Application for an Incidental Harassment Authorization under the Marine Mammal Protection Act; Section 101(a)(5).

NOAA Fisheries, Alaska Region
222 W. 7th Ave, Suite B, Box 43
Anchorage, Alaska 99513

1. A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals;

NOAA Fisheries Alaska Region is currently contracting demolition, repair and select replacement of northern fur seal research infrastructure on St. Paul Island, Alaska. The objective of this work is to repair 47 fur seal observation towers and their associated walkways and replace 7 observation towers and approximately 1300 lineal feet of elevated walkways within fur seal breeding areas around the island. Prior to replacement phase of the project old towers and walkways will need to be demolished. The replacement work will occur at the Reef breeding area.

Construction crews will be using hand carpentry techniques, possibly supplemented with small gasoline generators and pneumatic tools. Most construction sites are inaccessible to vehicles with the exception of all-terrain vehicles & equipment or snow machines if conditions allow. Crews will be primarily accessing the immediate worksites by foot. The proposed action includes summer and fall construction restrictions to protect northern fur seals from disturbance during the breeding and pup rearing period. Repair and replacement activities will include human presence within the fur seal breeding areas and use of all-terrain and 4-wheel drive vehicles to transport personnel, equipment, and materials. Construction crews will use hand and power tools, gas-powered generators, and air compressors. Construction crews will need to demolish and remove old towers and walkways prior to replacement of new structures. Large boulders or uneven terrain will be altered to facilitate construction or access to areas where new foundations are to be placed.

Alaska Region biologists will begin daily marine mammal monitoring for the presence of fur seals on 30 April and record the number and response of northern fur seals to the proposed actions until 7 June. Construction activities will cease and demobilization will begin if the incidental taking of northern fur seals is predicted to exceed that authorized in the IHA prior to 1 June, otherwise all activities will be completed on the rookeries by 7 June 2010.

2. The date(s) and duration of such activity and the specific geographical region where it will occur;

The research walkways and towers will be repaired and replaced on St. Paul Island, Alaska from 4 January 2010 through 7 June 2010 and again in December 2010 if necessary and authorized.

3. The species and numbers of marine mammals likely to be found within the activity area;

Northern fur seals (Callorhinus ursinus) are likely to be found within the activity area. Northern fur seals are seasonal residents on St. Paul Island, and may be found on the breeding and resting areas around the island from late April until early December.

Adult males are the most likely group of northern fur seals to be encountered on St. Paul during the spring of 2010. By 1 June 2010 we estimate about 50% of the maximum count of adult males will be on all the St. Paul Island breeding areas or 4,976 adult male northern fur seals. Our estimate includes territorial males (Class 2 & 3), and non-territorial males (Class 5; see Antonelis, 1992).

In addition we estimate intermittent arrival and departure a few subadult males during the winter and spring. Most subadult male seals begin arriving during the last week of May resulting in a few tens to a hundred seals at any of the hauling grounds on St. Paul Island (Gentry, 1981).

4. A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities;

Northern fur seals are colonial breeding pinnipeds that exhibit strong site fidelity and currently breed on a few islands in the North Pacific Ocean and Bering Sea. Adult male fur seals, about 3-5 times larger than females, arrive at rookeries prior to the late June/July breeding season and defend territories within the rookery. Beginning in mid-June the rookeries are occupied by breeding females, who within a few days give birth and begin nursing their single pup. Lactating females cycle between on shore attendance and at-sea foraging trips during the nursing period (July-November).

NMFS designated the Pribilof Islands northern fur seal population depleted on 17 June 1988 because it declined to less than 50 percent of levels observed in the late 1950s and no compelling evidence suggested that the northern fur seal carrying capacity of the Bering Sea had changed substantially since the late 1950s. Towell and Ream (2008) report that the 2008 pup production estimate for St. Paul Island was 6.6 percent less than the estimate in 2006. The 2008 pup production estimate for St. George Island was 6.4 percent greater than the estimate in 2006. Since the depleted designation in 1988 pup production on St. Paul has declined by 40% (171,610 pups born to 102,674) and on St. George by 27% (24,280 pups born to 18,160).

Male northern fur seals arrive on all of their breeding islands in reverse proportion to their age. That is the oldest seals arrive first followed by progressively younger seals. Thus adult males 9 years old and older arrive as early as late April and persist intermittently at first and permanently (for territorial males) for the duration of their tenure on the island which generally ranges for about 30-60 days (Gentry, 1998). All non-territorial males (i.e., younger than 7 years old) arrive on island and cycle between fasting and resting on shore and foraging trips at sea from June through November (Sterling and Ream 2004). Fur seals can be observed on and near St. Paul Island in nearly every month of the year, but the probability of encountering a hauled out fur seals in any month from December until April is highly uncertain and near zero for any particular day.

5. The type of incidental taking authorization that is being requested (i.e., takes by harassment only; takes by harassment, injury and/or death) and the method of incidental taking;

The Alaska Region is requesting taking by harassment only of male northern fur seals. The method of taking will be from a combination of human presence, scent, and airborne construction noise.

6. By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified in paragraph (a)(5) of this section, and the number of times such takings by each type of taking are likely to occur;

Table 1. Summary of incidental taking by harassment of northern fur seals during construction activities on St. Paul Island

	Prior to April 25	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**TOTAL**
Adult Male NFS	0	8 seals taken 58 times	115 seals taken 810 times	232 seals taken 1,621 times	463 seals taken 3,242 times	579 seals taken 4,053 times	579 seals taken 9,785 times
Sub-adult Male NFS	50 seals taken once	50 seals taken once	150 seals taken once	200 seals taken once	250 seals taken once	300 seals taken once	1,000 seals taken once

Most adult male northern fur seals will be incidentally taken by harassment multiple times. We anticipate approximately 230 of the 579 adult males will be taken once. These single takes by harassment are of the estimated non-territorial adult males predicted to be present and will likely depart due to the noise, presence or scent of the construction activities on the rookery. NMFS estimates the remaining 349 adult male northern fur seals are territorial at Reef rookery on St. Paul Island during the 5-week period beginning late April 2010 and will not depart. NMFS predicts these territorial males may change the time spent in certain behaviors due to the presence, noise or scent due to construction activities on the rookery.

The number of incidental takes by harassment is derived from 2006 adult male counts from the National Marine Mammal Laboratory from Reef rookery (Fowler et al., 2006) and corrected based on the timing of arrival curve from Gentry (1998). Rookeries are divided into sections allowing easier tabulation of counts and the maximum counts in each section have been divided by the percentage estimated on land for each week in Tables 2a-2e. NMFS summed the daily take estimates into weekly bins (Table 2a-e) because few animals were predicted on land in late April and early May, but those few animals would likely be taken repeatedly during the week and every subsequent week. Table 2 shows fractional daily taking within each section, summed for the week, and rounded up into Table 1.

NMFS estimates an additional 1000 subadult male seals may be encountered during the construction or repair activities at Reef or other rookeries (Table1).

Table 2a. Estimated daily take of adult male northern fur seals on Reef rookery for the last week of April. Estimate based on 1% of the maximum 2006 bull counts.

Class	**Section**										
Bull											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2	0.13	0.26	0.27	0.1	0.22	0.21	0.05	0.27	0.22	0.11	0.03
3	0.48	0.81	0.63	0.46	0.67	0.7	0.01	0.66	0.37	0.28	0.04
5	0.08	0.27	0.4	0.47	0.31	0.13	0.15	0.31	0.34	0.72	1.42
Total Taking by Harassment Week 1: **57.9**											

Table 2b. Estimated daily take of adult male northern fur seals on Reef rookery for the first week of May. Estimate based on 10% of the maximum 2006 bull counts.

Class	**Section**										
Bull											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2	1.3	2.6	2.7	1	2.2	2.1	0.5	2.7	2.2	1.1	0.3
3	4.8	8.1	6.3	4.6	6.7	7	0.1	6.6	3.7	2.8	0.4
5	0.8	2.7	4	4.7	3.1	1.3	1.5	3.1	3.4	7.2	14.2
Total Taking by Harassment Week 2: **810.6**											

Table 2c. Estimated daily take of adult male northern fur seals on Reef rookery for the second week of May. Estimate based on 20% of maximum 2006 bull counts.

Class	**Section**										
Bull											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2	2.6	5.2	5.4	2	4.4	4.2	1	5.4	4.4	2.2	0.6
3	9.6	16.2	12.6	9.2	13.4	14	0.2	13.2	7.4	5.6	0.8
5	1.6	5.4	8	9.4	6.2	2.6	3	6.2	6.8	14.4	28.4
Total Taking by Harassment Week 3: **1621.2**											

Table 2d. Estimated daily take of adult male northern fur seals on Reef rookery for the third week of May. Estimate based on based on 40% of maximum 2006 bull counts.

Class	**Section**										
Bull											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2	5.2	10.4	10.8	4	8.8	8.4	2	10.8	8.8	4.4	1.2
3	19.2	32.4	25.2	18.4	26.8	28	0.4	26.4	14.8	11.2	1.6
5	3.2	10.8	16	18.8	12.4	5.2	6	12.4	13.6	28.8	56.8
Total Taking by Harassment Week 4: **3242.4**											

Table 2e. Estimated daily take of adult male northern fur seals on Reef rookery for the last week of May. Estimate based on 50% of maximum 2006 bull counts.

Class	**Section**										
Bull											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2	6.5	13	13.5	5	11	10.5	2.5	13.5	11	5.5	1.5
3	24	40.5	31.5	23	33.5	35	0.5	33	18.5	14	2
5	4	13.5	20	23.5	15.5	6.5	7.5	15.5	17	36	71
Total Taking by Harassment Week 5: **4053**											

7. The anticipated impact of the activity upon the species or stock;

Some adult seals may depart, but we anticipate most will alter their activity budgets due to stimuli related to construction. NMFS used the 2006 adult male counts because they were available and partitioned by section and because of the continued decline of northern fur seals provided us with a conservative (i.e., biased high) estimate. NMFS estimates about 5% of the adult males, less than 1% of subdault males, and no females or pups on St. Paul Island will be exposed to the proposed construction activities. NMFS anticipates subadult seals will be displaced from their resting areas if encountered during construction. The Alaska Region anticipates there will be no significant impact on the species or stock of northern fur seals from the proposed construction activity on the rookeries prior to and after the breeding season.

8. The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses;

Northern fur seals are not allowed to be harvested on land by Alaska Natives outside of the harvest season described at 50CFR 216.72. Therefore there will be no impact on subsistence use of northern fur seals. Steller sea lion subsistence hunting occurs during the winter and spring on the Reef Peninsula. Steller sea lion subsistence hunting does not occur at the tower and walkway sites on Reef Rookery. Hunting effort is primarily located at Gorbatch and Ardiguen Rookeries as well as the bluffs along the east shore to the north of Reef Rookery. Other sea lion hunting areas are not typically associated with fur seal towers and walkways and therefore would not be affected.

9. The anticipated impact of the activity upon the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat;

The Alaska Region does not anticipate any negative impact on northern fur seal habitat from the demolition, repair and replacement of observation towers and walkways on St. Paul Island. These structures are located in nearly the same areas for at least 50 years at some locations and northern fur seals continue to use the habitat around the structures. The demolition and removal of condemned structures will restore some small areas of fur seal habitat. The replacement and repair of observation towers and walkways will likely result in no net change or modification to marine mammal habitat.

10. The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved

See response to #9 above.

11. The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance;

The observation towers and walkways are necessarily located in fur seal breeding areas. The construction season has been chosen based on the minimum likelihood of encountering breeding and nursing northern fur seals. The amount of work and weather conditions during the winter season necessitates providing some contingency arrangements for work to be completed when few if any fur seals are found on land. In addition the outlying periods requested are prior to the arrival and after the departure of the most sensitive fur seals (i.e., adult females and unweaned pups). Gentry (1998) experimented with complete displacement in early June of territorial males from their terrestrial sites. He found that over 80% of adult males returned within 7 hours to their original territory site with less aggression than required to originally secure the site. Thus territorial adult males are highly resistant to disturbance at the time of year we are requesting authorization for incidental harassment. Some individual territorial males were so resistant to harassment that it required 4-6 people with poles and noisemakers to move them from their sites.

Thus the combination of winter and spring construction season along with incidental harassment of small numbers of adult and subadult male northern fur seals will minimize the potential for adverse impacts to the population and habitat. The habitat is further protected because the ground is frozen and resistant to erosion and degradation due to vehicle traffic.

12. Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a "plan of cooperation" or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses.

The Alaska Region has discussed the potential overlap between the construction season and location with subsistence hunting with Tribal Government of St. Paul Island's Ecosystem Conservation Office (Tribal ECO) staff. The Alaska Region has ongoing communication with Steller sea lion hunters through the Tribal Government of St. Paul Island. As part of the cooperative management agreement between the National Marine Fisheries Service and the Tribal Government of St. Paul Island under section 119 of the Marine Mammal Protection Act, we regularly communicate agency project plans and subsistence needs and activities. Most subsistence activities occur during the summer per the subsistence harvest regulations at 50 CFR 216 subpart F. Annual reports submitted to NMFS of subsistence marine mammal harvests indicate most hunting occurs at Northeast Point. Winter subsistence harvests occur at many locations surrounding St. Paul Island and are not concentrated at any locations where tower or walkway work would be conducted.

13. The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while

conducting activities and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding. Guidelines for developing a site-specific monitoring plan may be obtained by writing to the Director, Office of Protected Resources; and

NMFS Alaska Region will begin marine mammal monitoring at Reef, Gorbatch and Ardiguen breeding areas to identify and count northern fur seals on land, their response to the presence and absence of construction activities and the timing of arrival beginning the last week of April. In addition to counts of northern fur seals monitoring will also record the type and duration of construction activities at each site where northern fur seals are identified to evaluate their responses. Gorbatch and Ardiguen breeding areas will provide control areas with no construction activities to compare the timing of arrival and response of male northern fur seals at Reef. NMFS Alaska Region will consider Before-After/Control-Impact (see Underwood, 1994) study design in the final monitoring plan, method and analysis.

14. Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.

Coordination and collaboration with Tribal ECO will be accomplished to partner and potentially utilize local sentinels currently implementing a long-term monitoring program on St. Paul Island. Dr. Paul Wade at the National Marine Mammal Laboratory has conducted work at this site is related to offshore observations of killer whale, and we will coordinate with Dr. Wade if necessary. Northern fur seal researchers at the National Marine Mammal Laboratory and North Pacific Universities Marine Mammal Consortium do not begin their work until the arrival of adult females in late June, but we will contact the Principal Investigators to ensure their plans have not changed and may overlap with this project.

Literature Cited:

Antonelis, G. A. 1992. Northern fur seal research techniques manual. United States Department of Commerce, NOAA Technical Memorandum NMFS F/NWC-214, 47 p.

Fowler, C., L. Fritz, and R. Towell. 2006. Report of Field Work - Pribilof and Bogoslof Islands, July, 2006. Available from National Marine Mammal Laboratory, 7600 Sand Point Way, NE, Seattle, WA 98115.

Gentry, R.L. 1981. Land-sea movements of northern fur seals relative to commercial harvesting. In: J.A. Chapman and D. Pursley (editors), Worldwide Furbearer Conference Proceedings, vol. 2, p. 1328-1359. Worldwide Furbearer Conf. Frostburg, MD. 2056 p.

Gentry, R.L. 1998. Behavior and ecology of the northern fur seal. Princeton Univ. Press, New Jersey. 392 p.

Sterling, J.T., and R.R. Ream. 2004 At-sea behavior of juvenile male northern fur seals (Callorhinus ursinus). Can. J. Zool. 82(10):1621-1637.

Towell, R. and R. Ream. 2008. Memorandum for the Record: 2008 northern fur seal pup production and adult male counts on the Pribilof Islands, Alaska. Available from: http://www.afsc.noaa.gov/nmml/pdf/2008-nfs-pup-estimates.pdf

Underwood, A.J. 1994. On Beyond BACI: Sampling designs that might reasonably detect environmental disturbances. Ecological Applications 4(1):3-15.