assess possible research-related impacts and cumulative impacts on the subject populations. Toward this end, the Marine Mammal Commission recommends that the Service establish and maintain a database on the various procedures (e.g., capture, anesthesia, instrument attachment, surgery) done on individually recognizable Steller sea lions and northern fur seals, and evaluate the information in that database to resolve uncertainties concerning the potential for adverse research effects.

Use of anesthesia with branding—The potential adverse effects of hot iron branding have been a matter of considerable controversy over the past several years. The Commission recognizes

that, based on the best available research methods currently in use, branding is necessary to conduct certain types of vital research with certain species. However, a question remains as to whether animals to be branded should first be anesthetized. The primary arguments in favor of anesthesia are that it is more humane, less likely to result in uneven burns that penetrate the full skin thickness and are subsequently more likely to become infected and painful, and more likely to result in legible brand marks that are needed for obtaining reliable research results. An anesthetized animal also is more easily managed for additional procedures such as tissue collection, weighing, etc. The arguments for branding without anesthesia pertain primarily to the time the animal is being handled, the fact that a veterinarian is not required, and possible adverse effects related to the administration of anesthesia. After considering both approaches, we find the latter arguments to be less compelling and not consistent with the requirements of the Marine Mammal Protection Act. For both humane and scientific reasons, the Marine Mammal Commission recommends that as a general rule, general anesthesia be required for branding activities and other painful procedures, with adequate justification and specific authorization required in advance for any proposed exceptions.

SPECIFIC COMMENTS ON THE INDIVIDUAL PERMIT APPLICATIONS

Steller Sea Lion Research

782-1889 (National Marine Mammal Laboratory)

The applicant is requesting authorization to take by level A and B harassment Steller sea lions from the eastern and western populations in the course of conducting aerial and ground surveys, scat collection, capture/sampling/branding/tagging/physiological testing, recapture activities, and observational/monitoring activities over a five-year period. Animals of both sexes more than five days of age would be captured for sampling, branding, and tagging. The applicant also is requesting authorization to accidentally kill up to 10 Steller sea lions annually during the proposed activities (not to exceed 5 annually in the western population). Northern fur seals, harbor seals, and California sea lions would be incidentally harassed during the activities focused on Steller sea lions. The research would be conducted throughout Alaska during all months of the year. Additional research activities would occur in Washington, Oregon, and California. No formal research proposal has been prepared. The purpose of the proposed research is to collect information on the life history, foraging behavior, habitat use, physiology, population status and trends, survival and reproductive rates, and condition of Steller sea lions in the North Pacific Ocean.

Based on our review of the application, the Commission notes that—

- The applicant is proposing to use anesthesia in branding pups between the ages of five days and two months. It is not clear whether anesthesia also will be used in branding older pups, juveniles, and adults. As described in our general comments, we recommend anesthesia be used in all cases (i.e., involving pups, juveniles, and adults) with only limited, pre-justified exceptions;
- Darting adult female sea lions using Telazol, as proposed, involves a risk of mortality both from the drug and from drowning if animals enter the water before the drug takes full effect. We recommend that every precaution be taken when using this drug and that only

veterinarians and biologists with significant experience in darting marine mammals be authorized to conduct activities involving its use;

- This and other applicants proposing to chemically sedate adult female Steller sea lions by darting, should identify the pup of an adult female sea lion that is targeted for darting, and after she is darted, observe the pup closely or place it in a portable pen until the procedure(s) on the mother are completed;
- The application does not, but should, discuss the potential effects of Telazol on the nursing pups of females injected with the drug. If adverse effects may reasonably be expected, appropriate research should be conducted to resolve uncertainties concerning possible effects and to develop methods to mitigate those effects, as appropriate;
- The application states that an experienced marine mammal veterinarian will be present to carry out or supervise all activities involving the use of inhaled anesthesia. We believe this is already a standard practice. A curriculum vitae for the veterinarian(s) who would be involved in the research should be provided if one is not already on file with the Permits Office;
- This and other applications (Alaska Department of Fish and Game, Alaska Sea Life Center, Marcus Horning) state that Steller sea lions captured on floating platforms could be held for up to 12 hours while waiting to be sampled. The applicants should clarify what portion of time animals will be allowed to come and go from the platform, the maximum duration that they will be held on the closed platform, the maximum time that they will be maintained in holding cages before research procedures are initiated, what would be done to prevent their overheating, and why alternative capture or research protocols that require shorter holding times are impractical; and
- Insufficient information is provided concerning the proposed short- and long-term monitoring of animals, particularly mother/pup pairs, after release. This information is needed to allow reviewers to evaluate whether monitoring will be sufficient to assess the effects of branding/handling on the subject animals and should be provided prior to permit issuance.

358-1888 (Alaska Department of Fish and Game)

The applicant is requesting authorization over a five-year period to conduct aerial and ground surveys, scat collection, capture/sampling/branding/physiological testing, and recapture activities, and observational/monitoring activities on Steller sea lions from the western and eastern populations. Animals of both sexes and all ages (pups, juveniles and adults) would be captured for sampling, branding, and tagging. Authorization is requested for the accidental mortality of up to 10 Steller sea lions annually (not to exceed 5 annually in the western population). Harbor seals, northern fur seals, and California sea lions would be incidentally harassed during the activities on Steller sea lions. The research would be conducted throughout Alaska during all months of the year, with activities concentrated in the summer months. A formal research proposal accompanies the application.

Based on our review of the application, the Commission notes that—

- The application on page 14 states that newborns will be branded, but on page 23 states that pups under 20 kg or with an umbilicus will not be branded. This apparent inconsistency needs to be resolved;
- Page 33 of the application states that "ADFG had 2 juvenile mortalities occur during a capture trip in 2004 and 15 pups die during branding operations." However, Table 2b on page 69 does not reflect this information. Information concerning the total number of animals, by age group, that died during research activities, the circumstances surrounding those mortalities, and what steps, if any, are proposed to reduce the number of mortalities during future research needs to be provided;
- The application does not, but should, discuss the potential effects of Telazol and other proposed drugs on the nursing pups of females on which the drug(s) will be administered. Also, because of a risk of mortality, both from the drug and from drowning if animals enter the water before the drug takes full effect, the Commission believes that every precaution should be taken when using these drugs and that only veterinarians and biologists with significant experience in darting marine mammals be authorized to conduct activities involving their use;
- Additional information should be provided concerning the proposed short- and long-term monitoring of animals to allow reviewers to evaluate whether monitoring will be sufficient to assess the effects of branding/handling on the subject animals.

881-1890 (Alaska SeaLife Center)

The applicant is requesting authorization over a five-year period to capture, sample, conduct physiological testing on, brand, tag/instrument, and recapture Steller sea lions from the western population to study the species behavioral and physiological ecology related to foraging. Animals of both sexes and all ages (pups, juveniles, and adults) would be captured for sampling, branding, and tagging. The applicant also is requesting authorization to capture, transport, and temporarily maintain in captivity up to 30 juvenile Steller sea lions from the western population for studies of health, physiology, and nutrition (including dry holding, controlled short-term fasting, anesthesia, blood sampling, blubber biopsy, x-ray, holding in a metabolic chamber, and deuterated water sampling). These animals also would be surgically implanted with dual life history transmitters prior to their release. Authorization is requested for the accidental mortality of up to 5 Steller sea lions annually. The research would be conducted west of 144º W longitude and at the applicant's South Beach Facility.

Based upon our review of the application, the Commission notes that—

- In discussing the potential effects of Telazol on nursing pups, page 54 of the application states that "[T]elazol has been shown to cross the placental barrier and therefore use of Telazol for Cesarean section in dogs and cats is contraindicated (Telazol drug information sheet; CI 5129-1; Fort Dodge Animal Health, Fort Dodge, IA). However, the application goes on to state that "[T]elazol, however, causes less respiration depressing in the fetus than other commonly used injectable anesthetics, and therefore it is commonly used for Cesarean sections in monkeys and cats (M. LaRosh, D.V.M.; Fort Dodge Animal Health Veterinarian, Pers. Comm.)." The applicant should address the apparent discrepancies in these two statements;

- Additional justification should be provided for the proposed at-sea foraging study that involves buoyancy/drag experiments on females with dependent pups. The application states that "buoyancy/drag blocks will be left on [lactating females] for no more than four weeks" and that "the slight changes in drag and/or buoyancy will not significantly affect predator escape responses" or have "any significant adverse, long-term effects on female body condition, ability to provision young, or survival." The applicant should explain what it considers to be a "significant" adverse effect and explain why it believes that no such effects would occur. Information also should be provided concerning potential effects of buoyancy experiments on juvenile Steller sea lions. In addition, the application states that buoyancy/drag blocks will be left on female and juvenile Steller sea lions for no more than four weeks, at which time they will be removed with remote-release devices. The applicant should provide information concerning what would be done to remove the blocks if the remote-release device fails;
- In describing the floating platform method of capture, the application states that sea lions hauled out on the platform are free to come and go until they are captured and transferred into a holding cage on a 30-foot barge. They are then moved one at a time from the holding cage into a stainless steel squeeze cage. The application states that "[s]ea lions that are released from the cage without any sampling or other restraint are considered to be incidentally disturbed." An animal being held in a cage has effectively been captured and should be considered as such. The Service should clarify this issue with the applicant. The applicant also should provide information on the maximum duration animals would be maintained in the holding cage before they are sampled or released;
- The application states that "[w]e plan to recapture adult females and juveniles twice during a year and to recapture pups as many as four times annually (no more than once per week)." A discussion of the potential for adverse impacts on pups or disruption of the mother/pup bond as a result of such frequent activities is not, but should be, provided. The Service should refrain from authorizing this activity until additional information has been provided and the Service has evaluated the potential for adverse impacts to the subject animals and the potential for biasing the research results by subjecting the pups to the repeated stress of capture and handling. As a related matter, whereas the text states that pups would be recaptured up to four times annually, Table 1 accompanying the application indicates that pups would be taken up to five times annually. This apparent discrepancy should be resolved. Further, Table 1 and the other tables should be re-titled to reflect that the take numbers listed are annual numbers;
- The application states that "[a]ll procedures included will only be performed under valid ASLC IACUC approvals. Copies of these approvals will be provided prior to any sampling event." The Service should require that the applicant provide documentation of Institutional Animal Care and Use Committee approval prior to issuance of a permit;
- In regard to the Transient Juvenile Steller Sea Lion Project, the Service should consult with the Animal and Plant Health Inspection Service as to the adequacy of the applicant's South Beach facility for maintaining animals;
- In discussing activities proposed under the Transient Juvenile Steller Sea Lion Project, the application states that "[w]henever possible, most procedures, including but not limited to blood and tissue collection, whisker extraction, hot-branding, attachment of scientific instruments and x-ray, will occur while the animal is under general anesthesia in order to

reduce potential stress to the animal…." The applicant should explain and justify under what conditions anesthesia would not be used;

- The application states that deuterium oxide would be administered to juvenile sea lions up to four times to monitor body condition during temporary captivity. The application states that "[a]nimals may be maintained under anesthesia for the duration of the equilibration period [approximately 120 and 135 minutes] or manually restrained via squeeze cage for post-D_2O blood samples." The applicant should describe (1) what criteria would be used in deciding whether or not to anesthetize animals for this activity, (2) over what time intervals deuterium oxide studies would be conducted, and (3) any potential consequences of repeatedly anesthetizing animals for this purpose;
- The application states that during the Transient Juvenile Steller Sea Lion Project, up to 12 juvenile sea lions will undergo up to two ten-day fasting events (partial or full food restriction) spaced a minimum of two weeks apart. The application states that metabolic chamber readings of basal metabolic rate and blood samples will be collected up to four times during each fasting period, and that animals would be manually restrained in a squeeze cage or anesthetized for the procedure. The applicant should describe (1) what criteria would be used in deciding whether or not to anesthetize animals for this activity, and (2) any potential consequences of repeatedly anesthetizing animals for this purpose; and
- Page 41 of the application states that "[i]mplantation of dual life history transmitters will be performed with a minimum of three people: a surgeon, an anesthetist and a non-sterile surgical assistant." However, page 42 states that "[o]nly qualified veterinarians or other personnel with sufficient experience (e.g., Wildlife Biologists with >5 years of surgical experience) in the technique will be allowed to perform this procedure [surgical implants of dual life history transmitters]." Assuming that a surgeon would be a veterinarian, the applicant should address this discrepancy. The applicant also should provide justification of why an experienced marine mammal veterinary surgeon, or a veterinarian with extensive surgical experience working under the supervision of an experienced marine mammal veterinarian, would not carry out this surgical procedure.

881-1745 (Alaska SeaLife Center)

Permit No. 881-1745, issued 16 March 2006, authorizes studies on one male and two female adult Steller sea lions maintained at the Center to investigate stress responses, endocrine and immune system function, and seasonal variations in normal biological parameters such as mass and body composition. The animals also will be used for research and development of external tags and attachments for future deployment on free-ranging animals.

The permit holder is requesting that Permit No. 881-1745 be amended to authorize the Center to (1) breed captive Steller sea lions to produce up to four pups, and (2) conduct studies related to gestation, lactation, and pup growth and development. Offspring produced during the proposed study would be held at the Center for long-term physiological studies or be transferred or exported to other facilities for permanent holding. The permit-holder requests authorization for one research-related mortality of a live-born Steller sea lion during the proposed five-year study.

Based upon the Commission's understanding from the Animal and Plant Health Inspection Service, the permit holder does not currently have sufficient space to conduct a Steller sea lion

breeding program. The Marine Mammal Commission recommends that the Service defer approval of the amendment request until the issue of space at the facility is resolved to the Animal and Plant Health Inspection Service's satisfaction. Also, we note that, in addition to studying the physical, metabolic, hormonal, and immunological changes during gestation and lactation, the applicant will continue to conduct currently authorized research "deemed harmless to mother, fetus, and pup" on the subject females. It is unclear whether and, if so, the extent to which these multiple studies might bias the results of the proposed breeding study. The Marine Mammal Commission recommends that the Service require the applicant to address this issue. Finally, the applicant should be required to explain more fully the relevance of the proposed breeding study to the recovery of the wild population of Steller sea lions.

434-1892 (Oregon Department of Fish and Wildlife)

The applicant is requesting authorization to take by level A and B harassment Steller sea lions from the eastern population in the course of conducting aerial and ground surveys, scat collection, and capture/sampling/branding/tagging/instrumentation/biopsy sampling activities over a five-year period. The proposed activities would occur in northern California, Oregon, and Washington. Capture of pups would be restricted to Rogue Reef and Orford Reef, Oregon, and/or St. George Reef, California. Capture of juveniles and adults would be restricted to the lower Columbia River. The applicant is requesting authorization for the accidental mortality of 10 Steller sea lions annually. California sea lions and harbor seals would be harassed incidental to the proposed activities on Steller sea lions. The purpose of the proposed research is to assess the status of, and monitor trends in, Steller sea lion population abundance and to study their ecology and vital rates in the southern extent of the species' eastern range.

Based on our review of the application, the Commission notes that—

- The application does not, but should, indicate the minimum age at which pups would be captured, branded, instrumented with VHF transmitters, etc.;
- Page 14 of the application states that "[a]dult sea lions are branded without anesthesia because they are able to be restrained more efficiently and safely using the squeeze cage." As noted above, we recommend that the Service require the applicant to provide further justification for proposing not to anesthetize adult animals during branding prior to issuing authorization for such activities;
- The application states that the Oregon Department of Fish and Wildlife does not have an Institutional Animal Care and Use Committee and that "the Animal Welfare Act does not apply in this case." The Animal and Plant Health Inspection Service (APHIS), the agency responsible for implementing the Animal Welfare Act, has advised the Service that the applicable regulations require facilities that use live animals for research or experimentation to establish and use IACUCs. This includes not only research in captive settings but also field studies involving invasive procedures or those that harm or materially alter the behavior of the animals being studied. The Service should defer approval of the application until the applicant provides documentation that the proposed research has been reviewed and approved by an IACUC in accordance with § 2.31 of the Animal and Plant Health Inspection Service's regulations implementing the Animal Welfare Act. As for the claim by the applicant that the IACUC requirements do not apply to its activities, the Marine

Mammal Commission recommends that the applicant be provided with a copy of our 17 January 2007 letter concerning IACUCs and be referred to the Animal and Plant Health Inspection Service to clarify the situation;

- It is unclear whether a veterinarian will be present in the field to oversee branding and other invasive activities. Clarification of this point should be provided. If a veterinarian will not be present in the field, an explanation should be provided. If a veterinarian will be present, his or her curriculum vitae should be submitted if it is not already on file;
- In discussing the floating platform method of capture, the application states that one to ten sea lions may be present when the door is closed. The application also should state the maximum time animals would be maintained in the holding cage before they are sampled or released; and
- Additional information should be provided concerning the proposed short- and long-term monitoring of animals to allow reviewers to evaluate whether monitoring will be sufficient to assess the effects of branding/handling on the subject animals.

1049-1886 (Kate M. Wynne)

The applicant is requesting authorization to take by harassment Steller sea lions from the western population in the course of conducting aerial and vessel surveys and brand re-sighting activities over a five-year period. Research would be carried out in the western and central Gulf of Alaska. The purpose of the proposed research is to continue studies on the abundance, distribution, and diet of the western population of Steller sea lions.

Based on our review of the application, the Commission notes that this application appears to be complete and we have no specific comments. The Marine Mammal Commission recommends that this permit be issued.

1034-1887 (Marcus Horning)

The applicant is requesting authorization over a five-year period to capture, anesthetize, sample, tag, instrument, and brand up to 140 Steller sea lions (animals of both sexes between the ages of 9 months and 4 years) from the western population. Of these 140 animals, up to 100 animals would be implanted intraperitoneally with dual satellite-linked Life History Transmitters (LHX tags) using ship-based surgical facilities. Implanted animals would be monitored after their release using externally attached ARGOS satellite transmitters. The applicant is requesting authorization for the accidental mortality of up to 15 Steller sea lions over the five-year permit period (not to exceed five animals in any one year). Up to 10,500 Steller sea lions would be harassed annually during the proposed capture activities. California sea lions, harbor seals, and northern elephant seals also would be harassed incidental to the activities conducted on Steller sea lions. The research would be carried out in the northern Gulf of Alaska and the Aleutian Islands. The applicant also requests authorization to harass up to 17,000 Steller sea lions from the eastern population and an unspecified number of harbor seals and California sea lions incidental to installing Satellite-Linked Data Acquisition and Photogrammetry System at locations in Oregon and Alaska. The purposes of the proposed research are to monitor the health, condition, and vital parameters of Steller sea lions, assess the causes of mortality, and investigate sea lion feeding and ecology. The application provides

a power analysis that is used to determine sample sizes. No formal research proposal accompanies the application.

Based on our review of the application, the Commission notes that—

- Additional information is needed about how and how long animals implanted with Life History Transmitters will be monitored for injuries or death related to implantation procedures; and

- In describing the platform method of capture, the application does not, but should, state the maximum time that animals would be held in the holding cage until they are sampled, released, etc.

715-1885 (North Pacific Universities Marine Mammal Research Consortium)

The applicant is requesting authorization over a five-year period to harass Steller sea lions (animals of both sexes and all ages) from the eastern and western populations in the course of conducting aerial and vessel surveys, behavioral observations, monitoring, and scat collection. Authorization is requested for the accidental mortality of up to one Steller sea lion annually. The research would be conducted at selected rookeries in Alaska where branding has been conducted. Harbor seals, northern fur seals, and killer whales would be harassed incidental to the proposed research on Steller sea lions. The goals of the proposed research are to (1) develop objective pain assessment methods for Steller sea lions and to apply these methods in identifying and reducing pain during hot branding; and (2) assess the nutritional status and energetic needs of Steller sea lions using non-invasive techniques.

Based on our review of the application, the Commission notes that—

- The applicant is proposing to study post hot-branding pain and distress in Steller sea lions branded by the National Marine Mammal Laboratory and the Alaska Department of Fish and Game. Both of these agencies state that they will use anesthesia for branding. Thus, it appears that all of the animals that are branded will be anesthetized and that the applicant's study would focus on whether the use of a local anesthetic and post-operative analgesic contribute to the reduction of pain and distress in post-branded animals. The applicant should confirm whether this understanding is accurate;

- The application states that multiple blood samples will be collected from pups after branding to measure cortisol and adrenaline as indicators of stress. The applicant should provide additional information concerning how this will be accomplished without subjecting the animal to additional stress. As a related matter, we note that the applicant is proposing to use a catheter to collect blood samples, presumably in an attempt to alleviate the stress of restraint and handling. The applicant should provide additional details concerning how the catheter would be placed and monitored;

- Two groups of pups (branded and controls) would be maintained in fenced recovery areas and observed for approximately 5-6 hours and would be released near where they were

captured. The application states that "[p]ast experience indicates that pups and mothers reunite following such events." The application should describe what monitoring measures have been and will be used to determine whether mothers and pups reunite;

- The applicant should provide additional information concerning the measures that will be taken to monitor animals being maintained in fenced recovery areas to prevent animals from being wedged in cracks in the rocks or suffocated in pile-ups. The Service should require that the research cease immediately if a pup dies in the recovery area.

Northern Fur Seal Research

881-1893 (University of Alaska Fairbanks and the Alaska SeaLife Center)

The applicant is requesting authorization to take over a five-year period up to 250 northern fur seal pups during capture, sampling (blood, muscle, blubber, skin, vibrissae, hair, nails, swabs), physiological testing, and recapture activities. Up to 50 animals between one month and four years of age would be captured on rookeries and up to 200 animals, four months of age and older, would be captured at sea. The applicant also is requesting authorization to accidentally kill up to four northern fur seals annually during the proposed activities. Up to 5,000 northern fur seals of either sex and any age would be harassed incidental to the proposed research activities. The research would be conducted on the Pribilof Islands and Bogoslof Island and in the North Pacific Ocean. No formal research proposal has been prepared. The purpose of the proposed research is to characterize the movements, foraging behavior, and habitat associations of northern fur seal pups during the first winter at sea.

The application states that the "use of sedatives and anesthetics will only be conducted under the supervision of a veterinarian or an individual that has received training from a veterinary anesthetist and that has significant experience in anesthetizing fur seals." If a veterinarian will not be present in the field, an explanation should be provided. If a veterinarian will be present, his or her curriculum vitae should be submitted if it is not already on file.

715-1883 (North Pacific Universities Marine Mammal Research Consortium)

The applicant is requesting authorization to capture up to 32 fur seal pups, of which up to 16 female pups would be examined and blood sampled. Of these 16, 8 pups would be held in temporary enclosures in the field for up to seven days. Of those 8, 6 would be transported to the Vancouver Aquarium, Canada, for long-term physiological and nutritional research. Up to 185 fur seals would be harassed incidental to the proposed capture activities. The actual captures would occur in a single year; however, the applicant is requesting a five-year permit to allow for flexibility in logistical coordination of the captures. The purpose of the proposed research is to identify indicators of food limitations, and determine physiological responses and adaptations to nutritional stress imposed by manipulating the animal's diet in combination with changes in their environment.

The application states that all proposed research must also be covered by permits issued by the UBC animal care committee; however, no documentation from the committee has been provided. The Service should require that the applicant provide such documentation. Although we

assume that the documentation will satisfy the applicable requirements in Canada, the Service should ensure that it meets the requirements of the regulations implementing the Animal Welfare Act.

715-1884 (North Pacific Universities Marine Mammal Research Consortium)

The applicant is requesting authorization to take over a five-year period up to 35 lactating female northern fur seals annually during capture and instrumentation activities and up to 400 northern fur seals (200 pups and 200 older animals) annually during capture/sampling/tagging/ instrumenting/physiological testing, and recapture activities. The applicant also is requesting authorization to accidentally kill up to ten northern fur seals annually during the proposed activities. Up to 4,075 northern fur seals and up to 100 Steller sea lions of either sex and any age would be harassed incidental to the proposed research activities. The research would be conducted on the Pribilof Islands and Bogoslof Island from July to October. No formal research proposal has been prepared. The purpose of the proposed research is to continue studies of the distribution, life history, physiology, and foraging and behavioral ecology of northern fur seals on the Pribilof Islands and Bogoslof Island.

Based on our review of the application, the Commission notes that—

- The Service's *Federal Register* notice states that "1,800 pups and 775 older northern fur seals annually" would be harassed incidental to the proposed research. These numbers are not consistent with those provided in Table 1 of the application. This discrepancy should be resolved before a permit is issued;
- It is unclear whether a veterinarian will be present in the field to oversee administration of anesthesia and invasive procedures. Clarification of this point should be provided. If a veterinarian will not be present in the field, an explanation should be provided. If a veterinarian will be present, his or her curriculum vitae should be submitted to the Service if it is not already on file;
- The application does not indicate whether a local anesthetic would be used for obtaining blubber biopsy samples. This should be clarified. If a local anesthetic will not be used, the applicant should explain why; and
- The application states that all proposed research also must be covered by permits issued by the UBC animal care committee; however, no documentation from that committee has been provided. The Service should require that the applicant provide such documentation. Although we assume that the documentation will satisfy the applicable requirements in Canada, the Service should ensure that it meets the requirements of the regulations implementing the Animal Welfare Act.

1118-1881 (Aleut Community of St. Paul Island Tribal Government)

The applicant is requesting authorization to harass up to 550 northern fur seals annually incidental to collecting biological samples from dead stranded and subsistence hunted marine mammals for distribution to researchers studying the decline of northern fur seals; up to 6,500 northern fur seals during disentanglement activities; and up to 3,400 northern fur seals annually during haulout and rookery observations, monitoring, and remote camera maintenance. Research

would be carried out over a five-year period on St. Paul, Otter, and Walrus Islands and Sea Lion Rock in the Pribilof Islands group.

The Service's *Federal Register* notice states that samples from dead stranded and subsistence hunted marine mammals would be exported to researchers. However, the application does not appear to request authorization to export the samples. The Service should clarify whether samples will be exported and, if so, to what countries.

1119-1882 (Aleut Community of St. George Island, St. George Traditional Council)

The applicant is requesting authorization to harass up to 450 northern fur seals annually incidental to collecting biological samples from dead stranded and subsistence hunted marine mammals for distribution to researchers studying the decline of northern fur seals; up to 5,250 northern fur seals during disentanglement activities; and up to 3,400 northern fur seals annually during haulout and rookery observations, monitoring, and remote camera maintenance. Research would be carried out over a five-year period on St. George Island in the Pribilof Islands group.

The Service's *Federal Register* notice states that samples from dead stranded and subsistence hunted marine mammals would be exported to researchers. However, the application does not appear to request authorization to export the samples. The Service should clarify whether samples will be exported and, if so, to what countries.

Please contact me if you have any questions concerning the Commission's comments and recommendations.

Sincerely,

Timothy J. Ragen

Timothy J. Ragen, Ph.D.
Executive Director