Oregon
Theodore R. Kulongoski, Governor

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15 January 2007

Mr. Michael Payne
Chief, Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service, NOAA
1315 East West Highway
Silver Spring, MD 20910-3282

Dear Mr. Payne,

Enclosed, please find our revised application for a permit to allow the Oregon Department of Fish and Wildlife to conduct scientific research on Steller sea lions under the Marine Mammal Protection Act and the Endangered Species Act. I have also transmitted an electronic copy of this document to you as a Microsoft Word file. All activities in our application were coordinated with the Alaska Department of Fish and Game, the Washington Department of Fish and Wildlife, and the National Marine Mammal Laboratory.

Thank you for your attention and please let me know if you have any questions as you review and process this application.

Sincerely,

Robin F. Brown
Program Leader, Marine Mammal Research

I. APPLICATION FOR A PERMIT FOR SCIENTIFIC RESEARCH UNDER THE MARINE MAMMAL PROTECTION ACT AND THE ENDANGERED SPECIES ACT

II. DATE OF APPLICATION: 1 December 2006

III. APPLICANT AND PERSONNEL

A. Contact information for applicant and personnel

Applicant

Robin F. Brown
Marine Mammal Program Leader
Oregon Department of Fish and Wildlife
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Principal investigator

Robin F. Brown

Co-investigators

Robert DeLong
Pat Gearin
Jeff Laake
Steven Jeffries
Bryan Wright
Susan Reimer
Kim Raum-Suryan
P. Dawn Goley

B. Experience and qualifications (PI, CIs)

1. Robin Brown (PI), Marine Mammal Research Program Leader, Oregon Department of Fish and Wildlife, has been involved with marine mammal research in the Pacific Northwest since 1975, including studies of pinniped population biology, behavior, food habits, and interactions with fisheries. He has conducted Steller sea lion research since 1984 and has worked cooperatively with NMFS, NMML, ADFG and WDFW staff on a variety of Steller sea lion research activities (CV on file with the Office of Protected

Resources).

2. Robert DeLong, Ph.D. (CI), California Current Ecosystem Program Leader at the NMML, has been involved with marine mammal research since 1962, including population biology of northern fur seals, Steller sea lions, California sea lions, Guadalupe fur seals, Hawaiian monk seals, harbor seals and northern elephant seals (CV on file with the Office of Protected Resources). Contact information: National Marine Mammal Laboratory, 7600 Sand Point Way N.E., Seattle, WA 98115-6349; 206-526-4038; Robert.delong@noaa.gov

3. Patrick Gearin (CI), California Current Ecosystem Program at the NMML, has been involved in marine mammal research and assessments since 1980, including population assessments of pinnipeds and cetaceans (CV on file with Office of Protected Resources). Contact information: National Marine Mammal Laboratory, 7600 Sand Point Way N.E., Seattle, WA 98115-6349; 206-526-4034; pat.gearin@noaa.gov

4. Jeff Laake, Ph.D. (CI), California Current Ecosystem Program at the NMML, has been involved in marine mammal population assessment since 1992, including survey design, and analysis of data from surveys and mark–recapture studies (CV on file with the Office of Protected Resources). Contact information: National Marine Mammal Laboratory, 7600 Sand Point Way N.E., Seattle, WA 98115-6349; 206-526-4017; jeff.laake@noaa.gov

5. Steven Jeffries, Marine Mammal Investigations, Washington Department of Fish and Wildlife, has been involved with marine mammal research in the Pacific Northwest since 1975, including pinniped population assessments, reproduction, behavior, food habits and fishery interactions (CV on file with the Office of Protected Resources). Contact information: Washington Department of Fish and Wildlife, 7801 Phillips Rd. SW, Lakewood, WA 98498; 253-380-4963; jeffrsjj@dfw.wa.gov

6. Bryan Wright (CI), Marine Mammal Research Program, Oregon Department of Fish and Wildlife, is the Program Biometrician and has been involved with wildlife research since 1989 and marine mammal research and assessments since 2000, including survey design, sampling protocol, and statistical analyses (CV on file with the Office of Protected Resources). Contact information: Oregon Department of Fish and Wildlife, 7118 NE Vandenberg Ave., Corvallis, Oregon, 97330; 541-757-4186; bryan.e.wright@state.or.us

7. Susan Riemer (CI), Marine Mammal Research Program, Oregon Department of Fish and Wildlife, has been involved in marine mammal research activities in Oregon since 1990, including aerial photographic surveys, pinniped population assessments, capture and marking studies, and food habits analysis (CV on file with the Office of Protected Resources). Contact information:

Oregon Department of Fish and Wildlife, 1495 East Gregory Road, Central Point, Oregon, 97502; 541-770-2840; susan.d.riemer@state.or.us

8. Kimberly L. Raum-Suryan (CI), Sea Gypsy Research, has been involved in Steller sea lion research since 1998 and marine mammal research since 1988. (CV on file with the Office of Protected Resources). Contact information: Sea Gypsy Research, 928 NW Cottage St., Newport, OR 97365, 541-574-9285; kraumsuryan@charter.net

9. P. Dawn Goley (CI), Associate Professor, Humboldt State University, is the Director of the Marine Mammals Education and Research Program. (CV attached). Contact information: Humboldt State University, Science B 234, Arcata, CA 95521, 707-826-4168; pdg1@humboldt.edu

IV. PROPOSAL

A. Summary

The purpose of our research is to assess status and monitor trend in Steller sea lion (*Eumetopias jubatus*) population abundance, ecology and vital rates in the southern extent of the eastern Distinct Population Segment (DPS) range. This research is necessary in order to determine whether the eastern DPS should be delisted under criteria established in the Draft Steller Sea Lion Recovery Plan. Intended manners of take (and associated annual numbers) include capture (≤200 pups; ≤10 adults; includes biopsy, disease sampling, marking, and instrumentation) and potential incidental harassment due to: exposure to aerial surveys (≤1,500); vessel surveys (≤2,000), ground counts (≤6,000); and other activities (≤10,000). Non-target takes of California sea lions (*Zalophus californianus*) and Pacific harbor seals (*Phoca vitulina*) due to incidental harassment will be ≤5,000 and ≤1,000, respectively. The geographic area of take will be Washington, Oregon, and California. We request our activities to be permitted from the earliest possible date in 2007 for a period of five years. All work proposed in this permit will be coordinated with other Steller sea lion researchers in the region in order to complement and not duplicate concurrent research activities.

B. Introduction

1. Species

a. Target species: Steller sea lions (*Eumetopias jubatus*) from the southern extent of the eastern Distinct Population Segment (DPS) range.

b. Non-target species: California sea lions (*Zalophus californianus*) and

Pacific harbor seals (*Phoca vitulina*).

c. Status

(1) Steller sea lion; eastern DPS

(a) MMPA: depleted; strategic

(b) ESA: threatened

(c) CITES: not listed

(2) California sea lion; U.S. stock

(a) MMPA: not depleted or strategic

(b) ESA: not listed

(c) CITES: not listed

(3) Pacific harbor seal; Oregon & Washington coast stock, California stock

(a) MMPA: not depleted or strategic

(b) ESA: not listed

(c) CITES: not listed

2. Background/literature review

The following review of current Steller sea lion knowledge, with emphasis on the eastern DPS, is excerpted from the Draft Steller Sea Lion Recover Plan (NMFS 2006):

"CURRENT SPECIES STATUS: The Steller sea lion (*Eumetopias jubatus)* was listed as a threatened species under the ESA on April 5, 1990 (55 FR 12645) due to substantial declines in the western portion of the range. In contrast, the eastern portion of the range (in southeastern Alaska and Canada) was increasing at 3% per year. Critical habitat was designated on August 27, 1993 (58 FR 45269) based on the location of terrestrial rookery and haulout sites, spatial extent of foraging trips, and availability of prey items. In 1997, the Steller sea lion population was split into a western distinct population

segment (DPS) and an eastern DPS based on demographic and genetic dissimilarities (62 FR 30772). Due to the persistent decline, the western DPS was reclassified as endangered, while the increasing eastern DPS remained classified as threatened. Through the 1990s the western DPS continued to decline. However, the western population has shown as increase of approximately 3% per year between 2000 and 2004. This was the first recorded increase in the population since the 1970s. Based on recent counts, the western DPS is currently about 44,800 animals and may be increasing due to higher juvenile and adult survival. However, it remains unclear whether Steller sea lion reproduction has also improved and whether the observed 3% annual population growth will continue. The eastern DPS is currently between 45,000 and 51,000 animals, and has been increasing at 3% per year for 30 years.

COMPLETED RECOVERY ACTIONS: The 1992 recovery plan included 61 discrete recovery actions (or tasks) with estimated costs and responsible parties associated with those tasks. In our review, each of the 61 tasks has been accomplished to a substantial degree with one exception, which was to develop international conservation agreements. Much of the effort was focused on eliminating the most direct, and likely, causes of the decline (e.g., shooting, incidental take). These efforts are detailed in the Plan, and include the following:

- substantial reduction in disturbance of important rookeries and haulouts;
- substantial reduction in the incidental catch of Steller sea lions in commercial fishing operations, particularly the groundfish trawl fishery;
- significant efforts to reduce intentional take by prohibiting shooting at or near Steller sea lions
- intensive research to better describe the threats to Steller sea lions and provide management with options for recovery actions;
- substantial reduction in the potential for competitive interactions between commercial fisheries for pollock, Atka mackerel, and Pacific cod in Alaska;
- acquired additional information on the status, foraging ecology, and survivorship of Steller sea lions.

THREATS TO THE RECOVERY OF STELLER SEA LIONS:
…no threats were identified for the eastern DPS. Although several factors affecting the western DPS also affect the eastern DPS (e.g., environmental variability, killer whale predation, toxic substances, disturbance), these threats do not appear to be limiting recovery given the long term sustained growth of the population. However, concerns exist regarding global climate change and the potential for the southern part of the range (i.e., California) to be adversely affected. Future monitoring should target this southern portion of the range.

RECOVERY GOAL: The goal of this recovery plan is to restore endangered and threatened Steller sea lion populations to the point where they are again secure, self-sustaining members of their ecosystems, allowing initially for reclassification of the western DPS to threatened status and, ultimately, removal from the List of Endangered and Threatened Wildlife (List). The eastern DPS has been recovering for about 30 years and should be considered for removal from the List.

RECOVERY CRITERIA:

The eastern DPS of Steller sea lion will be considered for delisting if all the following conditions are met:

1. The population has increased at 3% per year for 30 years.

2. The population ecology and vital rates in the U.S. region are consistent with the trend observed under criterion 1, to ensure the population is increasing in a sustainable manner. Specifically, available information on pup counts, fecundity, juvenile survival rates, population age structure, gender ratios, and other observations should be examined to determine that they indicate an increasing population.

3. The ESA listing factor criteria in Section VII.C.1 are met. [see below]

ANTICIPATED DATE OF RECOVERY:

The eastern DPS appears to have recovered from predator control programs in the 20th century which extirpated animals at rookeries and haulouts. Currently, no substantial threats are evident, and the population continues to increase at approximately 3% per year. The primary action in the plan is to initiate a status review for the eastern DPS and consider removing it from the federal List of Endangered Wildlife and Plants (potentially in 2006 or 2007).

VII. RECOVERY PLAN FOR THE EASTERN POPULATION

C. Reclassification Criteria

The ESA requires that recovery plans, to the maximum extent practicable, incorporate objective, measurable criteria which, when met, would result in a determination in accordance with the provisions of the ESA that the species be removed from the List (50 CFR 17.11 and 17.12). The recovery criteria comprise the core standards upon which the decision to delist a species will be based.

1. Delisting criteria

To remove the eastern DPS of Steller sea lion from the List, NMFS must determine that the species' abundance, survival, and distribution, taken together with the threats (i.e., ESA listing factors), no longer render the species "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Any new factors identified since listing must also be addressed in this analysis to ensure that the species no longer requires protection under the ESA. Recovery criteria must include the elimination of threats to the species as well as measures of demographic health. Both sets of criteria serve as checks on one another – one set of criteria requires evidence that the threats to Steller sea lions have been eliminated or controlled and are not likely to recur (listing factor criteria), and the other set of criteria requires evidence that the population status of Steller sea lions has improved in response to the reduction in threats (biological criteria)."

[end excerpt from Draft Steller Sea Lion Recovery Plan (NMFS 2006)]

The proposed activities in this permit request would build upon past research including over 20 years of aerial survey data on Steller sea lion distribution and abundance in the southern extent of the eastern DPS (Pitcher et al. in press, ODFW unpublished data), and 5 years of survival data (ODFW and NMFS unpublished data). The continuation of these activities is necessary in order to acquire a standardized, robust, time-series of data for understanding long-term population variability and detecting changes in population status and health. These data are essential for stock assessment reports, making required potential biological removal (PBR) and optimum sustainable population (OSP) determinations for all species under the MMPA, as well as to implement recommendations in the Draft Steller Sea Lion Recovery Plan (see above) and provide information upon which to evaluate delisting criteria. As such, the proposed activities would contribute to the conservation and management of, and acquisition of necessary biological information for, Steller sea lions in the southern extent of the eastern DPS range.

3. Hypotheses/objectives and justification

a. Objectives and justification

(1) Assess status and trend in Steller sea lion population size.

Recovery criterion #1 (NMFS 2006) for delisting of the eastern DPS of Steller sea lions is an increase in the population of at least 3% per year for 30 years. Our objective is to provide information from the southern extent of the eastern DPS in

order to help evaluate whether this criteria is being met. This activity is a continuation of over 20 years of aerial surveys that we have conducted in Oregon and northern California (see Pitcher et al. in press). In addition, ssurvey results provide the necessary baseline population data required for estimating Potential Biological Removals under the MMPA.

(2) Assess status and trend in Steller sea lion population ecology and vital rates.

Recovery criterion #2 (NMFS 2006) for delisting of the eastern DPS of Steller sea lion is a finding that the "population ecology and vital rates are consistent with the trend observed under criterion #1, to ensure the population is increasing in a sustainable manner. Specifically, available information on pup counts, fecundity, juvenile survival rates, population age structure, gender ratios, and other observations should be examined to determine that they indicate an increasing population." Our objective is to provide information from the southern extent of the eastern DPS in order to help evaluate whether this criteria is being met. This activity is a continuation of five years of research on juvenile survival rates, and over a decade on food habits, pups counts, and other observations.

(3) Compare and contrast results from (1) and (2) with concurrent studies in the western DPS and in the northern extent of the eastern DPS range.

Our research is coordinated with, and complimentary to, that being done by NMFS and the Alaska Department of Fish and Game (ADFG) in the western DPS and in the northern extent of the eastern DPS range. Our objective is to compare and contrast estimates of vital rates and associated parameters in order to better understand the causes of why some Steller sea populations are increasing while others are decreasing; and in so doing, aid the recovery of those populations in decline.

b. Statutory and Regulatory requirements

(1) ESA-listed species: see next.

(2) ESA-listed marine mammals and MMPA-depleted species

The objective of the work is to understand the status, foraging

ecology, and survivorship of eastern DPS Steller sea lions; as such there is no alternative species or stock. The expected research results would contribute significantly to the research and monitoring needs, and understanding of basic biology, as identified in the Draft Steller Sea Lion Recovery Plan (NMFS 2006) outlined above.

(3) Enhancement activities: Not applicable

(4) Captive maintenance: Not applicable

C. Methods

1. Duration and location of taking

A five-year permit is requested beginning as early as possible in 2007 for a 5 year period following issuance. Incidental harassment will potentially take place every month of each year (see Take Table below). Capture of pups will be restricted to the post-peak breeding period in July; capture of non-pups will take place every month of each year depending upon their availability (see Take Table below).

a. The proposed activities will occur in the southern extent of the eastern Distinct Population Segment (DPS) range of Steller sea lions (*Eumetopias jubatus*). Incidental harassment will potentially take at all Steller sea lion haulouts and rookeries in northern California, Oregon and Washington (see Take Table below; from Washington/Canada border south to approximately 40°N). Capture activities of pups will be restricted Rogue Reef, Oregon, Orford Reef, Oregon, and/or St. George Reef, California; capture activities of non-pups will be restricted to the lower Columbia River, Oregon/Washington. Throughout the range of Steller sea lions, rookeries and haulout sites consist of exposed, rocky shoreline areas and offshore islands and rocks composed of sand, clay, cobblestone, boulders, or large rock slabs and ledges. See Appendix 1 for table of site names and locations.

2. Types of activities, methods, and numbers of animals to be taken

a. Take Table:

Species	Life stage	Sex	Expected take/year	# takes/ individual/yr	Take action	Location	Dates/time period
1. Aerial surveys							

Species	Life stage	Sex	Expected take/year	# takes/ individual/yr	Take action	Location	Dates/time period
E. jubatus	Pups	M/F	500	2	1	OR, CA, WA	Year-round, annually
E. jubatus	Non-pups	M/F	1k	2	1	OR, CA, WA	Year-round, annually
2. Vessel surveys							
E. jubatus	Pups	M/F	1k	12	2	OR, CA, WA	Year-round, annually
E. jubatus	Non-pups	M/F	1k	12	2	OR, CA, WA	Year-round, annually
3. Ground counts (and incidental scat collection)							
E. jubatus	Pups	M/F	2k	1	3	OR, CA	July, annually
E. jubatus	Non-pups	M/F	4k	1	3	OR, CA	July, annually
4. Incidental harassment during scat collection, capture/sampling activities, observational/monitoring activities (including remote camera installation, maintenance, and removal)							
E. jubatus	All ages	M/F	10k	5	4	OR, CA, WA	Year-round, annually
5. Accidental mortality							
E. jubatus	All ages	M/F	10	1	5	OR, CA	Year-round, annually
6. Capture (includes hand, hoop net, floating trap), restraint (physical or chemical) and measurements							
E. jubatus	Pups	M/F	200	1	6	OR, CA	July, annually
E. jubatus	Non-pups	M/F	10	1	6	OR	Year-round, annually
6a. Skin biopsy							
E. jubatus	Pups	M/F	200	1	6a	OR, CA	July, annually
E. jubatus	Non-pups	M/F	10	1	6a	OR	Year-round, annually
6b. Fecal loops and culture swabs							
E. jubatus	Pups	M/F	50	1	6b	OR, CA	July, annually
E. jubatus	Non-pups	M/F	10	1	6b	OR	Year-round, annually
6c. Flipper tag and/or other mark							
E. jubatus	Pups	M/F	200	1	6c	OR, CA	July, annually
E. jubatus	Non-pups	M/F	10	1	6c	OR	Year-round, annually
6d. Hot-brand							
E. jubatus	Pups	M/F	200	1	6d	OR, CA	July, annually
E. jubatus	Non-pups	M/F	10	1	6d	OR	Year-round, annually
6e. Attachment of scientific instruments							
E. jubatus	Pups	M/F	80	1	6e	OR, CA	July, annually
E. jubatus	Non-pups	M/F	10	1	6e	OR	Year-round, annually
7. Non-target incidental harassment during surveys, scat collection, capture/sampling activities, observational/monitoring activities (including remote camera installation, maintenance, and removal)							
Z. californianus	Non-pups	M	5k	10	7	OR, CA, WA	Year-round, annually

Species	Life stage	Sex	Expected take/year	# takes/ individual/yr	Take action	Location	Dates/time period
P. vitulina	All ages	M/F	1k	5	7	OR, CA, WA	Year-round, annually

b. Research narrative

Objective 1. Assess status and trend in Steller sea lion population size

Aerial surveys.—Aerial surveys will be flown at a minimum of 500 feet altitude (typically 600-800 feet) and at a speed of 80 to 100 knots in a twin-engine, high-wing aircraft (e.g. Partenavia Observer). Data collected during surveys included date, time, location, general weather conditions, an estimate of the number of sea lions at each site, and the number of photographs taken. One to two days are required to complete a single statewide survey from northern California to the mouth of the Columbia River. Surveys will be conducted on consecutive days when weather permits. A single survey of Oregon and northern California is flown per year (in late June or early July). Because Steller sea lions (as well as non-target pinnipeds) may move to other locations during the course of a survey, the maximum number of takes/animal/year is equal to the number of surveys flown.

Ground counts.— Ground counts of pups will take place during early July (when median pup age is at least 6 weeks) at rookeries in southern Oregon and northern California. Pups are counted by first clearing the rookery of most sea lions other than pups. A biologist (either PI, CI, or assistant under direct supervision of PI/CI) slowly moves non-pups away from the pups. After the non-pups have retreated, two-four biologists make independent counts of the live (and dead) pups on the rookery and in the water; surveys will last a maximum of two hours. Each year, after completion of the primary pupping/breeding period, we will conduct pup mortality counts. These counts will be conducted in the same manner as described above, but will take place following the breeding period (late-July or early August depending on weather). Scat collection will occur during ground counts.

Objective 2. Assess status and trend in Steller sea lion population ecology and vital rates

Our assessment of status and trend in population ecology and vital rates includes research on juvenile survival, health, diet, and movements. Methodological details include the following:

Capture activities.

Adults.—Ten adults per year will be captured using floating platform traps in Astoria, Oregon and at Bonneville Dam; over time this will result in sample sizes sufficient for drawing reasonable inferences to the population. Platform traps consist of a float with a platform for a haul-out surface and a 6-foot high steel cage perimeter. We have three traps: two are 14 ft x 14 ft and the other is 20 ft by 20 ft. The traps are closed manually by lowering a vertical sliding door. One to ten sea lions may be present when door is closed. After trap is closed, it is monitored continuously until animals are released. Captured animals are moved one at a time through a small door in the side of the trap into a 10-ft long stainless steel squeeze cage that restricts movement without the need for immobilizing drugs.

Pups.—Two hundred pups per year will be captured. Pups are captured and marked over the course of a single day (12-14 hrs). In the event of equipment failure or human injury that necessitates a work stoppage we will return to complete the work on a single day 5-10 days later.

Pups are captured as follows: Groups of pups are rounded up on the rookery. The group is tended by one or more persons to assure that pups do not pile up and risk suffocation or become warm and risk heat prostration (pups are sprayed with sea water on warm days). Small groups numbering 10 to 15 pups are moved from the large group to a small 10 ft X 10 ft pen adjacent to where animals are processed. From the small pen individual pups are placed in a hoop net for weighing, and restrained by hand during measurement, sampling, and tagging. Measurements include mass, standard length and axillary girth (immediately behind fore flippers). Following handling pups are released near the large aggregation of pups so that they have the opportunity to join the group.

Hand-captured pups are physically restrained by hand; pups to be branded will be anesthesitized using inhalable isoflurane gas. Gas anesthesia prevents wiggling during branding and consequently improves the quality of brands. We will deliver anesthesia to hand-restrained pups through a mask, sufficient for the time requirements of branding which will generally be less than 5 minutes but may extend to 10 minutes for pups in which the anesthesia is irregular or interrupted by a period of wakefulness. Gas anesthesia will be administered and monitored only by veterinarians or personnel trained and supervised by a veterinarian experienced in pinniped anesthesia.

Incidental scat collection may occur during capture activities. Individual scats are scraped from the rocks and placed in individual plastic bags and returned to the laboratory for processing.

The following procedures will be performed on captured sea lions, as enumerated in the Take Table above. All samples will be labeled with the date, location, and a unique ID number, stored in appropriate container, and transported to either ODFW or NMML research laboratories for analysis. Procedures take no more than approximately 10 minutes.

6a. Skin biopsy. A sample of skin, approximately 5mm in diameter, will be punched from the webbing of the fore flipper of 200 pups and 10 adults annually for genetic analyses using a 5 mm biopsy punch. Samples will be preserved in a Ethyl alcohol for analysis of mitochondrial and nucleic DNA for refinement of stock delineation.

6b. Fecal loops and culture swabs. We will collect fecal samples from pups using a sterilized fecal loop for determination of hookworm presence in samples of 50 pups and 10 adults annually handled at the time of branding. We will take sterile culture swabs to sample dermal lesions, or ocular, rectal, and/or vaginal areas, from as many as 50 pups annually and any other handled sea lions with lesions for surveillance of disease. Swabs will be taken and cultured according to standard veterinary procedures for isolation and identification of bacterial and viral pathogens.

6c. Flipper tag or other mark. We will affix flipper tags to the fore flippers of all handled animals (all age classes) using tag application pliers. We will affix neoprene patches (circular with maximum diameter of 4 inches) dorsally to the pelage of 10 adult animals using adhesive (5-minute epoxy or cyano-acrylic glue).

6d. Hot-brand. Two hundred pups and 10 adults will be hot-branded annually. Branding irons are made of cold-rolled steel (approximately 10mm stock); the dimensions of the largest digits are approximately 5cm wide and 8cm high. Each iron is heated red-hot in a portable, propane-fired forge and applied perpendicularly to the animal's shoulder with light, even pressure (ca. 5 psi) for 2-4 seconds. Digits are 4-5 cm apart to insure clarity of numbers. A 4-digit brand requires about 1-2 minutes to complete. Pups are monitored continuously until they are able to move off under their own power. Pups that are very young (e.g., under 20 kg or umbilicus present) are not branded. Adult sea lions are branded without anesthesia because they are able to be restrained more efficiently and safely using the squeeze cage.

6e. Attachment of scientific instruments. Scientific instruments will be attached to 80 pups and 10 adult sea lions. Instruments will allow for study of pup dispersal from rookeries and adult movements throughout range. Pups will receive very high frequency (VHF) transmitters (23-92 grams, dimensions vary; Advanced Telemetry Systems (ATS), Isanti, MN), and adults will receive Kiwisat 101 satellite transmitters (100 grams, approximately 3-in x 5-in x 1-in; Sirtrack, New Zealand). Instruments are attached to the hair on the animal's back just over the shoulders with epoxy. Tracking of VHF tags will be by passive and active receiver systems; satellite tags are monitored by ARGOS, Inc. Duration of tags will be no more than one year (due to molt) and will not need to be retrieved.

Resight activities.—Marked animals will be resighted using a combination of remotely operated cameras, vessel-based surveys, and shore-based surveys. This is particularly important and necessary because of the behavior of Steller sea lion females which tend to move with the pup from the rookery island to alternate hauling sites during the non-breeding season.

Remotely-operated cameras. A remotely controlled video camera system will be installed at Pyramid Rock, Rogue Reef, Oregon for resighting branded animals. The camera will be installed in April prior to arrival of pregnant females and territorial males. The video feed is received and the system is operated from the ODFW office in Gold Beach, Oregon. Biologists are able to manipulate the cameras on the island through a desk top computer to view all of the animals present on the island each day to look for branded animals.

Vessel-based surveys. Vessel surveys of offshore rookery and haul-outs will be conducted monthly by two-four staff operating 22-ft Boston Whalers. Animals are observed using binoculars and images are taken with digital cameras with telephoto lenses. Average distance during observations is approximately 50 m.

Shore-based surveys. Surveys of rookery and haul-outs will be conducted monthly by one-two staff. Animals are observed using binoculars and spotting scopes and images are taken with digital cameras with telephoto lenses. Average distance during observations is approximately 100 m. Scat collection will occur during shore-based resight activities.

3. **Captivity:** Not applicable

4. Lethal take

a. Intentional: Not applicable

b. Unintentional

Unintentional mortality of Steller sea lions is possible, particularly during capture and handling operations. Nevertheless, mortalities are relatively infrequent events. In the six-year period during 2000-2005, a total of 5 mortalities occurred in the western stock (an average of 0.8 per year) and 20 in the eastern stock (an average of 3.3 per year) among all research programs. During the past ten years, researchers at NMML have captured 1800 sea lions in floating pens at Shilshole Bay, Washington with only a single mortality (Pat Gearin, pers. comm.). In our operation of a floating trap we have handled nearly a thousand adult sea lions over a ten year period with only two events resulting in a total of six mortalities (five of which occurred on a single day due to an attack by an abnormally aggressive individual sea lion). We request accidental mortality takes of 10 per year as authorized in our previous permit.

5. Exports from U.S.: Not applicable

D. Research effects and mitigation measures

1. Effects

a. Known or anticipated effects

1. Aerial surveys. Disturbance to pinnipeds during aerial surveys ranges from a few animals becoming alerted to the presence of the aircraft, to animals moving toward the edge of the haul-out area, to some animals leaving the haulout to enter the water. Only major disturbance events have the potential to injure animals. Based on our previous experience, disturbance is expected to be minimal. We have conducted hundreds of aerial surveys of pinnipeds in Oregon since 1975. Disturbance to pinnipeds during these surveys is extremely rare. During many years, multiple surveys are conducted for all pinniped species occurring in Oregon with no disturbance. In 2006 we conducted four aerial surveys of the entire coast with no disturbances. We have never observed a major disturbance event related to aerial surveys.

2. Vessel surveys. Based on our previous experience, disturbance is expected to be minimal. Disturbance to pinnipeds during vessel

surveys ranges from a few animals becoming alerted to the presence of the vessel, to animals moving toward the edge of the haul-out area, to some animals leaving the haulout to enter the water. Only major disturbance events have the potential to injure animals. We have conducted hundreds of vessel surveys of pinnipeds in Oregon since the early 1980s. Disturbance to pinnipeds during these surveys is very rare. We have never observed a major disturbance event related to vessel surveys.

3. Ground counts. Only one pup-count per year is conducted at each rookery. Moving of non-pups from observer paths can be performed slowly so no stampeding occurs. It is unlikely that any animals are disturbed more than once per annual visit. Adult and juvenile sea lions displaced from the rookery remain in the water immediately off shore; they return to the rookery/haulout after the scientific party has departed.

4. Incidental harassment. See ground counts.

5. Accidental mortality. Not applicable.

6. Capture, restraint, and measurements. Although pups may struggle initially after capture, they calm down within minutes of being hand-restrained. In our experience, we have not observed instances at any site of abnormal reactions (e.g. open mouth breathing, catatonia, seizing, dive response, etc.), or reactions of concern (e.g. those requiring medical care or extended observation), to these activities. Much of our handling technique is designed to encourage pups to be calm (i.e. ceasing to struggle) while holding them firmly. We have never lost a pup while under anesthesia. However, one to two pups out of a hundred have required extended observation (extra 5 minutes) by a veterinarian during recovery.

6a.-6c. Skin biopsy, fecal loops and culture swabs. All samples will be collected while the animals are under anesthesia and will be performed by personnel experienced with these procedures. These are standard procedures that, to the best of our knowledge, are not known to be related to any long term negative impacts (e.g., infection) on the animals.

6d. Flipper tag or other mark. In our experience, flipper tag life expectancy if highly variable (1-20 years). Of those animals we've observed that have lost their tags, we have not noted any abnormalities in the area where tag occurred. Other marks, such as patches, fall off with the annual molt and we have never observed any negative effect

of their use.

6e. Hot-branding. We conducted a brand evaluation study in 2005 to determine whether apparent survival differed between branded and unbranded pups. The final results of that study are still pending. However, McMahon et al. (2006), in their study of branding on southern elephant seals showed that it had no discernable long-term impact on their survival or condition. Pending further research that determines otherwise, branding is the best known tool for conducting longitudinal studies that can last the entire life of the animal.

6f. Scientific instrumentation. Instruments will only be placed on pups or on non-reproductive adults. In our experiences, we have not observed any responses to the attachment of the tag itself. However, we have observed animals (<10 out of several hundred) rubbing their back on rocks or trying to bit the area where the tag was attached. The tags are glued to the hair which molts annually, and as such poses no risk of infection.

b. Known or anticipated effects: non-target species

7. Non-target incidental harassment. We are not aware of any disturbance to other species (e.g., shorebirds, cetaceans) during our research activities. Seabird rookeries are intentionally avoided or overflown at altitudes that preclude disturbance. If cetaceans are observed during vessel surveys we take a course that avoids their location.

2. Measures to minimize effects

To minimize impacts of disturbance from ground counts, branding, and other activities, we will do the following:

- Not conduct any activities on a rookery until after peak of the pupping season (May 10 – June 30) when mother-pup bonds are well established.

- Carry out activities as efficiently as possible such that the total time that researchers are occupying the rookery/haulout, and total times a site is disturbed is minimized. The PIs and CIs listed on this permit have extensive experience with such activities (e.g. pup capture and marking work at our study area rookeries can now be completed on a single 12-14 hour day).

- Use only highly experienced and well-trained personnel to

    - conduct ground counts
    - capture and handle animals
    - perform invasive procedures
- Process animals in groups of just 10-15 animals so they can be adequately monitored and minimize handling/restraint time. Pups are monitored at all times.
- Immediately cease research-related procedures if an animal is showing signs of acute or protracted alarm reaction (e.g. hyper-activity, aggression, or extreme sedentary behavior) that may lead to serious injury, capture myopathy, other disease conditions, or death. Veterinarians are on site at all times to respond to any such (rare) incident.
- Ensure that animals that have been captured or are recovering from immobilizing drugs have an opportunity to recover without undue risk of injury from other animals. These animals will be monitored individually, away for other animals, until they are fully alert and can move away under their own power
- Use disposable needles, biopsy punches, etc. to the maximum extent possible and thoroughly disinfect with alcohol when not possible. Sharps containers are used for safe disposal of punches, needles, etc. Researchers wear gloves to protect themselves from injury and infection.
- Ensure that an experienced marine mammal veterinarian is present to carry out or provide direct on-site supervision of all activities involving use of anesthesia.

3. Monitoring effects of activities

Anesthetized pups are observed by a handler until it is clear they have recovered. If a pup shows an excessive delay in recovery, a marine mammal veterinarian is alerted and is ready to intervene if necessary. Remote video cameras will be used to document recovery from disturbance related to all activities on the rookery for the remainder of the summer.

4. Alternatives

a. Alternatives.

At this time there are no known alternatives to the proposed activities that are both practical and sufficient to meet our research objectives. The tools and methods proposed in this application are state of the art and are currently being used by researchers in the U.S. and throughout the world. When new, improved and proven procedures and equipment becomes available they will be incorporated into our work as appropriate.

b. IACUC.

The Animal Welfare Act requires institutions that have established animal care committees to consult with those committees prior to working with live animals. The Oregon Department of Fish and Wildlife does not have an animal care committee and therefore can not carry out such a consultation. The Animal Welfare Act does not apply in this case.

E. Resources needed to accomplish objectives

Financial and logistical resources.

Financial and logistical resources are to be provided primarily by the Oregon Department of Fish and Wildlife and the National Marine Mammal Laboratory.

Sponsors and cooperating institutions

1. National Marine Mammal Laboratory, Alaska Fisheries Science Center, National Marine Fisheries Service, Bldg. 4, 7600 Sand Point Way, N.E., Seattle, WA 98115
2. Oregon State University, Department of Fisheries and Wildlife, Hatfield Marine Science Center, Newport, OR 97330
3. Washington Department of Fish and Wildlife, Marine Mammal Investigations, 7801 Phillips Road SW, Tacoma, WA 98498
4. U.S. Fish and Wildlife Service, Oregon Coastal Refuges, 2127 SE OSU Drive, Newport, OR 97365

F. Publication of results

Results will be presented in peer-reviewed publications, as presentations at scientific and management meetings or conferences and in reports.

V. National Environmental Policy Act (NEPA) considerations

1. No new or innovative techniques have been proposed.

2. Activities involve the collection, handling, and transport of biological samples. For this reason, all personnel wear latex gloves while collecting and handling samples or nitrile gloves when handling DMSO. Furthermore, chemicals such as formalin are stored in the lab and used under a fume hood or in well ventilated areas (i.e. outdoors). Proper hygiene (e.g. use of gloves, face and eye shields, washing hands and equipment with soap and hot water, alcohol or other disinfectants) and disinfectant procedures are followed after handling all pathogenic materials or chemicals. All protocols are followed for shipping

purposes (e.g. appropriate stickers with material safety data sheets included). Samples will be stored in alcohol, DMSO, refrigerated or frozen (as appropriate to the specific sample) and transported in appropriate containers by vehicle to ODFW and/or NMML laboratories for analysis and archival.

3. Activities will occur in the coastal marine waters of the Pacific Northwest, in Steller sea lion critical habitat, and within the USFWS Coastal Refuge system. All proposed activities will be permitted as necessary or are legally permitted activities under state and federal law (e.g. flying aerial surveys in small aircraft according to FAA regulations, operating boats and motors in the ocean according to state marine board and US Coast Guard guidelines, landing on rocks and islands, placing equipment and personnel on shore to conduct the permitted activities).

4. Loss or destruction of scientific, cultural, or historic resources is not anticipated.

5. Biological materials will be transported as described above (V.2.).

VI. Previous and other permits

A. Previous permits

Permit No. 4347-1669-03 (amended and reissued: 7/11/05 ; expires 12/31/07; vacated by Court order on 5/26/06).

B. Other permits

Oregon Coast NWR Complex Special Use Permit Nos. USFWS Coastal Refuges Special Use Permit Numbers: OI-0401 and OI-50107

VII. References

McMahon, C. R., C. J. A. Bradshaw, H. R. Burton, J. V. D. Hoff, and R. Woods. 2006. Assessing hot-iron and cryo-branding for permanently marking southern elephant seals. Journal of Wildlife Management 70: 1484-1489.

NMFS. 2006. Draft Revised Recovery Plan for the Steller sea lion (*Eumetopias jubatus*). National Marine Fisheries Service, Silver Spring, MD. 285 pp.

Pitcher K. W., P. F. Olesiuk, R. F. Brown, M. S. Lowry, S. J. Jeffries, J. L. Sease, W. L Perryman, Charles E. Stinchcomb, and L. F. Lowry. In press. Status and trends in abundance and distribution of the eastern Steller sea lion (Eumetopias jubatus) population. Fishery Bulletin.

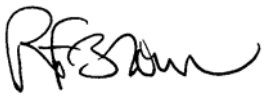
VIII. Certification and signature

I hereby certify that the foregoing information is complete, true, and correct to the best of my knowledge and belief. I understand that this information is submitted for the purpose of obtaining a permit under one or more of the following statutes and the regulations promulgated there under, as indicated in Section I of this application:

The Endangered Species Act of 1973 (16 U.S.C. 1531-1543) and regulations (50 CFR Part 222); and

The Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407) and regulations (50 CFR Part 216).

I also understand that any false statement may subject me to the criminal penalties of 18 U.S.C. 1001, or to penalties provided under the Endangered Species Act of 1973, the Marine Mammal Protection Act of 1972, or the Fur Seal Act of 1966, whichever are applicable.



January 15, 2007

Signature of applicant and
date of signature

Robin F. Brown

Typed or printed name of applicant

Program Leader, Marine Mammal Research, Oregon Department of Fish and Wildlife

Title of applicant

Appendix 1. Locations of Steller sea lion rookeries and haulout sites.

Region	Location	Latitude	Longitude
WA	TATOOSH ISLAND	48.39	-124.74
WA	GUANO ROCK	48.18	-124.74
WA	BODELTEH ISLANDS	48.17	-124.76
WA	CAROLL ISLAND	48.00	-124.72
WA	SEA LION ROCK	47.99	-124.72
WA	SPLIT ROCK COMPLEX	47.41	-124.36
OR	SOUTH JETTY	46.23	-124.07
OR	ECOLA POINT	45.91	-123.98
OR	THREE ARCH ROCKS	45.46	-123.98
OR	CASCADE HEAD	45.07	-124.02
OR	NEWPORT	44.62	-124.12
OR	SEA LION CAVES	44.13	-124.13
OR	CAPE ARAGO	43.31	-124.40
OR	BLANCO REEF	42.83	-124.58
OR	ORFORD REEF S	42.78	-124.60
OR	ORFORD REEF N	42.79	-124.60
OR	ROGUE REEF	41.44	-124.47
CA	ST GEORGE REEF	41.82	-124.33
CA	CASTLE ISLAND	41.78	-124.26
CA	CRESCENT CITY DOCKS	41.54	-124.37
CA	PATRICK'S POINT AND PULLOFFS	41.23	-124.17
CA	TRINIDAD HEAD	41.13	-124.15
CA	CAPE MENDOCINO	40.05	-124.42
CA	JUSTIN'S ROCK	40.44	-124.35
CA	PUNTA GORDA	40.31	-124.35
CA	SEA LION GULCH	40.25	-124.35