

**Addendum to Appendix S**

**Steller Sea Lion Technical Report**

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## 1.0 INTRODUCTION

This addendum reflects the revised Biological Assessment completed by the Federal Highway Administration (FHWA) dated July 2005, additional information provided by the Kensington Gold Project Biological Opinion prepared by the National Marine Fisheries Service (NMFS) in 2005, and the Section 7 consultation between NMFS and the FHWA (NMFS, 2005c). Data collected from the Gran Point Steller sea lion haulout cameras from January 1, 2005, through September 30, 2005, have also been reviewed and included.

**Studies and Coordination** - Following publication of the 2004 *Appendix S Steller Sea Lion Technical Report*, complete 2004 and January through September 2005 video camera results for the haulout at Gran Point have been reviewed. Table 1 includes a complete summary of Stellar sea lion occurrences at the haulout. The video data indicate that sea lions occupied the haulout for all but 12 days during 2004. The longest absence of sea lions from the haulout was between August 7<sup>th</sup> to mid-day on August 14<sup>th</sup>. Results for 2005 indicate sea lions absent for 47 days between January 1<sup>st</sup> and September 30<sup>th</sup>. Steller sea lions were absent from the haulout for 21 days in a row from July 30 through August 19. On four other occasions, sea lions were absent three to five days consecutively.

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## 2.0 AFFECTED ENVIRONMENT

Discussions provided below are meant to supplement the Affected Environment (Section 3) of *Appendix S Steller Sea Lion Technical Report*. This technical report addendum includes evaluation and incorporation of additional data not included in the original technical report.

### 2.1 Distribution within Lynn Canal

Steller sea lions have also been observed to haul out in the spring on a small offshore rock on the eastern shore of the mouth of Slate Creek Cove and near Cove Point in Berners Bay. There is little information on the use of these haulout sites, although juveniles and adults have been observed there during the peak of eulachon and herring spawning in April and May. There are no documented Steller sea lion haulouts on the Katzechin Flats, although Steller sea lions have been seen foraging in this area. Harbor seals, however, are known to haul out in the flats (NMFS, 2005a).

### 2.2 Western Population

Steller sea lions were listed as threatened in 1990 under the Endangered Species Act (ESA). In 1997 the population was divided into two groups, the western and eastern. Following a population analysis, a continued rate of population decline in the western population resulted in this stock being listed as endangered. The eastern population remains listed as threatened (NMFS, 2005a).

Steller sea lions can be found from the North Pacific, northern Japan, north to the Bering Sea, across the Gulf of Alaska, and then south along the North American coastline extending as far as southern California. The division of eastern and western populations is both genetic and a geographical distinction; sea lions that range east of Cape Suckling (50 miles southeast of Cordova, Alaska) are the eastern stock and sea lions that generally range west of Cape Suckling are counted in the western population. There are approximately 31,000 sea lions in the eastern population, with about half occurring in southeast Alaska. The western population has an estimated 35,000 animals (NMFS, 2005a).

Since the completion of the 1998 Biological Assessment, sea lions from the western population have been documented within the project area. Sea lions branded as part of the western population have been observed at the Gran Point haulout and Little Island near Berners Bay. Five individual animals from the western population were sighted. There is no critical habitat for the western Steller sea lion population within the Juneau Access Improvements Project area (NMFS, 2005a). Though few in numbers, the occurrence of some sea lions from the endangered western stock indicates some degree of crossover between the two populations (Department of Transportation and Public Facilities [DOT&PF], 2005b).

### 2.3 Feeding Behavior

Steller sea lions are generalists, feeding on seasonally abundant prey throughout the year. They feed predominately on species that aggregate in schools or for spawning. Prey varies seasonally and geographically. Principal prey species include walleye Pollock (*Theragra chalcogramma*), Atka mackerel (*Pleurogrammus monopterygius*), Pacific salmon (*Onchorhynchus* sp.), Pacific cod (*Gadus macrocephalus*), flatfishes, rockfishes, Pacific herring (*Clupea harengus*), sand lance, skates, squid, and octopus (Calkins, 1998; Sinclair and Zeppelin, 2002; Trites and Donnelly, 2003). Seasonal prey are also important in local areas, such as the seasonal occurrence of spawning eulachon and Pacific herring in Berners Bay that supports up to 7-10 percent of the southeast Steller sea lion population for about three weeks in April (Sigler et al., 2004; Marston et al., 2002; Womble et al., 2005).

The spring eulachon run in Berners Bay is an energy-rich food source for Steller sea lions. Sea lions feeding on this species for three weeks may increase their energy intake by 91 percent compared to a normal diet. The energy rich food source is an important seasonal energy source for all sea lions, especially for lactating females that require more energy to support lactation (Kastelein and Wetz, 1990; Sigler et al., 2004).

Large schools of adult eulachon congregate in the northern section of Berners Bay to begin their annual spawning run into the Antler and Lace rivers. The eulachon typically move into the deep trench outside Berners Bay in early to mid-March, prior to migration and aggregate at depths of 40 to 150 meters, which coincides with the depths at which Steller sea lions forage (Loughlin et al., 2003). These schools provide a predictable nutrient rich food source for Steller sea lions (Sigler et al., 2004; Marston et al., 2002; Womble et al., 2005). Spawning runs begin in late April to early May. Because the fish schools are dense and behave predictably they are good targets for cooperative feeding by sea lions.

Steller sea lions are present year-round in Berners Bay; however, the greatest numbers are observed for three to four weeks in April and May when they feed on spawning runs of eulachon and herring (Gende et al., 2001; Marston et al., 2002; Sigler et al., 2004; Womble et al., 2005). Sigler et al. (2004) estimated that nearly 2,200 Steller sea lions (almost 10 percent of the southeast Alaska Steller sea lion population) utilize this area to feed on the high-energy food sources. Although the availability of prey is brief, the abundance and energy content is so great that it likely is important to the energy budget of sea lions because sea lions can store energy in blubber for up to five or six weeks after consumption (NMFS, 2005a).

Steller sea lions have been observed feeding cooperatively in Berners Bay in areas where prey species concentrate. Large groups of several hundred sea lions have been seen moving synchronously toward the bay. All individuals porpoised for several seconds before diving simultaneously and remaining submerged for up to nine minutes. The sea lions reemerged simultaneously in a different location then again porpoised before diving and reemerging simultaneously (Gende et al., 2001; Marston et al., 2002; Sigler et al., 2004). The cooperative feeding behavior involves visual and vocal cues and may help concentrate the prey. Increased noise levels in the vicinity of construction or vessel traffic may make cooperative feeding for sea lions less successful by masking vocal cues. Vessels may disturb Steller sea lions while they are in the water feeding. Their typical response is to dive and resurface some distance away from the vessel. If the animals are forced to dive out of synchrony because of vessel approach, it may compromise their success at capturing prey.

## 3.0 ENVIRONMENTAL IMPACTS

### 3.1 Alternative 2B (Preferred): East Lynn Canal Highway to Katzehin with Shuttles to Haines and Skagway

Information from the NMFS 2005 Kensington Gold Project Biological Opinion and the revised FHWA July 2005 Biological Assessment are included here as additions to the sections "Environmental Impacts," Section 4.2, 4.4, 4.6, and 4.7 of the Supplemental Draft EIS *Steller Sea Lion Technical Report*. Text discussing potential water quality impacts due to construction, operation, and maintenance of the project alternatives has also been included in response to public and agency comments.

#### 3.1.1 Construction, Maintenance, and Operation

The East Lynn Canal Highway has the potential to impact Steller sea lions both during construction and from subsequent maintenance and operations activities. Specific mitigation measures will be taken to avoid or minimize these impacts.

Activities that could impact sea lions include noise and visual aspects of helicopter surveying, construction and use of barge landings, in-water fill placement, pile driving, dredging, blasting, excavation, and earth moving.

Helicopters used during construction, including surveying activities, would be required to avoid operating within a 3,000-foot radius of Steller sea lion haulouts while the haulouts are occupied. No temporary barge landings would be constructed within this radius, and no in-water fill placement would occur for highway construction within 3,000 feet of the haulout.

Analysis, as presented in the 2004 technical report, indicates that most construction noise generated at distances greater than 1,000 feet may not be detectable above the background noise levels at the haulouts. Rock drilling and excavating generally produce sound levels of 85 to 90 average-weighted decibels (dBA) at a distance of 50 feet from the source. The rock bluffs, trees, and earth would shield the haulouts from sounds from construction point sources, resulting in a decrease of 11 dBA for every doubling of distance. A sound level of 88 dBA 50 feet from the source would produce a sound level of 44 dBA at a distance of 800 feet. The 1998 assessment estimated the background noise level at Gran Point on a calm day at 47 dBA, based on recordings at similar locations. This estimate was corroborated by sound measurements recorded in 2003 at additional, similar locations. Construction noise at a level of 44 dBA would not be likely to be noticeable against the estimated background noise level at the haulout.

Using the above analysis of potential noise impacts, no construction activities that generate noise levels above 45 dBA at the haulouts would occur within 1,000 feet of the Gran Point and Met Point haulouts while sea lions are present. Heavy construction (rock drilling, blasting and shot rock removal) within a 1,000-foot radius of Gran Point is expected to occur for approximately one month. Table 1 shows 46 days from January 2003 through December 2003 with no sea lions present. The partial year of January through December 31, 2004, had only 7 days with no sea lions present. The phased construction due to the presence of sea lions at or in the vicinity of the haulouts would not affect the overall projected construction schedule of four years.

Analysis of potential vibration disturbance from blasting within the Gran Point critical habitat area and within 3,000 feet of the Met Point haulout presented in the 1998 assessment is still relevant. Preshearing the rock face and using smaller charges can reduce the ground

vibrations at the haulouts. The contractor would be required to monitor blasting effects when blasting within 3,000 feet of either haulout and avoid vibrations greater than 0.05 inches per second (ips) at the haulout while it is occupied. These measures would keep blasting effects well below 0.1 ips, the estimated vibration threshold for sea lion disturbance.

Blasting produces sound as well as vibration. Typical sound energy levels generated by construction blasting are equivalent to 95 dBA at 665 feet for 50-pound charges per delay (FHWA, 1991). As with vibration, the sound energy level can be controlled by using lower weight charges per delay. The contractor would be required to monitor blasting noise and avoid noise energy levels greater than 45 dBA at the haulout when blasting within 3,000 feet of either site.

Based on available information, the noise levels produced by construction would fall below those thought to result in physiological damage to Steller sea lions (NMFS, 2005b). Monitors will be in place to observe the Steller sea lions and halt construction activities if a disturbance at a haulout occurs.

Maintenance and operation activities that could impact sea lions include noise and visual aspects of highway traffic, highway maintenance, and avalanche control. Land access to the haulout areas could create an indirect impact of increased human disturbance of resting sea lions.

Operation and maintenance of the highway would not likely result in disturbance of either haulout. The highway alignment within 3,000 feet of each haulout would be designed to prevent access to either site and maintain a visual barrier between the highway and haulouts.

Projected peak traffic noise levels for the year 2038 are 65 dBA at the centerline of the highway, and would attenuate to 32 dBA at a distance of 280 feet (see Appendix L, the 2004 *Noise Technical Report*). The highway would be approximately 320 feet from the Gran Point haulout and 400 feet from the Met Point haulout at its closest point. Most traffic noise would be unlikely to exceed the estimated background noise level.

Average peak-hour noise level is a tool for gauging potential noise levels over time. Over time, average peak-hour noise levels are unlikely to disturb Steller sea lions. A small number of peak noise levels are likely to disturb Steller sea lions. The frequency of these events will determine the level of disturbance.

Normal winter and summer maintenance activities, such as snow removal, sanding, brush cutting, crack sealing, and culvert clean out, would not produce noise levels higher than those predicted from the 30-year peak hour traffic.

Steller sea lions may react to loud or unfamiliar sounds by diving into the water from land or by submerging when they are in the water. Generally, they return to their previous behavior within an hour or so after the disturbance. However, their tolerance for this kind of disturbance will depend on its continuity. Steller sea lions may abandon a haulout for longer periods of time if a disturbance continues. (NMFS, 2005a)

### **3.1.2 Avalanche Control Measures**

Winter operation would require infrequent detonation of unstable snow in the three avalanche starting zones within the 3,000-foot radius around the Gran Point and Met Point haulout sites (see Appendix J, the 2004 *Snow Avalanche Report*). DOT&PF's preferred avalanche control option on the east side of Lynn Canal is helicopter delivery of explosive charges by hand out an open door. The next choice of delivery is 105-millimeter (mm) howitzer placement, and the third

choice is blaster box-fired mortar rounds. For detonation by helicopter, the helicopter approach would be made from the closest point outside the 3,000-foot radius. The avalanche paths close to the haulouts are expected to require detonation release with a helicopter-dropped explosive charge at a frequency of once every 10 years at each path.

Gran Point is between two identified avalanche paths, LC030 and LC031, and is close to nearby paths LC025 through LC029. LC030 is at elevation 1,500 feet, approximately 1,810 feet southeast of the Gran Point haulout. The slope distance from the haulout is 2,350 feet. LC031 is at elevation 650 feet, approximately 2,880 feet to the northeast, a slope distance of 2,950 feet. Both are small avalanche paths; one is on an old landslide scar and the other is in a narrow gully. Each avalanche starting zone is estimated to require a helicopter-dropped 50-pound explosive charge once every 10 years, which would result in two explosive discharges within the critical habitat area during a 10-year period. A 50-pound charge typically creates a momentary peak airblast sound level of 95 dBA at 665 feet (FHWA, 1991). This would result in a noise of about 73 to 75 dBA at Gran Point from either of the slide areas.

Met Point is near avalanche path LC004. For Met Point, the closest paths are not identified for blaster box emplacement and presumably would be targeted when necessary by helicopter (see page 16, the East Lynn Canal Mitigation Options in *Appendix J, the Snow Avalanche Report*).

The starting zone of avalanche LC004, 2,600 feet to the northeast of the Met Point haulout, is at elevation 1,000 feet. Slope distance to the haulout is 2,860 feet. LC004 is a small avalanche path consisting of open scrub forest and a small gully. This avalanche path is expected to require detonation release with a helicopter-dropped explosive charge at a frequency of once every 10 years. The explosive charge would be a 50-pound bag of ammonium nitrate and fuel oil (ANFO). A 50-pound charge dropped from a helicopter normally penetrates the snow a few feet, with the blast sound muffled by the snow surrounding the charge.

The noise from avalanche detonation would be noticeable both at the Gran Point and Met Point haulouts. It is possible that it could startle some sea lions enough for them to leave the haulout. However, since this noise would not be repetitive, it is likely that sea lions would return to the haulout within a few hours. The noise and vibration created by the resulting avalanche would be no different than the naturally occurring avalanche that would eventually happen.

The Alternative 2B alignment has been adjusted between Slate Cove and Sherman Point to avoid emergent wetlands, moved approximately 700 feet upstream on the Lace River to avoid intertidal habitat, and moved further upstream on the Antler River to bypass important eulachon habitat. These realignments reduce the potential for indirect effects to Steller sea lion prey resources in Berners Bay by the construction, operation and maintenance of the East Lynn Canal Highway.

### **3.1.3 Steller Sea Lion Haulout Sites**

Alternative 2B would be constructed near the Gran Point and Met Point haulouts; however, construction would not physically alter the haulouts themselves. Construction activities would not take place within 3,000 feet of the haulouts when they are occupied by sea lions. It is also unlikely that construction would occur in the vicinity of both haulouts at the same time. The highway alignment within 3,000 feet of Gran and Met points would be designed to maintain a visual barrier between the adjacent highway and haulouts by a combination of through cuts, retaining walls, and screening structures. Sea lions would not be visible from the road, and would not see vehicles or their headlights on the nearby road.

There is also a Steller sea lion haulout site at Point Saint Mary. Noise from Alternative 2B at Point Saint Mary, Slate Cove near Cove Point are not likely to be heard above ambient background levels because of the distance between the haulout site and the proposed highway. Highway noise levels at these two seasonal haulouts are not expected to exceed background levels. There are no documented Steller sea lion haulouts on the Katzechin Flats, although Steller sea lions have been seen foraging in this area. Harbor seals are known to haul out in the flats (NMFS, 2005a).

### **3.2 Alternative 3: West Lynn Canal Highway**

The West Lynn Canal Highway has the potential to impact Steller sea lions during both construction and subsequent maintenance and operation activities. Specific mitigation measures would be taken to avoid or minimize these impacts if Alternative 3 was implemented.

The marine portion of the alignment consists of ferry service from William Henry Bay to Sawmill Cove in Berners Bay. The known sea lion haulouts on this segment of the alignment are at Point Saint Mary, at the mouth of Berners Bay, and seasonally at Slate Cove on the north side of the bay. Foraging habitat for sea lions exists in both William Henry Bay and Berners Bay, and in Lynn Canal. The feeding behavior discussed in Section 2.1 would apply to activities of sea lions in Berners Bay. Indirect impacts would result from diminished prey resources from ferry terminal construction or vessel disturbance.

#### **3.2.1 Construction, Maintenance, and Operation**

Construction activities for Alternative 3 that could impact Steller sea lions include noise and visual aspects of construction and use of barge landings, in-water fill placement, pile driving, and dredging. The intensity and frequencies of underwater noise generated by these activities would depend on a number of geomorphic and water variables. Placement of fill at the ferry terminal site is not expected to generate substantial in-water noise, as this activity is generally done from shore during low tides. Dredging would take place between October 1st and March 1st when there are no spawning activities of prey species in the project area. Dredging is not typically a source of loud noise. Driving of 18 to 30-inch-diameter piles would be done with vibratory hammers to the extent possible to reduce the intensity of sound generated. Pile driving would generally take place between June 16 and March 14 (to avoid impacts to fish), after peak prey spawning season. Trained observers would monitor for the presence of marine mammals and construction would be halted if any animals come within 200 meters of the activity. By employing these mitigation measures, project construction would not be likely to result in substantial impacts to Steller sea lions.

Construction of the ferry terminal in Sawmill Cove in Berners Bay would result in a short-term increase in turbidity near the construction site. This turbidity could result in the loss of the eggs of some prey species, such as Pacific herring and sculpin, at the terminal site. Timing of in-water construction to avoid the spawning and egg maturation period would minimize or reduce this impact. Increased turbidity could also result in the loss of some benthic organisms. These impacts would not have population-level effects on any benthic species or prey species in Lynn Canal. Docks may also provide increased shelter or cover for both juvenile fish and their predators.

The footprint of the terminal would impact a small percentage of the along-shore herring spawning habitat. The impact on intertidal and subtidal marine habitat due to ferry terminal construction would alter habitat usage in the disturbed area. This loss of eggs and larvae would not likely affect the population of this species and the small amount of habitat loss would not measurably affect other fish populations in the Berners Bay area.

### **3.2.2 Steller Sea Lion and Vessel Interactions**

The potential for sea lion collisions with ferries traveling from Berners Bay to William Henry Bay are considered minimal. Although it is possible for a Steller sea lion, particularly a juvenile, to be harmed by a collision with a vessel, they are generally very agile and successfully avoid encounters when in the water. There have been no reports of any sea lion mortalities due to the operation of the ferries currently in use along the Alaska Marine Highway System (AMHS) routes. Collisions with vessels are not believed to be a significant source of mortality of Steller sea lions.

A study of Steller sea lions at a haulout in Glacier Bay National Park found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals (Mathews, 1997). Vessels that maintained a slow, steady course and kept the engines on seemed to disturb sea lions less than vessels with erratic course or speed. This study may indicate that private vessels, which are more maneuverable and whose operators may be less aware of protection rules, might disturb Steller sea lions more than larger commercial vessels (National Park Service [NPS], 2003). Because the ferry traffic associated with Alternative 3 would be relatively slow and consistent in both direction and speed, it is expected that sea lions at Point Saint Mary would habituate to these vessels in the same way they have habituated to other marine vessels, including ferries that currently pass the Gran Point and Met Point haulouts.

### **3.2.3 Operation Effects on Prey Resources**

The ferry route for Alternative 3 crosses areas where large schools of eulachon and herring are known to aggregate in Berners Bay prior to spawning in March and April. Individual adult herring and eulachon are likely to be exposed to vessel activities repeatedly throughout the spring months as the schools stage along the shoreline in preparation for spawning (NMFS, 2005a). Individuals of other prey species in and around the marine terminals are also likely to be exposed to disturbance from boat noise, boat wakes, or changes in water quality and habitat. Noise from vessel operation could result in behavioral disturbance of fish as well as increased risk of exposure to hydrocarbon contamination. Vessel traffic and noise, and changes in nearshore habitat may alter the behavior of adult and juvenile fish.

Indirect effects to Steller sea lions could result from ferry operations at the two ferry terminals under Alternative 3. Turbidity could be increased over ambient conditions at the ferry terminal for short periods of time by ferries maneuvering into and out of the terminal. Short-term turbidity and propeller or water jet scour could affect some Pacific herring eggs and larvae in the immediate vicinity of the Sawmill Cove Ferry Terminal. Terminal structures and vessel traffic may alter shoreline migration patterns, shifting the fish into areas where predation risks are greater. Vessel fuel leakage, contaminant spills, and pollutant runoff have the potential to impair water quality, particularly in terminal areas, where vessel activity is concentrated. This may decrease the probability of survival of individual eggs and larvae, increase short-term alteration of behavior of juvenile and adult fish, and reduce energy budgets during critical pre-spawning aggregations (NMFS, 2005a).

The operation of ferry service between Berners Bay and William Henry Bay has the potential to impact individuals of the prey species Steller sea lions feed on. However, because the prey in Berners Bay is primarily a seasonal resource, sea lions may compensate for a change in the prey base in Berners Bay by utilizing other nearby foraging areas in southeast Alaska. The increasing eastern population of Steller sea lions in southeast Alaska suggests that there is prey available for this species throughout the foraging range (NMFS, 2005a).

### **3.3 Alternatives 4A and 4C: Marine Alternatives – Auke Bay**

Alternatives 4A and 4C have the potential to impact Steller sea lions during maintenance and operation activities. Specific mitigation measures will be taken to avoid or minimize these impacts.

Impacts to Steller sea lions from the marine vessels are most likely to be grouped into two categories: a) injuries or disturbance from vessel operation and b) potentially diminished prey resources from ferry terminal construction or vessel disturbance.

#### **3.3.1 Construction, Maintenance, and Operation**

Reconstruction of the Auke Bay terminal would require the removal of pilings, replacement of pilings, and placement of some fill in the bay. The impact on intertidal and subtidal marine habitat due to terminal construction would alter habitat usage in the disturbed area. The footprint of the terminal would impact a small percentage of the along-shore herring spawning habitat. This loss of habitat would not likely affect the population of this species and the small amount of habitat loss would not measurably affect other fish populations in the area. This loss would not result in a measurable reduction in any benthic or fish populations in the project area or Auke Bay.

Reconstruction of the ferry terminal would result in a short-term increase in turbidity near the construction sites. Timing of in-water construction to avoid the spawning and egg maturation period would minimize or reduce this impact. Increased turbidity could result in the loss of some benthic organisms. These impacts would not have population-level effects on any benthic species, fish, or crab species in Lynn Canal.

#### **3.3.2 Steller Sea Lion and Vessel Interactions**

The potential for sea lion and ferry collisions are considered minimal. Although it is possible for a Steller sea lion, particularly a juvenile, to be harmed by a collision with a vessel, they are generally very agile and successfully avoid encounters when in the water. Because Alternative 4A would use FVF vessels, there is a slightly increased chance of a vessel collision with a sea lion. There have been no reports of any sea lion mortalities due to the current operation of the ferries along the AMHS routes. Collisions with vessels are not believed to be a significant source of mortality of Steller sea lions.

A study of Steller sea lions at a haulout in Glacier Bay National Park found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals (Mathews, 1997). Vessels that maintained a slow, steady course and kept the engines on seemed to disturb sea lions less than vessels with erratic course or speed. This study may indicate that private vessels, which are more maneuverable and whose operators may be less aware of protection rules, might disturb Steller sea lions more than larger commercial vessels (NPS, 2003). Because the ferry traffic associated with Alternative 4C would be relatively slow and consistent in both direction and speed, it is expected that sea lions would habituate to these vessels in the same way they have habituated to other marine vessels, including ferries that currently pass the Gran Point and Met Point haulouts.

Vessel traffic and noise and changes in nearshore habitat may alter the behavior of adult and juvenile fish. Vessel fuel leakage, contaminant spills, and pollutant runoff may impair water quality, particularly in areas where vessel activity is concentrated.

### **3.4 Alternatives 4B and 4D: Marine Alternatives – Berners Bay**

Alternatives 4B and 4D have the potential to impact Steller sea lions during maintenance and operation activities. Specific mitigation measures will be taken to avoid or minimize these impacts.

The known Steller sea lion haulouts along Alternatives 4B and 4D are located at Point Saint Mary, at the mouth of Berners Bay, and seasonally at Slate Cove on the north side of the bay. Foraging habitat for sea lions exists in Lynn Canal and Berners Bay.

Direct impacts to Steller sea lions from the marine vessels are likely to be a result of injuries or disturbance from vessel operation. Indirect impacts would result from diminished prey resources from ferry terminal construction or vessel disturbance.

#### **3.4.1 Construction, Maintenance, and Operation**

Construction activities that could impact sea lions include noise and visual aspects of construction and use of barge landings, in-water fill placement, pile driving, and dredging. The intensity and frequencies of underwater noise generated by these activities would depend on a number of geomorphic and water variables. Placement of fill at the ferry terminal site is not expected to generate large in-water noise, as this activity is generally done from shore during low tides. Dredging would take place between October 1st and March 1st when there are no spawning activities of prey species in the project area. Dredging is not typically a source of loud noise. Driving of 18 to 30-inch diameter piles would be done with vibratory hammers to the extent possible to reduce the intensity of sound generated. Pile driving would generally take place between June 16 and March 14 (to avoid impacts to fish), after peak prey spawning season. Trained observers would monitor for the presence of marine mammals and construction would be halted if any animals come within 200 meters of the activity. By employing these mitigation measures, project construction would not be likely to result in substantial impacts to Steller sea lions.

Construction of a ferry terminal would result in a short-term increase in turbidity near the construction site. This turbidity could result in the loss of the Pacific herring eggs at the terminal site. Timing of in-water construction to avoid the spawning and egg maturation period would minimize or reduce this impact. Increased turbidity could also result in the loss of some benthic organisms. These impacts would not have population-level effects on any benthic species or prey species in Lynn Canal. Docks may also provide increased shelter or cover for both juvenile fish and their predators.

The footprint of the terminal would impact a small percentage of the along-shore herring spawning habitat. The impact on intertidal and subtidal marine habitat due to ferry terminal construction would alter habitat usage in the disturbed area. This loss of eggs and larvae would not likely affect the population of this species and the small amount of habitat loss would not measurably affect other fish populations in the Berners Bay area.

#### **3.4.2 Steller Sea Lion and Vessel Interactions**

The potential for sea lion and ferry collisions are considered minimal. Although it is possible for a Steller sea lion, particularly a juvenile, to be harmed by a collision with a vessel, they are generally very agile and successfully avoid encounters when in the water. Because Alternative 4B would use fast vehicle ferry (FVF) vessels, there is a slightly increased chance of a vessel collision with a sea lion. There have been no reports of any sea lion mortalities due to the current operation of the ferries along the AMHS. Collisions with vessels are not believed to be a significant source of mortality of Steller sea lions.

A study of Steller sea lions at a haulout in Glacier Bay National Park found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals (Mathews, 1997). Vessels that maintained a slow, steady course and kept the engines on seemed to disturb sea lions less than vessels with erratic course or speed. This study may indicate that private vessels, which are more maneuverable and whose operators may be less aware of protection rules, might disturb Steller sea lions more than larger commercial vessels (NPS, 2003). Because the ferry traffic associated with Alternative 4D would be relatively slow and consistent in both direction and speed, it is expected that sea lions at Point Saint Mary would habituate to these vessels in the same way they have habituated to marine vessels including ferries that currently pass the Gran Point and Met Point haulouts.

### **3.4.3 Operation Effects on Prey Resources**

The ferry route for Alternatives 4B and 4D crosses areas where large schools of eulachon and herring are known to aggregate in Berners Bay prior to spawning in March and April. Individual adult herring and eulachon are likely to be exposed to vessel activities repeatedly throughout the spring months as the schools stage along the shoreline in preparation for spawning (NMFS 2005a). Individuals of other prey species in and around the marine terminals are also likely to be exposed to disturbance from boat noise, boat wakes, or changes in water quality and habitat. Noise from vessel operation could result in behavioral disturbance of fish as well as increased risk of exposure to hydrocarbon contamination. Vessel traffic and noise, and changes in nearshore habitat may alter the behavior of adult and juvenile fish.

Under Alternatives 4B and 4D turbidity could be increased over ambient conditions at the ferry terminal for short periods of time by ferries maneuvering into and out of the terminal. Short-term turbidity and propeller or water jet scour could affect some Pacific herring eggs and larvae in the immediate vicinity of the Sawmill Cove Ferry Terminal. Terminal structures and vessel traffic may alter shoreline migration patterns, shifting the fish into areas where predation risks are greater. Vessel fuel leakage, contaminant spills, and pollutant runoff have the potential to impair water quality, particularly in terminal areas, where vessel activity is concentrated. This may decrease the probability of survival of individual eggs and larvae, increase short-term alteration of behavior of juvenile and adult fish, and reduce energy budgets during critical pre-spawning aggregations (NMFS, 2005a).

The operation of ferry service into Berners Bay has the potential to impact individuals of the prey species Steller sea lions feed on. However, because the prey in Berners Bay is primarily a seasonal resource, sea lions may compensate for a change in the prey base in Berners Bay by utilizing other nearby foraging areas in southeast Alaska. The increasing eastern population of Steller sea lions in southeast Alaska suggests that there is prey available for this species throughout the foraging range (NMFS, 2005a).

### **3.5 Section 7 Consultation**

DOT&PF, on behalf of FHWA, submitted a revised Biological Assessment in July 2005 in response to comments from NMFS. The revised Biological Assessment concluded that Alternative 2B would not likely affect Steller sea lions or their critical habitat. NMFS concurred with this determination in a letter dated September 27, 2005, with the additional mitigation measures outlined in the letter (Attachment A). The Supplemental Draft EIS included a preliminary determination by FHWA that Alternatives 3 and 4A through 4D are not likely to adversely affect Steller sea lions or their habitat. In written comments on the Supplemental Draft EIS, NMFS indicated they did not concur with this determination for Alternatives 3, 4B and 4D and that formal consultation would be required if one of these alternatives were selected.

## 4.0 MITIGATION MEASURES

DOT&PF and the Federal Highway Administration (FHWA) have agreed to the following revised measures would be included in the project to avoid potential impacts to humpback whales and Steller sea lions:

1. Pile driving at the Katzehin terminal and the Antler, Lace and Katzehin rivers will be done with vibratory hammers to the extent possible. If vibratory hammers cannot be used, NMFS will be provided with a description of why vibratory hammers cannot be used for review. This will occur prior to the use of other measures.
2. A trained observer will monitor for the presence of marine mammals and pile driving will be halted if any animals come within 200 meters (660 feet) of the activity.
3. No boat launches or structures that enhance boat access will be constructed by DOT&PF as part of the East Lynn Canal Highway. Mechanisms will be instituted to ensure the highway will not result in increased access to East Lynn Canal from the development of boat launches or other improved access opportunities resulting from this project for a length of time beyond construction.
4. As large a buffer as possible of undisturbed vegetation will be retained between the highway and the Gran Point and Met Point haulouts. FHWA will provide NMFS with a detailed description of construction plans within the 3,000-foot critical habitat prior to commencing construction within the zone, including planned vegetation removal. FHWA will provide for an on-site tour of the area as to allow NMFS to approve the construction plan and concur that it is not likely to adversely affect Steller sea lions.
5. No temporary barge landings would be constructed within 3,000 feet of either haulout.
6. Any construction within 3,000 feet of Met or Gran Point would include through-cuts and screening structures as necessary to avoid lines of sight between the highway and the haulouts, and to discourage human access to the haulouts. Prior to construction of cuts or screening structures within the 3,000-foot zone, FHWA will provide NMFS with a construction plan describing the proposed activities and allow for on-site evaluation and comment.
7. No road construction will occur within 3,000 feet of Met or Gran Point if sea lions are present unless approved by NMFS in writing after evaluation of the monitoring and construction plan. Independent observers will be employed to ensure that no sea lions are present during work within 3,000 feet.
8. Met and Gran Point haulouts will be monitored during any construction within 3,000 feet to determine if any disturbance is occurring. Monitoring will include noise level readings as well as sea lion observations. FHWA will provide NMFS a monitoring plan detailing how and when the haulouts will be monitored, the equipment and personnel used, and training to be provided before constructing within the 3,000-foot zone of the haulouts.
9. Any blasting within 3,000 feet of either haulout, if occupied, will be monitored to document that ground vibrations at the haulout are not greater than 0.05 inches per second (ips), and noise levels are not greater than 45 dBA. Blasting at Met Point with monitoring will occur prior to blasting at Gran Point to ensure ground vibrations at the haulout are not greater than 0.5 ips and noise levels remain equal or below 45 dBA. Monitoring results will be presented to NMFS in a report for review before commencing work at Gran Point.
10. During construction, monitors will be on the ground or in boats; aircraft would not operate within 3,000 feet of either haulout if occupied.

11. Helicopter operations during avalanche control will minimize activity within a 3,000-foot radius around the haulouts and helicopters will not fly within 1,000 feet of either haulout.
12. Video monitoring at the Gran Point haulout and aerial/ground monitoring at the Met Point haulout will continue throughout construction and for five years after construction to determine the extent of human access to the haulouts and disturbance of sea lions. If adverse impacts are identified, DOT&PF will consult with NMFS to determine what additional mitigation measures are necessary.

Provided that the preferred alternative is constructed in the manner consistent with the agreed mitigation measures for Steller sea lions (listed above), NMFS concurs that the proposed construction of Alternative 2B is not likely to adversely affect listed species (Steller sea lions) or their critical habitat areas. Additional consultation will be required as part of the mitigation measure and conditional concurrence.

## 5.0 REFERENCES

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## TABLES

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**Table 1**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
12/23/02	many sea lions present		
12/24/02	too much snow - no visibility		
12/25/02	Christmas - NS		
12/26/02	NS		
12/27/02	WE - NS		
12/28/02	WE - NS		
12/29/02	NS		
12/30/02	NS		
12/31/02	NS - call to SeeMore		
01/01/03	New Year's Day		
01/02/03	sea lions present - SeeMore working on system		
01/03/03	NS		
01/04/03	WE - NS		
01/05/03	WE - NS		
01/06/03	program locked up - Lane @ SeeMore can see animals present		
01/07/03	program locked up - Lane @ SeeMore can see animals present		
01/08/03	sea lions present - most rocks		
01/09/03	sea lions present - most rocks		
01/10/03	many animals present		
01/11/03	WE - NS		
01/12/03	WE - NS		
01/13/03	sea lions on most rocks		11:00A
01/14/03	sea lions present		9:00A
01/15/03	snow storm - some seal lions present		10:00A
01/16/03	sea lions present	15-20	9:00A
01/17/03	sea lions present	13	2:00A
01/18/03	WE - NS		
01/19/03	WE - NS		
01/20/03	NS		
01/21/03	very windy & rough seas	0	
01/22/03	still very windy - high surf on rocks	0	
01/23/03	high wind, waves	0	
01/24/03	high wind, snow	0	
01/25/03	WE - NS		
01/26/03	WE - NS		
01/27/03	sea lions present	22	
01/28/03	sea lions present	20+	
01/29/03	many sea lions present		
01/30/03	many sea lions @ N. main slab		
01/31/03	many sea lions present		
02/01/03	WE - NS		
02/02/03	WE - Stills	few sea lions	
02/03/03	many sea lions on main slab		
02/04/03	many sea lions on main slab		
02/05/03	many sea lions on main slab seen from camera #1		
02/06/03	many sea lions on main slab seen from camera #1		
02/07/03	many sea lions on main slab seen from camera #1		
02/08/03	WE - Stills	many sea lions	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
02/09/03	WE - Stills	few sea lions	
02/10/03	sea lions present	20	
02/11/03	sea lions present on main slab		
02/12/03	sea lions present on main slab		
02/13/03	two small groups present @ water		
02/14/03	sea lions present	~ 50	
02/15/03	WE -Stills	many sea lions	
02/16/03	WE - Stills	many sea lions	
02/17/03	WE - Stills	many sea lions	
02/18/03	many sea lions on main slab & small slab		
02/19/03	no sea lions in vicinity - strong northerly wind		
02/20/03	sea lions present - strong N. wind & waves	40+	
02/21/03	sea lions present	~ 30	
02/22/03	WE - Stills	many sea lions	
02/23/03	WE - Stills	many sea lions	
02/24/03	sea lions present on lower rocks - not covered by snow		
02/25/03	sea lions present on lower rocks		
02/26/03	sea lions on all rocks	100+	
02/27/03	Stills	many sea lions	
02/28/03	Stills	many sea lions	
03/01/03	WE - Stills	sea lions present	
03/02/03	WE - Stills	many sea lions	
03/03/03	sea lions on N. part of main slab		
03/04/03	many sea lions on main slab		
03/05/03	Stills	many sea lions	
03/06/03	sea lions on lower N. of main slab - high wind & waves		
03/07/03	sea lions on lower slab		
03/08/03	WE - Stills	few sea lions	
03/09/03	WE - Stills	none	
03/10/03	sea lions on lower slab		
03/11/03	sea lions on lower slab		
03/12/03	sea lions high on main slab		
03/13/03	sea lions high on main slab		
03/14/03	heavy snow - no visibility - high waves		
03/15/03	WE - Stills	many sea lions	
03/16/03	WE - Stills	many sea lions	
03/17/03	many on lower s.slabs - more on upper N		
03/18/03	many sea lions on lower & upper main slab		
03/19/03	Stills	many sea lions	
03/20/03	many sea lions on small S rocks & main slab		
03/21/03	Stills	many sea lions	
03/22/03	WE - Stills	many sea lions	
03/23/03	WE - Stills	many sea lions	
03/24/03	many sea lions present		
03/25/03	numerous sea lions present on rocks - about 25 left a rock at the same time & returned to water		
03/26/03	numerous sea lions present on main slab (low & high)		
03/27/03	many sea lions present on main slab (low & high)		
03/28/03	numerous sea lions present on main rock slab		

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
03/29/03	WE - Stills	many sea lions	
03/30/03	WE - Stills	many sea lions	
03/31/03	Stills	many sea lions	
04/01/03	numerous sea lions present on haulout - rough sea conditions		
04/02/03	numerous sea lions on lower & upper rock slab - rough sea conditions		
04/03/03	numerous sea lions on rocks		
04/04/03	Stills	many sea lions	
04/05/03	WE - Stills	many sea lions	
04/06/03	WE - Stills	many sea lions	
04/07/03	numerous sea lions on main rock - some on others		
04/08/03	Stills	many sea lions	
04/09/03	Stills	many sea lions	
04/10/03	Stills	many sea lions	
04/11/03	many on all rocks		
04/12/03	WE - Stills	many sea lions	
04/13/03	WE - Stills	many sea lions	
04/14/03	many on all rocks		
04/15/03	many on all rocks		
04/16/03	many on all rocks		
04/17/03	main rock is loaded with sea lions - also on N. rocks	100+	
04/18/03	many on all rocks		
04/19/03	WE - Stills	many sea lions	
04/20/03	WE - Stills	many sea lions	
04/21/03	Stills	many sea lions	
04/22/03	many on main haulout		
04/23/03	many on main haulout		
04/24/03	many on main haulout & smaller rocks		
04/25/03	many on main haulout & smaller rocks		
04/26/03	WE - Stills	many sea lions	
04/27/03	WE - Stills	many sea lions	
04/28/03	many on main haulout & smaller rocks		
04/29/03	many sea lions on main rock & rocks to the S below camera		
04/30/03	many of sea lions on main rock & rocks to the S below camera		
05/01/03	many sea lions on main rock & rocks to the S below camera		
05/02/03	many sea lions on main rock & rocks to the S below camera		
05/03/03	WE - Stills	many sea lions	
05/04/03	WE - Stills	many sea lions	
05/05/03	many sea lions on S side of main rock and N side	100+	
05/06/03	many on S side of main rock and N side	50+	
05/07/03	system down		
05/08/03	many sea lions on main rock & smaller S	100+	
05/09/03	Stills	many sea lions	
05/10/03	WE - Stills	many sea lions	
05/11/03	WE - Stills - cameras down		
05/12/03	sea lions on main rock & S spots	100+	
05/13/03	many sea lions, large male on main rock	100+	
05/14/03	Stills	many sea lions	
05/15/03	many sea lions on main rock, crowded on rocks below #1 and to south		

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
05/16/03	many sea lions N & S side & smaller S rocks		
05/17/03	WE - Stills - cameras down		
05/18/03	WE - Stills	many sea lions	
05/19/03	many sea lions N & S side & smaller S rocks		
05/20/03	many sea lions N & S side & smaller S rocks		
05/21/03	many sea lions on N side & S small rocks		
05/22/03	many sea lions on S slab, smaller rocks & N slab	100+	
05/23/03	many sea lions everywhere N & S	100+	
05/24/03	WE - Stills	many sea lions	
05/25/03	WE - Stills	many sea lions	
05/26/03	Stills	many sea lions	
05/27/03	many sea lions on both sides of main haulout		
05/28/03	many sea lions on both sides of main haulout		
05/29/03	many females on small S rocks, many on N side of main slab		
05/30/03	Stills	many sea lions	
05/31/03	WE - Stills	many sea lions	
06/01/03	WE - Stills - cameras down		
06/02/03	many sea lions on all rocks	~ 100	
06/03/03	many sea lions on N side & S	~ 100	
06/04/03	many sea lions present	~ 100	
06/05/03	sea lions on main slab and S. slab	~ 100+	
06/06/03	many on main slab & few on side rocks	100-	
06/07/03	WE - Stills	sea lions present	
06/08/03	WE - Stills	sea lions present	
06/09/03	sea lions on S small rocks, S side of main slab N side of main slab	~ 90	
06/10/03	sea lions of S small rocks, S main slab & N main slab	~ 100	
06/11/03	sea lions on S. small rocks & S. mail slab	~ 90	
06/12/03	sea lions S. small rocks & N main rock	~ 110	
06/13/03	Stills	many sea lions	
06/14/03	WE - Stills	many sea lions	
06/15/03	WE - Stills	many sea lions	
06/16/03	sea lions S. side of main slab	100+	
06/17/03	sea lions on small rock, S main rock & N main rock	~ 90	
06/18/03	sea lions on S small rocks & N. main slab	95	
06/19/03	sea lions on S small rock, S main slab & N main slab	90	
06/20/03	sea lions on S. small rocks & S. mail slab	100+	
06/21/03	WE - Stills	many sea lions	
06/22/03	WE - Stills	many sea lions	
06/23/03	sea lions on S main slab, S small rocks, N small rocks & N small rocks	~ 100	
06/24/03	sea lions on S small rocks, N main rock & N small rocks	~ 100	
06/25/03	sea lions on S main slab, S small slab & N main slab	~ 100	
06/26/03	many sea lions	~ 90	
06/27/03	sea lions on S main slab & S small rocks, N main slab, N small rocks and water	100+	
06/28/03	WE - Stills	many sea lions	
06/29/03	WE - Stills	many sea lions	
06/30/03	sea lions on main slab, S small rocks, N small rocks and S main slab	100+	
07/01/03	sea lions on main slab, S small rocks, S small rocks and N main slab	100+	
07/02/03	sea lions on small rocks & S main rock	~ 100	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
07/03/03	sea lions on S small rocks, S main rock, N main rock & N small rocks	~ 90	
07/04/03	Stills	many sea lions	
07/05/03	WE - Stills	many sea lions	
07/06/03	WE - Stills	many sea lions	
07/07/03	sea lions on main rock, S small rocks, N main rock & water	74	
07/08/03	sea lions on S small rock & S main rock	85+	
07/09/03	sea lions on S main rock & S small rocks	75+	
07/10/03	sea lions on S side rocks	40	
07/11/03	Stills	few sea lions	
07/12/03	WE - Stills	many sea lions	
07/13/03	WE - Stills	many sea lions	
07/14/03	sea lions present	32	
07/15/03	sea lions present	12	
07/16/03		no sea lions	
	Stills	no sea lions	
07/17/03		no sea lions	8:10A
		no sea lions	12:00P
		no sea lions	3:00P
	Stills	no sea lions	
07/18/03		no sea lions	8:15A
		no sea lions	12:00P
	Stills	no sea lions	
07/19/03	Stills	many sea lions	
07/20/03	Stills	few sea lions	
07/21/03		no sea lions	8:20A
		no sea lions	11:50A
	Stills	no sea lions	
07/22/03		no sea lions	8:00A
		no sea lions	12:00P
	Problems with camera connection		12:10P
	Stills	no sea lions	
07/23/03	system down		
	Stills	no sea lions	
07/24/03	Stills	no sea lions	
07/25/03	Stills	no sea lions	
07/26/03	WE - cameras down		
07/26/03	no Stills - cameras down		
07/27/03	WE - cameras down		
	no Stills - cameras down		
07/28/03		no sea lions	12:45P
		no sea lions	3:00P
	Stills	no sea lions	
07/29/03		no sea lions	10:30A
		no sea lions	3:05P
	Stills	no sea lions	
07/30/03		no sea lions	10:45P
		no sea lions	11:50A
		no sea lions	1:30P

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
07/30/03	Stills	no sea lions	
07/31/03		no sea lions	9:00A
	Stills	no sea lions	
08/01/03		no sea lions	3:00P
	Stills	no sea lions	
08/02/03	WE - cameras down		
	no Stills - cameras down		
08/03/03	WE - cameras down		
	no Stills - cameras down		
08/04/03		no sea lions	10:30A
		no sea lions	1:00P
		no sea lions	3:30P
	Stills	no sea lions	
08/05/03		no sea lions	10:30A
		no sea lions	3:00P
	Stills	no sea lions	
08/06/03		no sea lions	12:45P
		no sea lions	2:00P
		no sea lions	3:30P
	Stills	no sea lions	
08/07/03		no sea lions	11:30A
		no sea lions	12:50P
		no sea lions	3:58P
	Stills	no sea lions	
08/08/03		no sea lions	11:00A
		no sea lions	12:50P
		no sea lions	3:30P
	Stills	no sea lions	
08/09/03	WE - Stills	no sea lions	
08/10/03	WE - Stills	no sea lions	
08/11/03		no sea lions	10:30A
		no sea lions	1:30P
		no sea lions	4:05P
08/11/03	Stills	no sea lions	
08/12/03		no sea lions	12:00P
		no sea lions	4:00P
	Stills	no sea lions	
08/13/03		no sea lions	9:15A
		no sea lions	1:45P
	Stills	no sea lions	
08/14/03		no sea lions	9:45A
		no sea lions	3:40P
	Stills	no sea lions	
08/15/03		no sea lions	9:20A
	Stills	no sea lions	
08/16/03	WE -no Stills - cameras down		
08/17/03	WE - Stills	no sea lions	
08/18/03	Only checked picture stills	no sea lions	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
08/19/03		no sea lions	9:25A
	Stills	no sea lions	
08/20/03		no sea lions	10:00A
	Stills	no sea lions	
8/21/03	Stills	no sea lions	
8/22/03	Stills	no sea lions	
8/23/03	Stills	no sea lions	
8/24/03	Stills	2 sea lions	12:01:02PM
		2 sea lions	12:17:47PM
		3 sea lions	02:17:46PM
		3 sea lions	02:17:49PM
		3 sea lions	04:03:48PM
		3 sea lions	04:17:48PM
		2 sea lions	06:03:44PM
		2 sea lions	06:17:46PM
8/25/03	system down		
	Stills	no sea lions	
8/26/03	system down - called Lane (SWS)		9:00 AM
	system up & down all day		
8/27/03	Stills	no sea lions	
		2 sea lions	12:01:02 PM
		2 sea lions	12:03:46 PM
		1 sea lion	12:30:11 PM
8/28/03		1 sea lion	04:01:04 AM
		no sea lions	8:45A
	in water N large slab	3 or 4 sea lions	12:03:00 PM
		no sea lions	1:05P
8/29/03	Stills	no sea lions	
		no sea lions	11:00A
		no sea lions	2:58P
8/30/03	Stills	no sea lions	
		1 sea lion	06:03:47PM
9/1/03		1 sea lion	06:17:54PM
	Stills	1 sea lion	02:01:04PM
9/2/03		1 sea lion	04:01:02PM
		no sea lions	9:10A
	Stills	no sea lions	3:40P
9/3/03		no sea lions	
		2 sea lions	9:54:38A - 10:05:49A
		3 sea lions	12:25:39P
		4 sea lions	12:44:58P
	including the pup "FAITH"	6 sea lions	12:53P
	including the pup "FAITH"	4 sea lions	4:28:53P
		2 sea lions	6:17:50P
	Stills	yes	
9/4/03		no sea lions	9:40A
		no sea lions	11:10A

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
9/4/03		no sea lions	12:30P
		no sea lions	3:30P
	Stills	no sea lions	
9/5/03		no sea lions	9:10A
		no sea lions	10:45A
		no sea lions	1:05P
	Stills	no sea lions	
9/6/03	Stills	no sea lions	
9/7/03	Stills	no sea lions	
9/8/03		no sea lions	8:50A
		no sea lions	2:35P
		no sea lions	4:30P
	Stills	no sea lions	
9/9/03		no sea lions	9:10A
		no sea lions	12:35P
9/9/03	Stills	no sea lions	
9/10/03		no sea lions	9:05A
		no sea lions	12:20P
		no sea lions	4:15P
	Stills	1 sea lion in water	8:56:53A
9/11/03		no sea lions	10:45A
		no sea lions	12:10P
		no sea lions	3:25P
	Stills	no sea lions	
9/12/03		no sea lions	9:00A
		no sea lions	2:36P
	Stills	no sea lions	
9/13/03	Stills	19	
9/14/03	Stills	30+	
9/15/03		50 - 80	8:40A
		50 - 80	1:10P
	Stills	50 - 80	
9/16/03	Sea lions were present all day	100+	8:07A
	sighted sea lion H27		
	Stills	100+	
9/17/03	sighted sea lion H27 & H32	100+	10:00A
	Stills	100+	
9/18/03		100+	9:15A
	Stills	~ 70	
9/19/03	many present all day	100+	9:00A
	called SWS to let them know that camera		
	2 & 3 not coming in clear and camera 3		
	left manual button not working. Talked to Matt & Lane		
9/20/03	Stills	~ 40	
9/21/03	Stills	~ 50	
9/22/03	sighted sea lion F105Y	100+	11:15A
9/23/03		100+	9:00A

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
9/23/03	Stills	100+	
9/24/03		100+	10:15A
		100+	12:15P
	Stills	100+	
9/25/03		100+	11:20A
	Stills	100+	
9/26/03		100+	9:15A
	Stills	100+	
9/27/03	Stills - Camera down part-time	100+	
9/28/03	Stills - Camera down part-time	100+	
9/29/03	Stills - Lane from SWS called & said that		
	AT&T was having problems in Haines so the camera wasn't working most of the day.		
	There were a few Stills with 100+ sea lions.	100+	
9/30/03	camera wasn't working most of the day.	100+	
	Stills	100+	
10/1/03	camera wasn't working most of the day.	100+	
	Stills	100+	
10/2/03		100+	
10/3/03	Stills	~ 50	
10/4/03	Stills	~ 30	
10/5/03	Stills	~ 50	
10/6/03	Stills	~ 20	10:04A
	Stills	~ 30	2:04P
10/7/03	Stills	~ 30	10:04A
10/8/03	Stills	~ 35	
10/9/03		~ 30	9:00A
		~ 50	10:20A
	Stills		
10/10/03		~ 100	10:45A
	Stills	~ 100	
10/11/03	Stills	~ 50	
10/12/03	Stills	100+	
10/13/03		90-100	8:40A
		80-90	4:16P
	Stills	~ 50	
10/14/03		~ 100	9:55A
	Stills	~ 100	
10/15/03	Stills	~ 30	
10/16/03	Stills	60+	
10/17/03	Stills	70+	
10/18/03	Stills	30	
10/19/03	Stills	20	
10/20/03		90+	9:30A
	Stills	60-70	
10/21/03		~ 70	9:35A
	Stills	~ 50	
10/22/03		~ 100	9:25A

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
10/23/03	Stills	25-30	
10/24/03	Stills	~ 50	
10/25/03	Stills	~ 80	
10/26/03	Stills	50-80	
10/27/03	Stills	100+	
10/28/03		100+	9:15A
	Stills	~ 50	
10/29/03	Stills	~ 50	
10/30/03	Stills	100+	
10/31/03		100+	9:30A
		100+	2:00P
	Stills	100+	
11/1/03	Stills	100+	
11/2/03	Stills	100+	
11/3/03		100+	9:20A
11/4/03	cameras down		
	Stills	100+	
11/5/03	cameras down - SeeMore Wildlife installing DSL		
	Stills	100+	
11/6/03	cameras down	100+	
	Stills	100+	
11/7/03		~ 80	
	Stills	100+	
11/8/03	Stills	~ 50	
11/9/03	Stills	30-50	
11/10/03		40-50	3:15P
	Stills	~ 50	
11/11/03	Stills	100+	
11/12/03	Stills	100+	
11/13/03	camera down - talked to Matt @ SWS. He said that the internet was possibly down in Haines		
	Stills	~ 50	
		100+	9:10A
11/14/03	Stills	100+	
11/15/03	Stills	100+	
11/16/03	cameras down		
	Stills -cameras down, no pics		
11/17/03	camera down in morning	15-20	10:30A
		15-20	1:30P
	Stills - some snow	15-20	
11/18/03	Some snow	27	1:15P
	Stills	10	
11/19/03		100+	9:30A
	Stills		
11/20/03	Camera #1 - out of bounds	80-100	9:25A
	Camera #3 - blurry		
	Stills	~ 50	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
11/21/03	camera down Stills	~ 50	
11/22/03	camera down Stills - snow	~ 20	
11/23/03	camera down Stills	80-100	
11/24/03	snow	~ 50	
11/24/03	Stills	30	
11/25/03		~ 100	9:45A
	Stills	100+	
11/26/03	Stills	40-50	
11/27/03	Stills	20-30	
11/28/03	Stills - snow	~ 25	
11/29/03	Stills - no pictures		
11/30/03	Stills -snow	30	
12/1/03	cameras down		
12/2/03	cameras down		
12/3/03	cameras down		
12/4/03	Stills - cameras down	100+	
12/5/03		100+	1:45P
	Stills	100+	
12/6/03	Stills	100+	
12/7/03	Stills	100+	
12/8/03	Stills - snow	100+	
12/9/03		100+	9:55A
	Stills - snow	100+	
12/10/03		100+	10:30A
12/11/03	cameras down		
12/12/03	cameras down		
12/13/03	cameras down		
12/14/03	cameras down		
12/15/03	cameras down		
12/16/03	cameras down		
12/17/03	cameras down		
12/18/03	cameras down		
12/19/03	cameras down		
12/20/03	cameras down		
12/21/03	cameras down		
12/22/03	cameras down		
12/23/03	cameras down		
12/24/03	cameras down		
12/25/03	cameras down		
12/26/03	cameras down		
12/27/03	cameras down		
12/28/03	cameras down		
12/29/03	cameras down		
12/30/03	cameras down		
12/31/03	cameras down		

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
1/1/04	cameras down		
1/2/04	cameras down		
1/3/04	cameras down		
1/4/04	cameras down		
1/5/04	cameras down		
1/6/04	cameras down		
1/7/04		~ 15	9:10A
	Stills	0	
1/8/04		~ 30	11:15A
1/9/04	cameras down		
1/10/04	cameras down		
1/11/04	cameras down		
1/12/04	cameras down		
1/13/04	cameras down		
1/14/04	cameras down		
1/15/04	cameras down		
1/16/04	cameras down		
1/17/04	cameras down		
1/18/04	cameras down		
1/19/04	cameras down		
1/20/04	cameras down		
1/21/04	Stills	30-40	
1/22/04	Stills	100+	
1/23/04	cameras down		
1/24/04	cameras down		
1/25/04	cameras down		
1/26/04	cameras down		
1/27/04		2	10:15A
1/28/04		10	2:30P
	Stills (no pics)		
1/29/04		~ 50	9:30A
	Stills	~ 30 - 50	
1/30/04	Stills	100+	
1/31/04	no Stills		
2/1/04	no Stills		
2/2/04		100+	1:30P
	Stills	100+	
2/3/04		100+	10:30A
	Stills	100+	
2/4/04	some in water - snowing hard		10:30A
	1 Still - can not see any sea lions		
2/5/04	no stills		
2/6/04	no stills		
2/7/04	5 stills of one area only	few	
2/8/04	no stills		
2/9/04	no stills		
2/10/04	Stills	none	
2/11/04	Stills	25	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
2/12/04		100+	12:00 noon
	Stills	~ 75	
2/13/04		100+	11:20A
	Stills	100+	
2/14/04	Stills	50-75	
2/15/04	Stills	100	
2/16/04	Stills	100	
2/17/04	Stills	50-75	
2/18/04	Many in water - snowing - middle area (50)	50+	11:00A
	Stills-snow	75	
2/19/04	Stills	some	
2/20/04	Stills	some	
2/21/04	Stills	some	
2/22/04	Stills	none	
2/23/04	no Stills		
2/24/04	Stills	100+	
2/25/04	Stills	~ 80	
2/26/04	Stills	~ 30	
2/27/04	Stills	100+	
2/28/04	Stills	100+	
2/29/04	Stills	100+	
3/1/04	Stills	100+	
3/2/04	Stills	100+	
3/3/04	no Stills		
3/4/04	Stills	~ 50	
3/5/04	Stills	100+	
3/6/04	Stills	~ 60-70	
3/7/04	Stills	100+	
3/8/04	Stills - snow - saw no sea lions	none	
3/9/04	Stills	~ 50	
3/10/04	Stills	~ 50	
3/11/04	Stills	~ 100	
3/12/04	Stills	100+	
3/13/04	Stills	100+	
3/14/04	Stills	100+	
3/15/04	Stills	25-50	
3/16/04		100+	12:00P
	Stills	100+	
3/17/04	Stills	100+	
3/18/04	Stills	~ 100	
3/19/04		100+	10:45A
	Stills	~ 100	
3/20/04	Stills	~ 50 - 70	
3/21/04	no stills	0	
3/22/04	Stills	100+	
3/23/04	No stills	0	
3/24/04	Stills	100+	
3/25/04	Stills	100+	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
3/26/04	Stills	100+	
3/27/04	Stills	50+	
3/28/04	Stills	5 - 10	
3/29/04	Stills	20 - 50	
3/30/04	Stills	~ 100	
3/31/04	Stills	~ 100+	
4/1/04	Stills	100+	
4/2/04	Stills	100+	
4/3/04	Stills	100+	
4/4/04	Stills	100+	
4/5/04	Stills	100+	
4/6/04	Stills	100+	
4/7/04	Stills - 50-70 on land a many in water	~ 50 - 70	
4/8/04	Many in the water	~ 50 - 60	1:45P
	Stills	50	
4/9/04		~ 10	10:45A
	Stills- a few on land and some in water	10+	
4/10/04	Stills	50 - 80	
4/11/04	Stills	100+	
4/12/04		100+	10:45A
4/13/04	Stills	~ 80	
4/14/04	Stills	100+	
4/15/04	Stills	100+	
4/16/04	Stills	~ 60 - 80	
4/17/04	Stills	~ 80	
4/18/04	Stills	100+	
4/19/04		100+	2:43 P
	Stills	100+	
4/20/04		100+	11:40A
	Stills	100+	
4/21/04		100+	all day
	Stills	100+	
4/22/04		~ 50	9:00A
4/22/04	Stills	~ 50	
4/23/04	Stills	100+	
4/24/04	Stills	~ 80 -100	
4/25/04	Stills	~ 25 - 50	
4/26/04	Stills	100+	
4/27/04	Stills	100+	
4/28/04	Stills	100+	
4/29/04		100+	all day
	Stills	100+	
4/30/04		100+	2:45P
	Stills	100+	
5/1/04	Stills	100+	
5/2/04	Stills	100+	
5/3/04	Stills	100+	
5/4/04	Stills	100+	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
5/5/04	Stills	100+	
5/6/04	Stills - camera #3 down	100+	
5/7/04	Stills - camera #3 down	100+	
5/8/04	Stills - camera #3 down	100+	
5/9/04	Stills - camera #3 down	100+	
5/10/04		100+	
5/11/04		100+	11:00 A
5/12/04		100+	11:00 A
5/13/04		100+	11:05 AM
5/14/04		100+	9:15 A
5/15/04	Stills	100+	
5/16/04	Stills	50+	
5/17/04		100+	10:30 AM
5/18/04		100+	9:30 AM
5/19/04	Stills	100+	
5/20/04	Stills	100+	
5/21/04	Stills	25	
5/22/04	Stills	100+	
5/23/04	Stills	100+	
5/24/04	Stills	100+	
5/25/04	Stills	100+	
5/26/04	Stills	100+	
5/27/04	Stills	100+	
5/28/04	Stills	100+	
5/29/04	Stills	100+	
5/30/04	Stills	100+	
5/31/04	Stills	100+	
6/1/04	Stills	100+	
6/2/04		100+	2:10 PM
6/3/04		100+	10:00 AM
6/4/04		100+	
6/5/04	Stills	100+	
6/6/04	Stills	100+	
6/7/04	Stills	100+	
6/8/04	Stills	100+	
6/9/04	Stills	100+	
6/10/04	Stills	100+	
6/11/04	Stills	100+	
6/12/04	Stills	100+	
6/13/04	Stills	100+	
6/14/04		100+	11:25 AM
6/15/04		100+	10:00-11:00 AM
6/16/04		100+	
6/17/04		100+	
6/18/04		100+	
6/19/04	Stills	100+	
6/20/04	Stills	100+	
6/21/04	Stills	100+	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
6/22/04	Stills	60-80	
6/23/04	only a few bulls	100+	2:15 PM
6/24/04	all in water but 6	~ 80	4:25 PM
6/25/04	~ 30 in water, 30 on main slab & 30 S rocks	~ 60	11:00 AM
6/26/04	Stills	100+	10:35 AM
6/27/04	Stills	100+	12:54 PM
6/28/04		100+	11:00 AM
6/29/04	Stills	100+	4:29 PM
6/30/04	Stills	100+	3:49 PM
7/1/04	Stills	100+	12:29 PM
7/2/04		100+	11:30 AM
7/3/04	Stills	100+	12:44 PM
7/4/04	Stills 60+ on land and many in water	60+	12:23 PM
7/5/04	Stills	100+	12:54 PM
7/6/04		100+	10:30 AM
7/7/04	Stills	100+	3:00 PM
7/8/04		100+	11:15 AM
		100+	2:00 PM
7/9/04		100+	11:00 PM
7/10/04	Stills	100+	11:54
7/11/04	Stills	100+	11:00 AM
7/12/04		100+	9:04 AM
		100+	1:30 PM
7/13/04	No large bulls-4 whales- 1 sea lion on s. slab	1	9:16 AM
	Stills	100+	11:06 AM
7/14/04	No large bulls	100+	11:09 AM
		100+	1:10 PM
7/15/04	No large bulls	~ 90	11:15 AM
7/16/04	No large bulls-1 whale	none on main slab	10:36 AM
		100+	3:43 PM
7/17/04	Stills	100+	4:27 PM
		100+	1:29 PM
7/18/04	Stills - many in water	80-100	1:04 PM
		80-100	2:44 PM
7/19/04		~ 50	10:36 AM
		100+	4:08 PM
7/20/04		100+	8:49 PM
		~ 80	1:05 PM
		100+	3:29 PM
7/21/04		100+	10:22 AM
		100+	4:30 PM
7/22/04		80-100	9:00 AM
7/23/04		60-70	8:48 AM
		60-70	1:12 PM
7/24/04	Stills	100+	2:14 PM
7/25/04	Stills	100+	1:00 PM
7/26/04		100+	1:00 PM
7/27/04		100+	9:00 AM

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
7/27/04		100+	2:25 PM
		100+	4:28 PM
7/28/04		80+	9:14 AM
7/29/04	Stills	100+	3:00 PM
7/30/04		100+	12:06 PM
7/31/04	Stills	100+	1:00 PM
8/1/04	Stills	100+	1:00 PM
		100+	3:50 PM
8/2/04		100+	1:10 PM
8/3/04		~ 50 - 70	10:17 AM
		100+	10:32 AM
	Stills - some in water	~ 15	1:25 PM
8/4/04		~ 60	11:15 AM
8/5/04		100+	8:55 AM
		100+	1:00 PM
		100+	2:10 PM
8/6/04	Camera #1 replaced	~ 50	9:40 AM
		~ 9	4:22 PM
8/7/04	Stills	no sea lions	all day
	Stills	no sea lions	all day
8/8/04		no sea lions	all day
8/9/04		no sea lions	
8/10/04		no sea lions	
8/11/04		no sea lions	
8/12/04		no sea lions	
8/13/04		no sea lions	
8/14/04		no sea lions	8:40 AM
		70 - 90	2:30 PM
8/15/04	Stills	50+	
8/16/04		70 - 90	2:00 PM
8/17/04		no sea lions	morning
		5	afternoon
8/18/04		5 - 10	morning & afternoon
8/19/04		no sea lions	9:30 AM
	Stills	2	3:01 PM
8/20/04	Stills	1	2:11 PM
8/21/04	Stills	~ 25	4:00 PM
8/22/04	Stills	50 - 75	1:40 PM
8/23/04		no sea lions	
8/24/04	Stills	1	
8/25/04	Stills	2	
8/26/04	Stills	1	
8/27/04	Stills	20 - 30	
8/28/04	Stills	no sea lions	
8/29/04	Stills	3	
8/30/04	Stills	some in water only	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
8/31/04	Stills	some in water only	12:52 PM
9/1/04		50 - 70	3:47 PM
9/2/04		100+	
9/3/04		100+	
9/4/04		~ 50	
9/5/04		50 - 70	
9/6/04		50 - 70	
9/7/04		100+	
9/8/04		100+	
9/9/04		100+	
9/10/04	Stills	~ 100	
9/11/04	Stills	~ 100	
9/12/04	Stills	~ 100	
9/13/04		100+	
9/14/04		50 - 60	
9/15/04		100+	
9/16/04		100+	
9/17/04		~ 50	
9/18/04		100+	
9/19/04	No Stills		
9/20/04		50 - 60	
9/21/04		100+	
9/22/04		100+	
9/23/04		100+	
9/24/04		100+	
9/25/04		100+	
9/26/04		100+	
9/27/04		100+	
9/28/04		100+	
9/29/04		100+	
9/30/04		100+	
10/1/04		100+	
10/2/04		100+	
10/3/04		100+	
10/4/04		100+	
10/5/04		100+	
10/6/04		~ 90	
10/7/04		~ 50	
10/8/04		100+	
10/9/04		100+	
10/10/04		100+	
10/11/04		100+	
10/12/04		~ 15	
10/13/04		100+	
10/14/04		100+	
10/15/04		100+	
10/16/04		100+	
10/17/04		100+	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
10/18/04		100+	
10/19/04		100+	
10/20/04		100+	
10/21/04		50 - 75	
10/22/04		100+	
10/23/04		100+	
10/24/04	snow	~ 50	
10/25/04		100+	
10/26/04		100+	
10/27/04		100+	
10/28/04		100+	
10/29/04		100+	
10/30/04		100+	
10/31/04	no pics - cameras down		
11/1/04		100+	
11/2/04		100+	
11/3/04		~ 20	
11/4/04		100+	
11/5/04		100+	
11/6/04		100+	
11/7/04	snow	100+	
11/8/04		100+	
11/9/04		100+	
11/10/04		100+	
11/11/04		100+	
11/12/04		100+	
11/13/04		50 - 75	
11/14/04		100+	
11/15/04		100+	
11/16/04		100+	
11/17/04		100+	
11/18/04		100+	
11/19/04		100+	
11/20/04		100+	
11/21/04		100+	
11/22/04		75+	
11/23/04		100+	
11/24/04		100+	
11/25/04		~ 80	
11/26/04	cameras not on		
11/27/04	cameras not on		
11/28/04		~ 50	
11/29/04		100+	
11/30/04		100+	
12/1/04		100+	
12/2/04	no camera #1	~ 75	
12/3/04	no camera #1	~ 50	
12/4/04		~ 75	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
12/5/04		100+	
12/6/04	light snow	100+	
12/7/04		100+	
12/8/04	trouble with cameras out of focus	~ 25	
12/9/04	snow	~ 30	
12/10/04		100+	
12/11/04	snow	100+	
12/12/04		100+	
12/13/04		100+	
12/14/04		100+	
12/15/04		60+	
12/16/04		100+	
12/17/04		100+	
12/18/04		100+	
12/19/04		100+	
12/20/04		100+	
12/21/04		100+	
12/22/04		35	
12/23/04		10	
12/24/04		100+	
12/25/04		~ 5	
12/26/04		100+	
12/27/04	snow	20	
12/28/04	snow	20	
12/29/04	snow	10	
12/30/04		10	
12/31/04		45	
1/1/05		100+	
1/2/05		50 - 75	
1/3/05		20	
1/4/05		100+	
1/5/05		11	
1/6/2005 - 1/7/05	System down	No data	
1/8/05		50 - 60	
1/9/05		100+	
1/10/05		6	
1/11/05		7	
1/12/05		20+	
1/13/05		6	
1/14/05		35	
1/15/05		25	
1/16/05		7	
1/17/2005 - 1/18/05		0	
1/19/05		6	
1/20/05		16+	
1/21/05		7	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
1/22/2005 - 2/2/05	System down	No data	
2/3/05		0	all day
2/4/05		18	
2/5/05	System down	No data	
2/6/05	System down	No data	
2/7/05		60	
2/8/05		13	
2/9/05		28	
2/10/05		36	
2/11/05		35	
2/12/05		44	
2/13/05		16	
2/14/05		32	
2/15/05	System down	No data	
2/16/05		26	
2/17/05		24	
2/18/05		40	
2/19/05		35	
2/20/05		35	
2/21/05		8	
2/22/05		8	
2/23/05		32	
2/24/05		28	
2/25/05		27	
2/26/05		8	
2/27/05		20	
2/28/05		24	
3/1/05		22	
3/2/05		100+	
3/3/05		42	
3/4/05		30+	
3/5/05		35	
3/6/05		55	
3/7/05		100+	
3/8/05		100+	
3/9/05		100+	
3/10/05		18	
3/11/05		24	
3/12/05		42	
3/13/05		46	
3/14/05		100+	
3/15/05		56	
3/16/05		34	
3/17/05		100+	
3/18/05		45	
3/19/05		36	
3/20/05		32	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
3/21/05		38	
3/22/05		35	
3/23/05		52	
3/24/05		58	
3/25/05		42	
3/26/05		45	
3/27/05		48	
3/28/05		44	
3/29/05		45	
3/30/05		50+	1:00 PM
3/31/05		50 - 80	
4/1/05		100+	
4/2/05		100+	
4/3/05		70 - 100	
4/4/05		100++	
4/5/05		100++	
4/6/05		100+	
4/7/05		100+	
4/8/05		100+	
4/9/05		80	
4/10/05		100+	
4/11/05		100+	
4/12/05		100+	
4/13/05		100++	
4/14/05		100++	
4/15/05		100++	
4/16/05		100+	
4/17/05		100++	
4/18/05		70	
4/19/05		100+	
4/20/05		100++	
4/21/05		100++	
4/22/05		100++	
4/23/05		100++	
4/24/05		100++	
4/25/05		100+	
4/26/05		100+	
4/27/05		100+	
4/28/05		100+	
4/29/05		100+	
4/30/05		100+	
5/1/05		100+	
5/2/05		100+	
5/3/05		100+	
5/4/05		100+	
5/5/05		100++	
5/6/05		100	
5/7/05		100	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
5/8/05		100+	
5/9/05		100+	
5/10/05		100+	
5/11/05		100+	
5/12/05		100+	
5/13/05		100+	
5/14/05		100++	
5/15/05		100	
5/16/05		100+	
5/17/05		55	
5/18/05		100+	
5/19/05		100++	
5/20/05		100+	
5/21/05		100+	
5/22/05		100+	
5/23/05		100++	
5/24/05		100+	
5/25/05		100+	
5/26/05		100+	
5/27/05		100+	
5/28/05		100+	
5/29/05		100+	
5/30/05		100+	
5/31/05		100+	
6/1/05		100+	
6/2/05		100+	
6/3/05		100+	
6/4/05		100++	
6/5/05		100++	
6/6/05		100++	
6/7/05		100++	
6/8/05		100+	
6/9/05		32	
6/10/05		100+	
6/11/05		60	
6/12/05		60	
6/13/05		100+	
6/14/05		100+	
6/15/05		100++	
6/16/05		65+	
6/17/05		10 - 15	
6/18/05		100+	
6/19/05		100+	
6/20/05		100+	
6/21/05		100+	
6/22/05		100+	
6/23/05		100+	
6/24/05		100+	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
6/25/05		42	
6/26/05		35	
6/27/05		100+, 0	am, pm
6/28/05		100+	am
6/29/05		100+	
6/30/05		100+	
7/1/05		100+	
7/2/05		100+	
7/3/05		100+	
7/4/05		100+	
7/5/05		50 - 60	
7/6/05		100+	
7/7/05		70	
7/8/05		38	
7/9/05		36	
7/10/05		45	
7/11/05		80 - 90	am
7/12/05		56	
7/13/05		42	
7/14/05		5	am
7/15/05		2	am
7/16/05 - 7/18/05		0	
7/19/05		0, 1, 1	am, 4:35 pm, 4:58 pm
7/20/05		0, 2	am, pm
7/21/05		0, 10, 0	am, 1:10 pm, 1:25 pm
7/22/05		1	1:49 PM
7/23/05		0	all day
7/24/05		1, 1	12:45 pm, 4:50 pm
7/25/05		2, 2, 2	2:15 pm, 2:22 pm, 2:26 pm
7/26/2005 - 7/28/05		0	
7/29/05		9, 1	2:21 pm, 4:47 pm
7/30/05 - 8/19		0	
8/20/05		1, 1	1:00 pm, 5:20 pm
8/21/05 - 8/26/05		0	
8/27/05 - 8/29/05		0	
8/30/05		1	1:00 PM
8/31/05		0	
9/1/05		1	12:48 PM
9/2/05	System down	No data	
9/3/05		0	

**Table 1 (continued)**  
**Gran Point Sea Lion Haulout Monitoring Log**  
**December 23, 2002 – September 30, 2005**

Date	Comments	Quantity	Time
9/4/05 - 9/5/05	System down	No data	
9/6/05		0	
9/7/05 - 9/8/05		0	
9/9/05 - 9/10/05		0	
9/11/2005		2, 2, 2, 1	11:13 am, 11:46 am, 1:10 pm, 1:40 pm
9/12/2005		0, 0, 0	8:00 am, 9:00 am, 12:00 pm
9/13/05		2, 3, 8, 0	8:00 am, 1:00 pm, 4:00 pm, 6:00 pm
9/14/05		0, 5, 0	8:00 am, 12:00 pm, 5:00 pm
9/15/05 - 9/16/05		0	
9/17/05		4	
9/18/05		1	
9/19/2005		12	am
9/20/05		7, 0, 3	am, 4:00 pm, 4:30 pm
9/21/2005		0	8:00 am, 4:00 pm
9/22/2005		0, 2, 2	8:00 am, 1:30 pm, 5:00 pm
9/23/05		10, 8	2:00 pm, 4:00 pm
9/24/05	System down	No data	
9/25/05	System down	No data	
9/26/05		6, 11	1:00 pm, 4:00 pm
9/27/05		13, 12	3:00 pm, 4:30 pm
9/28/05		11, 19	8:00 am, 2:00 pm
9/29/05		13, 21	8:00 am, 2:00 pm
9/30/05		23	3:30 PM

Notes: WE = Weekend  
NS = No Camera Signal  
~ = Approximately  
Few = 6 or less present  
N = North  
S = South

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**ATTACHMENT A**  
**SECTION 7 CONSULTATION CORRESPONDENCE**



# STATE OF ALASKA

**DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES**  
*Design and Engineering Services – Southeast Region  
Preconstruction – Special Projects*

FRANK H. MURKOWSKI, GOVERNOR

6860 GLACIER HIGHWAY  
JUNEAU, ALASKA 99801-7999

PHONE: (907) 465-1774  
FAX: (907) 465-2016

July 11, 2005

Re: Juneau Access Improvements  
Project 71100

James Balsiger, Administrator  
Alaska Region  
National Marine Fisheries Service  
P. O. Box 21668  
Juneau, Alaska 99802

Subject: Revised Biological Assessment

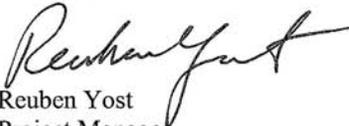
Dear Mr. Balsiger:

Thank you for your letter of March 23, 2005 providing an updated list of endangered and/or threatened species in the Juneau Access Improvements project area. As explained in the March 7, 2005 letter from the Federal Highway Administration (FHWA) and the 2005 Supplemental Draft Environmental Impact Statement, the Alaska Department of Transportation and Public Facilities has developed a revised biological assessment for this project. The enclosed revised assessment incorporates your updated list and additional information developed in the time since the original August 13, 1998 biological assessment was submitted to your agency. Per 50 CFR 402.12(g) the revised assessment incorporates the previous assessment by reference, summarizing its information and adding new or replacement information where appropriate.

The conclusion of the revised biological assessment is that the East Lynn Canal Highway (Alternative 2, 2B, 2C) is not likely to adversely affect listed species or adversely modify designated critical habitat. At this time DOT&PF, on behalf of FHWA, requests your concurrence with this determination.

Thank you for your consideration of this request.

Sincerely,

  
Reuben Yost  
Project Manager

cc: Tim Haugh, FHWA

*"Providing for the movement of people and goods and the delivery of state services."*

25A-T34LH



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
P.O. Box 21668  
Juneau, Alaska 99802-1668



September 27, 2005

Reuben Yost  
State of Alaska  
Department of Transportation and Public Facilities  
6860 Glacier Highway  
Juneau, Alaska 99801-7999

RE: Juneau Access Improvements Project, Revised Biological Assessment for  
Threatened, and Endangered Species

Dear Mr. Yost:

The National Marine Fisheries Service (NMFS) has reviewed the Federal Highway Administration (FHWA) revised Juneau Access Improvements Project Biological Assessment (BA) dated July 2005. In a letter received on July 11, 2005 you requested concurrence that the proposed action is not likely to adversely affect species listed under the Endangered Species Act (ESA) or their designated critical habitat. These species include endangered humpback whales, threatened eastern distinct population segment (eDPS) of Steller sea lion, the western distinct population segment (wDPS) of Steller sea lion, and designated critical habitat. The BA was forwarded to NMFS by the State of Alaska on behalf of the FHWA.

NMFS has reviewed the submitted project description and evaluation of project effects as well as the incorporated mitigation measures. The following is a description of the likely response of Steller sea lions and humpback whales to the proposed action and additional mitigation measures (conditions). Provided the proposed action is modified consistent with the conditions set forth below, NMFS concurs that the proposed action is not likely to adversely affect listed species or their designated critical habitat.

#### **Response of Steller Sea Lions to Noise Generated by the Proposed Action**

The proposed highway will be located within about 300 feet of the Gran Point haulout, well within the 3,000 foot designated critical habitat area. These critical habitat areas were designated as a buffer against disturbance, noise, harassment, and illegal shooting. Presumably, sea lions chose these sites in part because of their proximity to prey resources as well as the protection from predators or other disturbance. Although NMFS concurs with your technical assessment of the potential for noise to be attenuated from the work site to the haulout, we have limited experience with such activities and the likely response by Steller sea lions to human activity in such close proximity to an important haulout.

Juneau Access Improvements Project – Informal Consultation



Man-made noise can cover a wide range of frequencies and level of sound, and the way in which a species responds depends on the frequency range it can hear, the level of sound, and the sound spectrum (Nedwell et al. 2004). Responses to noise include behavioral changes, habituation, temporary hearing impairment, and permanent physical damage to the animal. Noise can also mask biologically important signals such as intraspecific vocalizations among whales or sea lions, or the sounds of predators or prey. The impacts of noise are manifested at the level of the individual, in either short-term or long-term changes in the individual that may or may not be measurable (i.e., obvious gross behavioral changes or undetected physiological changes). Impacts of noise can also be manifested in long-term changes at the level of the population(s) if they reduce the survival or reproduction of many individuals.

A temporary shift in the hearing threshold (Temporary Threshold Shift (TTS)) due to exposure to sounds that exceed the natural threshold, occur when animals are exposed to loud instantaneous sound or to a prolonged sound that exceeds their threshold level. This temporary loss of hearing sensitivity is fully recoverable and is not considered to be an injury because no irreversible cell damage or death is involved. For marine mammals, the level has been set at 180 dB re 1  $\mu$ Pa @ 1m (NMFS 2005). Sounds greater than this level are likely to cause temporary or permanent hearing damage. Permanent Threshold Shift (PTS) is a loss of hearing sensitivity (even in a narrow range of frequencies) that is not fully recoverable. PTS is considered to be an injury because irreversible cell damage is involved. No data for PTS in any marine mammal currently exist, so PTS is generally estimated from the onset of TTS.

NMFS is currently developing acoustic criteria to define levels of noise that negatively affect marine mammals. The lower threshold for behavioral response is currently 160 dB re: 1  $\mu$  Pa for pulsed received noise and 120 dB re: 1  $\mu$  Pa for continuous noise (NMFS 2005). The impact of these noise levels will change depending on the frequency of the sound, and the response will be species-specific but also specific to individuals. From experimental studies on pinnipeds, dolphins and beluga whales, it appears that behavior begins to change, sometimes noticeably, at sound exposure levels lower than those causing the onset of TTS (180 dB re 1  $\mu$ Pa @ 1m). It is not clear whether this holds true for all species or all sound types, but for the test species studied, it was not uncommon for them to exhibit aberrant behavior at sound pressure levels at least 12 dB below the levels resulting in TTS onset (Finneran et al. 2002, Kastak et al. 1999).

Increased input of sound into the water column as a result of the proposed action may alter marine mammal behavior. If the noise is above-water, pinnipeds will generally dive and resurface often vocalizing if in water. If the animals are on land they will usually depart from haulouts into the water, swim with their heads above water and vocalize, or dive. If the sound persists, animals may vacate an area until the sound disappears. In-water noise may elicit diving and resurfacing often with vocalizations and departure from the area near the sound source. However, pinnipeds may follow or retreat from vessels depending on the source of the sound (i.e. may follow a fishing boat that is discarding fish or retreat from a fast-moving recreational vessel) (Loughlin 2004). Several studies in

Hawaii noted humpback whale behavioral changes in the presence of vessels. Whales surfaced without exhaling, spent less time at the surface, had longer dive intervals, dove without raising their flukes, reduced their swim speed, and altered their direction (Bauer and Herman 1986, Green and Green 1990). In 1981 and 1982, Baker and Herman (1989) conducted a study of vessel impact on humpback whales in southeast Alaska and concluded that changes in whale behavior were significantly correlated with vessel speed, size, number and proximity. The most sensitive indicators of vessel disturbance in the study were changes in the whales' respiratory behavior and orientation. In 2000, a study assessing humpback whale behavioral response to vessel activity near Juneau, Alaska, reported few cases of whale avoidance behavior in response to boats, but noted greater variability in surface interval timing and in numbers of blows per surfacing when whale watching vessels were present (Peterson 2001). However, based on these findings, the author found it difficult to conclude that existing vessel activity was disrupting the behavioral patterns of humpback whales near Juneau, Alaska.

In-water noise levels thought to elicit a behavioral response from Steller sea lions are >160 dB re 1  $\mu$ Pa for pulsed noise and 120 dB re 1  $\mu$ Pa for continuous noise; levels high enough to cause damage to their hearing are >180 dB re 1  $\mu$ Pa (NMFS 2005). Because sea lions are skittish by nature, it is likely that loud, pulsed, frequent or unfamiliar noises, such as blasting or driving pilings, are likely to disrupt resting sea lions or animals foraging near the sound source. Steller sea lions would likely abandon haulouts, or dive if resting or foraging in the water, if disturbed by construction activities. Generally, animals return to their previous behavior within an hour or so of a disturbance (Porter 1997), however they may abandon an area for longer periods of time if the disturbance continues. Because there is a paucity of information on how Steller sea lions react to construction noise, a conservative approach is warranted.

In most of their range, Steller sea lions are exposed to some level of vessel noise and traffic. Steller sea lions may be disturbed from haulout sites, rookeries, or in the water by close approach of vessels or noise. Steller sea lions may respond by retreating into the water if hauled out, vocalizing, and swimming with their heads above water. They continue this behavior until the threat is gone. Land disturbance can cause mortality if it occurs during the breeding season when pups are too young to avoid the stampede of adults to the water. Pups may be crushed or sustain trauma that eventually leads to death. Repeated disturbance of California sea lions from haulouts or rookeries may lead to permanent abandonment of those areas (S. Melin, unpublished data) and it is likely that Steller sea lions may respond in a similar manner.

Steller sea lions, like other coastal pinnipeds, can become habituated to human disturbance such that it no longer causes a response. For example, provided the vessel approaches slowly, tour boats can approach within yards of animals hauled out on the breakwater in Kodiak harbor, Alaska without causing a response. Conversely, anecdotal information indicates that sea lions abandoned the rookery at Cape Sarichef after the construction of a lighthouse in 1904. Many years after the lighthouse has been uninhabited (it was deactivated in 1979), Steller sea lions are again using this site as a haulout. Other observations by NMFS' scientists indicate that animals on some haulouts

that experience relatively high amounts of tourist activity, particularly in the summer, seem to show little response to vessel traffic while Steller sea lions further west tend to be agitated much more easily by vessels. Experience in the eastern part of the range (California, Oregon, and Washington) indicates a mixture of responses to longer term human influence in the ecosystem with no clear indication of the potential influence of noise and nearby human presence such as the long term use of a road.

It is possible that some individual Steller sea lions may be affected by the construction activities, primarily above water, and by operational activities of the road. Therefore, provided the additional conditions set forth below are incorporated into the proposed action, then NMFS concurs that the proposed action is not likely to adversely affect Steller sea lions (both eDPS and wDPS) or their critical habitat. Due to concerns that the proposed mitigation measures included in the BA might not be effective in avoiding adverse effects for Steller sea lions or their critical habitat, further mitigation measures are required. This is due primarily to the uncertainty in the expected behavioral responses of Steller sea lions to construction activity and road use especially in areas of critical habitat.

Given the proposed mitigation measures in the BA, NMFS concurs that the proposed action is not likely to adversely affect humpback whales. Any noise or disturbance is likely to be limited in water due to the more transient nature of humpback whale use of this area.

#### **Mitigation Measures and Conditions**

The concern about the potential response by Steller sea lions to noise generated by the project are reflected in your mitigation measures which include the use of observers to monitor use at haulouts, avoidance of some construction activities when Steller sea lions are present at haulouts, and other actions to mitigate future disturbance such as the use of screening structures on the road near the haulouts. The additional measures provided below outline a more comprehensive monitoring plan which is intended to validate the expected lack of adverse effects on Steller sea lions and their critical habitat. The plan includes reporting requirements, additional planning responsibilities, and analysis of observations throughout the construction and post-construction phases with approval by NMFS in order to insure that the mitigation measures are effective.

The proposed measures are in essence an adaptive management program that will allow both FHWA and NMFS to move forward with the confidence that the program will avoid adverse impacts for Steller sea lions. The measures are intended to provide positive confirmation that the proposed mitigation measures are indeed effective. The areas of highest concern include the 3,000 foot zone around Gran and Met Point haulouts, as well as the long term indirect effects of building a road (within critical habitat) in such close proximity to these remote haulouts.

### *Monitoring plan*

The FHWA will develop a comprehensive monitoring plan for the project and post-project phases to include five years after the construction phase is completed. This will include a monitoring plan for all of the activities and conditions described below. FHWA will submit this to NMFS before the beginning of the construction phase of the project. FHWA will provide NMFS with an annual report due January 1 of each year which describes the construction activities, monitoring activities, impacts or responses of Steller sea lions, and any further changes to the project. The overall plan will be re-evaluated each year during the annual report. At the end of the monitoring period FHWA will provide a final report summarizing the project, the impacts, and the likely effects on Steller sea lions or their critical habitat expected after the monitoring project ends.

### *Construction plan within 3,000 feet of each haulout*

The BA describes a general construction plan using specific types of equipment over a range of terrain and environmental conditions. For NMFS to evaluate such a project, and insure there would be no adverse effects, much more detailed information on the specifics of the project would need to be provided. At this point in the planning phase, those conditions cannot be determined. Before construction begins within 3,000 feet of Gran Point and Met Point haulouts, FHWA must provide NMFS with a detailed description of construction plans within this zone, including the planned vegetation removal, blasting requirements, through-cuts, and screening structures. Also, before construction activities commence within 3,000 feet, NMFS must be provided with an on-site tour of the area to approve the construction plan and to verify that it is not likely to impact sea lions.

### *Specific measures in addition to those included in the BA*

The following numbered mitigation measures are included in the BA by the FHWA (reprinted here). The additional measures required by NMFS, or "conditions," are described below.

1. Pile driving at the Katzehin terminal and the Antler, Lace and Katzehin rivers will be done with vibratory hammers to the extent possible.

*Condition: If vibratory hammers cannot be used, and before other measures are employed NMFS must be provided with a description of why vibratory hammers cannot be used. NMFS will evaluate those alternative measures.*

2. A trained observer will monitor for the presence of marine mammals and pile driving will be halted if any animals come within 200 meters of the activity.
3. No boat launches or structures that enhance boat access will be constructed by DOT&PF as part of the East Lynn Canal Highway.

*Condition: The indirect effect of increased access would likely result in disturbance to these haulouts from people approaching to view sea lions, recreational fishing activities, or other related activities such as tourism. Mechanisms must be in place to ensure that the road will not result in increased access to east Lynn Canal through the development of boat launches or other improved access as a result of this project. This limitation must extend beyond the construction phase.*

4. As large of a buffer as possible of undisturbed vegetation will be retained between the highway and the Gran Point and Met Point haulouts.

*Condition: Before construction within 3,000 feet of Gran Point and Met Point haulouts, FHWA must provide NMFS with a detailed description of construction plans within this zone, including the planned vegetation removal. Also, before construction activities commence within 3,000 feet of the haulout, NMFS must be provided with an on-site tour of the area to approve the construction plan and to concur that it is not likely to adversely affect Steller sea lions.*

5. No temporary barge landings would be constructed within 3,000 feet of either haulout.
6. Any construction within 3,000 feet of Met or Gran Point would include through-cuts and screening structures as necessary to avoid lines of sight between the highway and the haulouts, and to discourage human access to the haulouts.

*Condition: As described above in the construction phase, the development of screening structures and other mechanisms to avoid human impacts to the haulouts must also be described in the construction plan and be provided to NMFS for comment and evaluation and be described during the on site visit.*

7. No road construction will occur within 1,000 feet of Met or Gran Point if sea lions are present unless approved by NMFS. Independent observers will be employed to ensure that no sea lions are present during work within 1,000 feet.

*Condition: For Gran Point (critical habitat), no road construction will occur within 3,000 feet while sea lions are present, unless approved by NMFS in writing after evaluation of the monitoring and construction plans.*

8. Met and Gran Point haulouts will be monitored during any construction within 3,000 feet to determine if any disturbance is occurring.

*Condition: This is to include noise level monitoring as well as sea lion observations. Before any construction occurs within 3,000 feet of either haulout, FHWA must provide to NMFS a monitoring plan which provides the details of how and when the haulouts will be monitored, the equipment and personnel used, and training to be provided. As described above, construction will not occur within 3,000 feet of Gran Point while sea lions are present unless approved by NMFS.*

9. Any blasting within 3,000 feet of either haulout, if occupied, will be monitored to document that ground vibrations at the haulout are not greater than 0.05 inches per second, and noise levels are not greater than 45 dBA.

*Condition: Before blasting can occur within 3,000 feet of Gran Point, blasting at Met Point shall be monitored and documented to be not greater than 0.05 inches per second, and noise levels are not greater than 45 dBA at the haulout. This report shall be provided to NMFS before blasting can occur within 3,000 feet of Gran Point.*

10. During construction, helicopters would not operate within 3,000 feet of either haulout if occupied.

*Condition: The determination of occupation will be made by observers or another means other than by aircraft (to be further described in the monitoring plan).*

11. Helicopter operations during avalanche control will minimize activity within a 3,000-foot radius around the haulouts.

*Condition: In addition helicopter operations shall not be conducted within 1,000 feet around either haulout when occupied.*

12. Video monitoring at the Gran Point haulout and aerial/ground monitoring at the Met Point haulout will continue for three years after construction to determine the extent of human access to the haulouts and disturbance of sea lions. If adverse impacts are identified, DOT&PF will consult with NMFS to determine what additional mitigation measures are necessary.

*Condition: Video monitoring at the Gran Point haulout and aerial/ground monitoring at the Met Point haulout will occur throughout the construction phase and for five years after construction to determine the extent of human access to the haulouts and disturbance to sea lions. FHWA will provide NMFS with an annual report due Jan. 1, of each year which describes the construction activities, monitoring activities, interactions and impacts to sea lions, and any further mitigation measures necessary to avoid adverse effects.*

#### **Conditions and Initiation of Formal Consultation**

If these conditions are acceptable to FHWA and are incorporated into the mitigation measures and implemented, NMFS concurs that the proposed action is not likely to adversely affect humpback whales, Steller sea lions, or their critical habitat. We ask that you provide confirmation in writing that the proposed action will be modified consistent with the above conditions.

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption.

Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. No incidental take under the ESA authorization is provided here, and is therefore unlawful. In addition, the Marine Mammal Protection Act (MMPA) specifically prohibits the taking of marine mammals, including harassment, unless the activity is exempted by law or permitted under the Act.

If at any time during the project potential adverse effects are observed such as stampedes, avoidance of the haulout, or other changes in physiology or behavior which might reduce the fitness of the individuals, the FHWA shall immediately initiate consultation under section 7 of the ESA and request an incidental harassment authorization (IHA) under the MMPA. Once formal consultation is initiated, the ESA prohibits any Federal agency from making an irretrievable commitment of resources that may limit future options. This practice insures agency actions do not preclude the formulation or implementation of reasonable and prudent alternatives that avoid jeopardizing the continued existence of endangered or threatened species or destroying or adversely modifying their critical habitat.

Concurrence provided in this document requires the FHWA to accept in written confirmation the additional mitigation measures described here. If you have any further questions or concerns about this consultation or the consultation process in general, please contact Kaja Brix, Protected Resources Division, NMFS at (907) 586-7235.

Sincerely,



*for* James W. Balsiger  
Administrator, Alaska Region

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**ATTACHMENT B**  
**THREATENED AND ENDANGERED SPECIES**  
**REVISED BIOLOGICAL OPINION, JULY 2005**



**Juneau Access Improvements Project**  
**Threatened and Endangered Species**  
**Revised Biological Assessment**  
**July 2005**

**Introduction**

The Alaska Department of Transportation and Public Facilities (DOT&PF) is preparing a Final Environmental Impact Statement (EIS) for the Juneau Access Improvements project on behalf of the Federal Highway Administration (FHWA). The National Marine Fisheries Service (NMFS) lists three species within the project area as threatened or endangered under the Endangered Species Act (ESA) of 1973, and one critical habitat:

- North Pacific humpback whales, *Megaptera novaeangliae*, (endangered)
- Eastern population of Steller sea lions, *Eumetopias jubatus*, (threatened)
- Western population of Steller sea lions, *Eumetopias jubatus*, (endangered)
- Gran Point, on the east side of Lynn Canal south of the Katzehin River, is designated as critical habitat for Steller sea lions.

Gran Point is the only designated critical habitat for Steller sea lions within the project area. No critical habitat has been designated for humpback whales. All three species are also protected under the Marine Mammal Protection Act of 1972.

**Project Background**

DOT&PF began work on the project EIS in 1994, with NMFS as a Cooperating Agency. Much of the informal consultation with NMFS during development of the Draft EIS focused on potential impacts of the East Lynn Canal Highway (Alternative 2) on the Gran Point critical habitat and the Met Point haulout. In 1997 FHWA released a Draft EIS to the public, which included a Steller Sea Lion Technical Report. On August 13, 1998 DOT&PF sent a biological assessment to NMFS for the East Lynn Canal Highway alternative, the only alternative under consideration with potential to impact these areas. The assessment detailed a combination of mitigation and monitoring measures to avoid adverse effects to sea lions from construction and operation of an East Lynn Canal highway. On August 24, 1998 NMFS concurred that the East Lynn Canal Highway would not likely adversely affect Steller sea lions, provided the DOT&PF proposed mitigation measures and three additional measures recommended by NMFS were implemented.

In January 2000 the State of Alaska identified the East Lynn Canal Highway as its preferred alternative, but most work on the EIS was suspended. In early 2003 the State announced that a Supplemental Draft EIS would be prepared. Additional reasonable alternatives were identified and new technical studies were conducted. The Supplemental Draft EIS was released for public review in January 2005, with Alternative 2, the East Lynn Canal Highway with Katzehin Ferry Terminal, identified as the State's preferred alternative.

This revised biological assessment is for Alternatives 2, 2B, and 2C. Alternative 2B is identical to Alternative 2 with the exception that the highway would end at the Katzehin Ferry Terminal. Alternative 2C would extend the highway to Skagway but would not include a ferry terminal in

the Katzehin area. These three alternatives would involve similar impacts to Steller sea lions in the same geographic area as addressed in the 1998 assessment. Therefore the original assessment for Steller sea lions is incorporated by reference, summarized as necessary, with additional information and changes as relevant. The NMFS *Final Biological Opinion on the Kensington Gold Project* has been used as a reference in preparing this revised assessment.

Alternatives 2B and 2C would have similar potential impacts as Alternative 2, as they both traverse the east side of Lynn Canal and include a conventional ferry (or ferries for 2B) in Chilkoot and/or Taiya inlets. In the event that one of these three alternatives is identified as the preferred in the Final EIS, DOT&PF and FHWA believe no further Section 7 consultation would be necessary, as potential impacts would be similar. If Alternative 2A, 3, 4B, or 4D is identified as preferred, a new biological assessment would be necessary, as they all involve a ferry terminal in Berners Bay. Based on NMFS's December 3, 2004 letter regarding the biological assessment for the Kensington Gold Project and March 18, 2005 letter commenting on the Juneau Access Improvements Supplemental Draft EIS, if Alternative 2A, 3, 4B, or 4D is identified as the preferred, formal consultation and preparation of a biological opinion would be required.

### **Alternatives 2, 2B, 2C Alignment and Construction Details**

The basic alignment of the East Lynn Canal Highway has not changed since the 1998 assessment. Based on more accurate survey information, changes have been made in specific areas to reduce impacts and costs. The alignment through the head of Berners Bay has been adjusted to reduce impacts to wetlands, river crossing areas and wildlife. The alignment in the vicinity of Met Point and Gran Point has been adjusted to reduce the number of bridges and other structures required while preventing lines of sight to the haulouts and discouraging beach access. At Met Point, the centerline of the highway would be approximately 400 feet from the haulout at its closest point, leaving a buffer of over 300 feet of forest. At Gran Point, the highway centerline would be approximately 320 feet from the main haulout area, leaving a forest buffer of over 250 feet.

Fill for highway construction and avalanche hazard reduction would impact approximately 22 acres of intertidal and subtidal area at 18 locations. Most of these sites are sediment or cobble beaches; none have been identified as haulout sites for marine mammals. Ferry terminal construction near Katz Point, north of the Katzehin Delta, would impact 8.8 acres of intertidal and subtidal area: 4.3 acres of fill for the terminal area and 4.5 acres of dredging for a ferry mooring basin. This is a shallow sediment covered area with no identified marine mammal use.

The Antler, Lace and Katzehin, major rivers that have prey fish (and marine mammals in the tidally influenced areas), would be crossed with 130 foot spaced spans, with spans supported by four or five 24 to 26-inch diameter piles. The exception to this would be the bridge section across the west channel of the Antler. This channel has the majority of documented eulachon spawning in the crossing vicinity, and would be crossed by a longer bridge section to avoid placing piles in the channel.

Construction of the East Lynn Canal Highway is expected to take a minimum of four years, with the actual timetable dependent on the funding availability. Construction access would be established at several locations in addition to the project termini. The existing landing at Comet would be used, as well as the Katzehin ferry terminal site. Temporary barge landing sites would

be established at many of the intertidal fill sites to avoid impacts to other areas. No underwater blasting is anticipated for ferry terminal construction or pile driving. Extensive blasting would be required for highway construction, particularly in the areas from Independence Lake to the Katzehin River and from Low Point to Garb Point on the east side of Taiya Inlet (2 and 2C). The 1998 assessment details the type of blasting anticipated.

## **Humpback Whales**

The humpback whale was listed as endangered under the ESA in 1973. Due to the reduction of the overall population from commercial whaling, the species was in danger of extinction. Prior to the beginning of the twentieth century the humpback whale population was estimated at 15,000. By the time the International Whaling Commission halted commercial whaling of this species in 1965, the population was estimated to be approximately 1,000.

There are three recognized populations of the North Pacific humpback whale: the California/Oregon/Washington/Mexico population, the Western North Pacific population, and the Central North Pacific population. Whales found in Southeast Alaska are part of the Central North Pacific population. The majority of these approximately 4,000 animals are generally found in the vicinity of the Hawaiian Islands in winter and spring where breeding and calving occurs, but migrate to British Columbia and the Gulf of Alaska area for the summer and fall. Approximately one quarter of this population is estimated to be in Southeast Alaska during the summer and fall, with a small subset remaining year round.

Humpback whales in the Central North Pacific population feed in relatively shallow coastal waters near shore. For the whales that spend the summer and fall in northern Southeast Alaska, this includes bays and waterways of the Inside Passage, such as Chatham Strait, Icy Strait, Stephens Passage and Lynn Canal. Prey consists of small schooling fish such as herring, sand lance, and young walleye pollock, as well as schools of krill.

Individual humpback whales and small groups have been observed in Lynn Canal, Chilkoot Inlet and Taiya Inlet throughout the year, with higher numbers present in the summer and fall. The Juneau whale watching excursion boats regularly observe a group of 15 to 20 animals in northern Stephens Passage during the summer tourist season. Humpback whales typically enter Berners Bay during April and May. As many as five individuals have been observed feeding in the bay during the spring eulachon run.

## **Potential Impacts to Whales**

Construction of the East Lynn Canal Highway has the potential to impact humpback whales, primarily during construction of the Katzehin ferry terminal. Placement of fill at the ferry terminal site is not expected to affect humpback whales, as this activity is generally done from shore during low tides. Dredging would take place between October 1<sup>st</sup> and March 1<sup>st</sup> when there are few whales in the project area; furthermore, dredging is not typically a source of loud noise. Driving 18 to 30-inch diameter piles would be done with vibratory hammers to the extent possible to reduce the intensity of sound generated. Pile driving generally takes place between mid June and March 1<sup>st</sup> (to avoid impacts to fish), a period during which some humpbacks may be in the terminal vicinity. A trained observer would monitor for the presence of marine mammals and pile driving would be halted if any animals were within 200 meters of the activity.

Highway construction close to or in the waters of Lynn Canal has less potential to impact humpbacks. Highway construction at or near the water would produce underwater sounds from blasting, rock drilling, rock grinding, fill placement, pile driving for bridges, and side casting. Blasting on land with 20 to 50-pound delayed charges would primarily be a source of vibration through the ground (less than 0.1 ips), creating a very small seismic wave at the land water interface. Fill placement in intertidal areas and side casting would create intermittent sound sources within the water, while drilling and grinding and would be more continuous but removed from the water's edge. Based on typical construction noise levels, these activities would generate noise in the 85 to 95 dBA range near the source on land (USEPA, 1971, Yost, 2003, Yost, 2005). This noise would decrease at least six dB for each doubling of distance to the water. The higher levels noise sources (90 dBA for rock drilling, 95 dBA for rock grinding) are continuous noise sources which would be detected by whales at a distance and could be easily avoided by moving away from rather than closer to the source.

Pile driving for bridges across the Antler, Lace and Katzehin rivers would occur during one of two approximate timing windows: mid June to mid August or early November through February. Although there is a greater likelihood of whales being in the general vicinity during the summer window, overall the potential to impact humpback whales is low due to the shallow depths at the crossings. All three bridges would be in the upper intertidal areas with very gradually increasing depths out to open water. The Katzehin crossing would be in depths ranging from +10 to +15 feet above Lower Low Water; the Antler crossing would be in depths from +13 to +19; the Lace crossing would be in depths from +18 to +22. As with pile driving at the ferry terminal site, a trained observer would monitor for the presence of marine mammals and work would be halted while any animals are within 200 meters of the activity.

Upon completion of the East Lynn Canal Highway, the only potential impact to humpback whales would be the increased vessel traffic in Chilkoot Inlet (and Taiya Inlet under Alternative 2B) associated with shuttle operations from the Katzehin Terminal. The shuttles, initially anticipated to be the MV Aurora, would be conventional monohull vessels traveling at a speed of up to 15 knots. Summer operation (May to September) would consist of up to nine round trips per day to Haines (Alternative 2) and six round trips to Skagway (Alternative 2B) during a 15-hour period. Winter operation would be reduced to six round trips per day to Haines and four to Skagway during a 10-hour period. Under the No Action alternative the Alaska Marine Highway vessel traffic in this area would be approximately five round trips per day in the summer (three between Haines and Skagway and two between Juneau and Haines or Skagway) and three per day in the winter.

There have been no reported whale collisions involving AMHS vessels in Lynn Canal during the 40 years of past operation. Increasing the number of AMHS vessel trips in the northern end of Lynn Canal, while eliminating almost all AMHS vessel trips in southern Lynn Canal (the Haines/Katzehin shuttle would run to Juneau in winter when the road is closed for avalanche control) is not likely to have an effect on humpback whales in the area. In addition to reducing the number of trips in the vicinity of southern Lynn Canal and Berners Bay, the East Lynn Canal Highway alternative would eliminate AMHS fast ferry operations in Lynn Canal.

## **Steller Sea Lions**

The Steller sea lion was listed as threatened under the ESA in 1990, due to an almost two-thirds reduction in their population size over the preceding 30 year period. In 1993 critical habitat was designated to protect identified rookeries and major haulouts. Subsequently the population was divided into the western and eastern populations, with the western population listed as endangered and the eastern population listed as threatened.

Steller sea lion range extends throughout the North Pacific from northern Japan up through the Bering Sea, across the Gulf of Alaska, and down the coast of North America to southern California. The dividing line for the two populations is the vicinity of Cape Suckling, approximately 50 miles southeast of Cordova. The western population is estimated to be approximately 35,000 individuals while the eastern population is estimated to be more than 31,000 animals, with approximately half of these occurring in southeast Alaska. While sea lion counts from the Gulf of Alaska and southern California have been declining, the counts in southeast Alaska have been increasing.

The 1998 DOT&PF assessment addressed only the threatened eastern population of Steller sea lions, as no individuals from the western population were known to occur in the project area. Subsequent to that assessment, branded individuals from the western population have been spotted in the project area, including Gran Point where DOT&PF has a video camera monitoring system. To date only a handful of western branded animals have been sighted; nevertheless this demonstrates there is a small degree of crossover between the two populations.

As described in the 1998 assessment, Steller sea lions in Lynn Canal use several identified haulouts throughout most of the year, including Benjamin Island, Point Saint Mary, Met Point, and Gran Point. A seasonally used tidal rock haulout has recently been identified south of the point of land defining the east side of Slate Cove in Berners Bay. Both Met Point and Gran Point are within the immediate vicinity of the East Lynn Canal Highway as described above. (The highway would be approximately one mile from the Slate Cove haulout and over two miles from the Point Saint Mary haulout.)

## **Critical Habitat**

Gran Point, five miles south of the Katzechin River, is designated as critical habitat for Steller sea lions under 50 CFR 226.202. This regulation identifies Gran Point as a major Steller sea lion haulout in Alaska, and defines the critical habitat as a terrestrial zone extending 3,000 feet landward of the haulout, an aquatic zone extending 3,000 feet seaward, and an air zone that extends 3,000 feet above the terrestrial zone. Sea lions haul out on the large rock slabs in the immediate vicinity of the point as well as smaller rocks to the north and south, particularly when the large slabs are completely occupied. The main slabs extend to a height of approximately 30 feet above Lower Low Water where they steepen and then meet a line of conifer vegetation. Many of the smaller rocks to the north and south are covered by high tides and are therefore isolated from the vegetation line.

DOT&PF has monitored the Gran Point haulout via remote controlled video cameras since December 2002, and has monitored Gran Point (and Met Point) via overflights during July through December 1998 and from December 2003 to the present. (DOT&PF has also reviewed

Met Point aerial photograph data from NMFS Auke Bay Laboratory.) These observations confirm the general trend indicated in the 1998 assessment. Both haulouts are used most heavily in the spring, with more than a hundred animals present at Gran Point on most days. Usage decreases in the first half of summer such that there is considerably less use during the second half of summer. During the latter half of summer there are periods of time (one to five week blocks at Gran, longer at Met) when the haulouts are vacant (see attached Gran Point records). Use of the haulouts increases again by early fall, with more than a hundred animals present at each site by mid September. There are generally fewer animals at the sites during December through March, with no animals present on particularly windy and or snowy days. In general the Gran Point haulout is used more often and more heavily than the Met Point haulout, but the numbers of animals using both haulouts is increasing.

Steller sea lions appear to use the Gran Point haulout as a resting area between feeding forays in Lynn Canal. The fact that use of the haulout grows during the spring when herring and eulachon are available in the Berners Bay area and northern Lynn Canal supports this observation. The gently sloping rocks provide an easily accessed area where large numbers of sea lions can congregate. The rocks provide good lines of sight toward approaches from the water, while the rocky shoreline, dense forest and distance from developed areas makes approach or disturbance from land unlikely. Hauled out sea lions appear to be undisturbed by boats closely approaching the haulout. During the two and a half years of camera monitoring, no mating or pupping has been observed at Gran Point. Both males and females use the haulout; occasional fighting between large males has been observed.

The pattern observed at the haulouts corresponds to the general movement pattern of sea lions in southeast Alaska, where many adults move toward the outer coast, including rookery areas, in early summer. It appears that sea lions return to Lynn Canal from the outer coast in the fall, presumably following available food sources such as salmon. The lower numbers during winter are probably due to reduced prey availability in the vicinity. Growing numbers in the spring parallel the availability of herring and eulachon in Berners Bay and the Katzehin, Chilkat and Chilkoot estuary areas.

### **Potential Impacts to Steller Sea Lions**

As with humpback whales, construction of the East Lynn Canal Highway has the potential to impact Steller sea lions both during construction and subsequent maintenance and operation. Construction activities that could impact sea lions include noise and visual aspects of helicopter surveying, construction and use of barge landings, pile driving, dredging, in-water fill placement, blasting, excavation, and earth moving. Maintenance and operation activities that could impact sea lions include noise and visual aspects of highway traffic, highway maintenance, and avalanche control. Land access to the haulout areas could create an indirect impact of increased human disturbance of resting sea lions.

The analysis of potential vibration disturbance from blasting within the Gran Point critical habitat area and within 3,000 feet of the Met Point haulout presented in the 1998 assessment is still relevant. Preshearing the rock face and using smaller charges can reduce the ground vibrations at the haulouts. Rather than requiring the use of particular charge sizes per delay, the contractor would be required to monitor blasting effects when blasting within 3,000 feet of either haulout and avoid vibrations greater than 0.05 inches per second (ips) at the haulout while it is

occupied. This would keep blasting effects well below 0.1 ips, the presumed vibration threshold for sea lion disturbance.

Blasting is a source of sound as well as vibration. Typical sound energy levels (air blast over pressure) generated by construction blasting are in the range of 0.007 pounds per square inch, equivalent to 95 dBA at 665 feet for 50 pound charges per delay (FHWA, 1991). As with vibration, the sound energy level can be controlled by using lower weight charges per delay. The contractor would be required to monitor blasting noise and avoid noise energy levels greater than 45 dBA at the haulout when blasting within 3,000 feet of either site.

Analysis of construction noise indicates that noise generated at distances greater than 1,000 feet would not be detectable above the background noise levels at the haulouts (FHWA, 2005a). Rock drilling and excavating are generally the noisiest construction activities, producing sounds near the source in the 85-90 dBA range. Because the haulouts are below rock bluffs, sounds from construction point sources would be shielded by trees, rock and earth, resulting in a decrease of 11 dBA for every doubling of distance. A sound level of 88 dBA 50 feet from the source would produce a sound level of 44 dBA at a distance of 800 feet. The 1998 assessment estimated the background noise level at Gran Point on a calm day at 47 dBA; based on recordings at similar locations. This estimate was corroborated by sound measurements recorded in 2003 at additional similar locations. Construction noise at a level of 44 dBA would not be detectable against the background noise at the haulout.

Based on the analysis of potential noise impacts, no construction activities that generate noise levels above 45 dBA at the haulouts would occur within 1,000 feet of the Gran and Met Point haulouts while sea lions are present. Heavy construction (rock drilling, blasting and shot rock removal) within a 1,000-foot radius of Gran Point is expected to take approximately one month. Based on the observed periods when the haulout is vacant, this construction may need to be spread over two or three years. Heavy construction within the Met Point 1,000-foot radius would be of shorter duration, as less rock cutting would be required. Construction of the East Lynn Canal Highway would take at least four years, and is expected to take longer given the current funding situation. The need to phase construction in the vicinity of the haulouts would not affect the overall construction schedule.

Helicopters used during construction, including surveying activities, would be required to avoid operating within the 3,000 feet of the haulouts while occupied. No temporary barge landings would be constructed within this radius, and no in-water fill placement would occur for highway construction (see attached plansheets).

Operation and maintenance of the highway would not result in disturbance of either haulout. Projected peak traffic noise levels for 2038 are 65 dBA at centerline of the highway, and would attenuate to 32 dBA at a distance of 280 feet (FHWA, 2005a, b). The highway would be approximately 320 feet from the Gran Point haulout and 400 feet from the Met Point haulout at its closest point. Traffic noise would not be audible above the background noise level.

The highway alignment within 3,000 feet of both haulouts would be designed to prevent access to either site and maintain a visual barrier between the highway and haulouts. This would be accomplished by a combination of through cuts, retaining walls and screening structures (see attached plansheets). Sea lions would not be visible from the road, and would not see vehicles or

their headlights. Except where the terrain and/or rock cuts are steep enough to prevent easy access, screening structures or fencing would be installed.

Normal winter and summer maintenance activities such as snow removal, sanding, brush cutting, crack sealing, and culvert clean out would not produce noise levels higher than the predicted 30 year peak hour traffic. Winter operation would also require infrequent detonation of unstable snow in the three avalanche starting zones within the 3,000-foot radius around the two sites (FHWA, 2005c). Detonation would be done by helicopter, with the helicopter approach made from the closest point outside the 3,000-foot radius.

The starting zone of avalanche LC004, 2,600 feet to the northeast of the Met Point haulout, is at elevation 1,000 feet. Slope distance to the haulout is 2,860 feet. LC004 is a small avalanche path consisting of open scrub forest and a small gully. This avalanche path is expected to require detonation release with a helicopter dropped explosive charge at a frequency of once every 10 years. The explosive charge would be a 50-pound bag of ammonium nitrate and fuel oil (ANFO). A charge of this size would create a momentary peak airblast sound level of 95 dBA at 665 feet, 84 dBA at 1,330 feet, and 73 dBA at 2,660 feet if detonated in the air (equivalent to a single handclap at ten feet). A 50-pound charge dropped from a helicopter normally penetrates the snow to a depth of at least a few feet, with the blast sound muffled by the snow surrounding the charge.

There are two avalanche starting zones within the Gran Point critical habitat, LC030 and LC 031. LC030 is at elevation 1,500, approximately 1,810 feet southeast of the Gran Point haulout. The slope distance from the haulout is 2,350 feet. LC031 is at elevation 650, approximately 2,880 feet to the northeast slope distance, a slope distance of 2,950 feet. Both are small avalanche paths; one is on an old landslide scar and the other is in a narrow gully. Each avalanche starting zone is estimated to require a helicopter dropped 50-pound explosive charge once every ten years, which would result in two explosive discharges within the critical habitat area during a ten-year period. As with the Met Point haulout, explosive discharges may be audible at the haulout, but would not be particularly loud. The noise and vibration created by the resulting avalanche would be no different than the naturally occurring avalanche that would eventually happen.

### **Potential Adverse Modifications to Critical Habitat**

Gran Point is a major Steller sea lion haulout, with large numbers of sea lions using the area throughout most of the year. The terrestrial zone, extending 3,000 feet landward, includes additional rocks used by sea lions. The terrestrial areas used by sea lions extend approximately 30 feet above Lower Low Water. Land above this elevation is generally too steep to be accessed by sea lions, and is covered by dense coniferous vegetation.

Potential adverse modifications to this critical habitat from construction and operation of a highway include alteration of the haulout rocks used, alteration of the uplands such that disturbance from land sources can occur, and introduction of harmful substances to the aquatic zone such as trash or runoff.

No alteration of the shoreline would occur within the critical habitat area. Permanent construction would all be behind a buffer of vegetation and screening walls. No temporary access landings would be constructed within the 3,000-foot radius.

A typical highway constructed through the critical habitat terrestrial zone would make land access to the haulout considerably easier than currently exists. The East Lynn Canal Highway would avoid this potential adverse modification by incorporating through cuts and walls throughout the terrestrial zone. These measures combined with the steep terrain between the highway and the shore would make access to the haulout from the highway difficult. No new boat ramps would be constructed as part of the East Lynn Canal Highway, therefore the extent of water access would not change. Video monitoring at the haulout would be continued for at least three years after construction to determine if any unauthorized access occurs. Based on this monitoring DOT&PF would consult with NMFS to determine if additional measures are necessary to further deter access from the highway.

Construction and operation of the East Lynn Canal is unlikely to result in significant pollution of the critical habitat aquatic zone. Best management practices as detailed in the contractor's Stormwater Pollution Prevention Plan would be used to control sediment discharge and prevent oil discharge. Runoff from the highway would be directed away from the haulout to natural drainage channels on either side. Based on water quality studies of similar roadways with equal or higher traffic levels, runoff into salt water would be within state water quality standards (FHWA, 2005d). The physical separation between the highway and the shoreline would prevent most if not all roadside trash and debris from reaching the aquatic zone. Neither sea lions nor prey species would be adversely affected.

### **Mitigation Measures**

The following measures would be included in the project to avoid potential impacts to humpback whales and Steller sea lions:

1. Pile driving at the Katzehin terminal and the Antler, Lace and Katzehin rivers will be done with vibratory hammers to the extent possible.
2. A trained observer will monitor for the presence of marine mammals and pile driving will be halted if any animals come within 200 meters of the activity.
3. No boat launches or structures that enhance boat access will be constructed by DOT&PF as part of the East Lynn Canal Highway.
4. As large as possible buffer of undisturbed vegetation will be retained between the highway and the Gran Point and Met Point haulouts.
5. No temporary barge landings would be constructed within 3,000 feet of either haulout.
6. Any construction within 3,000 feet of Met or Gran Point would include through cuts and screening structures as necessary to avoid lines of sight between the highway and the haulouts, and to discourage human access to the haulouts.
7. No road construction will occur within 1,000 feet of Met or Gran Point if sea lions are present unless approved by the NMFS. Independent observers will be employed to ensure that no sea lions are present during work within 1,000 feet.
8. Met and Gran Point haulouts will be monitored during any construction within 3,000 feet to determine if any disturbance is occurring.

9. Any blasting within 3,000 feet of either haulout, if occupied, will be monitored to document that ground vibrations at the haulout are not greater than 0.05 inches per second, and noise levels are not greater than 45 dBA.
10. During construction helicopters would not operate within 3,000 feet of either haulout if occupied.
11. Helicopter operations during avalanche control will minimize activity within a 3,000-foot radius around the haulouts.
12. Video monitoring at the Gran Point haulout and aerial/ground monitoring at the Met Point haulout will continue for three years after construction to determine the extent of human access to the haulouts and disturbance of sea lions. If adverse impacts are identified, DOT&PF will consult with NMFS to determine what additional mitigation measures are necessary.

## **Conclusion**

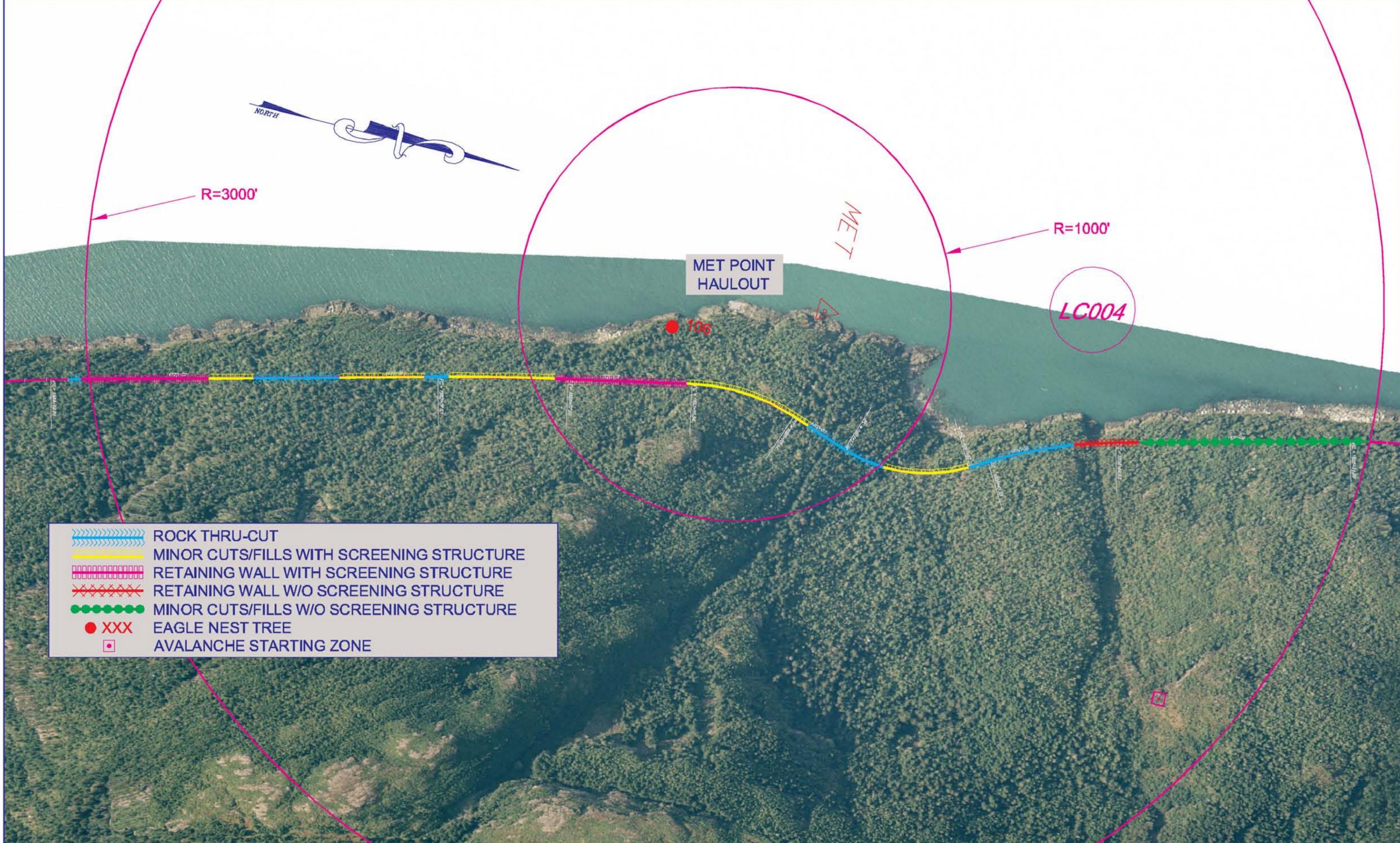
Based on the analysis provided and the mitigation measures listed, DOT&PF and FHWA have determined that East Lynn Canal Highway alternatives (2, 2B and 2C), are not likely to adversely affect the endangered North Pacific humpback whale, the endangered western population of Steller sea lions, or the threatened eastern population of Steller sea lions. DOT&PF and FHWA have also determined that Alternatives 2, 2B and 2C would not adversely modify the Gran Point critical habitat.

## **Attachments**

Aerial photograph/plansheets of Met Point and Gran Point  
DOT&PF Gran Point Camera Monitoring Records

## **References**

- FHWA. 1991. *Rock Blasting and Overbreak Control*. Publication No. FHWA-HI-92-001
- FHWA. 2005a. *Juneau Access Improvements Supplemental Draft EIS*, Appendix S, Steller Sea Lion Technical Report.
- FHWA. 2005b. *Juneau Access Improvements Supplemental Draft EIS*, Appendix L, Noise Technical Report.
- FHWA. 2005c. *Juneau Access Improvements Supplemental Draft EIS*, Appendix J, Snow Avalanche Report.
- FHWA. 2005d. *Juneau Access Improvements Supplemental Draft EIS*, Appendix K, Hydrology and Water Quality Report.
- United States Environmental Protection Agency (USEPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*.
- Yost, Reuben. June 23, 2003. Rock grinder (Trencor 20 foot wide Rock Miner) noise levels recorded with Brandee Gerke, NMFS, and Mike Jacobson, USF&WS at Third Avenue construction site in Ketchikan, Alaska.
- Yost, Reuben. April 13, 2005. Rock drill (Ingersol Rand Airtrack 3700 and Ingersol Rand 58 Hydraulic) noise levels recorded at Inspiration Point (Glacier Highway) construction site.



- ROCK THRU-CUT
- MINOR CUTS/FILLS WITH SCREENING STRUCTURE
- RETAINING WALL WITH SCREENING STRUCTURE
- RETAINING WALL W/O SCREENING STRUCTURE
- MINOR CUTS/FILLS W/O SCREENING STRUCTURE
- EAGLE NEST TREE
- AVALANCHE STARTING ZONE

PATH:		
BY:	DATE:	DESCRIPTION OF CHANGE:
<b>RECORD OF REVISIONS</b>		

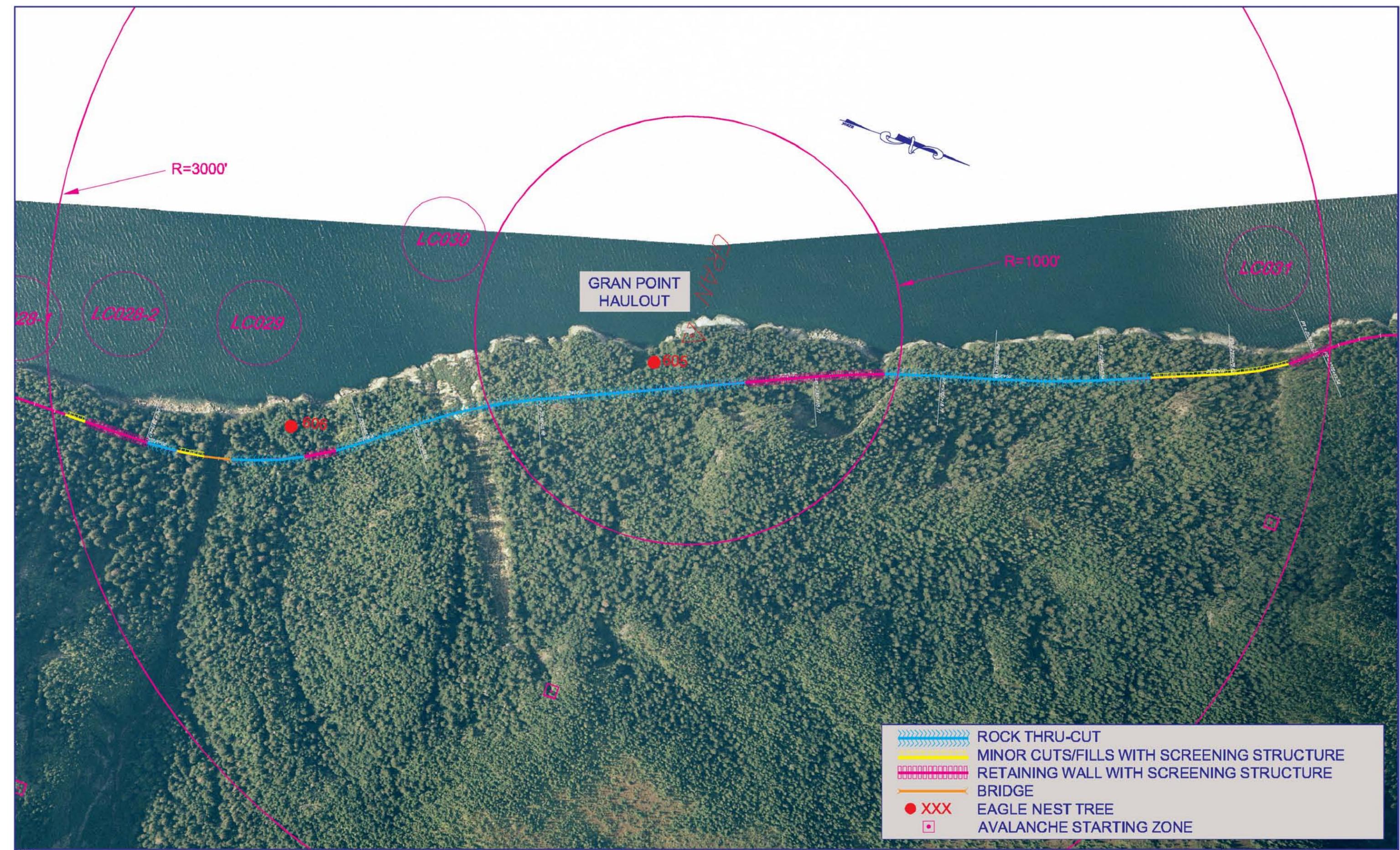
STATE OF ALASKA  
 DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES  
 SOUTHEAST REGION DESIGN & CONSTRUCTION

JUNEAU      JUNEAU ACCESS  
 PROJECT NO. 71100      ALASKA

**EAST LYNN CANAL  
 MET POINT SEALION HAULOUT**

DESIGNED BY:	PROJECT NO. 71100
DRAWN BY:	DATE: 2005
CHECKED BY:	SHEET 1 OF 2





RECORD OF REVISIONS		
BY:	DATE:	DESCRIPTION OF CHANGE:

STATE OF ALASKA  
 DEPARTMENT OF TRANSPORTATION  
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JUNEAU  
 JUNEAU ACCESS  
 PROJECT NO. 71100  
 ALASKA  
 EAST LYNN CANAL  
 GRAN POINT SEALION HAULOUT

DESIGNED BY:  
 DRAWN BY:  
 CHECKED BY:

PROJECT NO.  
 71100  
 DATE:  
 2005  
 SHEET 2 OF 2



**Juneau Access  
Sea Lion Haulout  
Gran Point**

**Legend**

WE = Weekend  
NS = No Camera Signal  
~ = Approximately  
Few = 6 or less present  
N = North  
S = South

**Sea Lion Monitoring Log  
12/23/02-12/31/04**

Date	Comments	Quantity	Time
12/23/02	many sea lions present		
12/24/02	too much snow - no visibility		
12/25/02	Christmas - NS		
12/26/02	NS		
12/27/02	WE - NS		
12/28/02	WE - NS		
12/29/02	NS		
12/30/02	NS		
12/31/02	NS - call to SeeMore		
01/01/03	New Year's Day		
01/02/03	sea lions present - SeeMore working on system		
01/03/03	NS		
01/04/03	WE - NS		
01/05/03	WE - NS		
01/06/03	program locked up - Lane @ SeeMore can see animals present		
01/07/03	program locked up - Lane @ SeeMore can see animals present		
01/08/03	sea lions present - most rocks		
01/09/03	sea lions present - most rocks		
01/10/03	many animals present		
01/11/03	WE - NS		
01/12/03	WE - NS		
01/13/03	sea lions on most rocks		11:00A
01/14/03	sea lions present		9:00A
01/15/03	snow storm - some seal lions present		10:00A
01/16/03	sea lions present	15-20	9:00A
01/17/03	sea lions present	13	2:00A
01/18/03	WE - NS		
01/19/03	WE - NS		
01/20/03	NS		
01/21/03	very windy & rough seas	0	
01/22/03	still very windy - high surf on rocks	0	
01/23/03	high wind, waves	0	
01/24/03	high wind, snow	0	
01/25/03	WE - NS		
01/26/03	WE - NS		
01/27/03	sea lions present	22	
01/28/03	sea lions present	20+	
01/29/03	many sea lions present		
01/30/03	many sea lions @ N. main slab		
01/31/03	many sea lions present		
02/01/03	WE - NS		
02/02/03	WE - Stills	few sea lions	
02/03/03	many sea lions on main slab		
02/04/03	many sea lions on main slab		
02/05/03	many sea lions on main slab seen from camera #1		
02/06/03	many sea lions on main slab seen from camera #1		

**Juneau Access  
Sea Lion Haulout**

**Gran Point**

**Sea Lion Monitoring Log  
12/23/02-12/31/04**

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Date	Comments	Quantity	Time
02/07/03	many sea lions on main slab seen from camera #1		
02/08/03	WE - Stills	many sea lions	
02/09/03	WE - Stills	few sea lions	
02/10/03	sea lions present	20	
02/11/03	sea lions present on main slab		
02/12/03	sea lions present on main slab		
02/13/03	two small groups present @ water		
02/14/03	sea lions present	~ 50	
02/15/03	WE - Stills	many sea lions	
02/16/03	WE - Stills	many sea lions	
02/17/03	WE - Stills	many sea lions	
02/18/03	many sea lions on main slab & small slab		
02/19/03	no sea lions in vicinity - strong northerly wind		
02/20/03	sea lions present - strong N. wind & waves	40+	
02/21/03	sea lions present	~ 30	
02/22/03	WE - Stills	many sea lions	
02/23/03	WE - Stills	many sea lions	
02/24/03	sea lions present on lower rocks - not covered by snow		
02/25/03	sea lions present on lower rocks		
02/26/03	sea lions on all rocks	100+	
02/27/03	Stills	many sea lions	
02/28/03	Stills	many sea lions	
03/01/03	WE - Stills	sea lions present	
03/02/03	WE - Stills	many sea lions	
03/03/03	sea lions on N. part of main slab		
03/04/03	many sea lions on main slab		
03/05/03	Stills	many sea lions	
03/06/03	sea lions on lower N. of main slab - high wind & waves		
03/07/03	sea lions on lower slab		
03/08/03	WE - Stills	few sea lions	
03/09/03	WE - Stills	none	
03/10/03	sea lions on lower slab		
03/11/03	sea lions on lower slab		
03/12/03	sea lions high on main slab		
03/13/03	sea lions high on main slab		
03/14/03	heavy snow - no visibility - high waves		
03/15/03	WE - Stills	many sea lions	
03/16/03	WE - Stills	many sea lions	
03/17/03	many on lower s. slab - more on upper N		
03/18/03	many sea lions on lower & upper main slab		
03/19/03	Stills	many sea lions	
03/20/03	many sea lions on small S rocks & main slab		
03/21/03	Stills	many sea lions	
03/22/03	WE - Stills	many sea lions	
03/23/03	WE - Stills	many sea lions	
03/24/03	many sea lions present		

**Juneau Access  
Sea Lion Haulout**

**Gran Point**

**Sea Lion Monitoring Log  
12/23/02-12/31/04**

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Date	Comments	Quantity	Time
03/25/03	numerous sea lions present on rocks - about 25 left a rock at the same time & returned to water		
03/26/03	numerous sea lions present on main slab (low & high)		
03/27/03	many sea lions present on main slab (low & high)		
03/28/03	numerous sea lions present on main rock		
03/29/03	WE - Stills	many sea lions	
03/30/03	WE - Stills	many sea lions	
03/31/03	Stills	many sea lions	
04/01/03	numerous sea lions present on haulout - rough sea conditions		
04/02/03	numerous sea lions on lower & upper rock slab - rough sea conditions		
04/03/03	numerous sea lions on rocks		
04/04/03	Stills	many sea lions	
04/05/03	WE - Stills	many sea lions	
04/06/03	WE - Stills	many sea lions	
04/07/03	numerous sea lions on main rock - some on others		
04/08/03	Stills	many sea lions	
04/09/03	Stills	many sea lions	
04/10/03	Stills	many sea lions	
04/11/03	many on all rocks		
04/12/03	WE - Stills	many sea lions	
04/13/03	WE - Stills	many sea lions	
04/14/03	many on all rocks		
04/15/03	many on all rocks		
04/16/03	many on all rocks		
04/17/03	main rock is loaded with sea lions - also on N. rocks	100+	
04/18/03	many on all rocks		
04/19/03	WE - Stills	many sea lions	
04/20/03	WE - Stills	many sea lions	
04/21/03	Stills	many sea lions	
04/22/03	many on main haulout		
04/23/03	many on main haulout		
04/24/03	many on main haulout & smaller rocks		
04/25/03	many on main haulout & smaller rocks		
04/26/03	WE - Stills	many sea lions	
04/27/03	WE - Stills	many sea lions	
04/28/03	many on main haulout & smaller rocks		
04/29/03	many sea lions on main rock & rocks to the S below camera		
04/30/03	many of sea lions on main rock & rocks to the S below camera		
05/01/03	many sea lions on main rock & rocks to the S below camera		
05/02/03	many sea lions on main rock & rocks to the S below camera		
05/03/03	WE - Stills	many sea lions	

**Juneau Access  
Sea Lion Haulout**

**Gran Point**

**Sea Lion Monitoring Log  
12/23/02-12/31/04**

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Date	Comments	Quantity	Time
05/04/03	WE - Stills	many sea lions	
05/05/03	many sea lions on S side of main rock and N side	100+	
05/06/03	many on S side of main rock and N side	50+	
05/07/03	system down		
05/08/03	many sea lions on main rock & smaller S	100+	
05/09/03	Stills	many sea lions	
05/10/03	WE - Stills	many sea lions	
05/11/03	WE - Stills - cameras down		
05/12/03	sea lions on main rock & S spots	100+	
05/13/03	many sea lions, large male on main rock	100+	
05/14/03	Stills	many sea lions	
05/15/03	many sea lions on main rock, crowded on rocks below #1 and to south		
05/16/03	many sea lions N & S side & smaller S rocks		
05/17/03	WE - Stills - cameras down		
05/18/03	WE - Stills	many sea lions	
05/19/03	many sea lions N & S side & smaller S rocks		
05/20/03	many sea lions N & S side & smaller S rocks		
05/21/03	many sea lions on N side & S small rocks		
05/22/03	many sea lions on S slab, smaller rocks & N slab	100+	
05/23/03	many sea lions everywhere N & S	100+	
05/24/03	WE - Stills	many sea lions	
05/25/03	WE - Stills	many sea lions	
05/26/03	Stills	many sea lions	
05/27/03	many sea lions on both sides of main haulout		
05/28/03	many sea lions on both sides of main haulout		
05/29/03	many females on small S rocks, many on N side of main slab		
05/30/03	Stills	many sea lions	
05/31/03	WE - Stills	many sea lions	
06/01/03	WE - Stills - cameras down		
06/02/03	many sea lions on all rocks	~ 100	
06/03/03	many sea lions on N side & S	~ 100	
06/04/03	many sea lions present	~ 100	
06/05/03	sea lions on main slab and S. slab	~ 100+	
06/06/03	many on main slab & few on side rocks	100-	
06/07/03	WE - Stills	sea lions present	
06/08/03	WE - Stills	sea lions present	
06/09/03	slab N side of main slab	~ 90	
06/10/03	sea lions on S small rocks, S main slab & N main slab	~ 100	

**Juneau Access  
Sea Lion Haulout**

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**Gran Point**

**Sea Lion Monitoring Log  
12/23/02-12/31/04**

Date	Comments	Quantity	Time
06/11/03	sea lions on S. small rocks & S. mail slab	~ 90	
06/12/03	sea lions S. small rocks & N main rock	~ 110	
06/13/03	Stills	many sea lions	
06/14/03	WE - Stills	many sea lions	
06/15/03	WE - Stills	many sea lions	
06/16/03	sea lions S. side of main slab	100+	
06/17/03	sea lions on small rock, S main rock & N main rock	~ 90	
06/18/03	sea lions on S small rocks & N. main slab	95	
06/19/03	sea lions on S small rock, S main slab & N main slab	90	
06/20/03	sea lions on S. small rocks & S. mail slab	100+	

06/21/03	WE - Stills	many sea lions	
06/22/03	WE - Stills	many sea lions	
06/23/03	sea lions on S main slab, S small rocks, N small rocks & N small rocks	~ 100	
06/24/03	sea lions on S small rocks, N main rock & N small rocks	~ 100	
06/25/03	sea lions on S main slab, S small slab & N main slab	~ 100	
06/26/03	many sea lions	~ 90	
06/27/03	sea lions on S main slab & S small rocks, N main slab, N small rocks and water	100+	
06/28/03	WE - Stills	many sea lions	
06/29/03	WE - Stills	many sea lions	
06/30/03	sea lions on main slab, S small rocks, N small rocks and S main slab	100+	
07/01/03	sea lions on main slab, S small rocks, S small rocks and N main slab	100+	
07/02/03	sea lions on small rocks & S main rock	~ 100	
07/03/03	sea lions on S small rocks, S main rock, N main rock & N small rocks	~ 90	
07/04/03	Stills	many sea lions	
07/05/03	WE - Stills	many sea lions	
07/06/03	WE - Stills	many sea lions	
07/07/03	sea lions on main rock, S small rocks, N main rock & water	74	
07/08/03	sea lion on S small rock & S main rock	85+	
07/09/03	sea lions on S main rock & S small rocks	75+	
07/10/03	sea lions on S side rocks	40	
07/11/03	Stills	few sea lions	
07/12/03	WE - Stills	many sea lions	
07/13/03	WE - Stills	many sea lions	
07/14/03	sea lions present	32	
07/15/03	sea lions present	12	
07/16/03		no sea lions	

Juneau Access  
Sea Lion Haulout  
Gran Point

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
	Stills	no sea lions	
07/17/03		no sea lions	8:10A
		no sea lions	12:00P
		no sea lions	3:00P
	Stills	no sea lions	
07/18/03		no sea lions	8:15A
		no sea lions	12:00P
	Stills	no sea lions	
07/19/03	Stills	many sea lions	
07/20/03	Stills	few sea lions	
07/21/03		no sea lions	8:20A
		no sea lions	11:50A
	Stills	no sea lions	
07/22/03		no sea lions	8:00A
		no sea lions	12:00P
	Problems with camera connection		12:10P
	Stills	no sea lions	
07/23/03	system down		
	Stills	no sea lions	
07/24/03	Stills	no sea lions	
07/25/03	Stills	no sea lions	
07/26/03	WE - cameras down		
07/26/03	no Stills - cameras down		
07/27/03	WE - cameras down		
	no Stills - cameras down		
07/28/03		no sea lions	12:45P
		no sea lions	3:00P
	Stills	no sea lions	
07/29/03		no sea lions	10:30A
		no sea lions	3:05P
	Stills	no sea lions	
07/30/03		no sea lions	10:45P
		no sea lions	11:50A
		no sea lions	1:30P
	Stills	no sea lions	
07/31/03		no sea lions	9:00A
	Stills	no sea lions	
08/01/03		no sea lions	3:00P
	Stills	no sea lions	
08/02/03	WE - cameras down		
	no Stills - cameras down		
08/03/03	WE - cameras down		
	no Stills - cameras down		
08/04/03		no sea lions	10:30A
		no sea lions	1:00P
		no sea lions	3:30P
	Stills	no sea lions	
08/05/03		no sea lions	10:30A
		no sea lions	3:00P
	Stills	no sea lions	
08/06/03		no sea lions	12:45P
		no sea lions	2:00P

Juneau Access  
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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
		no sea lions	3:30P
	Stills	no sea lions	
08/07/03		no sea lions	11:30A
		no sea lions	12:50P
		no sea lions	3:58P
	Stills	no sea lions	
08/08/03		no sea lions	11:00A
		no sea lions	12:50P
		no sea lions	3:30P
	Stills	no sea lions	
08/09/03	WE - Stills	no sea lions	
08/10/03	WE - Stills	no sea lions	
08/11/03		no sea lions	10:30A
		no sea lions	1:30P
		no sea lions	4:05P
08/11/03	Stills	no sea lions	
08/12/03		no sea lions	12:00P
		no sea lions	4:00P
	Stills	no sea lions	
08/13/03		no sea lions	9:15A
		no sea lions	1:45P
	Stills	no sea lions	
08/14/03		no sea lions	9:45A
		no sea lions	3:40P
	Stills	no sea lions	
08/15/03		no sea lions	9:20A
	Stills	no sea lions	
08/16/03	WE -no Stills - cameras down		
08/17/03	WE - Stills	no sea lions	
08/18/03	Only checked picture stills	no sea lions	
08/19/03		no sea lions	9:25A
	Stills	no sea lions	
08/20/03		no sea lions	10:00A
	Stills	no sea lions	
8/21/03	Stills	no sea lions	
8/22/03	Stills	no sea lions	
8/23/03	Stills	no sea lions	
8/24/03	Stills	2 sealions	12:01:02PM
		2 sealions	12:17:47PM
		3 sealions	02:17:46PM
		3 sealions	02:17:49PM
		3 sealions	04:03:48PM
		3 sealions	04:17:48PM
		2 sealions	06:03:44PM
		2 sealions	06:17:46PM
8/25/03	system down		
	Stills	no sea lions	
8/26/03	system down - called Lane (SWS)		9:00 AM
	system up & down all day		
	Stills	no sea lions	
8/27/03	Stills	2 sealions	12:01:02 PM
		2 sealions	12:03:46 PM

Juneau Access  
Sea Lion Haulout  
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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
		1 sealion	12:30:11 PM
		1 sealion	04:01:04 AM
8/28/03		no sea lions	8:45A
	in water N large slab	3 or 4 sealions	12:03:00 PM
		no sea lions	1:05P
	Stills	no sea lions	
8/29/03		no sea lions	11:00A
		no sea lions	2:58P
	Stills	no sea lions	
8/30/03	Stills	1 sealion	06:03:47PM
		1 sealion	06:17:54PM
9/1/03	Stills	1 sealion	02:01:04PM
		1 sealion	04:01:02PM
9/2/03		no sea lions	9:10A
		no sea lions	3:40P
	Stills	no sea lions	
9/3/03			9:54:38A -
		2 sealions	10:05:49A
		3 sealions	12:25:39P
		4 sealions	12:44:58P
	including the pup "FAITH"	6 sealions	12:53P
	including the pup "FAITH"	4 sealions	4:28:53P
		2 sealions	6:17:50P
	Stills	yes	
9/4/03		no sea lions	9:40A
		no sea lions	11:10A
		no sea lions	12:30P
		no sea lions	3:30P
	Stills	no sea lions	
9/5/03		no sea lions	9:10A
		no sea lions	10:45A
		no sea lions	1:05P
	Stills	no sea lions	
9/6/03	Stills	no sea lions	
9/7/03	Stills	no sea lions	
9/8/03		no sea lions	8:50A
		no sea lions	2:35P
		no sea lions	4:30P
	Stills	no sea lions	
9/9/03		no sea lions	9:10A
		no sea lions	12:35P
	Stills	no sea lions	
9/10/03		no sea lions	9:05A
		no sea lions	12:20P
		no sea lions	4:15P
	Stills	1 sea lion in water	8:56:53A
9/11/03		no sea lions	10:45A
		no sea lions	12:10P
		no sea lions	3:25P
	Stills	no sea lions	
9/12/03		no sea lions	9:00A
		no sea lions	2:36P

**Juneau Access  
Sea Lion Haulout  
Gran Point**

**Legend**

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**Sea Lion Monitoring Log  
12/23/02-12/31/04**

Date	Comments	Quantity	Time
	Stills	no sea lions	
9/13/03	Stills	19	
9/14/03	Stills	30+	
9/15/03		50 - 80	8:40A
		50 - 80	1:10P
	Stills	50 - 80	
9/16/03	Sea lions were present all day sighted sea lion H27	100+	8:07A
	Stills	100+	
9/17/03	sighted sea lion H27 & H32	100+	10:00A
	Stills	100+	
9/18/03		100+	9:15A
	Stills	~ 70	
9/19/03	many present all day called SWS to let them know that camera 2 & 3 not coming in clear and camera 3 left manual button not working. Talked to Matt & Lane	100+	9:00A
9/20/03	Stills	~ 40	
9/21/03	Stills	~ 50	
9/22/03	sighted sea lion F105Y	100+	11:15A
9/23/03		100+	9:00A
	Stills	100+	
9/24/03		100+	10:15A
		100+	12:15P
	Stills	100+	
9/25/03		100+	11:20A
	Stills	100+	
9/26/03		100+	9:15A
	Stills	100+	
9/27/03	Stills - Camera down part-time	100+	
9/28/03	Stills - Camera down part-time	100+	
9/29/03	Stills - Lane from SWS called & said that AT&T was having problems in Haines so the camera wasn't working most of the day.		
	There was a few Stills with 100+ sea lions.	100+	
9/30/03	camera wasn't working most of the day.	100+	
	Stills	100+	
10/1/03	camera wasn't working most of the day.	100+	
	Stills	100+	
10/2/03		100+	
10/3/03	Stills	~ 50	
10/4/03	Stills	~ 30	
10/5/03	Stills	~ 50	
10/6/03	Stills	~ 20	10:04A
	Stills	~ 30	2:04P

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**Sea Lion Monitoring Log  
12/23/02-12/31/04**

Date	Comments	Quantity	Time
10/7/03	Stills	~ 30	10:04A
10/8/03	Stills	~ 35	
10/9/03		~ 30	9:00A
		~ 50	10:20A
	Stills		
10/10/03		~ 100	10:45A
	Stills	~ 100	
10/11/03	Stills	~ 50	
10/12/03	Stills	100+	
10/13/03		90-100	8:40A
		80-90	4:16P
	Stills	~ 50	
10/14/03		~ 100	9:55A
	Stills	~ 100	
10/15/03	Stills	~ 30	
10/16/03	Stills	60+	
10/17/03	Stills	70+	
10/18/03	Stills	30	
10/19/03	Stills	20	
10/20/03		90+	9:30A
	Stills	60-70	
10/21/03		~ 70	9:35A
	Stills	~ 50	
10/22/03		~ 100	9:25A
10/23/03	Stills	25-30	
10/24/03	Stills	~ 50	
10/25/03	Stills	~ 80	
10/26/03	Stills	50-80	
10/27/03	Stills	100+	
10/28/03		100+	9:15A
	Stills	~ 50	
10/29/03	Stills	~ 50	
10/30/03	Stills	100+	
10/31/03		100+	9:30A
		100+	2:00P
	Stills	100+	
11/1/03	Stills	100+	

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
11/2/03	Stills	100+	
11/3/03		100+	9:20A
11/4/03	cameras down		
	Stills	100+	
11/5/03	cameras down - Seemore Wildlife installing DSL		
	Stills	100+	
11/6/03	cameras down	100+	
	Stills	100+	
11/7/03		~ 80	
	Stills	100+	
11/8/03	Stills	~ 50	
11/9/03	Stills	30-50	
11/10/03		40-50	3:15P
	Stills	~ 50	
11/11/03	Stills	100+	
11/12/03	Stills	100+	
11/13/03	camera down - talked to Matt @ SWS. He said that the internet was possibly down in Haines		
	Stills	~ 50	
11/14/03		100+	9:10A
	Stills	100+	
11/15/03	Stills	100+	
11/16/03	cameras down		
	Stills -cameras down, no pics		
11/17/03	camera down in morning	15-20	10:30A
		15-20	1:30P
	Stills - some snow	15-20	
11/18/03	Some snow	27	1:15P
	Stills	10	
11/19/03		100+	9:30A
	Stills		
11/20/03	Camera #1 - out of bounds	80-100	9:25A
	Camera #3 - blurry		
	Stills	~ 50	
11/21/03	camera down		
	Stills	~ 50	
11/22/03	camera down		
	Stills - snow	~ 20	
11/23/03	camera down		
	Stills	80-100	
11/24/03	snow	~ 50	
	Stills	30	

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
11/25/03		~ 100	9:45A
	Stills	100+	
11/26/03	Stills	40-50	
11/27/03	Stills	20-30	
11/28/03	Stills - snow	~ 25	
11/29/03	Stills - no pictures		
11/30/03	Stills -snow	30	
12/1/03	cameras down		
12/2/03	cameras down		
12/3/03	cameras down		
12/4/03	Stills - cameras down	100+	
12/5/03		100+	1:45P
	Stills	100+	
12/6/03	Stills	100+	
12/7/03	Stills	100+	
12/8/03	Stills - snow	100+	
12/9/03		100+	9:55A
	Stills - snow	100+	
12/10/03		100+	10:30A
12/11/03	cameras down		
12/12/03	cameras down		
12/13/03	cameras down		
12/14/03	cameras down		
12/15/03	cameras down		
12/16/03	cameras down		
12/17/03	cameras down		
12/18/03	cameras down		
12/19/03	cameras down		
12/20/03	cameras down		
12/21/03	cameras down		
12/22/03	cameras down		
12/23/03	cameras down		
12/24/03	cameras down		
12/25/03	cameras down		
12/26/03	cameras down		
12/27/03	cameras down		
12/28/03	cameras down		
12/29/03	cameras down		
12/30/03	cameras down		
12/31/03	cameras down		
1/1/04	cameras down		
1/2/04	cameras down		
1/3/04	cameras down		
1/4/04	cameras down		
1/5/04	cameras down		
1/6/04	cameras down		
1/7/04		~ 15	9:10A
	Stills	0	
1/8/04		~ 30	11:15A

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
1/9/04	cameras down		
1/10/04	cameras down		
1/11/04	cameras down		
1/12/04	cameras down		
1/13/04	cameras down		
1/14/04	cameras down		
1/15/04	cameras down		
1/16/04	cameras down		
1/17/04	cameras down		
1/18/04	cameras down		
1/19/04	cameras down		
1/20/04	cameras down		
1/21/04	Stills	30-40	
1/22/04	Stills	100+	
1/23/04	cameras down		
1/24/04	cameras down		
1/25/04	cameras down		
1/26/04	cameras down		
1/27/04		2	10:15A
1/28/04		10	2:30P
	Stills (no pics)		
1/29/04		~ 50	9:30A
	Stills	~ 30 - 50	
1/30/04	Stills	100+	
1/31/04	no Stills		
2/1/04	no Stills		
2/2/04		100+	1:30P
	Stills	100+	
2/3/04		100+	10:30A
	Stills	100+	
2/4/04	some in water - snowing hard		10:30A
	1 Still - can not see any sea lions		
2/5/04	no stills		
2/6/04	no stills		
2/7/04	5 stills of one area only	few	
2/8/04	no stills		
2/9/04	no stills		
2/10/04	Stills	none	
2/11/04	Stills	25	
2/12/04		100+	12:00 noon
	Stills	~ 75	
2/13/04		100+	11:20A
	Stills	100+	
2/14/04	Stills	50-75	
2/15/04	Stills	100	
2/16/04	Stills	100	
2/17/04	Stills	50-75	
2/18/04	Many in water - snowing - middle area (50)	50+	11:00A
	Stills-snow	75	

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
2/19/04	Stills	some	
2/20/04	Stills	some	
2/21/04	Stills	some	
2/22/04	Stills	none	
2/23/04	no Stills		
2/24/04	Stills	100+	
2/25/04	Stills	~ 80	
2/26/04	Stills	~ 30	
2/27/04	Stills	100+	
2/28/04	Stills	100+	
2/29/04	Stills	100+	
3/1/04	Stills	100+	
3/2/04	Stills	100+	
3/3/04	no Stills		
3/4/04	Stills	~ 50	
3/5/04	Stills	100+	
3/6/04	Stills	~ 60-70	
3/7/04	Stills	100+	
3/8/04	Stills - snow - saw no sea lions	none	
3/9/04	Stills	~ 50	
3/10/04	Stills	~ 50	
3/11/04	Stills	~ 100	
3/12/04	Stills	100+	
3/13/04	Stills	100+	
3/14/04	Stills	100+	
3/15/04	Stills	25-50	
3/16/04		100+	12:00P
	Stills	100+	
3/17/04	Stills	100+	
3/18/04	Stills	~ 100	
3/19/04		100+	10:45A
	Stills	~ 100	
3/20/04	Stills	~ 50 - 70	
3/21/04	no stills	0	
3/22/04	Stills	100+	
3/23/04	No stills	0	
3/24/04	Stills	100+	
3/25/04	Stills	100+	
3/26/04	Stills	100+	
3/27/04	Stills	50+	
3/28/04	Stills	5 - 10	
3/29/04	Stills	20 - 50	
3/30/04	Stills	~ 100	

Juneau Access  
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Sea Lion Monitoring Log  
 12/23/02-12/31/04

Date	Comments	Quantity	Time
3/31/04	Stills	~ 100+	
4/1/04	Stills	100+	
4/2/04	Stills	100+	
4/3/04	Stills	100+	
4/4/04	Stills	100+	
4/5/04	Stills	100+	
4/6/04	Stills	100+	
4/7/04	Stills - 50-70 on land a many in water	~ 50 - 70	
4/8/04	Many in the water	~ 50 - 60	1:45P
	Stills	50	
4/9/04		~ 10	10:45A
	Stills- a few on land and some in water	10+	
4/10/04	Stills	50 - 80	
4/11/04	Stills	100+	
4/12/04		100+	10:45A
4/13/04	Stills	~ 80	
4/14/04	Stills	100+	
4/15/04	Stills	100+	
4/16/04	Stills	~ 60 - 80	
4/17/04	Stills	~ 80	
4/18/04	Stills	100+	
4/19/04		100+	2:43 P
	Stills	100+	
4/20/04		100+	11:40A
	Stills	100+	
4/21/04		100+	all day
	Stills	100+	
4/22/04		~ 50	9:00A
	Stills	~ 50	
4/23/04	Stills	100+	
4/24/04	Stills	~ 80 -100	
4/25/04	Stills	~ 25 - 50	
4/26/04	Stills	100+	
4/27/04	Stills	100+	
4/28/04	Stills	100+	
4/29/04		100+	all day
	Stills	100+	
4/30/04		100+	2:45P
	Stills	100+	
5/1/04	Stills	100+	
5/2/04	Stills	100+	
5/3/04	Stills	100+	

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
5/4/04	Stills	100+	
5/5/04	Stills	100+	
5/6/04	Stills - camera #3 down	100+	
5/7/04	Stills - camera #3 down	100+	
5/8/04	Stills - camera #3 down	100+	
5/9/04	Stills - camera #3 down	100+	
5/10/04		100+	
5/11/04		100+	11:00 A
5/12/04		100+	11:00 A
5/13/04		100+	11:05 AM
5/14/04		100+	9:15 A
5/15/04	Stills	100+	
5/16/04	Stills	50+	
5/17/04		100+	10:30 AM
5/18/04		100+	9:30 AM
5/19/04	Stills	100+	
5/20/04	Stills	100+	
5/21/04	Stills	25	
5/22/04	Stills	100+	
5/23/04	Stills	100+	
5/24/04	Stills	100+	
5/25/04	Stills	100+	
5/26/04	Stills	100+	
5/27/04	Stills	100+	
5/28/04	Stills	100+	
5/29/04	Stills	100+	
5/30/04	Stills	100+	
5/31/04	Stills	100+	
6/1/04	Stills	100+	
6/2/04		100+	2:10 PM
6/3/04		100+	10:00 AM
6/4/04		100+	
6/5/04	Stills	100+	
6/6/04	Stills	100+	
6/7/04	Stills	100+	
6/8/04	Stills	100+	
6/9/04	Stills	100+	
6/10/04	Stills	100+	
6/11/04	Stills	100+	
6/12/04	Stills	100+	
6/13/04	Stills	100+	
6/14/04		100+	11:25 AM
6/15/04		100+	10:00-11:00 AM
6/16/04		100+	
6/17/04		100+	
6/18/04		100+	
6/19/04	Stills	100+	
6/20/04	Stills	100+	
6/21/04	Stills	100+	
6/22/04	Stills	60-80	
6/23/04	only a few bulls	100+	2:15 PM

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
6/24/04	all in water but 6	~ 80	4:25 PM
6/25/04	~ 30 in water, 30 on main slab & 30 S rocks	~ 60	11:00 AM
6/26/04	Stills	100+	10:35 AM
6/27/04	Stills	100+	12:54 PM
6/28/04		100+	11:00 AM
6/29/04	Stills	100+	4:29 PM
6/30/04	Stills	100+	3:49 PM
7/1/04	Stills	100+	12:29 PM
7/2/04		100+	11:30 AM
7/3/04	Stills	100+	12:44 PM
7/4/04	Stills 60+ on land and many in water	60+	12:23 PM
7/5/04	Stills	100+	12:54 PM
7/6/04		100+	10:30 AM
7/7/04	Stills	100+	3:00 PM
7/8/04		100+	11:15 AM
		100+	2:00 PM
7/9/04		100+	11:00 PM
7/10/04	Stills	100+	11:54
7/11/04	Stills	100+	11:00 AM
7/12/04		100+	9:04 AM
		100+	1:30 PM
7/13/04	No large bulls-4 whales- 1 sea lion on s. slab	1	9:16 AM
	Stills	100+	11:06 AM
7/14/04	No large bulls	100+	11:09 AM
		100+	1:10 PM
7/15/04	No large bulls	~ 90	11:15 AM
7/16/04	No large bulls-1 whale	none on main slab	10:36 AM
		100+	3:43 PM
7/17/04	Stills	100+	4:27 PM
		100+	1:29 PM
7/18/04	Stills - many in water	80-100	1:04 PM
		80-100	2:44 PM
7/19/04		~ 50	10:36 AM
		100+	4:08 PM
7/20/04		100+	8:49 PM
		~ 80	1:05 PM
		100+	3:29 PM
7/21/04		100+	10:22 AM
		100+	4:30 PM
7/22/04		80-100	9:00 AM
7/23/04		60-70	8:48 AM
		60-70	1:12 PM
7/24/04	Stills	100+	2:14 PM
7/25/04	Stills	100+	1:00 PM
7/26/04		100+	1:00 PM
7/27/04		100+	9:00 AM
		100+	2:25 PM
		100+	4:28 PM
7/28/04		80+	9:14 AM
7/29/04	Stills	100+	3:00 PM
7/30/04		100+	12:06 PM

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Date	Comments	Quantity	Time
7/31/04	Stills	100+	1:00 PM
8/1/04	Stills	100+	1:00 PM
		100+	3:50 PM
8/2/04		100+	1:10 PM
8/3/04		~ 50 - 70	10:17 AM
		100+	10:32 AM
	Stills - some in water	~ 15	1:25 PM
8/4/04		~ 60	11:15 AM
8/5/04		100+	8:55 AM
		100+	1:00 PM
		100+	2:10 PM
8/6/04	Camera #1 replaced	~ 50	9:40 AM
		~ 9	4:22 PM
8/7/04	Stills	no sea lions	all day
	Stills	no sea lions	all day
8/8/04		no sea lions	all day
8/9/04		no sea lions	
8/10/04		no sea lions	
8/11/04		no sea lions	
8/12/04		no sea lions	
8/13/04		no sea lions	
8/14/04		no sea lions	8:40 AM
		70 - 90	2:30 PM
8/15/04	Stills	50+	
8/16/04		70 - 90	2:00 PM
8/17/04		no sea lions	morning
		5	afternoon
			morning & afternoon
8/18/04		5 - 10	afternoon
8/19/04		no sea lions	9:30 AM
	Stills	2	3:01 PM
8/20/04	Stills	1	2:11 PM
8/21/04	Stills	~ 25	4:00 PM
8/22/04	Stills	50 - 75	1:40 PM
8/23/04		no sea lions	
8/24/04	Stills	1	
8/25/04	Stills	2	
8/26/04	Stills	1	
8/27/04	Stills	20 - 30	
8/28/04	Stills	no sea lions	
8/29/04	Stills	3	
8/30/04	Stills	some in water only	
8/31/04	Stills	some in water only	12:52 PM
9/1/04		50 - 70	3:47 PM
9/2/04		100+	
9/3/04		100+	
9/4/04		~ 50	
9/5/04		50 - 70	
9/6/04		50 - 70	
9/7/04		100+	
9/8/04		100+	
9/9/04		100+	

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Sea Lion Monitoring Log  
12/23/02-12/31/04

Date	Comments	Quantity	Time
9/10/04	Stills	~ 100	
9/11/04	Stills	~ 100	
9/12/04	Stills	~ 100	
9/13/04		100+	
9/14/04		50 - 60	
9/15/04		100+	
9/16/04		100+	
9/17/04		~ 50	
9/18/04		100+	
9/19/04	No Stills		
9/20/04		50 - 60	
9/21/04		100+	
9/22/04		100+	
9/23/04		100+	
9/24/04		100+	
9/25/04		100+	
9/26/04		100+	
9/27/04		100+	
9/28/04		100+	
9/29/04		100+	
9/30/04		100+	
10/1/04		100+	
10/2/04		100+	
10/3/04		100+	
10/4/04		100+	
10/5/04		100+	
10/6/04		~ 90	
10/7/04		~ 50	
10/8/04		100+	
10/9/04		100+	
10/10/04		100+	
10/11/04		100+	
10/12/04		~ 15	
10/13/04		100+	
10/14/04		100+	
10/15/04		100+	
10/16/04		100+	
10/17/04		100+	
10/18/04		100+	
10/19/04		100+	
10/20/04		100+	
10/21/04		50 - 75	
10/22/04		100+	
10/23/04		100+	
10/24/04	snow	~ 50	
10/25/04		100+	
10/26/04		100+	
10/27/04		100+	
10/28/04		100+	
10/29/04		100+	
10/30/04		100+	
10/31/04	no pics - cameras down		

Juneau Access  
 Sea Lion Haulout  
 Gran Point

**Legend**

WE = Weekend
NS = No Camera Signal
~ = Approximately
Few = 6 or less present
N = North
S = South

**Sea Lion Monitoring Log**  
 12/23/02-12/31/04

Date	Comments	Quantity	Time
11/1/04		100+	
11/2/04		100+	
11/3/04		~ 20	
11/4/04		100+	
11/5/04		100+	
11/6/04		100+	
11/7/04	snow	100+	
11/8/04		100+	
11/9/04		100+	
11/10/04		100+	
11/11/04		100+	
11/12/04		100+	
11/13/04		50 - 75	
11/14/04		100+	
11/15/04		100+	
11/16/04		100+	
11/17/04		100+	
11/18/04		100+	
11/19/04		100+	
11/20/04		100+	
11/21/04		100+	
11/22/04		75+	
11/23/04		100+	
11/24/04		100+	
11/25/04		~ 80	
11/26/04	cameras not on		
11/27/04	cameras not on		
11/28/04		~ 50	
11/29/04		100+	
11/30/04		100+	
12/1/04		100+	
12/2/04	no camera #1	~ 75	
12/3/04	no camera #1	~ 50	
12/4/04		~ 75	
12/5/04		100+	
12/6/04	light snow	100+	
12/7/04		100+	
12/8/04	trouble with cameras out of focus	~ 25	
12/9/04	snow	~ 30	
12/10/04		100+	
12/11/04	snow	100+	
12/12/04		100+	
12/13/04		100+	
12/14/04		100+	
12/15/04		60+	
12/16/04		100+	
12/17/04		100+	
12/18/04		100+	
12/19/04		100+	
12/20/04		100+	
12/21/04		100+	
12/22/04		35	

Juneau Access  
Sea Lion Haulout

Gran Point

Sea Lion Monitoring Log  
12/23/02-12/31/04

Legend

WE = Weekend  
NS = No Camera Signal  
~ = Approximately  
Few = 6 or less present  
N = North  
S = South

Date	Comments	Quantity	Time
12/23/04		10	
12/24/04		100+	
12/25/04		~ 5	
12/26/04		100+	
12/27/04	snow	20	
12/28/04	snow	20	
12/29/04	snow	10	
12/30/04		10	
12/31/04		45	

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