Juneau Access Improvements Project
Draft Supplemental Environmental Impact Statement

2014 Update to Appendix S
Steller Sea Lion Technical Report

Prepared for:

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Attachments

Attachment A: Gran Point Sea Lion Haulout Monitoring Logs

Acronyms and Abbreviations

ACF	Alaska Class Ferry
ADF&G	Alaska Department of Fish and Game
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AMHS	Alaska Marine Highway System
BA	biological assessment
dBA	A-weighted decibels
DEIS	Draft Environmental Impact Statement
DOT&PF	Alaska Department of Transportation and Public Facilities
DPS	distinct population segment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FVF	Fast Vehicle Ferry
ips	inches per second
JAI	Juneau Access Improvements
LOC	Letter of Concurrence
M	meter
MMPA	Marine Mammal Protection Act
µP	micropascals
NEPA	National Environmental Policy Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NMML	National Marine Mammal Laboratory
NPS	National Park Service
RMS	Root Mean Square
ROD	Record of Decision
SEIS	Supplementary Environmental Impact Statement
SNFO	ammonium nitrate/fuel oil
SPCC	Spill Prevention, Control, and Countermeasures
USACE	U.S. Army Corps of Engineers
ZOI	Zone of Influence

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1. Introduction

This report is an update to the December 2004 *Steller Sea Lion Technical Report*, which was presented as Appendix S of the Juneau Access Improvements (JAI) Project Supplemental Draft Environmental Impact Statement (EIS). The 2004 report analyzed the potential impacts of Alternatives 2, 2A, 2B, 2C, 3, 4B, and 4D on wildlife habitat and species.

The findings of the 2004 *Steller Sea Lion Technical Report* concluded that no direct effects to Steller sea lions would occur under Alternatives 1, 3, 4A, 4B, 4C, and 4D. Potential direct effects would occur under Alternatives 2, 2A, 2B, and 2C because an East Lynn Canal Highway would pass close to the Gran Point and Met Point haulouts. The actual amount of disturbance caused during construction and use of this highway would depend on the types of mitigation measures incorporated into the project, along with additional measures recommended by the National Marine Fisheries Service (NMFS) under Endangered Species Act (ESA) Section 7 consultation.

During its development of the JAI Project Final EIS, the Alaska Department of Transportation and Public Facilities (DOT&PF) responded to comments on the Supplemental Draft EIS, incorporated new data and further analysis for some resources, and incorporated additional mitigation measures to reduce impacts to wildlife and habitat. The DOT&PF also made some changes to Alternative 2B and removed Alternatives 2, 2A, and 2C from the range of reasonable alternatives. Many of these changes prompted DOT&PF to update supporting technical reports with addenda, including the *Addendum to Appendix S - Steller Sea Lion Technical Report*, which were compiled in Appendix W of the 2006 Final EIS. In 2005, the Federal Highway Administration (FHWA) conducted ESA Section 7 consultation as part of the Final EIS process. Informal consultation between NMFS and FHWA for Alternative 2B concluded with NMFS's issuance of a Letter of Concurrence (LOC) that the project was "not likely to adversely affect" Steller sea lions and was "not likely to adversely modify" for critical habitat. The determination was based upon mitigation measures proposed by FHWA and additional conditions required by the NMFS. These measures were included in the 2006 Record of Decision (ROD).

Seven years have passed since the 2006 Final EIS and ROD were published, and the FHWA and DOT&PF recognized the need to update previous technical reports as part of the JAI Project 2014 Draft Supplemental Environmental Impact Statement (SEIS). Updates are needed to reflect changes in regulations, new information related to the potentially affected environment or conditions, updated analysis, evaluation of the newly added Alternative 1B, changes in the design or alignment for Alternatives 2B and 3, and the widening of the recently constructed Glacier Highway Extension between Echo Cove and Sawmill Creek that is common to Alternatives 2B, 3, 4B, and 4D. Three key components that affected changes to the design and alignment of Alternative 2B and 3 since the 2006 ROD are changes in 2006 during the U.S. Army Corps of Engineers (USACE) permitting process to minimize impacts to wetlands and reduce the extent of rock side cast areas, changes in 2009 based on advanced geotechnical survey information, and changes in 2012 in response to updated bald eagle nest survey data.

This 2014 update replaces the 2005 *Addendum to Appendix S – Steller Sea Lion Technical Report.* It also describes new regulations, results of the Steller sea lion monitoring counts at Gran

Point, and updated project conditions since the 2004 *Steller Sea Lion Technical Report* was issued. Much of the 2004 report remains valid. This 2014 update provides:

- Regulatory update on the ESA status of the Steller sea lion, including the delisting of the eastern distinct population segment (DPS) of the Steller sea lion;
- Results of sea lion counts from monitoring at the Gran Point Steller sea lion haulout from 2004 to 2011;
- Evaluation of a new alternative (Alternative 1B) that improves ferry service utilizing existing Alaska Marine Highway System (AMHS) assets; and
- Re-evaluation of Alternatives 2B and 3 due to alignment shifts and NMFS guidelines related to noise harassment thresholds for pinnipeds that were issued after the 2006 ROD.

1.1 Project Description

As required by the National Environmental Policy Act (NEPA), this technical report considers the following reasonable alternatives.

1.1.1 Alternative 1 – No Action

The No Action Alternative (Alternative 1) includes a continuation of mainline ferry service in Lynn Canal and incorporates two Day Boat Alaska Class Ferries (ACFs). The AMHS would continue to be the National Highway System (NHS) route from Juneau to Haines and Skagway, and no new roads or ferry terminals would be built. In addition to the Day Boat ACFs, programmed improvements include improved vehicle and passenger staging areas at the Auke Bay and Haines ferry terminals to optimize traffic flow on and off the Day Boat ACFs as well as expansion of the Haines Ferry Terminal to include a new double bow berth to accommodate the Day Boat ACFs. This alternative is based on the most likely AMHS operations in the absence of any capital improvements specific to the JAI Project.

Mainline service would include two round trips per week in the summer and one per week in the winter with Auke Bay-Haines-Skagway-Haines-Auke Bay routing. During the summer, one Day Boat ACF would make one round trip between Auke Bay and Haines six days per week, and one would make two round trips per day between Haines and Skagway six days per week. The Day Boat ACFs would not sail on the seventh day because the mainliner is on a similar schedule. In the winter, ferry service in Lynn Canal would be provided primarily by the Day Boat ACFs three times per week. The *M/V Malaspina* would no longer operate as a summer day boat in Lynn Canal.

1.1.2 Alternative 1B – Enhanced Service with Existing AMHS Assets

Alternative 1B includes all of the components of Alternative 1, No Action, but focuses on enhancing service using existing AMHS assets without major initial capital expenditures. Similar to Alternative 1, Alternative 1B includes a continuation of mainline ferry service in Lynn Canal; the AMHS would continue to be the NHS route from Juneau to Haines and Skagway; no new roads or ferry terminals would be built; and in addition to the Day Boat ACFs, programmed improvements include improved vehicle and passenger staging areas at the Auke Bay and Haines ferry terminals to optimize traffic flow on and off the Day Boat ACFs as well as expansion of the Haines Ferry Terminal to include a new double bow berth to accommodate the Day Boat ACFs.

Service to other communities would remain the same as with the No Action Alternative. Alternative 1B keeps the *M/V Malaspina* in service after the second Day Boat ACF is brought online to provide additional capacity in Lynn Canal. Enhanced services included as part of Alternative 1B are a 20 percent reduction in fares for trips in Lynn Canal and extended hours of operations for the reservation call center.

Mainline service would include two round trips per week in the summer and one per week in the winter with Auke Bay-Haines-Skagway-Haines-Auke Bay routing. During the summer, the *M/V Malaspina* would make one round trip per day seven days per week on a Skagway-Auke Bay-Skagway route, while one Day Boat ACF would make one round trip between Auke Bay and Haines six days per week, and one would make two round trips per day between Haines and Skagway six days per week. The Day Boat ACFs would not sail on the seventh day because the mainliner would be on a similar schedule. In the winter, ferry service in Lynn Canal would be provided primarily by the Day Boat ACFs three times per week.

1.1.3 Alternative 2B – East Lynn Canal Highway to Katzehin, Shuttles to Haines and Skagway

Alternative 2B would construct the East Lynn Canal Highway (50.8 miles, including 47.9 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove around Berners Bay to a new ferry terminal 2 miles north of the Katzehin River. Ferry service would connect Katzehin to Haines and Skagway. In addition, this alternative includes modifications to the Skagway Ferry Terminal to include a new end berth and construction of a new conventional monohull ferry to operate between Haines and Skagway. Mainline ferry service would end at Auke Bay. This alternative assumes the following improvements will have been made independent of the JAI Project before Alternative 2B would come on-line: two Day Boat ACFs, improved vehicle and passenger staging areas at the Haines Ferry Terminal to optimize traffic flow on and off the Day Boat ACFs, and expansion of the Haines Ferry Terminal to include two new double bow berths.

During the summer months, one Day Boat ACF would make eight round trips per day between Haines and Katzehin, a second Day Boat ACF would make six round trips per day between Skagway and Katzehin, and the Haines-Skagway shuttle ferry would make two trips per day. During the winter, one Day Boat ACF would make six round trips per day between Haines and Katzehin, and a second Day Boat ACF would make four round trips per day between Skagway and Katzehin. The Haines-Skagway shuttle would not operate; travelers going between Haines and Skagway would travel to Katzehin and transfer ferries.

1.1.4 Alternative 3 – West Lynn Canal Highway

Alternative 3 would upgrade/extend the Glacier Highway (5.2 miles, including 2.3 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove to Sawmill Cove in Berners Bay. New ferry terminals would be constructed at Sawmill Cove in Berners Bay and at William Henry Bay on the west shore of Lynn Canal, and the Skagway Ferry Terminal would be modified to include a new end berth. A new 38.9-mile highway would be constructed from the William Henry Bay Ferry Terminal to Haines with a bridge across the Chilkat River/Inlet connecting into Mud Bay Road. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. Mainline ferry service would end

at Auke Bay. This alternative assumes the following improvements will have been made independent of the JAI Project before Alternative 3 would come on-line: two Day Boat ACFs, improved vehicle and passenger staging areas at the Haines Ferry Terminal to optimize traffic flow on and off the Day Boat ACFs, and expansion of the Haines Ferry Terminal to include two new double bow berths.

During the summer, two Day Boat ACFs would make six round-trips per day between Sawmill Cove and William Henry Bay (total of 12 trips each direction), and the Haines-Skagway shuttle ferry would make six round-trips per day. During the winter, one Day Boat ACF would make four round-trips per day between Sawmill Cove and William Henry Bay, and the Haines-Skagway shuttle ferry would make four round-trips per day.

1.1.5 Alternatives 4A through 4D – Marine Alternatives

All four marine alternatives would include continued mainline ferry service in Lynn Canal with a minimum of two trips per week in the summer and one per week in the winter with Auke Bay-Haines-Skagway-Haines-Auke Bay routing. Each marine alternative includes a new conventional monohull shuttle that would make two round trips per day between Haines and Skagway six days a week in the summer and a minimum of three round trips per week between Haines and Skagway in the winter. The AMHS would continue to be the NHS route from Juneau to Haines and Skagway. These alternatives assume the following improvements will have been made independent of the JAI Project before the alternative comes on-line: improved vehicle and passenger staging areas at the Auke Bay and Haines ferry terminals to optimize traffic flow on and off the Day Boat ACFs, and expansion of the Haines Ferry Terminal to include new double bow berths.

1.1.5.1 Alternative 4A – Fast Vehicle Ferry Service from Auke Bay

Alternative 4A would construct two new fast vehicle ferries (FVFs). No new roads would be built for this alternative, and the Auke Bay Ferry Terminal would be expanded to include a new double stern berth. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. The *M/V Malaspina* would no longer operate as a summer day boat in Lynn Canal, and the Day Boat ACFs would no longer operate in Lynn Canal. The FVFs would make two round trips between Auke Bay and Haines and two round trips between Auke Bay and Skagway per day in the summer. During the winter, one FVF would make one round trip between Auke Bay and Haines and one round trip between Auke Bay and Skagway each day.

1.1.5.2 Alternative 4B – Fast Vehicle Ferry Service from Berners Bay

Similar to Alternative 4A, Alternative 4B would construct two new FVFs. This alternative would upgrade/extend Glacier Highway (5.2 miles, including 2.3 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove to Sawmill Cove in Berners Bay, where a new ferry terminal would be constructed. The Auke Bay Ferry Terminal would be expanded to include a new double stern berth. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. The *M/V Malaspina* would no longer operate as a summer day boat in Lynn Canal, and the Day Boat ACFs would no longer operate in Lynn Canal. In the summer, the FVFs would make two round trips between Sawmill Cove and Haines and two round trips between Sawmill Cove and Skagway per day. During the

winter, one FVF would make one round trip between Auke Bay and Haines and one round trip between Auke Bay and Skagway each day.

1.1.5.3 Alternative 4C – Conventional Monohull Service from Auke Bay

Alternative 4C would use Day Boat ACFs to provide additional ferry service in Lynn Canal. No new roads would be built for this alternative. The Auke Bay Ferry Terminal would be expanded to include a new double stern berth, and the Skagway Ferry Terminal would be expanded to include a new end berth. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. In the summer, one Day Boat ACF would make one round trip per day between Auke Bay and Haines, and one Day Boat ACF would make one round trip per day between Auke Bay and Skagway. During the winter, one Day Boat ACF would alternate between a round trip to Haines one day and a round trip to Skagway the next day.

1.1.5.4 Alternative 4D – Conventional Monohull Service from Berners Bay

Alternative 4D would use Day Boat ACFs to provide additional ferry service in Lynn Canal. This alternative would upgrade/extend Glacier Highway (5.2 miles, including 2.3 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove to Sawmill Cove in Berners Bay, where a new ferry terminal would be constructed. The Auke Bay Ferry Terminal would be expanded to include a new double stern berth, and the Skagway Ferry Terminal would be expanded to include a new end berth. This alternative includes construction of a new conventional monohull ferry that would operate between Haines and Skagway. In the summer, the Day Boat ACFs would make two trips per day between Sawmill Cove and Haines and two trips per day between Sawmill Cove and Skagway. During the winter, a Day Boat ACF would operate from Auke Bay, alternating between a round trip to Haines one day and to Skagway the next day.

2. Regulatory Update

As described in the 2004 *Steller Sea Lion Technical Report*, the NMFS Protected Resources Division is responsible for the management of the Steller sea lion under the ESA and Marine Mammal Protection Act (MMPA). In 1990, NMFS originally listed the Steller sea lion under the ESA in response to a decline in populations throughout its range (55 FR 29792). Critical habitat was designated in 1994 (59 FR 30715). Then in 1997, NMFS re-characterized the western and eastern populations of Steller sea lion in Alaska as two DPSs (western and eastern), based on demographic and genetic differences (62 FR 30772). The two populations (western and eastern) of Steller sea lion are separated geographically by the dividing line near Cape Suckling, approximately 50 miles southeast of Cordova, Alaska. The western DPS is listed as "endangered" under the ESA. The eastern DPS, previously listed as "threatened," was removed from the list of Endangered and Threatened Species on December 4, 2013. In a Status Review of the eDPS completed in October 2013, NMFS concluded that the recovery criteria set forth in the Recovery Plan for this DPS have been met, and that the eastern DPS should be delisted (NMFS, 2013). The Final Rule to delist the eDPS was published in the *Federal Register* on November 4, 2013 (78 FR 66140). The delisting was final on December 4, 2013. The eDPS is considered a sensitive species for the USFS.
Steller sea lions that inhabit Lynn Canal are part of the eastern DPS, but branded individuals from the western DPS have been spotted in the JAI Project area, including hauled out at Gran Point, where the DOT&PF has a video-monitoring system. Further discussion of these populations is included in Section 3 below.

Under the ESA, designated critical habitat for Steller sea lions consists of major rookeries and haulouts (as well as key foraging areas in the Gulf of Alaska and Bering Sea) (59 FR 30715). The critical habitat designation includes all the land, air, and water within a 3,000-foot radius of a listed latitude and longitude. The essential physical and biological features of critical habitat that support reproduction, foraging, resting, and refuge for Steller sea lions include terrestrial habitats used as rookeries and haulouts, aquatic habitats that include nearshore waters around rookeries and haulouts, communal rafting sites, food resources, and foraging habitats (59 FR 30715). There are several known haulout sites in Lynn Canal; however, only the Gran Point haulout ($59^{o}08.0$' N latitude, 135^{o} 14.5' W longitude) is designated as critical habitat within the JAI Project area. The designated critical habitat in eastern Alaska would remain even if NMFS delists the eastern DPS of Steller sea lions, because the original designation in 1994 applied to the species as a whole, before the two populations were recognized as DPSs, and individuals from the western DPS may use the Gran Point haulout (Rotterman, personal communication 2012).

The JAI Project began informal Section 7 consultation with NMFS in 1994 regarding potential impacts to Steller sea lions and has had continued contact with NMFS throughout the project's development. NMFS has concurred with FHWA twice (in 1998 and 2005) that, with appropriate mitigation measures, the preferred alternatives (Alternative 2 in 1998 and Alternative 2B in 2005) are not likely to adversely affect ESA-listed species, including the Steller sea lion, or their critical habitat. FHWA intends to re-initiate ESA consultation with NMFS following completion of the JAI Project 2014 Draft SEIS and selection of a preferred alternative.

It is anticipated that formal ESA consultation will be required if either Alternative 2B or 3 is selected. For Alternative 2B, this is because of the designated critical habitat at the Gran Point haulout as well as the presence of individuals of the western DPS at Gran Point and Met Point that may be adversely affected by project construction; and for Alternative 3, because NMFS previously advised that early spring ferry operations in Berners Bay would adversely affect Steller sea lions and humpback whales. Measures to minimize impacts to the eastern DPS population would be developed under the Marine Mammal Protection Act (MMPA).

3. Affected Environment

The physical environment of the east side of Lynn Canal has not changed significantly since it was described in the 2004 *Steller Sea Lion Technical Report*. The Steller sea lion population in Southeast Alaska, however, has increased notably since 2005. This section describes new population information and monitoring data from the Gran Point haulout to reflect changes in sea lion populations in the project area.

3.1 Steller Sea Lion Population Abundance Estimates

3.1.1 Western DPS

Allen and Angliss (2012) reported that the total number of western DPS Steller sea lions throughout their range was approximately 58,000 to 72,000 individuals. Between 2000 and 2011, NMFS estimated that the number of western DPS Steller sea lions in Alaska increased from 42,500 to 52,200 individuals (Fritz, personal communication, 2013). NMFS estimates that approximately 2 to 3 percent of individuals from the western DPS have been branded (1,222 of 47,350). This number considers the total population size and assumes that, on average, only half of the branded pups are currently extant.

ADF&G documented western DPS Steller sea lions in the eastern region during standard brand-resight surveys conducted from a skiff off of the Gran Point and Benjamin Island haulouts. These observations were confirmed by comparing photographs taken during the surveys with photographs in ADF&G's database (Jemisen, personal communication 2013). ADF&G has documented 88 branded western DPS Steller sea lions in the eastern region, of which 40 percent were female, and 9 of these animals gave birth at rookeries in the eastern region. Data suggest that 5 out of these 9 females have permanently immigrated to the eastern region. The first western DPS Steller sea lions documented near the project area occurred in 2003 at Benjamin Island in Southern Lynn Canal. This animal was subsequently re-sighted in 2003 and 2004. Two additional animals have been observed at Benjamin Island in 2005 and 2006. Three individual western DPS Steller sea lions have been observed by ADF&G repeatedly at Gran Point from 2003 through 2012. There have been no western DPS Steller sea lions documented at Met Point (Jemison, personal communication 2013).

3.1.2 Eastern DPS

The eastern DPS has experienced an estimated overall rate of increase of 4.3 percent per year, from an estimated 18,000 animals in 1979 to more than 63,000 animals in 2009 (77 FR 23209). In Southeast Alaska, eastern DPS Steller sea lion pup production increased from 5,510 in 2005 to 7,442 in 2009 (77 FR 23209). This overall increase in the population of eastern DPS Steller sea lions has led NMFS to determine that the population has recovered and no longer meets the definition of a threatened species under the ESA (77 FR 23209).

3.2 Steller Sea Lion Critical Habitat

Under the ESA, designated critical habitat includes physical and biological habitat features that support reproduction, foraging, rest, and refuge essential to the conservation and recovery of threatened and endangered species, including the Steller sea lion. These essential habitats are divided into three types: terrestrial, air, and aquatic areas. For Steller sea lions, terrestrial areas

include rookeries and haulouts. Air surrounding designated critical habitat is important in avoiding and minimizing disturbances to Steller sea lions. Aquatic areas are nearshore waters around rookeries and haulouts. These areas provide access to the water where sea lions spend the majority of their time. They also provide a refuge to which animals may retreat from land disturbances.

Gran Point, 5 miles south of the Katzehin River, was designated as critical habitat for threatened and endangered 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. As noted in Section 2 above, the designated critical habitat in eastern Alaska remains with the delisting of the eastern DPS of Steller sea lion, because the original designation in 1994 applied to the species as a whole, before the two populations were recognized as DPSs. Consequently, consultation would be required to evaluate the effects of a proposed action on Gran Point as critical habitat for the endangered western DPS (Rotterman, personal communication 2012).

3.3 Distribution within Lynn Canal

In addition to the Gran Point and Met Point haulouts, Steller sea lions also have been observed to haulout in the spring on a small, offshore rock on the eastern shore of the mouth of Slate Creek Cove, near Cove Point, and Point St. Mary in Berners Bay. There is little information on the use of these haulout sites, although juveniles and adults have been observed at those sites during the peak of eulachon (*Thaleichthys pacificus*) and herring (*Clupea pallasii*) spawning in April and May. There are no documented Steller sea lion haulouts on the Katzehin Flats, although Steller sea lions forage in this area. Harbor seals, however, are known to haulout in the flats. Slate Cove has had many observations of Steller sea lion haulouts (NMFS, 2005b).

3.4 Feeding Behavior

Steller sea lions feed on seasonally abundant prey throughout the year. They feed predominately on species that aggregate in schools or for spawning. Principal prey species include walleye pollock (*Theragra chalcogramma*), Atka mackerel (*Pleurogrammus monopterygius*), Pacific salmon (*Onchorhyncus* 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; Womble and Sigler, 2006; Womble et al., 2009). Capelin (*Mallotus villosus*), herring, and eulachon were three of the most frequently occurring prey species in Steller sea lion scat samples from Gran Point during the springs of 2001 through 2003 (Womble et al., 2009).

Spawning eulachon and Pacific herring in Berners Bay support up to 7 to 10 percent of the Southeast Alaska Steller sea lion population for about 3 weeks in April and May (Sigler et al., 2004; Marston et al., 2002; Womble et al. 2005, 2009). 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 Weltz, 1990; Sigler et al.,

2004). Eulachon arrive in the Berners Bay area usually in late April and early May (Harris et al., 2005).

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 130 to 490 feet. 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, with the greatest numbers observed for 3 to 4 weeks in April and May, when individuals feed on spawning runs of eulachon and herring (Gende et al., 2001; Marston et al., 2002; Sigler et al., 2004; Womble et al., 2005). Steller sea lions have been observed feeding cooperatively in Berners Bay in areas where prey species concentrate (Gende et al., 2001), and they have been observed there in foraging groups of 75 to 300 animals. The cooperative feeding behavior involves visual and vocal cues and may help concentrate the prey. Steller sea lions are also seen forming large "rafts" of individuals to sleep or rest. Sigler et al. (2004) estimated that nearly 2,200 Steller sea lions utilize this area to feed on the high-energy food sources. Although the availability of this prey is brief, their abundance and energy content is so great that it likely is important to the energy budget of sea lions, since energy is stored in the blubber for up to 5 or 6 weeks after consumption (NMFS, 2005b). Steller sea lions are most vulnerable to human disturbance during the relatively short period in late April and early May when pre-spawning aggregations of eulachon are present in Berners Bay (Blejwas and Mathews, 2005).

3.5 Gran Point Haulout Data

3.5.1 Background

During preparation of the 1997 JAI Project Draft EIS (DEIS), DOT&PF identified the need to collect data on Steller sea lion use of haulouts in the project area—in particular, the Gran Point and Met Point haulouts. The original intent of this monitoring was to determine if there was a time of year that construction could occur when sea lions were absent. Such information could be factored into the construction schedule of JAI Project alternatives to reduce disturbance impacts on the sea lions. Initial efforts consisted of opportunistic sightings by the ADF&G and personnel during reconnaissance work in 1994 and by an AMHS ferry in transit between Juneau and Skagway. These observations indicated that sea lions appeared to stop using the haulout in early July and did not return until fall or early winter. Using these data, DOT&PF believed that limiting construction near haulouts to the summer season could avoid impacts to Steller sea lions.

3.5.2 Video Monitoring Data, 2002–2005

DOT&PF included commitments in the 1997 DEIS to initiate a multi-year monitoring study to quantify the year-round use of Gran Point and Met Point haulouts by Steller sea lions to confirm that construction during the summer season would avoid impacts to the species. However, the EIS process was put on hold in 1998, so intensive monitoring did not begin until 2002 when

DOT&PF installed a remote-control video camera system at the Gran Point haulout. DOT&PF personnel recorded the daily presence or absence of sea lions from 2002 through 2012 (see Attachment A). The purpose of video monitoring was purely to determine presence or absence, not to estimate population abundance.

Early data from the video-monitoring system at Gran Point, from the time of its installation in late 2002 through September 2005, aligned with the general trend of the 1998 biological assessment (BA). Data indicated that the Gran Point haulout was used most heavily in the spring, with more than a hundred sea lions present at Gran Point on most days. Then usage decreased in the early summer such that there were considerably fewer sea lions present during late summer. During late summer there were periods of time (1- to 5-week blocks) when sea lions were absent. Use of the haulout increased again by early fall, with more than a hundred animals present at each site by mid-September. There were generally fewer animals at Gran Point from December through March.

3.5.3 Video Monitoring Data, 2006–2012

In general, the camera data collected during 2006 through 2012 revealed similar haulout patterns with some yearly variability in Steller sea lion residency and abundance, which is to be expected based on fluctuations in the presence of prey species. However, the more recent data indicate a nearly year-round residency pattern for Steller sea lions. In addition, from 2006 through 2012, more animals were present from late summer through early fall compared to the earlier data (2002 through 2005). Video monitoring during winter months was discontinued in 2008, primarily because the cameras were difficult to maintain during the winter, and winter construction for any JAI Project alternative in the areas around Met Point and Gran Point would be unlikely.

Observations from the video-monitoring data at Gran Point correspond to population count data from NMFS aerial surveys (Womble et al., 2009). These surveys looked at the seasonal distribution patterns of Steller sea lions in southeastern Alaska, including Gran Point and Met Point. Aerial survey data suggested that sea lion use of the Gran Point haulout from October to June may be correlated to the proximity to over-wintering herring aggregations (Womble et al., 2009). Similarly, the peak use of Gran Point by sea lions from October to November may be associated with autumn-spawning salmon migrating through Lynn Canal. Based on analysis of Gran Point sea lion haulout data for 2004–2012, abundance is greatest during March through June, with a peak in May (Womble et al., 2009).

Video-monitoring data do not include information on age or sex composition of Steller sea lions at Gran Point; pups were rarely observed. One study suggests that adult female Steller sea lions with dependent pups likely return to haulout sites in Lynn Canal (e.g., Benjamin Island, Gran Point, and Met Point) to provision their pups between foraging bouts to Berners Bay (Sigler et al., 2004). Many of those pups nurse for 2 to 3 years and are likely still dependent on their mothers for nutrition (Sigler et al., 2004).

3.5.4 Presence of Western DPS at Gran Point

Brands were applied to Steller sea lions between 1987 and 2011. Between 2000 and 2011, the NMFS, National Marine Mammal Laboratory (NMML) estimated that the western DPS

increased in abundance from 42,500 to 52,200 individuals, and, of those individuals, 2 to 3 percent have been branded (Fritz, personal communication, 2013). During monitoring, DOT&PF observed Steller sea lions at Gran Point with brands associated with the Seal Rocks rookery in Prince William Sound (western DPS); Forrester, Hazy, and White Sisters rookeries (eastern DPS); a natal rookery in northern California or Oregon (eastern DPS); and animals that were captured as older pups and juveniles during underwater dive captures, usually at haulouts (DPS unknown; Holman, personal communication, 2013; Jemisen, personal communication, 2013).

ADF&G has documented 88 branded western DPS Steller sea lions in the eastern region. Three individual western DPS Steller sea lions have been observed at Gran Point between 2003 and 2012. One female, born in 2003 at Seal Rocks, has been observed at Gran Point every year between 2004 and 2012. A male, born at Sugarloaf Island in 2004, was seen at Gran Point in 2007. A third western DPS Steller sea lion, born in 2000 at Marmot Island, was observed at Gran Point in 2003 (Jemisen, personal communication 2013). ADF&G's analysis of movement of branded animals between Southeast Alaska and the western DPS estimated that an average of approximately 900 western DPS Steller sea lions travel from the western DPS areas to Southeast Alaska during the breeding season each year (based on 2009 abundance). Observations have documented western DPS Steller sea lions using haulouts in Lynn Canal; therefore, it is likely that other unbranded western DPS individuals visit Lynn Canal (Fritz, personal communication 2013).

4. Environmental Consequences

The following section updates information in Section 4.0 of the 2004 *Steller Sea Lion Technical Report* related to disturbance impacts to Steller sea lions, and incorporates information from the NMFS 2005 Biological Opinion for the Kensington Gold Project (NMFS, 2005b), the revised JAI Project BA (DOT&PF, 2005a), and NMFS's 2005 LOC for the JAI Project (NMFS, 2005a).

Disturbance has been observed to have highly variable effects on hauled-out Steller sea lions, ranging from no reaction to complete departure from the site. As noted by Kucey and Trites (2006), "simple interpretation of disturbance effects can be easily confounded by concurrent natural seasonal changes in behaviors or haul-out patterns, or by daily variability in numbers of animals present that can be attributed to weather, tidal cycle stage, and other factors." The experience or habituation of animals present at haulouts may also influence the level of response to the disturbance (Demarchi, 2009).

The response of animals to disturbance may vary both temporally and spatially among groups within an area, and may result in greater avoidance or tolerance of certain areas depending on the source of the disturbance (Gill et al., 2001). One type of behavioral response to disturbance is for an animal to move away from disturbed areas. This response is typically determined by factors such as quality of the site being occupied, distance and quality of other suitable sites, relative risk of predation, density of competitors, and the investment the individual has made onsite (Gill et al., 2001). Reduced numbers of Steller sea lions using haulout sites following human presence represents a measurable short-term effect of human disturbance (Kucey, 2005). Displacement may lead to reductions in productivity or complete site abandonment. As noted by Kucey and Trites (2006), disruptions may affect an entire haulout of Steller sea lions. Short-term human interactions at haulouts may include disruptions of sea lion daily activities and potential redistribution of animals (Kucey, 2005). Long-term human interactions at haulouts may potentially reduce the amount of time sea lions haulout, or interfere with haulout patterns, which could affect life cycles and activities (Kucey, 2005). Disturbances at foraging areas can also disrupt feeding activities and may cause animals to leave the area, which could lead to additional energy expenditures.

In addition to behavioral responses, there may also be physiological impacts to animals as a result of disturbance. For example, one study showed that when seals were exposed to a stressful stimulus, there was a release of adrenocorticosteroids, and neurochemical changes occurred that could result in changes to heart rate and metabolism (Wolski, 1999; Romano et al., 2004). Activities with no immediate, short-term effects may have the potential to cause effects that do not become apparent until the disturbance has continued for some time (Kucey and Trites, 2006).

Kucey (2005) determined that the likelihood of a sea lion remaining on land after hauling out was influenced mostly by season. Animals took longer to settle down in winter/spring months, which might reflect harsher weather conditions, extreme tidal fluctuations, or a redistribution of sea lions within their social order as the breeding season approaches.

There has been a series of studies conducted in Canada to investigate Steller sea lion responses to the detonation of high explosives at Canada's Department of National Defence Military Training Area Whiskey, Quebec (Demarchi, 2009, 2010a, 2010b; Demarchi et al., 2012). These studies

have shown that the first visible response by a sea lion to a blast was typically the change from a prone or other relaxed position to an alert, head-up posture (Demarchi et al., 2012). Individuals were frequently displaced, moving off the haulout and into the water, by explosive events (Demarchi et al., 2012). These studies have also stated that if one individual rushes toward the water, the others will likely follow. However, Steller sea lions exhibit resilience to disturbance, since they returned to haulouts after blasting (Demarchi et al., 2012).

4.1 Alternative 1B – Enhanced Service with Existing AMHS Assets

This section supplements the alternatives discussion in Section 4.0 of the 2004 *Steller Sea Lion Technical Report.* Alternative 1B would enhance ferry service with existing AMHS assets, and would not result in the construction of any new highways or ferry terminals. As such, impacts to Steller sea lions would be primarily from marine vessel disturbance.

4.1.1 Construction, Maintenance, and Operation

Alternative 1B would not result in construction of any new highways or ferry terminals and would therefore not result in potential effects to Steller sea lions or designated critical habitat at Gran Point aside from those discussed in Sections 4.1.2 and 4.1.3.

4.1.2 Steller Sea Lion and Vessel Interactions

The potential for sea lion and ferry collisions is 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 current operation of the ferries along the AMHS routes. Collisions with vessels are believed to be an insignificant 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, 2000). Vessels that maintained a slow, steady course and kept the engines on seemed to disturb sea lions less than vessels with erratic changes in 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 1B would be relatively slow and consistent in both direction and speed, and would operate well offshore, it is expected that sea lions would be unaffected by these vessels, in the same way they have habituated to other large commercial marine vessels that currently pass the Gran Point and Met Point haulouts.

Vessel fuel leakage, contaminant spills, and pollutant runoff could impair water quality, particularly in areas where vessel activity is concentrated, which could reduce prey in the area or have direct physiological impacts on Steller sea lions and the aquatic areas of designated critical habitat at Gran Point. However, as ferry vessel travel lanes in Lynn Canal are more than 1 mile west of the haulout, the vessels are operated in accordance with Oil Spill Contingency Plans approved by the Alaska Department of Environmental Conservation (ADEC), and on-ship fuel handling and lubrication and waste disposal are conducted by trained personnel using standard operating procedures, the likelihood of these potential impacts is slight.

4.1.3 Effects on Prey Resources

The ferry route for Alternative 1B traverses Lynn Canal and avoids the Berners Bay area where large schools of eulachon and herring are known to aggregate throughout the spring months as the schools stage along the shoreline in preparation for spawning (NMFS, 2005b). Individuals of other prey species in and around the existing 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 Alternative 1B, turbidity could be increased over ambient conditions at the existing Auke Bay, Haines, and Skagway ferry terminals for short periods of time by ferries maneuvering into and out of the terminals. Short-term turbidity and propeller or water jet scour could affect some Pacific herring eggs and larvae in near-shore areas adjacent to the Auke Bay Ferry Terminal. 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 could 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). However, storm drain systems at ferry terminals include sediment traps and oil/water separators, and vessel fueling is conducted in accordance with fuel vendors' approved Spill Prevention, Control, and Countermeasures (SPCC) plans. On-ship fuel handling, lubrication and waste disposal are conducted by trained personnel using standard operating procedures. These factors minimize potential risks to water quality and prey resources.

While the operation of ferry service in Lynn Canal has the potential to impact Steller sea lion prey species, the increasing population of eastern DPS Steller sea lions suggests that there is sufficient prey available (NMFS, 2005b).

4.2 Alternative 2B – East Lynn Canal Highway to Katzehin, Shuttles to Haines and Skagway

The following sections update Section 4.4 of the 2004 *Steller Sea Lion Technical Report.*

4.2.1 Construction, Maintenance, and Operation

The 2004 *Steller Sea Lion Technical Report* evaluated the effects to individual Steller sea lions at Gran Point, Met Point, and designated critical habitat around Gran Point related to the aquatic, terrestrial, and air areas. One notable change since the 2006 ROD is the timing for construction relative to the presence of Steller sea lions at both Gran Point and Met Point. The 2006 FEIS noted that during highway construction, work within 1,000 feet of the Gran Point and Met Point haulouts would be done only when the haulouts are vacant, unless authorized by NMFS. Construction scheduling was suggested as an effective mitigation tool because camera data revealed portions of time (1- to 5-week blocks) when no Steller sea lions were present. However, video-monitoring data from 2006 through 2012 indicate a nearly year-round presence of Steller sea lions and show an increase in the number of hauled-out animals from late summer through the fall, the time when sea lions were previously thought to be absent. As such, it is no longer feasible to time construction during periods of Steller sea lion absence.

4.2.1.1 Met Point and Gran Point Highway Alignment

Since the 2006 ROD was issued, the alignment of Alternative 2B has been modified to address geotechnical issues, permitting requirements, and bald eagle nest locations. The types of direct effects to individual Steller sea lions and terrestrial areas of designated critical habitat discussed in the 2004 *Steller Sea Lion Technical Report* would still occur in and along the alignment, but to a lesser extent, because the highway would generally be constructed farther inland from Lynn Canal and farther away from haulout areas used by Steller sea lions. Near the Gran Point haulout, the alignment has been shifted uphill and redesigned to go through two tunnels to avoid a rockfall area and slope excavation. This alignment modification moves the road farther away from the Gran Point haulout: approximately 100 to 600 feet horizontally and 50 to 100 feet vertically. Near the Met Point haulout, a portion of the road alignment (roughly 1,500 feet) within the 3,000-foot radius surrounding the Met Point haulout has been shifted 25 to 100 feet closer to Lynn Canal. However, other portions of the road alignment would remain along the same alignment proposed in the 2006 FEIS or shift farther landward, away from Lynn Canal.

Construction-Related Noise

In the 2004 *Steller Sea Lion Technical Report*, noise analysis indicated that most construction noises generated at distances greater than 1,000 feet may not be detectable above the background noise levels at the haulouts, including the air areas of designated critical habitat at Gran Point. Since the 2004 report, NMFS has developed revised acoustic criteria (i.e., noise thresholds) to manage acoustic impacts on marine mammals, including the Steller sea lion. Noise measurements used for this analysis are reported in the A-weighted decibel sound level (dBA). This noise metric is commonly used to quantify airborne sounds because it is a weighting system that reflects human hearing, which is less sensitive at low and extremely high frequencies. A spherical spreading loss model was used to estimate the extent of airborne sound. The model calculates the distance to background (ambient) noise levels by taking into account the reduction in point source noise levels from the spreading of the sound wave as it leaves the source and travels outward, which is termed "geometric spreading." The model assumes that noise levels would continue to decrease at a constant rate with distance, due to geometric spreading.

Standard Construction Equipment

Construction equipment does not create loud, instantaneous noise such as blasting, but can cause continuous noise in the 55dBA (pickup truck) to 88dBA (rock drill – foundations) range. Based on the maximum extent of rock drill noise production (88dBA $\pm$ 8dBA), general construction noise of 96dBA at 50 feet would attenuate to the background level of 47dBA within 4,560 feet.

For airborne noise, NMFS considers noise levels over 100dB Root Mean Square ($_{RMS;}$ unweighted) re: 20 micropascals (μP) as harassment for marine mammals (i.e., pinniped disturbance from haulouts). Using the maximum non-blasting construction noise anticipated for this project (96dBA for rock drill), this means that noise would not reach the $100dB_{RMS}$ in-air harassment threshold for Steller sea lions at the Gran Point or Met Point haulout at any time. While Steller sea lions would not be exposed to noise levels that would exceed the NMFS in-air harassment threshold, they would likely be able to hear some construction noise within 1,000 feet of the activity.

There are also seasonal Steller sea lion haulout sites at Point Saint Mary, Slate Cove, and Cove Point in Berners Bay. Noise from the JAI Project is not likely to be heard above ambient background levels, considering the distance between the haulout sites and the proposed highway. Highway noise levels at these seasonal haulouts are not expected to exceed background levels. There are no documented Steller sea lion haulouts on the Katzehin Flats, although Steller sea lions have been seen foraging in this area (NMSF, 2005b).

Rock Crushing Station

Peak levels associated with rock-crushing equipment have been reported at 86.7dBA at 45 feet from the source (LDN Consulting, Inc., 2011). Rock crushing operations would be located at several points along the highway alignment, depending on site conditions and contractor staging. Noise from continuous use of a rock-crushing station is expected to attenuate to about 55dB within 800 feet, which is just slightly above ambient conditions (47dB). If the haulout is occupied by vocalizing Steller sea lions, this noise is likely to be imperceptible. However, even if perceptible it would not be loud enough to cause disturbance.

Construction-Related In-Air Blasting

One notable change to Alternative 2B since the 2006 ROD is the proposed tunnel construction near the Gran Point haulout, as well as the excavation required for slope cuts along the highway alignment in the vicinity of Gran Point and Met Point. The closest proximity of the tunnel blasting activities to Gran Point is approximately 550 feet (northeast of Gran Point); excavation blasting at Met Point would occur within 300 feet of the haulout. Blasting associated with the use of 20-pound charges for tunnel/slope excavation would create loud, instantaneous noise anticipated to be 126dBA at 50 feet, but would likely vary depending on the substrate, charges per delay, and weather conditions. Based on these estimates, noise levels from blasts (126dBA) would attenuate to background noise levels (47dBA) at 72,271 feet (13.6 miles). However, blasting would be characterized by some directivity because the bore hole would direct the force and noise of the blast along a horizontal path (i.e., away from the Lynn Canal). Therefore, blasting noise would likely attenuate to background levels within 2 to 3 miles. Topography to the east would attenuate levels more quickly in that direction.

As previously discussed, NMFS has defined in-air thresholds for disturbance for hauled-out Steller sea lions as 100dB$_{RMS}$ (unweighted) re: 20 μPa. Based on the 100dB$_{RMS}$ threshold, blasts approaching 126dBA would attenuate to the threshold within 548 feet from the source. As a conservative measure, an additional 52 feet were applied to the 548-foot zone of blasting effect (126dBA) to create a 600-foot Zone of Influence (ZOI) for in-air noise due to blasting near Gran Point and Met Point. The additional buffer was applied to ensure that in-air noise associated with blasting would attenuate below the in-air disturbance threshold.

The closest portion of the southern tunnel alignment near Gran Point is located approximately 550 feet from the haulout. As such, it is possible that Steller sea lions would be subject to in-air noise approximately equivalent to the threshold. However, given the likelihood that the tunnel blast noise would travel horizontally through the bore hole, noise may attenuate more quickly and noises would likely be under the threshold.

Excavation blasts associated with cut slopes within 550 feet of Gran Point or Met Point would likely produce air blasts up to 126dBA. It is therefore possible that hauled-out individuals could temporarily abandon the haulout. The potential for this is more likely at Met Point, since cut slope areas are located within 300 feet of the haulout. Considering this distance, use of explosives producing 126dBA noise (at 50 feet) would result in noise of 106.5dB$_{RMS}$ at the Met Point haulout. This would exceed the in-air disturbance threshold of 100dB$_{RMS}$.

Blasting activities are not anticipated to result in long-term abandonment of either Gran Point or Met Point, as the effects of blasting are short-term behavioral responses. Steller sea lions may react to loud or unfamiliar sounds by diving into the water from land or 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 would depend on its continuity. Steller sea lions may abandon a haulout for longer periods of time if a disturbance continues (NMFS, 2005b). Regardless, construction-related noise disturbance would not result in population-level effects to the Steller sea lions.

Construction-Related Underwater Blast Noise

In their consultation for the Kensington Gold Mine, NMFS (2005b) suggested that underwater noise should be estimated for major construction activities that occur close to the shoreline. While most actions associated with the JAI Project are far enough from the shore such that they are extremely unlikely to be perceived acoustically in the marine environment, it is possible that the blasting close to Met Point or Gran Point could be perceived by in-water Steller sea lions in the vicinity of the haulouts. While in-air peak noise estimates are provided for blasting elements, underwater noise estimates for near-shore blasting are not available, as they are site-specific, based on distance to water, substrate, and other factors. According to NMFS (2005b), however, there is a method of converting in-air noise levels to underwater equivalents. To do this, in-air noise levels must be increased 26dB to estimate in-water values. Air and water sound pressures also differ in units of reference pressure; in air, the reference pressure is 20 µPa@1 meter (m), and in water the reference pressure is 1 µPa@1m.

Although some acoustic specialists (Stadler, personal communication 2009) have cautioned that the direct addition method described above should be used with caution when converting in-air noise to underwater equivalents because there are many variables (e.g., densities, sound speeds) that are not directly equivalent, the following provides an in-air to underwater noise conversion per NMFS (2005b). Based on the peak blasting noise anticipated (126dB at 50 feet re: 20 µPa@1m), the hypothetical peak underwater noise would be 152dB at 50 feet (re: 1µPa@1m). This does not take into account the distance of the blasting activity from the water (approximately 300 feet at Met Point for cut slopes, 550 feet at Gran Point for tunnel blasting), which would further reduce the maximum anticipated underwater noise level. Regardless, consideration of a peak underwater noise level of 152dBA indicates that the peak estimate does not exceed the pinniped underwater disturbance level for continuous impact disturbance (160dB$_{RMS}$), nor does it approach the instantaneous peak injury noise level for impulse noises for pinnipeds (190dB$_{RMS}$).

In summary, while it is possible that in-water Steller sea lions may experience noise (and vibration) associated with peak blasting activities near the shoreline, these actions are unlikely to

result in measurable behavioral changes in foraging or permanent abandonment of the haulouts (Mahtab et al., 2004). Further, these effects would be minimized by limiting the loudest blasting events within 600 feet of the haulouts to July through November, following peak usage of haulouts at Gran Point and Met Point. Although blasting activities would continue for 1 or 2 years (possibly up to 3) near the Gran Point and Met Point haulouts following project construction, only avalanche blasting (producing less noise since blast sites are further away from haulouts) would occur in the JAI Project area on a very infrequent basis (once every 10 years, estimated).

Construction-Related Vibration Due to Blasts

In addition to sound, blasting is a source of vibration that may cause Steller sea lions to temporarily leave a haulout. 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 95dBA at 665 feet for 50-pound charges (FHWA, 1991). This roughly equates to 124dBA at 50 feet, and as such, the 126dBA noise level presented above is comparable. Preshearing the rock face and using smaller charges can reduce the ground vibrations at the haulouts.

Helicopter Use

In the 2006 ROD, helicopters used during construction (including surveying activities) were to avoid operating within a 3,000-foot radius of Steller sea lion haulouts, when occupied. This was considered a feasible measure, based on earlier visual and video camera monitoring that indicated an absence of Steller sea lions in late summer. Based on more recent data collected from 2006 through 2012 (see Attachment A), Steller sea lions are present year-round, and it is no longer feasible to avoid operating when Steller sea lions are present. Helicopters would be used to initiate construction of the pioneer road to place drills for through-cuts, and potentially to deliver construction-related materials.

NMFS (2005b) states that noise levels are predicted to be 72dBA directly beneath a helicopter flying at 2,000 feet. This noise level is louder than noise levels produced by a heavy/large helicopter, which, according to the Helicopter Association International (2009), produces noise ranging from 77 to 84dB at 1,000 feet. Based on the data presented above and the likely need for heavy/large helicopters, if Steller sea lions are present, helicopters within 3,000 feet of Gran Point or Met Point would be flown at a minimum altitude of 1,500 feet (when weather conditions permit) and a minimum distance of 1,000 feet from each haulout. No direct flights over the haulouts would be conducted. Flights at this distance would ensure that noise associated with helicopters would not exceed the in-air disturbance threshold for hauled-out Steller sea lions ($100dB_{RMS}$). This altitude is also consistent with NMFS guidelines for viewing marine mammals from a helicopter, which state that a helicopter must "maintain a 1,500 foot minimum altitude when viewing marine mammals from the air" (NMFS, 2012b).

It is common for fixed-wing and rotary-wing aircraft transiting the Lynn Canal corridor to regularly fly over the 3,000-foot air-radii around Met Point and Gran Point, with the highest numbers of aircraft during the May to September tourist season. These activities have not been reported as factors that limit the use of Steller sea lion haulouts in the project area, based on the several years of monitoring data collected at Gran Point by the DOT&PF.

Screening Structures

Within 3,000 feet of the Gran Point haulout, the proposed East Lynn Canal highway alignment consists of through-cuts, tunnels, or slope retaining walls. This road geometry, combined with the extensively vegetated character of the hillside downslope of the roadway, severely impairs the view of the shoreline from the proposed road alignment, and vice versa. As such, Steller sea lions are unlikely to be affected by light pollution or increased pedestrian access associated with highway construction or operation. No screening structures are proposed at this location.

Within 3,000 feet of Met Point, screening structures/pedestrian barriers would be installed approximately 500 feet north and south of the haulout. One option for such structures includes roadside chain-link fencing with slats. This fencing could be used for light attenuation to minimize the impact of light pollution on Steller sea lions. As such, Steller sea lions would not be visible from the road, and would not see vehicles or their headlights on the road within 1,000 feet of the Met Point haulout. Further, fencing would deter pedestrian access from the roadway to the haulout.

Temporary Barge Landings and In-Water Fill

The 2005 LOC (NMFS, 2005a) included a minimization measure stating that no temporary barge landings would be constructed within 3,000 feet of either haulout. Temporary barge landings would be used occasionally, but would not be permanent features of the project. Because landing sites must be free of rocks (i.e., sandy/cobbly beaches), since barges are beached at high tide and unloaded at low tide, no haulout rocks would be impacted. Individual Steller sea lions that may be foraging or otherwise occupying waters near the barge landing sites (to be determined) could be disturbed during landing activities, which would involve the placement and transfer of construction-related materials for a few hours, typically, between tidal events. Tug boats and associated underwater noise could also disturb individual Steller sea lions, causing them to avoid the general area of activity during the landing and "undocking" process; however, potential effects to Steller sea lions are anticipated to be insignificant. No barge landing sites would occur within 1,000 feet of Met Point or Gran Point.

No in-water fill placement would occur within 3,000 feet of Met Point or Gran Point associated with roadway construction.

Installation and Removal of Steller Sea Lion Monitoring Devices at Haulouts

At the onset of construction within the 600-foot ZOI feet of Met Point or Gran Point haulouts (whichever comes first), noise-monitoring equipment would be installed to record noise levels near the haulout. In addition, new video cameras would be installed at Gran Point 1 year prior to construction, replacing existing cameras that are at the end of their operational life. Monitoring equipment would be installed during low-occupancy periods at each haulout, to the extent possible.

4.2.2 Steller Sea Lion and Vessel Interactions

The potential for sea lion collisions with ferries traveling from the Katzehin Ferry Terminal to Haines and Skagway is 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 Steller sea lion mortalities due to the operation of the ferries currently in use along the AMHS routes. Collisions with vessels are believed to be an insignificant source of mortality of Steller sea lions. The Glacier Bay National Park study described in Section 4.1.2 found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals. Because the ferry traffic associated with Alternative 2B would be relatively slow and consistent in both direction and speed, and operate well offshore, it is expected that sea lions would be unaffected by these vessels, the same way they have habituated to other large commercial vessels in Lynn Canal.

4.2.3 Effects on Prey Resources

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 farther inland on the Antler River to bypass important eulachon habitat. These realignments reduce the potential for indirect impacts to Steller sea lion prey resources in Berners Bay by the construction, operation, and maintenance of the East Lynn Canal Highway as previously described in the 2004 *Steller Sea Lion Technical Report*.

4.3 Alternative 3 – West Lynn Canal Highway

Minor alignment and design changes associated with Alternative 3 were introduced to avoid impacts to eagle nest locations along the alignment, based on a 2012 survey. The West Lynn Canal Highway has the potential to impact Steller sea lions during both construction and subsequent maintenance and operation activities. The following updates Section 4.6 of the 2004 *Steller Sea Lion Technical Report.*

4.3.1 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, but effects would be similar to those previously described for Alternative 2B (Section 4.2) in duration, exposure, and scope.

Placement of fill at the ferry terminal sites in Sawmill Cove and William Henry Bay is not expected to generate substantial in-water noise, as this activity is generally done from shore during lower tides. Dredging would take place between October 1 and March 1 when there are no spawning activities of prey species in the project area. Driving of 36-inch-diameter piles would be done with vibratory hammers to the extent possible to reduce the intensity of sound generated, though impact proofing would be required for weight-bearing piles. Pile driving would generally take place between June 16 and March 14 after peak prey (eulachon and herring) peak spawning migration. Trained observers would monitor for the presence of marine mammals, and construction would be halted if any animals come within 660 feet 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, at the proposed ferry terminal site. The timing of in-water construction to avoid the spawning and egg maturation period would minimize 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 or prey species in Lynn Canal. In the long term, in-water structures may also provide increased shelter or cover for both juvenile fish and their predators.

The Sawmill Cove terminal would impact a small percentage of potential 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 temporary loss of potential spawning habitat would not likely affect the population of this species and would not measurably affect other fish populations in the Berners Bay area.

4.3.2 Steller Sea Lion and Vessel Interactions

The potential for sea lion collisions with ferries traveling from Berners Bay to William Henry Bay is 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 AMHS routes. Collisions with vessels are believed to be an insignificant source of mortality of Steller sea lions. The Glacier Bay National Park study described in Section 4.1.2, found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals. Because the ferry traffic associated with Alternative 3 would be relatively slow and consistent in both direction and speed, and operate well offshore, it is expected that sea lions at Point Saint Mary would be unaffected by these vessels, the same way they have habituated to other large commercial vessels in Lynn Canal.

4.3.3 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 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 could 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). However, AMHS vessels are operated in accordance with Oil Spill Contingency Plans approved by ADEC and stormdrain systems at ferry terminals include sediment traps and oil/water separators; vessel fueling at Sawmill Cove would be conducted in accordance with fuel vendor's approved SPCC plans; and on-ship fuel handling and lubrication and waste disposal is conducted by trained personnel using standard operating procedures. These factors minimize potential risks to water quality and prey resources. NMFS is on record stating that springtime operations under Alternative 3 would have adverse impacts on Steller sea lions in Berners Bay.

4.4 Alternatives 4A and 4C

The following updates Section 4.7 of the 2004 *Steller Sea Lion Technical Report.* 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 operations, and b) potentially diminished prey resources from ferry terminal construction or vessel disturbance.

4.4.1 Construction, Maintenance, and Operation

Construction of a new double stern berth at 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 expanded footprint of the terminal would impact a small percentage of potential along-shore herring spawning habitat. This temporary 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.

Construction of the new berth at 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 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 Auke Bay or Lynn Canal.

4.4.2 Steller Sea Lion and Vessel Interactions

The potential for sea lion and ferry collisions is 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 believed to be an insignificant source of mortality of Steller sea lions.

The Glacier Bay National Park study described in Section 4.1.2, found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals. Because the

ferry traffic associated with Alternative 4C would be relatively slow and consistent in both direction and speed, and operate well offshore in the middle of Lynn Canal, it is expected that sea lions would be unaffected by these vessels, in the same way they have habituated to other large commercial vessel traffic.

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 could impair water quality, particularly in areas where vessel activity is concentrated, However, the vessels are operated in accordance with Oil Spill Contingency Plans approved by ADEC; vessel fueling is conducted in accordance with fuel vendor's approved SPCC plans; and on-ship fuel handling and lubrication and waste disposal is conducted by trained personnel using standard operating procedures. These factors minimize potential risks to water quality and prey resources.

4.5 Alternatives 4B and 4D

The following updates Section 4.7 of the 2004 *Steller Sea Lion Technical Report.* Alternatives 4B and 4D have the potential to impact Steller sea lions during construction, maintenance and operation activities. Specific mitigation measures will be taken to avoid or minimize these impacts.

Direct impacts to Steller sea lions from the marine vessels could result from injuries or disturbance from vessel operation. Indirect impacts could result from diminished prey resources from ferry terminal construction or vessel disturbance.

4.5.1 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, but effects would be similar to those previously described for Alternative 2B (Section 4.2) in duration, exposure and scope.

Placement of fill at the Sawmill Cove and Auke Bay ferry terminal sites is not expected to generate large in-water noise, as this activity is generally done from shore during lower tides. Dredging at Sawmill Cove 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 36-inch-diameter piles would be done with vibratory hammers to the extent possible to reduce the intensity of sound generated, though final impact proofing would be required for load-bearing piles. Pile driving would generally take place between June 16 and March 14 after peak prey spawning migration. Trained observers would monitor for the presence of marine mammals and construction would be halted if any animals come within 660 feet 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 Sawmill Cove Ferry Terminal and a new double stern berth at the Auke Bay Ferry Terminal would result in a short-term increase in turbidity near the construction sites. This turbidity could result in the loss of the Pacific herring eggs at the terminal sites. Timing of in-water construction to avoid the spawning and egg maturation period would minimize 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 or prey species in Lynn Canal. Over the long term, in-water structures may also provide increased shelter or cover for both juvenile fish and their predators.

The footprint of the terminals would impact a small percentage of potential 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 potential spawning habitat would not likely affect the population of this species and would not measurably affect other fish populations in the Berners Bay area or Auke Bay.

4.5.2 Steller Sea Lion and Vessel Interactions

The potential for sea lion and ferry collisions in Berners Bay is considered minimal, except during the spring spawning season for herring and eulachon, when large numbers of sea lions congregate within the bay. Use of the Sawmill Cove Ferry Terminal under this alternative would occur only between May 15 and October 15, to minimize the potential for direct conflicts. 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 Alternatives 4B and 4D would use fast vehicle ferries, 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 believed to be an insignificant source of mortality of Steller sea lions.

The Glacier Bay National Park study described in Section 4.1.2 found that the proximity and behavior of approaching marine vessels affected the activity rate of these animals. Because the ferry traffic associated with Alternatives 4B and 4D would be relatively slow and consistent in both direction and speed and would operate well offshore, it is expected that sea lions at Point Saint Mary would be unaffected by these vessels in the same way they have habituated to other large commercial vessels.

4.5.3 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. Consequently, service under this alternative would be provided from the Auke Bay Ferry Terminal until May 15 to minimize potential conflicts with prey species and marine mammals. Individuals of other prey species in and around the Sawmill Cove and other marine terminals are 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 terminals for short periods of time by ferries maneuvering into and out of the terminals. 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 and Auke Bay ferry terminals. 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 could 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). However, AMHS vessels operate in accordance with Oil Spill Contingency Plans approved by ADEC; storm drain systems at ferry terminals include sediment traps and oil/water separators; vessel fueling at Auke Bay and Sawmill Cove would be conducted in accordance with fuel vendors' approved SPCC plans; and on-ship fuel handling and lubrication and waste disposal are conducted by trained personnel using standard operating procedures. These factors minimize potential risks to water quality and prey resources.

5. Mitigation Measures

The 2006 ROD listed 13 mitigation measures previously committed to, based on informal consultation with NMFS (NMFS, 2005a). Since then, the FHWA has reevaluated mitigation measures to reflect design changes and year-round occupancy of Steller sea lion haulouts. The following measures are specific to Alternative 2B. If Alternative 2B is selected by FHWA as the preferred alternative following release of the Draft SEIS, then the following measures will be evaluated with NMFS during ESA Section 7 consultation and Marine Mammal Protection Act (MMPA) permitting. As such, the following list may be revised during ESA and MMPA consultation to optimize the avoidance and minimization of project effects on Steller sea lions and their critical habitat in the project area.

1. Helicopter use during construction would be minimized to the extent practicable, and there would be no routine use of helicopters within 3,000 feet of Gran Point or Met Point. If helicopter use is infrequently required within 3,000 feet of the haulouts, a minimum altitude of 1,500 feet would be maintained, to the extent practicable.
2. Helicopter operations during avalanche control would minimize activity within a 1,000-foot radius around the haulouts.
3. Pile driving at the Katzehin and Skagway terminals and the bridge crossings over the Antler, Lace, and Katzehin rivers would be done with vibratory hammers, to the extent possible, to reduce the intensity of sound generated. However, final impact proofing of load-bearing piles would be required. In addition, pile driving, including vibratory installation and impact proofing, would not take place during the period from March 15 through June 15 to avoid impacts to prey species peak spawning migration and coincides with higher concentration months for Steller sea lion presence in the action area.
4. During all piling installations, a trained observer would monitor for the presence of marine mammals and all pile driving would be halted if any marine mammal comes within 200 meters of the activity.
5. Impact proofing would initiate with "soft starts," which includes gradual ramping up of piling power, until full operational power is achieved.
6. No boat launches or structures that enhance boat access (other than the new ferry terminal north of the Katzehin River and terminal improvements at Skagway) would be constructed.
7. Vegetation clearing limits would extend 10 feet on either side of the slope cut or fill for the roadway. As large a buffer as possible of undisturbed vegetation would be retained between the highway and the Gran Point and Met Point haulouts.
8. In areas near the Met Point haulout where there are vegetation gaps, boulders/jersey barriers would be placed to limit off-road use by hikers and other recreational users (e.g., all-terrain vehicles). Parking places for cars would be limited in areas that may provide pedestrian access to haulouts. Chain-link fencing would be used to prevent hiker access to haulouts where suitable hiking terrain is accessible from the roadway.
9. No barge landing sites would occur within 1,000 feet of Gran Point or Met Point.
10. Construction within 3,000 feet of Met Point would include through-cuts and/or screening structures (500 feet north and south of haulout) as necessary to avoid lines of sight between the highway and the haulouts, and to discourage human access to the haulouts. Chain-link fencing with slats could be used for light attenuation; however,

such structures would be subject to snow accumulation. Due to roadway topography, geometry, and design (i.e., tunnels and fill), no screening structures are proposed within 3,000 feet of Gran Point.

11. Met Point and Gran Point haulouts would be monitored within 3,000 feet during any construction activities that may cause disturbance, to document disturbance of individual Steller sea lions (i.e., behavioral modification such as temporary haulout evacuation). Monitoring would include visual observations by marine mammal observers. Marked western DPS individuals would be recorded and observed. However, because not all western DPS individuals are marked, all disturbances would be recorded as a conservative measure.
12. Blast noise was calculated to attenuate to the in-air disturbance threshold for hauled-out Steller sea lions ($100dB_{RMS}$) within 548 feet of the activity. At the onset of construction within the 600-foot ZOI of Met Point or Gran Point haulouts (whichever comes first), DOT&PF would monitor haulouts during blasting to determine if individuals are abandoning the haulout and to record noise levels at the haulout for 10 days of blasting. If blasting activities are found to be within the thresholds for noise, monitoring will no longer be conducted.
13. Video monitoring at the Gran Point haulout would continue throughout construction and for 5 years after construction of the project to determine the extent of human access to the haulout and disturbance of Steller sea lions. Met Point would be routinely ground monitored following construction of the project to determine if human access is causing potential disturbances. If adverse impacts are identified, the FHWA would consult with NMFS to determine what additional mitigation measures are necessary.
14. Dredging would not take place during the March 15 through June 15 time period to avoid impacts to peak spawning migration for prey species of Steller sea lions and humpback whales.

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Attachment A
Gran Point Sea Lion Haulout Monitoring Logs

The DOT&PF initiated a multi-year intensive monitoring study to quantify the year-round use of Gran Point and Met Point haulouts by Steller sea lions. As part of this study, DOT&PF installed a remote-control video camera system at the Gran Point haulout in 2002. DOT&PF personnel recorded the daily presence or absence of sea lions. This attachment presents Steller sea lion occurrences based on the continued video monitoring at the haulout for December 2002 through October 2012.

The tables in this attachment include days when there was "No signal" or no data recorded as well as days where additional information may be needed from the still photographs to confirm quantity. If the quantity in the table states "Sea lions present," the actual number was not recorded for that day but the data notes the presence of sea lions. Days with multiple ranges recorded in quantities of sea lions are reported in the table as the highest range (e.g., 100, 100+, 100++, 100+++). Quantities with a "+" are reported as higher than that number, quantities with a "-" are less than that number (e.g., "-100" is 51–100 sea lions), and quantities with "~" are approximate. In cases of days with a single range, quantities are reported as the reported number or lower. If a range of dates is listed in one row, the quantity was counted for each date.

Table A-1: Gran Point Sea Lion Haulout Monitoring Log
December 23, 2002–December 31, 2003

Date	Quantity	Date	Quantity
12/23/02	Many sea lions	01/07/03	Sea lions present
12/24/02	No visibility	01/08/03	Sea lions present
12/25/02	No signal	01/09/03	Sea lions present
12/26/02	No signal	01/10/03	Many sea lions
12/27/02	Weekend	01/11/03	Weekend
12/28/02	Weekend	01/12/03	Weekend
12/29/02	No signal	01/13/03	Sea lions present
12/30/02	No signal	01/14/03	Sea lions present
12/31/02	No signal	01/15/03	Sea lions present
01/01/03	Holiday	01/16/03	15–0
01/02/03	Sea lions present	01/17/03	13
01/03/03	No signal	01/18/03	Weekend
01/04/03	Weekend	01/19/03	Weekend
01/05/03	Weekend	01/20/03	No signal
01/06/03	Sea lions present	01/21/03	0

Date	Quantity
01/22/03	0
01/23/03	0
01/24/03	0
01/25/03	Weekend
01/26/03	Weekend
01/27/03	22
01/28/03	20+
01/29/03	Many sea lions
01/30/03	Many sea lions
01/31/03	Many sea lions
02/01/03	Weekend
02/02/03	Sea lions present
02/03/03	Many sea lions
02/04/03	Many sea lions
02/05/03	Many sea lions
02/06/03	Many sea lions
02/07/03	Many sea lions
02/08/03	Many sea lions
02/09/03	Sea lions present
02/10/03	20
02/11/03	Sea lions present
02/12/03	Sea lions present
02/13/03	Sea lions present
02/14/03	~ 50
02/15/03	Many sea lions
02/16/03	Many sea lions
02/17/03	Many sea lions
02/18/03	Many sea lions
02/19/03	0
02/20/03	40+
02/21/03	~ 30
02/22/03	Many sea lions
02/23/03	Many sea lions
02/24/03	Sea lions present
02/25/03	Sea lions present
02/26/03	100+
02/27/03	Many sea lions
02/28/03	Many sea lions
03/01/03	Sea lions present
03/02/03	Many sea lions
03/03/03	Sea lions present
03/04/03	Many sea lions
03/05/03	Many sea lions
03/06/03	Sea lions present

Date	Quantity
03/07/03	Sea lions present
03/08/03	Sea lions present
03/09/03	None
03/10/03	Sea lions present
03/11/03	Sea lions present
03/12/03	Sea lions present
03/13/03	Sea lions present
03/14/03	No visibility
03/15/03	Many sea lions
03/16/03	Many sea lions
03/17/03	Many sea lions
03/18/03	Many sea lions
03/19/03	Many sea lions
03/20/03	Many sea lions
03/21/03	Many sea lions
03/22/03	Many sea lions
03/23/03	Many sea lions
03/24/03	Many sea lions
03/25/03	Many sea lions
03/26/03	Many sea lions
03/27/03	Many sea lions
03/28/03	Many sea lions
03/29/03	Many sea lions
03/30/03	Many sea lions
03/31/03	Many sea lions
04/01/03	Many sea lions
04/02/03	Many sea lions
04/03/03	Many sea lions
04/04/03	Many sea lions
04/05/03	Many sea lions
04/06/03	Many sea lions
04/07/03	Many sea lions
04/08/03	Many sea lions
04/09/03	Many sea lions
04/10/03	Many sea lions
04/11/03	Many sea lions
04/12/03	Many sea lions
04/13/03	Many sea lions
04/14/03	Many sea lions
04/15/03	Many sea lions
04/16/03	Many sea lions
04/17/03	100+
04/18/03	Many sea lions
04/19/03	Many sea lions

Date	Quantity
04/20/03	Many sea lions
04/21/03	Many sea lions
04/22/03	Many sea lions
04/23/03	Many sea lions
04/24/03	Many sea lions
04/25/03	Many sea lions
04/26/03	Many sea lions
04/27/03	Many sea lions
04/28/03	Many sea lions
04/29/03	Many sea lions
04/30/03	Many sea lions
05/01/03	Many sea lions
05/02/03	Many sea lions
05/03/03	Many sea lions
05/04/03	Many sea lions
05/05/03	100+
05/06/03	50+
05/07/03	No signal
05/08/03	100+
05/09/03	Many sea lions
05/10/03	Many sea lions
05/11/03	No signal
05/12/03	100+
05/13/03	100+
05/14/03	Many sea lions
05/15/03	Many sea lions
05/16/03	Many sea lions
05/17/03	No signal
05/18/03	Many sea lions
05/19/03	Many sea lions
05/20/03	Many sea lions
05/21/03	Many sea lions
05/22/03	100+
05/23/03	100+
05/24/03	Many sea lions
05/25/03	Many sea lions
05/26/03	Many sea lions
05/27/03	Many sea lions
05/28/03	Many sea lions
05/29/03	Many sea lions
05/30/03	Many sea lions
05/31/03	Many sea lions
06/01/03	No signal
06/02/03	~ 100

Date	Quantity
06/03/03	~ 100
06/04/03	~ 100
06/05/03	~ 100+
06/06/03	-100
06/07/03	Sea lions present
06/08/03	Sea lions present
06/09/03	~ 90
06/10/03	~ 100
06/11/03	~ 90
06/12/03	~ 110
06/13/03	Many sea lions
06/14/03	Many sea lions
06/15/03	Many sea lions
06/16/03	100+
06/17/03	~ 90
06/18/03	95
06/19/03	90
06/20/03	100+
06/21/03	Many sea lions
06/22/03	Many sea lions
06/23/03	~ 100
06/24/03	~ 100
06/25/03	~ 100
06/26/03	~ 90
06/27/03	100+
06/28/03	Many sea lions
06/29/03	Many sea lions
06/30/03	100+
07/01/03	100+
07/02/03	~ 100
07/03/03	~ 90
07/04/03	Many sea lions
07/05/03	Many sea lions
07/06/03	Many sea lions
07/07/03	74
07/08/03	85+
07/09/03	75+
07/10/03	40
07/11/03	Sea lions present
07/12/03	Many sea lions
07/13/03	Many sea lions
07/14/03	32
07/15/03	12
07/16/03	0

Date	Quantity
	0
07/17/03	0
	0
	0
	0
07/18/03	0
	0
	0
07/19/03	0
07/20/03	Sea lions present
07/21/03	0
	0
	0
07/22/03	0
	0
	No signal
	0
07/23/03	No signal
	0
07/24/03	0
07/25/03	0
07/26/03	No signal
07/26/03	No signal
07/27/03	No signal
	No signal
07/28/03	0
	0
	0
07/29/03	0
	0
	0
07/30/03	0
	0
	0
07/30/03	0
07/31/03	0
	0
08/01/03	0
	0
08/02/03	No signal
	No signal
08/03/03	No signal
	No signal
08/04/03	0

Date	Quantity
	0
	0
	0
08/05/03	0
	0
	0
08/06/03	0
	0
	0
	0
08/07/03	0
	0
	0
	0
08/08/03	0
	0
	0
	0
08/09/03	0
08/10/03	0
08/11/03	0
	0
	0
08/11/03	0
08/12/03	0
	0
	0
08/13/03	0
	0
	0
08/14/03	0
	0
	0
08/15/03	0
	0
08/16/03	No signal
08/17/03	0
08/18/03	0
08/19/03	0
	0
08/20/03	0
	0
8/21/03	0
8/22/03	0

Date	Quantity
8/23/03	0
8/24/03	2
	2
	3
	3
	3
	3
	2
	2
8/25/03	No signal
	0
8/26/03	No signal
	No signal
	0
8/27/03	2
	2
	1
	1
8/28/03	0
	4
	0
	0
8/29/03	0
	0
	0
8/30/03	1
	1
9/1/03	1
	1
9/2/03	0
	0
	0
9/3/03	2
	3
	4
	6
	4
	2
	Sea lions present
9/4/03	0
	0
9/4/03	0
	0
	0

Date	Quantity
9/5/03	0
	0
	0
	0
9/6/03	0
9/7/03	0
9/8/03	0
	0
	0
	0
9/9/03	0
	0
9/9/03	0
9/10/03	0
	0
	0
	1
9/11/03	0
	0
	0
	0
9/12/03	0
	0
	0
9/13/03	19
9/14/03	30+
9/15/03	50–80
	50–80
	50–80
9/16/03	100+
	100+
	100+
9/17/03	100+
	100+
9/18/03	~ 70
	100+
9/19/03	~ 40
	~ 50
	100+
	100+
9/20/03	100+
9/21/03	100+
9/22/03	100+
9/23/03	100+

Date	Quantity
9/23/03	100+
9/24/03	100+
	100+
	100+
9/25/03	100+
	100+
9/26/03	No signal
	No signal
9/27/03	No signal
9/28/03	100+
9/29/03	100+
	100+
	100+
	100+
9/30/03	100+
	~ 50
10/1/03	~ 30
	~ 50
10/2/03	~ 20
10/3/03	~ 30
10/4/03	~ 30
10/5/03	~ 35
10/6/03	~ 30
	~ 50
10/7/03	
10/8/03	~ 100
10/9/03	~ 100
	~ 50
	100+
10/10/03	90–100
	80–90
10/11/03	~ 50
10/12/03	~ 100
10/13/03	~ 100
	~ 30
	60+
10/14/03	70+
	30
10/15/03	20
10/16/03	90+
10/17/03	60–70
10/18/03	~ 70
10/19/03	~ 50
10/20/03	~ 100

Date	Quantity
	25–30
10/21/03	~ 50
	~ 80
10/22/03	50–80
10/23/03	100+
10/24/03	100+
10/25/03	~ 50
10/26/03	~ 50
10/27/03	100+
10/28/03	100+
	100+
10/29/03	100+
10/30/03	100+
10/31/03	100+
	100+
	No signal
11/1/03	100+
11/2/03	No signal
11/3/03	100+
11/4/03	100+
	100+
11/5/03	~ 80
	100+
11/6/03	~ 50
	30–50
11/7/03	40–50
	~ 50
11/8/03	100+
11/9/03	100+
11/10/03	No signal
11/11/03	~ 50
11/12/03	100+
11/13/03	100+
	100+
	No signal
	No signal
11/14/03	15–20
	15–20
11/15/03	15–20
11/16/03	27
	10
11/17/03	100+
	80–100

Date	Quantity
11/18/03	
	~ 50
11/19/03	
	~ 50
11/20/03	
	~ 20
11/21/03	80–100
	~ 50
11/22/03	30
	~ 100
11/23/03	100+
	40–50
11/24/03	20–30
11/24/03	~ 25
11/25/03	
	30
11/26/03	No signal
11/27/03	No signal
11/28/03	No signal
11/29/03	100+
11/30/03	100+
12/1/03	100+
12/2/03	100+
12/3/03	100+
12/4/03	100+
12/5/03	100+
	100+
12/6/03	100+
12/7/03	No signal
12/8/03	No signal

Date	Quantity
12/9/03	No signal
	No signal
12/10/03	No signal
12/11/03	No signal
12/12/03	No signal
12/13/03	No signal
12/14/03	No signal
12/15/03	No signal
12/16/03	No signal
12/17/03	No signal
12/18/03	No signal
12/19/03	No signal
12/20/03	No signal
12/21/03	No signal
12/22/03	No signal
12/23/03	No signal
12/24/03	No signal
12/25/03	No signal
12/26/03	No signal
12/27/03	No signal
12/28/03	No signal
12/29/03	No signal
12/30/03	No signal
12/31/03	No signal

Notes: ~ = Approximately

Table A-2: Gran Point Sea Lion Haulout Monitoring Log
January 1, 2004–December 31, 2004

Date	Quantity
1/1/04	No signal
1/2/04	~ 15
1/3/04	0
1/4/04	~ 30
1/5/04	No signal
1/6/04	No signal
1/7/04	No signal
	No signal
1/8/04	No signal
1/9/04	No signal
1/10/04	No signal
1/11/04	No signal
1/12/04	No signal
1/13/04	No signal
1/14/04	No signal
1/15/04	No signal
1/16/04	30–40
1/17/04	100+
1/18/04	No signal
1/19/04	No signal
1/20/04	No signal
1/21/04	No signal
1/22/04	2
1/23/04	10
1/24/04	
1/25/04	~ 50
1/26/04	~ 30–50
1/27/04	100+
1/28/04	
1/29/04	100+
	100+
1/30/04	100+
1/31/04	100+
2/1/04	Sea lions present
2/2/04	0
2/3/04	
	Sea lions present
2/4/04	

Date	Quantity
2/5/04	0
2/6/04	25
2/7/04	100+
2/8/04	~ 75
2/9/04	100+
2/10/04	100+
2/11/04	50–75
2/12/04	100
	100
2/13/04	50–75
	50+
2/14/04	75
2/15/04	Sea lions present
2/16/04	Sea lions present
2/17/04	Sea lions present
2/18/04	0
2/19/04	100+
2/20/04	~ 80
2/21/04	~ 30
2/22/04	100+
2/23/04	100+
2/24/04	100+
2/25/04	100+
2/26/04	100+
2/27/04	
2/28/04	~ 50
2/29/04	100+
3/1/04	~ 60–70
3/2/04	100+
3/3/04	0
3/4/04	~ 50
3/5/04	~ 50
3/6/04	~ 100
3/7/04	100+
3/8/04	100+
3/9/04	100+
3/10/04	25–50
3/11/04	100+
3/12/04	100+

Date	Quantity
3/13/04	100+
3/14/04	~ 100
3/15/04	100+
3/16/04	~ 100
	~ 50–70
3/17/04	0
3/18/04	100+
3/19/04	0
	100+
3/20/04	100+
3/21/04	100+
3/22/04	50+
3/23/04	5-10
3/24/04	20-50
3/25/04	~ 100
3/26/04	~ 100+
3/27/04	100+
3/28/04	100+
3/29/04	100+
3/30/04	100+
3/31/04	100+
4/1/04	100+
4/2/04	~ 50–70
4/3/04	~ 50–60
4/4/04	50
4/5/04	~ 10
4/6/04	10+
4/7/04	50–80
4/8/04	100+
	100+
4/9/04	~ 80
	100+
4/10/04	100+
4/11/04	~ 60–80
4/12/04	~ 80
4/13/04	100+
4/14/04	100+
4/15/04	100+
4/16/04	100+
4/17/04	100+
4/18/04	100+
4/19/04	100+
	~ 50
4/20/04	~ 50

Date	Quantity
	100+
4/21/04	~ 80–100
	~ 25–50
4/22/04	100+
4/22/04	100+
4/23/04	100+
4/24/04	100+
4/25/04	100+
4/26/04	100+
4/27/04	100+
4/28/04	100+
4/29/04	100+
	100+
4/30/04	100+
	100+
5/1/04	100+
5/2/04	100+
5/3/04	100+
5/4/04	100+
5/5/04	100+
5/6/04	100+
5/7/04	100+
5/8/04	100+
5/9/04	100+
5/10/04	100+
5/11/04	50+
5/12/04	100+
5/13/04	100+
5/14/04	100+
5/15/04	100+
5/16/04	25
5/17/04	100+
5/18/04	100+
5/19/04	100+
5/20/04	100+
5/21/04	100+
5/22/04	100+
5/23/04	100+
5/24/04	100+
5/25/04	100+
5/26/04	100+
5/27/04	100+
5/28/04	100+
5/29/04	100+

Date	Quantity
5/30/04	100+
5/31/04	100+
6/1/04	100+
6/2/04	100+
6/3/04	100+
6/4/04	100+
6/5/04	100+
6/6/04	100+
6/7/04	100+
6/8/04	100+
6/9/04	100+
6/10/04	100+
6/11/04	100+
6/12/04	100+
6/13/04	100+
6/14/04	100+
6/15/04	100+
6/16/04	100+
6/17/04	60–80
6/18/04	100+
6/19/04	~ 80
6/20/04	~ 60
6/21/04	100+
6/22/04	100+
6/23/04	100+
6/24/04	100+
6/25/04	100+
6/26/04	100+
6/27/04	100+
6/28/04	100+
6/29/04	60+
6/30/04	100+
7/1/04	100+
7/2/04	100+
7/3/04	100+
7/4/04	100+
7/5/04	100+
7/6/04	100+
7/7/04	100+
7/8/04	100+
	100+
7/9/04	1
7/10/04	100+
7/11/04	100+

Date	Quantity
7/12/04	100+
	~ 90
7/13/04	0
	100+
7/14/04	100+
	100+
7/15/04	80–100
7/16/04	80–100
	~ 50
7/17/04	100+
	100+
7/18/04	~ 80
	100+
7/19/04	100+
	100+
7/20/04	80–100
	60–70
	60–70
7/21/04	100+
	100+
7/22/04	100+
7/23/04	100+
	100+
7/24/04	100+
7/25/04	80+
7/26/04	100+
7/27/04	100+
7/27/04	100+
	100+
7/28/04	100+
7/29/04	100+
7/30/04	~ 50–70
7/31/04	100+
8/1/04	~ 15
	~ 60
8/2/04	100+
8/3/04	100+
	100+
	~ 50
8/4/04	~ 9
8/5/04	0
	0
	0
8/6/04	0

Date	Quantity
	0
8/7/04	0
	0
8/8/04	0
8/9/04	0
8/10/04	70–90
8/11/04	50+
8/12/04	70–90
8/13/04	0
8/14/04	5
	5–10
8/15/04	0
8/16/04	2
8/17/04	1
	~ 25
8/18/04	50–75
8/19/04	0
	1
8/20/04	2
8/21/04	1
8/22/04	20–30
8/23/04	0
8/24/04	3
8/25/04	Sea lions present
8/26/04	Sea lions present
8/27/04	50–70
8/28/04	100+
8/29/04	100+
8/30/04	~ 50
8/31/04	50–70
9/1/04	50–70
9/2/04	100+
9/3/04	100+
9/4/04	100+
9/5/04	~ 100
9/6/04	~ 100
9/7/04	~ 100
9/8/04	100+
9/9/04	50-60
9/10/04	100+
9/11/04	100+
9/12/04	~ 50
9/13/04	100+
9/14/04	

Date	Quantity
9/15/04	50-60
9/16/04	100+
9/17/04	100+
9/18/04	100+
9/19/04	100+
9/20/04	100+
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	~ 90
10/2/04	~ 50
10/3/04	100+
10/4/04	100+
10/5/04	100+
10/6/04	100+
10/7/04	~ 15
10/8/04	100+
10/9/04	100+
10/10/04	100+
10/11/04	100+
10/12/04	100+
10/13/04	100+
10/14/04	100+
10/15/04	100+
10/16/04	50–75
10/17/04	100+
10/18/04	100+
10/19/04	~ 50
10/20/04	100+
10/21/04	100+
10/22/04	100+
10/23/04	100+
10/24/04	100+
10/25/04	100+
10/26/04	No signal
10/27/04	100+
10/28/04	100+

Date	Quantity
10/29/04	~ 20
10/30/04	100+
10/31/04	100+
11/1/04	100+
11/2/04	100+
11/3/04	100+
11/4/04	100+
11/5/04	100+
11/6/04	100+
11/7/04	100+
11/8/04	50–75
11/9/04	100+
11/10/04	100+
11/11/04	100+
11/12/04	100+
11/13/04	100+
11/14/04	100+
11/15/04	100+
11/16/04	100+
11/17/04	75+
11/18/04	100+
11/19/04	100+
11/20/04	~ 80
11/21/04	No signal
11/22/04	No signal
11/23/04	~ 50
11/24/04	100+
11/25/04	100+
11/26/04	100+
11/27/04	~ 75
11/28/04	~ 50
11/29/04	~ 75
11/30/04	100+
12/1/04	100+

Date	Quantity
12/2/04	100+
12/3/04	~ 25
12/4/04	~ 30
12/5/04	100+
12/6/04	100+
12/7/04	100+
12/8/04	100+
12/9/04	100+
12/10/04	60+
12/11/04	100+
12/12/04	100+
12/13/04	100+
12/14/04	100+
12/15/04	100+
12/16/04	100+
12/17/04	35
12/18/04	10
12/19/04	100+
12/20/04	~ 5
12/21/04	100+
12/22/04	20
12/23/04	20
12/24/04	10
12/25/04	10
12/26/04	45
12/27/04	100+
12/28/04	50–75
12/29/04	20
12/30/04	100+
12/31/04	11

Notes: ~ = Approximately

Table A-3:
Gran Point Sea Lion Haulout Monitoring Log January 1, 2005–December 31, 2005

Date	Quantity	Date	Quantity
1/1/05	No signal	2/27/05	30+
1/2/05	50–60	2/28/05	35
1/3/05	100+	3/1/05	55
1/4/05	6	3/2/05	100+
1/5/05	7	3/3/05	100+
1/6/2005 - 1/7/05	20+	3/4/05	100+
1/8/05	6	3/5/05	18
1/9/05	35	3/6/05	24
1/10/05	25	3/7/05	42
1/11/05	7	3/8/05	46
1/12/05	0	3/9/05	100+
1/13/05	6	3/10/05	56
1/14/05	16+	3/11/05	34
1/15/05	7	3/12/05	100+
1/16/05	No signal	3/13/05	45
1/17/2005 - 1/18/05	0	3/14/05	36
1/19/05	18	3/15/05	32
1/20/05	No signal	3/16/05	38
1/21/05	No signal	3/17/05	35
1/22/2005 - 2/2/05	60	3/18/05	52
2/3/05	13	3/19/05	58
2/4/05	28	3/20/05	42
2/5/05	36	3/21/05	45
2/6/05	35	3/22/05	48
2/7/05	44	3/23/05	44
2/8/05	16	3/24/05	45
2/9/05	32	3/25/05	50+
2/10/05	No signal	3/26/05	50–80
2/11/05	26	3/27/05	100+
2/12/05	24	3/28/05	100+
2/13/05	40	3/29/05	70–100
2/14/05	35	3/30/05	100++
2/15/05	35	3/31/05	100++
2/16/05	8	4/1/05	100+
2/17/05	8	4/2/05	100+
2/18/05	32	4/3/05	100+
2/19/05	28	4/4/05	80
2/20/05	27	4/5/05	100+
2/21/05	8	4/6/05	100+
2/22/05	20	4/7/05	100+
2/23/05	24	4/8/05	100++
2/24/05	22	4/9/05	100++
2/25/05	100+	4/10/05	100++
2/26/05	42	4/11/05	100+

Date	Quantity
4/12/05	100++
4/13/05	70
4/14/05	100+
4/15/05	100++
4/16/05	100++
4/17/05	100++
4/18/05	100++
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+
5/8/05	100+
5/9/05	100++
5/10/05	100
5/11/05	100+
5/12/05	55
5/13/05	100+
5/14/05	100++
5/15/05	100+
5/16/05	100+
5/17/05	100+
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+

Date	Quantity
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	32
6/5/05	100+
6/6/05	60
6/7/05	60
6/8/05	100+
6/9/05	100+
6/10/05	100++
6/11/05	65+
6/12/05	10-15
6/13/05	100+
6/14/05	100+
6/15/05	100+
6/16/05	100+
6/17/05	100+
6/18/05	100+
6/19/05	100+
6/20/05	42
6/21/05	35
6/22/05	100+, 0
6/23/05	100+
6/24/05	100+
6/25/05	100+
6/26/05	100+
6/27/05	100+
6/28/05	100+
6/29/05	100+
6/30/05	50–60
7/1/05	100+
7/2/05	70
7/3/05	38
7/4/05	36
7/5/05	45
7/6/05	80–90
7/7/05	56
7/8/05	42
7/9/05	5
7/10/05	2
7/11/05	0
7/12/05	1
7/13/05	2
7/14/05	10

Date	Quantity
7/15/05	1
7/16/05 - 7/18/05	0
7/19/05	1
7/20/05	2
7/21/05	0
7/22/05	9
7/23/05	0
7/24/05	1
7/25/05	0
7/26/05- 7/28/05	0
7/29/05	1
7/30/05 - 8/19	0
8/20/05	1
8/21/05– 8/26/05	No signal
8/27/05– 8/29/05	0
8/30/05	No signal
8/31/05	0
9/1/05	0
9/2/05	0
9/3/05	2
9/4/05– 9/5/05	0
9/6/05	8
9/7/05– 9/8/05	5
9/9/05–9/10/05	0
9/11/05	4
9/12/05	1
9/13/05	12
9/14/05	7
9/15/05– 9/16/05	0
9/17/05	2
9/18/05	10
9/19/05	No signal
9/20/05	No signal
9/21/05	11
9/22/05	13
9/23/05	19
9/24/05	21
9/25/05	23
9/26/05	
9/27/05	
9/28/05	
9/29/05	
9/30/05	
10/1/05	10
10/2/05	16
10/3/05	4
10/4/05	2

Date	Quantity
10/5/05	15
10/6/05	24
10/7/05	41
10/8/05	Data needed from still photographs
10/9/05	Data needed from still photographs
10/10/05	21
10/11/05	50
10/12/05	40
10/13/05	100+
10/14/05	100+
10/15/05	100+
10/16/05	100+
10/17/05	100+
10/18/05	100+
10/19/05	100+
10/20/05	100+
10/21/05	100+
10/22/05	100+
10/23/05	100+
10/24/05	100+
10/25/05	100+
10/26/05	100+
10/27/05	100+
10/28/05	60–70
10/29/05	60–70
10/30/05	70–80
10/31/05	100+
11/1/05	100+
11/2/05	100+
11/3/05	100+
11/4/05	100+
11/5/05	50–80
11/6/05	50
11/7/05	30–50
11/8/05	80
11/9/05	100+
11/10/05	100+
11/11/05	100+
11/12/05	100+
11/13/05	60
11/14/05	100+
11/15/05	60
11/16/05	100+
11/17/05	80
11/18/05	100+

Date	Quantity
11/19/05	100+
11/20/05	100+
11/21/05	30–40
11/22/05	100+
11/23/05	100+
11/24/05	100+
11/25/05	100+
11/26/05	100+
11/27/05	100+
11/28/05	25–30
11/29/05	60–70
11/30/05	50–70
12/1/05	30–50
12/2/05	25
12/3/05	25
12/4/05	50
12/5/05	10
12/6/05	Data needed from still photographs
12/7/05	Data needed from still photographs
12/8/05	0
12/9/05	0
12/10/05	Data needed from still photographs
12/11/05	Data needed from still photographs
12/12/05	Data needed from still photographs
12/13/05	Data needed from still photographs
12/14/05	100
12/15/05	10
12/16/05	100+
12/17/05	Data needed from still photographs
12/18/05	Data needed from still photographs
12/19/05	Data needed from still photographs
12/20/05	Data needed from still photographs
12/21/05	100+
12/22/05	Data needed from still photographs
12/23/05	Data needed from still photographs
12/24/05	Data needed from still photographs
12/25/05	Data needed from still photographs
12/26/05	Data needed from still photographs
12/27/05	100+
12/28/05	100
12/29/05	100
12/30/05	Data needed from still photographs
12/31/05	Data needed from still photographs

Table A-4:
Gran Point Sea Lion Haulout Monitoring Log January 1, 2006–December 31, 2006

Date	Quantity
1/1/06	Data needed from still photographs
1/2/06	100
1/3/06	No data
1/4/06	100
1/5/06	25
1/6/06	No data
1/7/06	100
1/8/06	100
1/9/06	100
1/10/06	100
1/11/06	100
1/12/06	100
1/13/06	100
1/14/06	25
1/15/06	100
1/16/06	No data
1/17/06	No data
1/18/06	No data
1/19/06	No data
1/20/06	No data
1/21/06	No data
1/22/06	No data
1/23/06	100
1/24/06	10
1/25/06	5
1/26/06	No data
1/27/06	100+
1/28/06	0
1/29/06	No data
1/30/06	100+
1/31/06	No data
2/1/06	No data
2/2/06	100+
2/3/06	100+
2/4/06	100
2/5/06	100
2/6/06	0
2/7/06	100

Date	Quantity
2/8/06	100+
2/9/06	100+
2/10/06	100+
2/11/06	100+
2/12/06	25
2/13/06	100
2/14/06	100+
2/15/06	100+
2/16/06	70
2/17/06	100+
2/18/06	25
2/19/06	25
2/20/06	50
2/21/06	No data
2/22/06	25
2/23/06	100+
2/24/06	25
2/25/06	0
2/26/06	50
2/27/06	100+
2/28/06	100+
3/1/06	0
3/2/06	100+
3/3/06	50
3/4/06	50
3/5/06	50
3/6/06	50
3/7/06	100+
3/8/06	100+
3/9/06	50
3/10/06	0
3/11/06	0
3/12/06	No data
3/13/06	No data
3/14/06	No data
3/15/06	No data
3/16/06	No data
3/17/06	No data
3/18/06	10

Date	Quantity
3/19/06	No data
3/20/06	100+
3/21/06	100+
3/22/06	100+
3/23/06	100+
3/24/06	50
3/25/06	100+
3/26/06	100+
3/27/06	100+
3/28/06	100++
3/29/06	100+
3/30/06	50
3/31/06	100+
4/1/06	50
4/2/06	50
4/3/06	100+
4/4/06	50
4/5/06	100+
4/6/06	50
4/7/06	50
4/8/06	100
4/9/06	50
4/10/06	100+
4/11/06	50
4/12/06	100+
4/13/06	100+
4/14/06	100+
4/15/06	50
4/16/06	50
4/17/06	50
4/18/06	50
4/19/06	100+
4/20/06	100+
4/21/06	100+
4/22/06	100++
4/23/06	10++
4/24/06	100
4/25/06	100+
4/26/06	100++
4/27/06	100+
4/28/06	100+

Date	Quantity
4/29/06	100+
4/30/06	100++
5/1/06	100+
5/2/06	100+
5/3/06	100+
5/4/06	100+
5/5/06	100+
5/6/06	100+
5/7/06	No data
5/8/06	No data
5/9/06	No data
5/10/06	100++
5/11/06	100+
5/12/06	100+
5/13/06	No data
5/14/06	No data
5/15/06	100+
5/16/06	100+
5/17/06	100+
5/18/06	No data
5/19/06	100+
5/20/06	100++
5/21/06	100+
5/22/06	No data
5/23/06	100+
5/24/06	100+
5/25/06	100++
5/26/06	100++
5/27/06	100+
5/28/06	100+
5/29/06	100+
5/30/06	100+
5/31/06	100+
6/1/06	100+
6/2/06	100+
6/3/06	100+
6/4/06	100+
6/5/06	100+
6/6/06	100+
6/7/06	100++
6/8/06	100+

Date	Quantity
6/9/06	100+
6/10/06	100++
6/11/06	100
6/12/06	100++
6/13/06	100++
6/14/06	100+
6/15/06	100+
6/16/06	100+
6/17/06	100+
6/18/06	100+
6/19/06	100+
6/20/06	100++
6/21/06	100++
6/22/06	100++
6/23/06	100++
6/24/06	100+
6/25/06	No data
6/26/06	No data
6/27/06	No data
6/28/06	No data
6/29/06	No data
6/30/06	100+
7/1/06	100+
7/2/06	100+
7/3/06	50
7/4/06	50
7/5/06	100++
7/6/06	100+
7/7/06	100++
7/8/06	100+
7/9/06	0
7/10/06	25
7/11/06	100+
7/12/06	100+
7/13/06	100++
7/14/06	100++
7/15/06	50
7/16/06	100+
7/17/06	100
7/18/06	50
7/19/06	100+

Date	Quantity
7/20/06	100+
7/21/06	100+
7/22/06	50
7/23/06	0
7/24/06	25
7/25/06	20
7/26/06	50
7/27/06	50
7/28/06	30–50
7/29/06	50
7/30/06	25
7/31/06	50–60
8/1/06	40–50
8/2/06	25
8/3/06	25–30
8/4/06	0
8/5/06	25
8/6/06	8
8/7/06	15
8/8/06	0
8/9/06	5
8/10/06	1
8/11/06	15–20
8/12/06	10
8/13/06	25
8/14/06	0
8/15/06	0
8/16/06	0
8/17/06	0
8/18/06	5
8/19/06	0
8/20/06	0
8/21/06	0
8/22/06	0
8/23/06	0
8/24/06	0
8/25/06	0
8/26/06	10
8/27/06	0
8/28/06	0
8/29/06	0

Date	Quantity
8/30/06	0
8/31/06	0
9/1/06	0
9/2/06	0
9/3/06	0
9/4/06	0
9/5/06	4
9/6/06	0
9/7/06	0
9/8/06	0
9/9/06	0
9/10/06	0
9/11/06	0
9/12/06	0
9/13/06	1
9/14/06	0
9/15/06	0
9/16/06	0
9/17/06	0
9/18/06	1
9/19/06	1
9/20/06	0
9/21/06	0
9/22/06	20
9/23/06	10
9/24/06	0
9/25/06	49
9/26/06	3
9/27/06	28
9/28/06	47
9/29/06	34
9/30/06	50
10/1/06	50
10/2/06	61
10/3/06	40
10/4/06	18
10/5/06	60
10/6/06	77
10/7/06	100+
10/8/06	50
10/9/06	1

Date	Quantity
10/10/06	63
10/11/06	35
10/12/06	40
10/13/06	20
10/14/06	40
10/15/06	40
10/16/06	40
10/17/06	50–60
10/18/06	80
10/19/06	60
10/20/06	100
10/21/06	80
10/22/06	100+
10/23/06	100
10/24/06	50
10/25/06	100+
10/26/06	100+
10/27/06	100++
10/28/06	100++
10/29/06	100++
10/30/06	100+
10/31/06	100+
11/1/06	100+
11/2/06	100+
11/3/06	100+
11/4/06	8
11/5/06	2
11/6/06	No data
11/7/06	100+
11/8/06	100+
11/9/06	~20
11/10/06	100+
11/11/06	100+
11/12/06	100+
11/13/06	0
11/14/06	1
11/15/06	1
11/16/06	3
11/17/06	4
11/18/06	3
11/19/06	5

Date	Quantity
11/20/06	3
11/21/06	0
11/22/06	0
11/23/06	0
11/24/06	0
11/25/06	~25+
11/26/06	No data
11/27/06	~25+
11/28/06	~25+
11/29/06	No data
11/30/06	~25
12/1/06	~25
12/2/06	11
12/3/06	9
12/4/06	100+
12/5/06	100+
12/6/06	100+
12/7/06	100+
12/8/06	100+
12/9/06	100+
12/10/06	100+
12/11/06	40+
12/12/06	100+
12/13/06	100+
12/14/06	50+
12/15/06	100+
12/16/06	No data
12/17/06	No data
12/18/06	100+
12/19/06	25
12/20/06	100+
12/21/06	25
12/22/06	100+
12/23/06	50
12/24/06	100+
12/25/06	No data
12/26/06	100+
12/27/06	100+
12/28/06	No data
12/29/06	25–50
12/30/06	100+
12/31/06	100+

Notes: ~ = Approximately

Table A-5:
Gran Point Sea Lion Haulout Monitoring Log January 1, 2007–December 7, 2007

Date	Quantity
1/1/07	No data
1/2/07	No data
1/3/07	100+
1/4/07	100+
1/5/07	100+
1/6/07	100+
1/7/07	100+
1/8/07	No data
1/9/07	No data
1/10/07	No data
1/11/07	No data
1/12/07	0
1/13/07	50
1/14/07	40
1/15/07	~50
1/16/07	~50
1/17/07	Few (6 or less present)
1/18/07	Few (6 or less present)
1/19/07	~30
1/20/07	No data
1/21/07	100+
1/22/07	100+
1/23/07	100+
1/24/07	~30
1/25/07	100+
1/26/07	~100
1/27/07	~100
1/28/07	50–75
1/29/07	100+
1/30/07	~50
1/31/07	~50
2/1/07	~50
2/2/07	~50
2/3/07	100
2/4/07	100+
2/5/07	100+
2/6/07	~50
2/7/07	10-May
2/8/07	~15
2/9/07	~25
2/10/07	15-20
2/11/07	1
2/12/07	20+
2/13/07	No data
2/14/07	No data
2/15/07	100+
2/16/07	100+
2/17/07	20–30
2/18/07	No data
2/19/07	No data
2/20/07	No data
2/21/07	No data
2/22/07	No data
2/23/07	No data
2/24/07	Few (6 or less present)
2/25/07	0
2/26/07	0
2/27/07	1
2/28/07	25+
3/1/07	No data
3/2/07	Few (6 or less present)
3/3/07	No data
3/4/07	No data
3/5/07	No data
3/6/07	No data
3/7/07	100+
3/8/07	100+
3/9/07	15–20
3/10/07	100+
3/11/07	100+
3/12/07	100+
3/13/07	100+
3/14/07	25–30
3/15/07	~40
3/16/07	No data
3/17/07	No data
3/18/07	No data
3/19/07	~50

Date	Quantity
3/20/07	75–100
3/21/07	No data
3/22/07	100+
3/23/07	100+
3/24/07	100+
3/25/07	No data
3/26/07	No data
3/27/07	100+
3/28/07	100+
3/29/07	100+
3/30/07	100+
3/31/07	100+
4/1/07	100+
4/2/07	100+
4/3/07	100+
4/4/07	~80
4/5/07	~80
4/6/07	No data
4/7/07	No data
4/8/07	No data
4/9/07	100+
4/10/07	100+
4/11/07	100+
4/12/07	100+
4/13/07	70 - 80
4/14/07	No data
4/15/07	No data
4/16/07	100+
4/17/07	100++
4/18/07	100++
4/19/07	100++
4/20/07	100++
4/21/07	No data
4/22/07	No data
4/23/07	~25
4/24/07	100+
4/25/07	100+
4/26/07	100++
4/27/07	100++
4/28/07	No data
4/29/07	No data

Date	Quantity
4/30/07	100++
5/1/07	100++
5/2/07	100++
5/3/07	100++
5/4/07	100++
5/5/07	No data
5/6/07	No data
5/7/07	100++
5/8/07	100++
5/9/07	100++
5/10/07	100++
5/11/07	100++
5/12/07	No data
5/13/07	No data
5/14/07	100++
5/15/07	100++
5/16/07	100++
5/17/07	100++
5/18/07	100++
5/19/07	No data
5/20/07	No data
5/21/07	100+
5/22/07	100+
5/23/07	100+
5/24/07	100++
5/25/07	No data
5/26/07	100++
5/27/07	100++
5/28/07	100++
5/29/07	100++
5/30/07	100++
5/31/07	100++
6/1/07	100++
6/2/07	100++
6/3/07	100++
6/4/07	100++
6/5/07	100++
6/6/07	100++
6/7/07	100+
6/8/07	100++
6/9/07	100++

Date	Quantity
6/10/07	100++
6/11/07	100++
6/12/07	100++
6/13/07	100++
6/14/07	100++
6/15/07	100+
6/16/07	100++
6/17/07	100++
6/18/07	100++
6/19/07	100+
6/20/07	100+
6/21/07	100+
6/22/07	100++
6/23/07	100++
6/24/07	100++
6/25/07	100++
6/26/07	100++
6/27/07	100++
6/28/07	100++
6/29/07	100+
6/30/07	100++
7/1/07	100++
7/2/07	100++
7/3/07	100+
7/4/07	100++
7/5/07	100+
7/6/07	100++
7/7/07	100+
7/8/07	100++
7/9/07	100++
7/10/07	100++
7/11/07	100++
7/12/07	80
7/13/07	100+
7/14/07	No data
7/15/07	No data
7/16/07	8
7/17/07	25–30
7/18/07	0
7/19/07	0
7/20/07	0

Date	Quantity
7/21/07	No data
7/22/07	No data
7/23/07	16
7/24/07	6
7/25/07	12
7/26/07	0
7/27/07	0
7/28/07	No data
7/29/07	No data
7/30/07	0
7/31/07	9
8/1/07	8
8/2/07	0
8/3/07	6
8/4/07	No data
8/5/07	No data
8/6/07	3
8/7/07	0
8/8/07	0
8/9/07	0
8/10/07	0
8/11/07	0
8/12/07	0
8/13/07	2
8/14/07	2
8/15/07	0
8/16/07	0
8/17/07	0
8/18/07	No data
8/19/07	No data
8/20/07	No data
8/21/07	No data
8/22/07	1
8/23/07	1
8/24/07	0
8/25/07	No data
8/26/07	No data
8/27/07	0
8/28/07	0
8/29/07	0
8/30/07	0

Date	Quantity
8/31/07	No data
9/1/07	No data
9/2/07	No data
9/3/07	0
9/4/07	0
9/5/07	0
9/6/07	2
9/7/07	0
9/8/07	2
9/9/07	No data
9/10/07	5
9/11/07	0
9/12/07	0
9/13/07	1
9/14/07	0
9/15/07	3
9/16/07	6
9/17/07	1
9/18/07	0
9/19/07	2
9/20/07	5
9/21/07	5
9/22/07	3
9/23/07	3
9/24/07	11
9/25/07	15
9/26/07	20
9/27/07	13
9/28/07	15
9/29/07	19
9/30/07	21
10/1/07	33
10/2/07	57
10/3/07	50
10/4/07	75
10/5/07	20
10/6/07	No data
10/7/07	No data
10/8/07	No data
10/9/07	No data
10/10/07	No data

Date	Quantity
10/11/07	No data
10/12/07	No data
10/13/07	No data
10/14/07	No data
10/15/07	No data
10/16/07	No data
10/17/07	7
10/18/07	40
10/19/07	100+
10/20/07	100+
10/21/07	No data
10/22/07	100+
10/23/07	100+
10/24/07	100+
10/25/07	100+
10/26/07	No data
10/27/07	100++
10/28/07	No data
10/29/07	100+
10/30/07	100+
10/31/07	100+
11/1/07	100+
11/2/07	100+
11/3/07	100+
11/4/07	100+
11/5/07	100+
11/6/07	100+
11/7/07	100+
11/8/07	100+
11/9/07	100+
11/10/07	100+
11/11/07	100+
11/12/07	100+
11/13/07	100+
11/14/07	100+
11/15/07	100+
11/16/07	100+
11/17/07	100+
11/18/07	100+
11/19/07	100+
11/20/07	100+

Date	Quantity
11/21/07	No data
11/22/07	No data
11/23/07	25+
11/24/07	No data
11/25/07	No data
11/26/07	60+
11/27/07	100+
11/28/07	100+
11/29/07	50+
11/30/07	100+

Date	Quantity
12/1/07	No data
12/2/07	No data
12/3/07	No data
12/4/07	No data
12/5/07	No data
12/6/07	25+
12/7/07	100+

Notes: ~ = Approximately

Table A-6:
Gran Point Sea Lion Haulout Monitoring Log April 15, 2008–November 5, 2008

Date	Quantity
4/15/08	100++
4/19/08	100++
4/20/08	100++
4/21/08	100++
4/22/08	100++
4/23/08	100++
4/24/08	100++
4/25/08	100++
4/26/08	100++
4/27/08	100++
4/28/08	No data
4/29/08	100++
4/30/08	100++
5/1/08	100++
5/2/08	100++
5/3/08	100++
5/4/08	100++
5/5/08	100++
5/6/08	100++
5/7/08	100++
5/8/08	100++
5/9/08	100++
5/10/08	100++
5/11/08	100++
5/12/08	100
5/13/08	100+
5/14/08	100+
5/15/08	100++
5/16/08	100++
5/17/08	100++
5/18/08	100++
5/19/08	100+
5/20/08	-100
5/21/08	100+
5/22/08	100++
5/23/08	100+
5/24/08	100++
5/25/08	100++
5/26/08	100++
5/27/08	100++
5/28/08	100++
5/29/08	100++
5/30/08	100++
5/31/08	100++
6/1/08	100++
6/2/08	100++
6/3/08	100++
6/4/08	100++
6/5/08	100++
6/6/08	100++
6/7/08	100++
6/8/08	100++
6/9/08	100++
6/10/08	100++
6/11/08	100++
6/12/08	100+
6/13/08	100++
6/14/08	100++
6/15/08	100++
6/16/08	100++
6/17/08	100++
6/18/08	100++
6/19/08	100++
6/20/08	100++
6/21/08	100++
6/22/08	100++
6/23/08	100++
6/24/08	100++
6/25/08	100++
6/26/08	100++
6/27/08	100++
6/28/08	100++
6/29/08	100++
6/30/08	100++
7/1/08	100++
7/2/08	100++
7/3/08	100++
7/4/08	100++

Date	Quantity
7/5/08	100++
7/6/08	100++
7/7/08	100++
7/8/08	100++
7/9/08	100++
7/10/08	100++
7/11/08	100++
7/12/08	100++
7/13/08	50–75
7/14/08	50–75
7/15/08	25
7/16/08	50–75
7/17/08	15
7/18/08	0
7/19/08	7
7/20/08	11
7/21/08	20
7/22/08	15–20
7/23/08	25
7/24/08	20
7/25/08	0
7/26/08	25
7/27/08	25–30
7/28/08	0
7/29/08	30
7/30/08	21
7/31/08	10
8/1/08	25–30
8/2/08	10
8/3/08	15
8/4/08	10
8/5/08	12
8/6/08	0
8/7/08	0
8/8/08	0
8/9/08	0
8/10/08	0
8/11/08	0
8/12/08	0
8/13/08	2
8/14/08	4

Date	Quantity
8/15/08	0
8/16/08	0
8/17/08	1
8/18/08	0
8/19/08	1
8/20/08	8
8/21/08	0
8/22/08	3
8/23/08	0
8/24/08	6
8/25/08	11
8/26/08	5
8/27/08	1
8/28/08	5
8/29/08	6
8/30/08	3
8/31/08	8
9/1/08	6
9/2/08	10
9/3/08	7
9/4/08	4
9/5/08	0
9/6/08	8
9/7/08	40
9/8/08	40
9/9/08	35
9/10/08	50
9/11/08	100+
9/12/08	75–100
9/13/08	50
9/14/08	36
9/15/08	33
9/16/08	25
9/17/08	36
9/18/08	60
9/19/08	20
9/20/08	75
9/21/08	75
9/22/08	15
9/23/08	40
9/24/08	40

Date	Quantity
9/25/08	50
9/26/08	50
9/27/08	50
9/28/08	38
9/29/08	33
9/30/08	45
10/1/08	65
10/2/08	40
10/3/08	50
10/4/08	90
10/5/08	55
10/6/08	50
10/7/08	50
10/8/08	66
10/9/08	100
10/10/08	56
10/11/08	100+
10/12/08	100+
10/13/08	100
10/14/08	75
10/15/08	60
10/16/08	100

Date	Quantity
10/17/08	100+
10/18/08	100+
10/19/08	No data
10/20/08	100+
10/21/08	100+
10/22/08	100
10/23/08	100
10/24/08	100
10/25/08	100+
10/26/08	70
10/27/08	100+
10/28/08	100+
10/29/08	100+
10/30/08	100+
10/31/08	100+
11/1/08	100++
11/2/08	100++
11/3/08	100
11/4/08	100
11/5/08	No data

Table A-7:
Gran Point Sea Lion Haulout Monitoring Log April 15, 2009–October 16, 2009

Date	Quantity
4/15/09	100++
4/16/09	100++
4/17/09	100++
4/18/09	100++
4/19/09	100++
4/20/09	100++
4/21/09	100++
4/22/09	100++
4/23/09	100++
4/24/09	100++
4/25/09	100++
4/26/09	100++
4/27/09	100++
4/28/09	100++
4/29/09	100++
4/30/09	100++
5/1/09	100++
5/2/09	100++
5/3/09	100++
5/4/09	100++
5/5/09	100++
5/6/09	100++
5/7/09	100++
5/8/09	100++
5/9/09	100++
5/10/09	100++
5/11/09	100++
5/12/09	100++
5/13/09	100++
5/14/09	100++
5/15/09	100++
5/16/09	100++
5/17/09	100++
5/18/09	100++
5/19/09	100++
5/20/09	100++
5/21/09	100++
5/22/09	100++
5/23/09	100++

Date	Quantity
5/24/09	100++
5/25/09	100++
5/26/09	100++
5/27/09	100++
5/28/09	100++
5/29/09	100++
5/30/09	100++
5/31/09	100++
6/1/09	100++
6/2/09	100++
6/3/09	100++
6/4/09	100++
6/5/09	100++
6/6/09	100++
6/7/09	100++
6/8/09	100++
6/9/09	100++
6/10/09	100++
6/11/09	100++
6/12/09	100++
6/13/09	100++
6/14/09	100++
6/15/09	100++
6/16/09	100++
6/17/09	100++
6/18/09	100++
6/19/09	100++
6/20/09	100++
6/21/09	100++
6/22/09	100++
6/23/09	100++
6/24/09	100++
6/25/09	No data
6/26/09	No data
6/27/09	No data
6/28/09	No data
6/29/09	No data
6/30/09	100++
7/1/09	100++

Date	Quantity
7/2/09	No data
7/3/09	No data
7/4/09	100++
7/5/09	No data
7/6/09	100++
7/7/09	100++
7/8/09	100++
7/9/09	100++
7/10/09	100++
7/11/09	100++
7/12/09	100+
7/13/09	50
7/14/09	50
7/15/09	50–100
7/16/09	50
7/17/09	50
7/18/09	25
7/19/09	50–75
7/20/09	25
7/21/09	50
7/22/09	50
7/23/09	80–100
7/24/09	80
7/25/09	30–50
7/26/09	60
7/27/09	50
7/28/09	50
7/29/09	55
7/30/09	50
7/31/09	1
8/1/09	25
8/2/09	40–50
8/3/09	33
8/4/09	36
8/5/09	50–60
8/6/09	40
8/7/09	30
8/8/09	45
8/9/09	50
8/10/09	45
8/11/09	60

Date	Quantity
8/12/09	50-60
8/13/09	40
8/14/09	50
8/15/09	35
8/16/09	40
8/17/09	33
8/18/09	40–50
8/19/09	40–50
8/20/09	50
8/21/09	25
8/22/09	33
8/23/09	50
8/24/09	50
8/25/09	36
8/26/09	27
8/27/09	36
8/28/09	40
8/29/09	20
8/30/09	30
8/31/09	60
9/1/09	0
9/2/09	18
9/3/09	18
9/4/09	30
9/5/09	25
9/6/09	20–30
9/7/09	20
9/8/09	15
9/9/09	9
9/10/09	10
9/11/09	27
9/12/09	40
9/13/09	40
9/14/09	25
9/15/09	25
9/16/09	15
9/17/09	No data
9/18/09	30
9/19/09	50
9/20/09	30–50
9/21/09	50

Date	Quantity
9/22/09	60
9/23/09	20
9/24/09	50
9/25/09	50
9/26/09	50
9/27/09	30
9/28/09	50
9/29/09	40
9/30/09	30
10/1/09	50
10/2/09	10
10/3/09	9
10/4/09	2

Date	Quantity
10/5/09	50
10/6/09	100+
10/7/09	50
10/8/09	100+
10/9/09	100+
10/10/09	100+
10/11/09	100+
10/12/09	100+
10/13/09	100+
10/14/09	100+
10/15/09	100+
10/16/09	100+

Table A-8:
Gran Point Sea Lion Haulout Monitoring Log June 1, 2010–October 31, 2010

Date	Quantity	Date	Quantity
6/1/10	100+	7/10/10	100+
6/2/10	100+	7/11/10	100+
6/3/10	100+	7/12/10	50
6/4/10	100+	7/13/10	75
6/5/10	100+	7/14/10	75
6/6/10	100+	7/15/10	80–100
6/7/10	100+	7/16/10	100+
6/8/10	100+	7/17/10	50+
6/9/10	100+	7/18/10	50+
6/10/10	100+	7/19/10	100+
6/11/10	100+	7/20/10	50+
6/12/10	100+	7/21/10	50+
6/13/10	100+	7/22/10	20
6/14/10	100+	7/23/10	1
6/15/10	100+	7/24/10	10
6/16/10	100+	7/25/10	40
6/17/10	100+	7/26/10	40
6/18/10	100+	7/27/10	25–30
6/19/10	100+	7/28/10	25–50
6/20/10	100+	7/29/10	25–40
6/21/10	100+	7/30/10	25
6/22/10	100+	7/31/10	25
6/23/10	100+	8/1/10	20
6/24/10	100+	8/2/10	20–25
6/25/10	100+	8/3/10	1
6/26/10	100+	8/4/10	No data
6/27/10	100+	8/5/10	1
6/28/10	100+	8/6/10	3
6/29/10	100+	8/7/10	25–30
6/30/10	100+	8/8/10	25–30
7/1/10	100+	8/9/10	25–30
7/2/10	100+	8/10/10	10–15
7/3/10	100+	8/11/10	25–30
7/4/10	100+	8/12/10	0
7/5/10	100+	8/13/10	3
7/6/10	100+	8/14/10	11
7/7/10	100+	8/15/10	7
7/8/10	100+	8/16/10	6
7/9/10	100+	8/17/10	10

Date	Quantity
8/18/10	9
8/19/10	10
8/20/10	10
8/21/10	10
8/22/10	10–15
8/23/10	15
8/24/10	5
8/25/10	4
8/26/10	0
8/27/10	10
8/28/10	2
8/29/10	4
8/30/10	0
8/31/10	7
9/1/10	10
9/2/10	10
9/3/10	2
9/4/10	0
9/5/10	1
9/6/10	3
9/7/10	7
9/8/10	9
9/9/10	11
9/10/10	9
9/11/10	10
9/12/10	5
9/13/10	9
9/14/10	1
9/15/10	10
9/16/10	10–15
9/17/10	20
9/18/10	26
9/19/10	20–30
9/20/10	35+
9/21/10	50
9/22/10	55
9/23/10	50+
9/24/10	50+
9/25/10	40

Date	Quantity
9/26/10	68
9/27/10	40
9/28/10	50–60
9/29/10	70–100
9/30/10	100
10/1/10	100+
10/2/10	100+
10/3/10	100+
10/4/10	100+
10/5/10	100+
10/6/10	100+
10/7/10	100+
10/8/10	100+
10/9/10	100+
10/10/10	100+
10/11/10	100+
10/12/10	100+
10/13/10	100+
10/14/10	100+
10/15/10	100+
10/16/10	100+
10/17/10	100+
10/18/10	100+
10/19/10	100+
10/20/10	100++
10/21/10	100+
10/22/10	100+
10/23/10	100+
10/24/10	100+
10/25/10	100+
10/26/10	100+
10/27/10	100+
10/28/10	100+
10/29/10	100+
10/30/10	100+
10/31/10	100+

Table A-9:
Gran Point Sea Lion Haulout Monitoring Log May 23, 2011–October 31, 2011

Date	Quantity
5/23/11	100+++
5/24/11	100+++
5/25/11	100+++
5/26/11	100+++
5/27/11	100+++
5/28/11	100+++
5/29/11	100+++
5/30/11	100+++
5/31/11	100+++
6/1/11	100+++
6/2/11	100+++
6/3/11	100+++
6/4/11	100+++
6/5/11	100+++
6/6/11	100+
6/7/11	100++
6/8/11	100++
6/9/11	No data
6/10/11	100++
6/11/11	100++
6/12/11	100++
6/13/11	100++
6/14/11	100++
6/15/11	100++
6/16/11	100++
6/17/11	100++
6/18/11	100++
6/19/11	100++
6/20/11	100++
6/21/11	100++
6/22/11	100+
6/23/11	100+
6/24/11	100+
6/25/11	100+
6/26/11	100+
6/27/11	No data
6/28/11	No data
6/29/11	No data
6/30/11	No data

Date	Quantity
7/1/11	30
7/2/11	20
7/3/11	20
7/4/11	20
7/5/11	18
7/6/11	9
7/7/11	5
7/8/11	4
7/9/11	6
7/10/11	8
7/11/11	12
7/12/11	2
7/13/11	0
7/14/11	0
7/15/11	0
7/16/11	0
7/17/11	0
7/18/11	1
7/19/11	0
7/20/11	0
7/21/11	0
7/22/11	0
7/23/11	0
7/24/11	0
7/25/11	1
7/26/11	40
7/27/11	53
7/28/11	1
7/29/11	2
7/30/11	2
7/31/11	2
8/1/11	2
8/2/11	4
8/3/11	2
8/4/11	0
8/5/11	0
8/6/11	0
8/7/11	0
8/8/11	0
8/9/11	0
8/10/11	0

Date	Quantity
8/11/11	0
8/12/11	0
8/13/11	0
8/14/11	0
8/15/11	0
8/16/11	0
8/17/11	0
8/18/11	1
8/19/11	0
8/20/11	0
8/21/11	0
8/22/11	0
8/23/11	0
8/24/11	0
8/25/11	4
8/26/11	4
8/27/11	3
8/28/11	0
8/29/11	0
8/30/11	0
8/31/11	0
9/1/11	0
9/2/11	5
9/3/11	0
9/4/11	0
9/5/11	0
9/6/11	14
9/7/11	20
9/8/11	10
9/9/11	30
9/10/11	30
9/11/11	5
9/12/11	35
9/13/11	19
9/14/11	40
9/15/11	80
9/16/11	50
9/17/11	60
9/18/11	40
9/19/11	100++
9/20/11	100++

Date	Quantity
9/21/11	100++
9/22/11	100++
9/23/11	80
9/24/11	70
9/25/11	100
9/26/11	100++
9/27/11	100++
9/28/11	100++
9/29/11	100++
9/30/11	100+
10/1/11	100+
10/2/11	100+
10/3/11	100++
10/4/11	100+
10/5/11	100++
10/6/11	100++
10/7/11	100+
10/8/11	100+
10/9/11	100+
10/10/11	100+++
10/11/11	100+++
10/12/11	100++
10/13/11	100+
10/14/11	100+
10/15/11	100+
10/16/11	100+
10/17/11	100+
10/18/11	100+
10/19/11	100++
10/20/11	100++
10/21/11	100++
10/22/11	100+
10/23/11	100+
10/24/11	100++
10/25/11	100++
10/26/11	100++
10/27/11	100++
10/28/11	100++
10/29/11	100++
10/30/11	100++
10/31/11	100++

Table A-10:
Gran Point Sea Lion Haulout Monitoring Log May 30, 2012–October 31, 2012

Date	Quantity
5/30/12	100++
5/31/12	No data
6/1/12	100++
6/2/12	No data
6/3/12	No data
6/4/12	100+++
6/5/12	100+++
6/6/12	No data
6/7/12	No data
6/8/12	No data
6/9/12	No data
6/10/12	No data
6/11/12	100+++
6/12/12	100+++
6/13/12	100+++
6/14/12	100+++
6/15/12	100+++
6/16/12	No data
6/17/12	No data
6/18/12	100++++
6/19/12	100++
6/20/12	No data
6/21/12	No data
6/22/12	No data
6/23/12	No data
6/24/12	No data
6/25/12	100++
6/26/12	100++
6/27/12	100++
6/28/12	100++
6/29/12	100++
6/30/12	No data
5/30/12	100++
5/31/12	No data
6/1/12	100++
6/2/12	No data
6/3/12	No data
6/4/12	100+++
6/5/12	100+++
7/1/12	100++
7/2/12	100++
7/3/12	100++
7/4/12	100++

Date	Quantity
7/5/12	100++
7/6/12	100++
7/7/12	100++
7/8/12	100++
7/9/12	100++
7/10/12	100
7/11/12	100+
7/12/12	100+
7/13/12	100++
7/14/12	100
7/15/12	100
7/16/12	100
7/17/12	100
7/18/12	100
7/19/12	60+
7/20/12	60+
7/21/12	30+
7/22/12	60+
7/23/12	40+
7/24/12	60+
7/25/12	50+
7/26/12	50
7/27/12	0
7/28/12	20
7/29/12	50+
7/30/12	40
7/31/12	30
8/1/12	60
8/2/12	30
8/3/12	12
8/4/12	35
8/5/12	35
8/6/12	20
8/7/12	16
8/8/12	30
8/9/12	No data
8/10/12	No data
8/11/12	No data
8/12/12	No data
8/13/12	No data
8/14/12	No data
8/15/12	No data
8/16/12	0

Date	Quantity
8/17/12	0
8/18/12	3
8/19/12	5
8/20/12	0
8/21/12	0
8/22/12	0
8/23/12	0
8/24/12	0
8/25/12	0
8/26/12	0
8/27/12	0
8/28/12	0
8/29/12	3
8/30/12	0
8/31/12	0
9/1/12	0
9/2/12	0
9/3/12	2
9/4/12	0
9/5/12	17
9/6/12	11
9/7/12	0
9/8/12	6
9/9/12	1
9/10/12	18
9/11/12	20
9/12/12	10
9/13/12	35
9/14/12	5
9/15/12	35
9/16/12	12
9/17/12	26
9/18/12	35 SS
9/19/12	15 SS
9/20/12	50+ SS
9/21/12	1 SS
9/22/12	10 SS
9/23/12	10 SS

Date	Quantity
9/24/12	19 SS
9/25/12	15 SS
9/26/12	13
9/29/12	50 SS
9/30/12	50 SS
10/1/12	50 SS
10/2/12	50+ SS
10/3/12	25+ SS
10/4/12	18 SS
10/5/12	20+ SS
10/6/12	20 SS
10/7/12	15 SS
10/8/12	36 SS
10/9/12	0-some in water
10/10/12	12 SS
10/11/12	10 SS
10/12/12	21 SS
10/13/12	25 SS
10/14/12	50 SS
10/15/12	35 SS
10/16/12	100+SS
10/17/12	100+SS
10/18/12	100+ SS
10/19/12	100+SS
10/20/12	100+ SS
10/21/12	100+ SS
10/22/12	100+SS
10/23/12	100+SS
10/24/12	100+SS
10/25/12	100+SS
10/26/12	100+ SS
10/27/12	100+ SS
10/28/12	100+ SS
10/29/12	100+SS
10/30/12	No data
10/31/12	No data