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Periodic Status Review for the Steller Sea Lion

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FISH AND WILDLIFE
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The Washington Department of Fish and Wildlife maintains a list of endangered, threatened, and sensitive species (Washington Administrative Codes 232-12-014 and 232-12-011, Appendix E). In 1990, the Washington Wildlife Commission adopted listing procedures developed by a group of citizens, interest groups, and state and federal agencies (Washington Administrative Code 232-12-297, Appendix A). The procedures include how species listings will be initiated, criteria for listing and delisting, a requirement for public review, the development of recovery or management plans, and the periodic review of listed species.

The Washington Department of Fish and Wildlife is directed to conduct reviews of each endangered, threatened, or sensitive wildlife species at least every five years after the date of its listing. The reviews are designed to include an update of the species status report to determine whether the status of the species warrants its current listing status or deserves reclassification. The agency notifies the general public and specific parties who have expressed their interest to the Department of the periodic status review at least one year prior to the five-year period so that they may submit new scientific data to be included in the review. The agency notifies the public of its recommendation at least 30 days prior to presenting the findings to the Fish and Wildlife Commission. In addition, if the agency determines that new information suggests that the classification of a species should be changed from its present state, the agency prepares documents to determine the environmental consequences of adopting the recommendations pursuant to requirements of the State Environmental Policy Act.

The draft periodic status review for Steller sea lions was reviewed by researchers and state and federal agencies. This was followed by a 90-day public comment period from September 12–December 11, 2014. All comments received were considered during the preparation of the final periodic status review. The Department intends to present the results of this periodic status review to the Fish and Wildlife Commission for action at the February 2015 meeting.

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Cover photos by Peter Hodum (Steller sea lions, inset) and Steve Jeffries (Steller sea lions hauled out at Rock 535, [47.4000°N, 124.3607°W])

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EXECUTIVE SUMMARY

Steller sea lions (*Eumetopias jubatus*) in Washington belong to the eastern distinct population segment (DPS), which is one of two DPSs comprising the species. The eastern DPS ranges along the west coast of North America from Southeast Alaska to central California (i.e., east of 144°W longitude). Most Steller sea lions move to rookeries on islands and offshore rocks for breeding and pupping from May to August. At the rookeries, adult males defend breeding territories and compete for females; pups are born from late May to early July. Steller sea lions are dietary generalists that feed on a variety of prey. Prey commonly eaten in Washington include Pacific hake, rockfish, skates, flounders, herring, salmon, smelt, shad, and cod; white sturgeon are among the species eaten in the Columbia River. Seasonal concentrations of prey are commonly targeted. Most foraging occurs within 60 km of land and foraging trips are interspersed with regular visits to onshore resting sites known as haulouts. Haulouts in Washington are preferentially located on islands with rocky shorelines and wave-cut platforms, but cobble beaches and human-made structures such as jetties, navigational buoys, docks, and log booms are also used.

The eastern DPS, including the Steller sea lions found in Washington, experienced a major decline in abundance through much of the 1900s due primarily to human control efforts. Protections implemented during and after the 1970s against deliberate killing and other threats reversed this trend and have resulted in a period of sustained population growth. From 1979 to 2010, numbers of non-pups (individuals ≥1 year of age) and pups in the eastern DPS increased at average annual rates of 2.99% and 4.18%, respectively, with the overall population growing from an estimated 18,313 animals to 70,174 animals. Steller sea lion abundance in Washington has also grown, with numbers of non-pups at four sites used for trend analysis increasing at an average annual rate of 9.13% from 1989 to 2013. Abundance in the state peaks during the non-breeding season at roughly 2,000-2,500 animals. Most animals occur along the outer coast, with smaller numbers visiting the inner marine waters. Washington does not support any recognized rookeries (defined as having >50 pups born per year). Pupping did not occur in the state during most of the 20th century, however, small but increasing numbers of pups have been born at several sites since 1992, with a total of 60 tallied in 2014. Therefore, nearly all animals visiting Washington are born at rookeries in other states and British Columbia. Twenty-two haulouts are currently known in Washington. Additionally, major haulouts at the mouth of the Columbia River (Oregon) and along southern Vancouver Island and in the Strait of Georgia (British Columbia) are located close to the state's waters.

The eastern DPS and Steller sea lion numbers in Washington are expected to continue increasing in the near future until eventually reaching carrying capacity with available prey resources. Sustained population growth and lack of significant threats resulted in federal delisting of the eastern DPS in December 2013. The eastern DPS may be adversely impacted by a number of known or potential human-related factors, including climate change, reduced prey abundance through competition with fisheries, human disturbance, incidental take in fishing gear, entanglement in marine debris, intentional killing, environmental contaminants, oil spills, diseases and parasites, and harmful algal blooms. An important future concern is that altered ocean conditions resulting from climate change may reduce prey availability for the species. Despite the existence of these potential adverse factors, the population has successfully recovered during the past few decades.

For these reasons, the Department recommends that Steller sea lions be delisted at the state level in Washington. If delisting occurs, the species will continue to receive protection through the federal Marine Mammal Protection Act and through its classification as a "protected wildlife" species under state law. However, delisting could lead to the future lethal removal of small numbers of individuals at locations where authorized by federal and state law.

INTRODUCTION

The Steller sea lion (*Eumetopias jubatus*), also known as the northern sea lion or Steller's sea lion, is one of two sea lion species found in Washington. The species was federally listed as threatened in 1990 because of concern about its overall abundance, especially in Alaska. The Washington Department of Wildlife followed with its own review of the species' status in 1993 (WDW 1993), which led the Washington Wildlife Commission to adopt a similar threatened status at the state level that same year. In 1997, the National Marine Fisheries Service divided the species into eastern and western distinct population segments (DPSs) based on demographic and genetic differences (Bickham et al. 1996, Loughlin 1997). The two DPSs have been characterized by strongly different population trends since the 1970s, with the eastern DPS (which includes Washington's animals) showing steady growth and the western DPS experiencing a major decline and slow recovery. This led to federal upgrading of the western DPS status to endangered in 1997 and to delisting of the eastern DPS in December 2013.

This periodic status review summarizes the biology, population status, and threats to Steller sea lions in Washington and assesses whether the species should retain its protected status or if it deserves reclassification under state law. Much of the information appearing in this review is drawn from three recently published reports (NMFS 2008, 2013, DFOC 2011) describing the conservation and management needs of the species, including the eastern DPS.

SPECIES BACKGROUND

Description. Steller sea lions are one of the largest pinniped species and are substantially larger than California sea lions (*Zalophus californianus*), which also occur in Washington. Descriptions of both species appear in Shirihai and Jarrett (2006) and Jefferson et al. (2008).

Taxonomy. Steller sea lions are the only species in the genus *Eumetopias* and belong to the order Carnivora, suborder Caniformia, and family Otariidae (Committee on Taxonomy 2011). Two subspecies are recognized, which correspond with the two DPSs recognized under the federal Endangered Species Act (Phillips et al. 2009, Committee on Taxonomy 2011). *Eumetopias j. monteriensis*, also known as Loughlin's northern sea lion or eastern Steller sea lion, comprises the eastern DPS, whereas *E. j. jubatus*, which has the common name of western Steller sea lion, comprises the western DPS.

Distribution. The species typically occurs in coastal to outer continental shelf waters of the North Pacific Ocean, extending from northern Japan and the Korean peninsula to eastern Siberia, Alaska, and the Aleutian Islands, and southward along western North America to central California (Burkanov and Loughlin 2005, Pitcher et al. 2007, NMFS 2013). The Bering Strait represents the northernmost extent of its distribution. Breeding occurred as far south as San Miguel Island in the Channel Islands off southern California until 1981-1982. The eastern DPS occurs east of 144°W longitude (i.e., from Southeast Alaska to central California, including Washington), while the western DPS ranges west of 144°W from south-central Alaska to northeastern Asia.

In Washington, Steller sea lions occur mainly along the outer coast from the Columbia River to Cape Flattery (Jeffries et al. 2000). Smaller numbers use the Strait of Juan de Fuca, San Juan Islands, and Puget Sound south to about the Nisqually River mouth in Thurston and Pierce counties (Steiger and Calambokidis 1986; WDFW, unpubl. data). A few animals also travel up the Columbia River as far as Bonneville Dam.

Reproduction and breeding behavior. Breeding and pupping occur at traditional rookeries where mature males vigorously defend territories and compete for females. Breeding males arrive at rookeries in May, with females beginning to join them soon after (Gentry 1970, Pitcher and Calkins 1981, Merrick 1987). Both sexes usually return to the same rookeries where they were born (Loughlin 2002, Raum-Suryan et al. 2002).

Pregnant females give birth to a single pup a few days after arriving at the rookery (Gentry 1970). Pupping extends from late May to early July, with a peak in births in mid-June (Gentry 1970, Pitcher and Calkins 1981, Bigg 1985, Pitcher et al. 2001). Pups begin entering the water when 2-4 weeks old (Sandegren 1970) and are able to swim in the open ocean at about 1 month of age. They begin accompanying their mothers to haulouts when 2-3 months old (Raum-Suryan et al. 2002, Scordino 2006). Weaning typically occurs at 1-2 years of age, but may extend into a third year in some individuals (Trites and Porter 2002, Trites et al. 2006, Maniscalco 2014).

Males reach sexual maturity at 3-8 years of age and are capable of holding territories at rookeries by 9-11 years of age (Calkins and Pitcher 1982). Females become sexually mature at 3-6 years of age and may continue reproducing until their early 20s (Mathisen et al. 1962, Pitcher and Calkins 1981). Because parental care commonly extends more than one year, many adult females do not breed annually, which results in the species exhibiting lower productivity than most other pinnipeds (Pitcher et al. 1998). Nutritional stress caused by inadequate prey resources can contribute to reproductive failure among adult females (Pitcher et al. 1998).

Diet and foraging behavior. Steller sea lions are dietary generalists that prey on a broad variety of fish and cephalopods (squid and octopus), including both benthic and pelagic species (Trites et al. 2007a, NMFS 2008). Other pinnipeds and birds are occasionally eaten (e.g., Pitcher and Fay 1982, Mathews and Adkison 2010). Diet at specific locations is typically dominated by one or two species (Riemer et al. 2011). More than 61 prey species are eaten in Southeast Alaska and British Columbia, including walleye pollock (*Gadus chalcogrammus*), Pacific herring (*Clupea pallasii*), Pacific sand lance (*Ammodytes hexapterus*), Pacific hake (*Merluccius productus*), arrowtooth flounder (*Atheresthes stomias),* salmon (*Oncorhynchus* spp.), Pacific cod (*Gadus macrocephalus*), capelin (*Mallotus villosus*), rockfish (*Sebastes* spp.), spiny dogfish (*Squalus suckleyi*), eulachon (*Thaleichthys pacificus*), Pacific sardine (*Sardinops sagax*), skates (Rajidae), and cephalopods (Womble and Sigler 2006, Trites et al. 2007a, Sigler et al. 2009, DFOC 2011). Common prey in Oregon and northern California include Pacific hake, Pacific lamprey (*Lampetra tridentata*), skates, salmon, clupeids (herring, sardines, others), rockfish, northern anchovy (*Engraulis mordax*), flounders (Pleuronectidae), spotted cusk-eel (*Chilara taylori*), and cephalopods (Jameson and Kenyon 1977, Jones 1981, Roffe and Mate 1984, Riemer and Brown 1997, Scordino 2010, Riemer et al. 2011).

Six studies have reported diet of Steller sea lions in Washington (Table 1). These show substantial variation in primary prey, which likely relates to differences in location, season and year of sample collection, method of analysis, and sample size. Of the five studies made in marine environments, Pacific hake were the most important prey in three of those studies; smelt (Osmeridae) and starry flounder (*Platichthys stellatus*) were most important in one study; and clupeids (herring, sardines, others), skates, rockfish, and salmon were most important in one study. White sturgeon (*Acipenser transmontanus*), chinook salmon (*O. tshawytscha*), steelhead (*O. mykiss*), coho salmon (*O. kisutch*), and eulachon are commonly eaten in the Columbia River (Table 1; Stansell et al. 2013; R. Brown, pers. comm.). Makah Indians reported Steller sea lions preying on spawning lingcod (*Ophiodon elongatus*) at Neah Bay (Gunther 1936), and more recently, they have fed on chinook, sockeye (*O. nerka*), and chum (*O. keta*) salmon, and steelhead taken from Makah net and troll fisheries (Gearin and Scordino 1995).

Foraging strategies vary with location, gender, age, and seasonal patterns in prey availability and nutritional quality. Prey species that form seasonal concentrations (e.g., herring, salmon) as well as those available year-round are targeted (Sigler et al. 2004, 2009, Womble et al. 2009). Bioenergetic models predict that daily food requirements in the wild are about 30-35 kg for mature males and 15-20 kg for mature females (Winship et al. 2002). For females, these daily energy requirements represent about 14% of body weight for a 1-year old and 7% for a mature individual. Sea lions that consume more low-fat fishes, such as pollock, require substantially more prey than those that consume fattier fishes, such as herring (Rosen and Trites 2000, Trites and Donnelly 2003, Winship and Trites 2003).

Table 1. Primary prey of Steller sea lions in six Washington studies. Results are presented as percent frequency of occurrence, with only those prey items listed that were found in ≥10% of samples in a study.

Study	Treacy (1985)	Gearin et al. (1999)	Scordino (2010)	Stansell et al. (2013)	S. Jeffries, (pers. comm.)	J. Scordino (pers. comm.)
Location	Between Grays Harbor, Washington, and Netarts Bay, Oregon	Bodelteh Islands, Carroll Island, Sea Lion Rock, and Tatoosh Islands, northern outer coast	Northern outer coast	Bonneville Dam in the Columbia River	Rock 535 and Split Rock, southern Olympic Peninsula	Bodelteh Islands, Carroll Island, Sea Lion Rock, and Tatoosh Islands, northern outer coast
Method	gastrointes-tinal tracts	scat	scat	surface observations	scat	scat
Sample size	9	850	124	225	140	776
Time of year	year-round	April-July	May-July	Oct-Dec	June-Sept	year-round
No. of prey taxa identified	7	not reported	22	not reported	29	39
Primary prey						
Pacific hake	33.3	89-98	88		12.1	15.0
rockfish spp.	22.2					35.8
northern anchovy	11.1				28.6	
Pacific herring	11.1	23			18.6	11.7
eulachon	11.1					
Pacific staghorn sculpin (*Leptocottus armatus*)	11.1					
Pacific lamprey	11.1					
spiny dogfish		19	24		20.0	25.2
skate spp. (Rajidae)		11			48.6	36.0
starry flounder			16		57.9	10.2
white sturgeon				32.8		
steelhead				18.0		
chinook salmon				11.1		
coho salmon				11.1		
smelt spp. (Osmeridae)					60.7	
clupeid spp. (Clupeidae)					49.3	
gadid spp. (Gadidae)					42.9	14.7
flatfish spp. (Pleuronectiformes)					38.6	
American shad (*Alosa sapidissima*)					38.6	
Pacific tomcod (*Microgadus proximus*)					35.0	
salmon spp.					29.3	32.8
Pacific sardine						12.0

Foraging range of Steller sea lions is shorter (usually <30 km straight-line distance) during the breeding season when reproductive females must return to rookeries to nurse pups and pups are not yet proficient at swimming longer distances (Bonnell et al. 1983, 1992, Merrick and Loughlin 1997). Foraging trips are typically longer (30-160 km straight-line distance) from September to May, but remain constrained by the need to return to haulouts to rest. By one year of age, young animals achieve similar diving, swimming, and foraging capabilities as adult females (Merrick and Loughlin 1997, Loughlin et al. 2003). Diving behavior of adult males remains unstudied. Steller sea lions appear to forage primarily at night (Loughlin et al. 1998, 2003, Lander et al. 2010). Animals at sea commonly forage alone or in groups of several individuals (Bonnell et al. 1983, 1992). However, those feeding on small schooling fishes may forage co-operatively in groups of up to 100 animals that dive and surface in synchrony (Fiscus and Baines 1966, Loughlin et al. 1983). The species will also feed on discarded by-catch of fishing vessels and take fish from fishing lines and nets (Jefferson et al. 2008).

Movements. Although Steller sea lions do not make large migrations, they are highly mobile and annually undertake seasonal movements in response to shifting prey availability and weather patterns. Most adults and young begin dispersing away from the immediate vicinity of rookeries in August after the breeding season (Merrick et al. 1988, Merrick and Loughlin 1997, Raum-Suryan et al. 2002, Scordino 2006). Adult females and pups usually remain within 500 km of their natal rookeries, whereas juveniles (males 1-5 years old, females 1-3 years old) travel somewhat more widely, with males being more likely to travel >500 km (Raum-Suryan et al. 2002, 2004, Scordino 2006, Jemison et al. 2013). A one-way movement of about 3,500 km by an adult male is the longest known distance traveled by the species (Jemison et al. 2013). Animals often use numerous haulouts during their movements.

Steller sea lions from rookeries in southern Oregon and northern California disperse primarily northward to Washington and Vancouver Island, with smaller numbers reaching northern British Columbia to the Gulf of Alaska (Scordino 2006). Most pups remain within Oregon and California, although 9-22% of pups travel 600-700 km to sites in northern Washington and southern Vancouver Island. Animals marked in British Columbia have been tracked up to 1,700 km to Alaska and California (DFOC 2011).

Some movement of animals occurs between the eastern and western DPSs (Raum-Suryan et al. 2002, 2004, Scordino 2006, Gelatt et al. 2007, Pitcher et al. 2007, AFSC 2011, Jemison et al. 2013). Eastern-born sea lions observed in the west are almost all males, with many breeding with western females in the west (Jemison et al. 2013; L. Fritz, pers. comm.). In contrast, western-born sea lions that move east are almost all females and juvenile males, with a number of the females remaining to breed among eastern DPS animals at two rookeries in northern Southeast Alaska (Jemison et al. 2013; L. Fritz, pers. comm.). One animal from the western DPS has been recorded in Washington (Jemison et al. 2013).

Natural mortality, survival, and longevity. Steller sea lion pups die from a variety of causes including drowning, starvation caused by separation from the mother, disease, parasitism, predation, trampling by larger animals, and aggression by other sea lions (Orr and Poulter 1967, Sandegren 1976, Merrick et al. 1997, Maniscalco et al. 2002, 2006). Natural causes of death in older animals are starvation, injuries, disease, and predation. Predators include killer whales (*Orcinus orca*) and sharks.

Survival among pups and yearlings is lower than in other age classes. In Southeast Alaska, annual survival rates for females averaged 64% for pups and 77% for yearlings, and increased from 91% to 96% for animals 3–7 years old (Hastings et al. 2011). Annual survival rates for males were slightly lower, averaging 60% for pups and increasing to 88% by 7 years of age. The higher mortality rates among males cause a progressively skewed sex ratio favoring females. Steller sea lions are relatively long-lived, with a maximum life span of about 30 years in females and 20 years in males (Calkins and Pitcher 1982).

HABITAT REQUIREMENTS

Terrestrial habitat. Steller sea lions occupy two types of onshore sites: rookeries and haulouts. Both are distributed throughout the species' range and most are used year after year. Rookeries are defined as sites occupied from May to August where breeding and pupping occur and >50 pups are born annually (Pitcher et al. 2007, NMFS 2008). Haulouts are used as resting sites year-round or seasonally. Small numbers (≤50) of pups may also be born and raised at a few haulouts. Both types of sites are preferentially located on islands and offshore rocks with exposed rocky shorelines and wave-cut platforms, with sand, gravel, or cobble beaches, riprap, sheltered rocky shores, and sea ice used to a lesser extent (Call and Loughlin 2005, Ban and Trites 2007). Haulouts also occur on human-made structures such as jetties, breakwaters, navigational aids, docks, and log booms. Rookeries are typically located on islands and offshore rocks, where animals are well protected from human disturbance and terrestrial predators such as bears and wolves. Access to high ground and protection from high waves and swell are other important features of rookeries that help guard against the loss of pups (Edie 1977).

Rookeries and haulouts are commonly associated with relatively shallow and well-mixed waters, average tidal speeds, and gradual bottom slopes (Sandegren 1970, Edie 1977, Ban 2005). Haulouts are typically located in areas with relatively strong currents, high salinity, and low surface temperatures, which are indicative of high ocean productivity and optimal foraging areas (DFOC 2011).

Reduced numbers of sea lions often continue to occupy rookeries as haulout sites outside of the breeding season. Haulouts between California and southern British Columbia are commonly shared with California sea lions (Bigg 1985).

No rookeries are present in Washington (Pitcher et al. 2007). Haulouts are mainly distributed along the state's outer coast on offshore rocks, coastal islands, and jetties. In

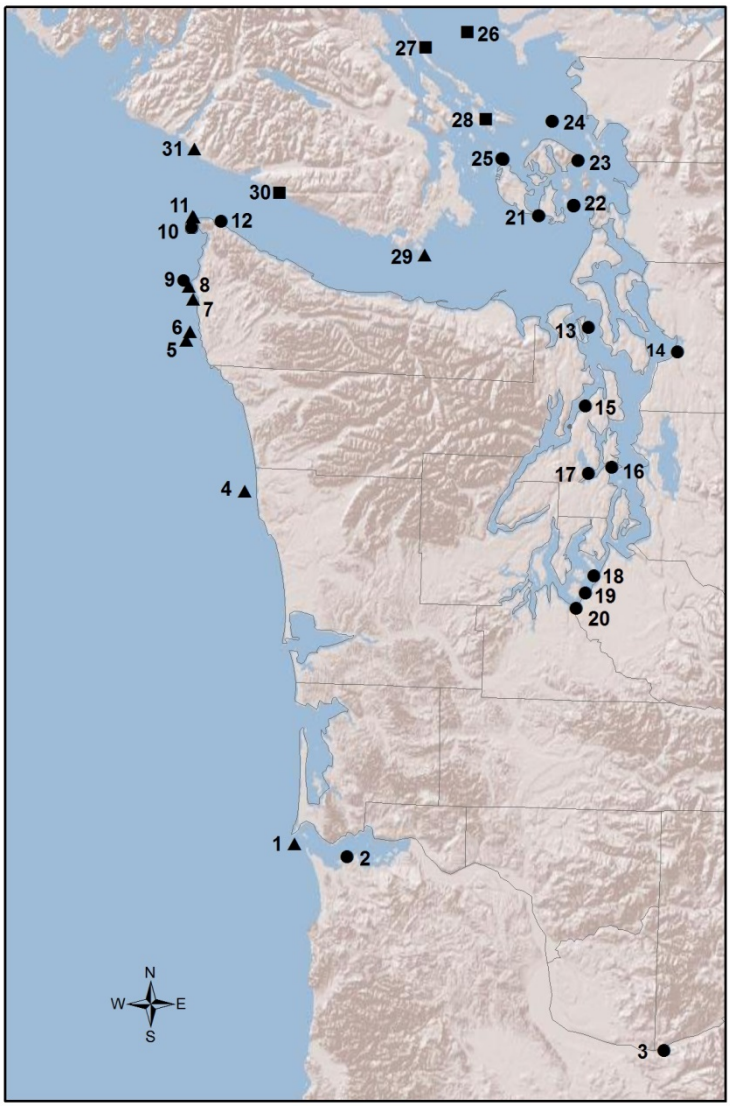
Table 2. Locations and ranges in annual maximum numbers of Steller sea lions at haulouts located in Washington and adjoining portions of the Columbia River in Oregon, 1976-2014.

Region and haulout location	Range of annual maximum numbers of Steller sea lions present per site[a]
Columbia River	
1. Tip of South Jetty (Oregon)	100-2,000
2. Astoria – East Mooring Basin (Oregon)	5-10
3. Phoca Rock (downriver from Bonneville Dam; Oregon)	10-50
Olympic Coast - South	
4. Split Rock/Rock 535	100-500
Olympic Coast - North	
5. Sea Lion Rock[b]	300-500
6. Carroll Island[b]	300-500
7. Bodelteh Island area[b]	150-2,000
8. Guano Rock[b]	140-200
9. Umatilla Reef	10-20
10. South of Fuca Pillar/Skagway	5-10
11. Tatoosh Island area[b]	120-400
Strait of Juan de Fuca	
12. Waadah Island	3-10
Puget Sound	
13. Craven Rocks, east of Marrowstone Island	10-15
14. Naval Base Everett (port security barrier)	5-10
15. Naval Base Kitsap - Bangor	5-10
16. Navigation buoys and net pen floats in Clam Bay	30-50
17. Naval Base Kitsap - Bremerton (port security barrier)	5-10
18. Toliva Shoals Buoy	2-5
19. On old docks at Saltar Marina, Gordon Point, Steilacoom	30-50
20. On old shipwreck on north side of Nisqually River delta	50-100
San Juan Islands	
21. Whale Rock	20-50
22. Bird Rocks	5-20
23. North Peapod Rock	5-10
24. Clements Reef	5-10
25. Green Point, Speiden Island	10-50

[a] Sources: Jeffries et al. (2000), P. Gearin (pers. comm.), S. Jeffries (pers. comm.), J. Scordino (pers. comm.), U.S. Navy (unpubl. data).
[b] Sites where pups have been recorded (S. Jeffries, pers. comm.).

the state's inner marine waters, navigation buoys, floating pontoons, and even submarines are used by much smaller numbers of animals (Jeffries et al. 2000; S. Jeffries, pers. comm.). Twenty-two haulouts (excluding most navigation buoys) occur in Washington, as follows: Puget Sound (8 sites), Olympic Coast – North (7), San Juan Islands (5), Olympic Coast – South (1), and Strait of Juan de Fuca (1) (Table 2, Figure 1). An additional six haulouts exist on the Canadian side of the Strait of Juan de Fuca and southern Strait of Georgia (DFOC 2011) and three others occur on the Oregon side of the Columbia River (Table 2, Figure 1). Most haulouts on the outer Washington coast and Columbia River South Jetty are used year-round, whereas those in the inner marine waters are used seasonally from fall to spring.

Figure 1. Locations of 31 haulouts used by Steller sea lions in Washington (22 sites) and adjoining areas of British Columbia (6 sites) and Oregon (3 sites). Site numbers in Washington and Oregon correspond to the haulout numbers and names listed in Table 2. Sites names in British Columbia are: 26, Sand Heads; 27, Porlier Pass; 28, Plumper Sound; 29, Race Rocks; 30, Sombrio Point; and 31, Carmanah Point. Symbols depict haulouts with annual maximum numbers of >100 animals (triangles), ≤100 animals (circles), and those with no information (squares).



Marine habitat. Animals generally travel and forage within 60 km of land in water depths of less than 400 m, but may occasionally venture several hundred kilometers offshore and occur beyond the continental shelf (Bonnell et al. 1983, 1992, Merrick and Loughlin 1997, Loughlin et al. 2003). Availability of prey near haulouts and rookeries is probably the most important factor affecting habitat use. Modeling by Gregr and Trites (2008) determined that Steller sea lions in Alaska occur most frequently over ocean depths of 150-250 m, which consistently coincides with the presence of high densities of benthic and pelagic fish (NOAA 1990, Wolotira et al. 1993). Additionally, Steller sea lions appear to forage more often in areas with substantial variation in sea surface temperatures, which also tend to have greater prey availability (Lander et al. 2010). In Oregon and Washington, the species most commonly occurs in areas of cold upwelled waters (Bonnell et al. 1992).

Estuaries and freshwater habitat. Steller sea lions sometimes congregate in estuaries and river mouths to feed on runs of salmon and eulachon (Bigg 1985, Bigg et al. 1990). Animals also occasionally enter rivers in pursuit of prey (Jameson and Kenyon 1977, Roffe and Mate 1984). This type of visitation usually occurs in the lower stretches of rivers (e.g., Roffe and Mate 1984, DFOC 2011), but in recent years, small numbers of

animals (a maximum of 89 individuals in 2011) have traveled as far as 235 km up the Columbia River to reach foraging sites at Bonneville Dam (Keefer et al. 2012, Stansell et al. 2013).

POPULATION STATUS AND TREND

Populations of Steller sea lions are assessed through surveys of non-pups (i.e., animals ≥1 year old) and pups at rookeries and haulouts. Current surveys mostly employ vertical high resolution aerial photography during the breeding season as well as oblique aerial photography, ground counts, and boat counts to determine the number of animals per site during different seasons (Pitcher et al. 2007, NMFS 2013). Population trends are derived from non-pup counts conducted over time. Pup counts are used as an index of total population size by multiplying the count result by a factor of 4.5 (Calkins and Pitcher 1982). At-sea survey techniques have not been widely applied (but see Bonnell et al. [1992] for Washington and Oregon).

Eastern DPS. Historical estimates of abundance before 1900 are not available for the eastern DPS. However, the population became greatly reduced in size during the early to mid-20th century (Pitcher et al. 2007). Southeast Alaska had just one rookery exceeding 50-100 animals in the 1920s; numbers remained small in that part of the state into the 1940s, but then began growing rapidly in the 1950s and 1960s (Trites and Larkin 1996, Pitcher et al. 2007). About 14,000 animals of all ages were present at rookeries in British Columbia in 1913-1919, but large-scale killing began soon after and reduced the province's population to an estimated 3,400 animals in 1970 (Bigg 1985, Pitcher et al. 2007, DFOC 2011). Few historical data exist for the Oregon population before 1968, but it was probably much reduced following the removal of about 4,000 animals for bounty from 1925-1929 (Pitcher et al. 2007). Numbers in California were roughly 3,900-5,600 non-pups in the first half of the 20th century, when some intentional killing was underway (Pitcher et al. 2007). Abundance declined in southern California in the late 1930s to 1950s, with breeding ending there by 1981-1982. Abundance also declined during the 1960s to early 1970s in central California (Pitcher et al. 2007, NMFS 2013).

The most recent analyses of count data for the eastern DPS indicate that the overall population steadily increased from an estimated 18,313 animals (90% CI = 16,247-20,436) in 1979 to an estimated 70,174 animals (90% CI = 61,146-78,886) in 2010 (D. S. Johnson and T. Gelatt, unpubl. memorandum, in NMFS 2013). These data are derived from pup counts and represent an estimated average annual growth rate of 4.18% (90% CI = 3.71-4.62%) during this period. Growth in numbers of non-pups was similarly evident (annual average = 2.99% [90% CI = 2.62-3.31%] per year) during the same time span. Using data through 2013 where available, populations in Southeast Alaska, British Columbia, and Oregon have each shown sustained growth since the 1970s or later, with average annual increases in numbers of non-pups and pups ranging from 2.78-4.49% (Figures 2, 3). In California, numbers of non-pups have remained relatively stable since 1990 even though pup numbers have increased an average of 2.95% annually since 1996 (Figures 2, 3).

Estimated total population sizes during the 2010 breeding season were 34,143 animals in Southeast Alaska, 24,893 animals in British Columbia, 6,663 animals in Oregon, and 4,475 animals in California (D. S. Johnson and T. Gelatt, unpubl. memorandum, in NMFS 2013; NMFS 2013, Allen and Angliss 2014). An estimate was not derived for Washington because of its lack of recognized rookeries and pup production.

Most of the growth in the eastern DPS comes from Southeast Alaska and British Columbia, where 86% of the population's pups are currently born (Fritz et al. 2008, Olesiuk 2008; D. DeMaster, unpubl. memorandum, in NMFS 2013; National Marine Mammal Laboratory, unpubl. memorandum, in NMFS 2013; B. Wright, R. Brown, and P. Olesiuk, pers. comm., in NMFS 2013). Fifteen recognized rookeries existed in the eastern DPS in 2010 (NMFS 2013), with the two largest of these occurring at the Forrester Island complex in Southeast Alaska (4,036 pups in 2009; DeMaster 2009) and the Scott Islands in British Columbia (3,936 pups in 2010; P. Olesiuk, pers. comm., in NMFS 2013).

Figure 2. Breeding season (June-July) counts of eastern DPS Steller sea lion adults and juveniles (non-pups) in Southeast Alaska (at trend sites, 1982-2013; National Marine Fisheries Service, unpubl. data), British Columbia (at all sites, 1971-2010; Department of Fisheries and Oceans Canada, unpubl. data), Washington (at all sites, 1989-2013 [mean count for years with multiple surveys, Appendix A]), Oregon (at all sites, 1977-2013; Oregon Department of Fish and Wildlife, unpubl. data), and California (at trend sites, 1990-2011; National Marine Fisheries Service, unpubl. data). Annual rates of change in counts (±95% CI) were 2.78% (2.22, 3.35) for Southeast Alaska, 3.68% (3.04, 4.33) for British Columbia, 9.13% (7.03, 11.27) for Washington, 3.44% (2.78, 4.11) for Oregon, and 1.16% (-0.26, 2.60) for California. All trends are significantly greater than 0 ($p<0.05$) except for California. Lines represent log-linear regression estimates. (Trend data and the figure provided by L. Fritz, National Marine Mammal Laboratory.)

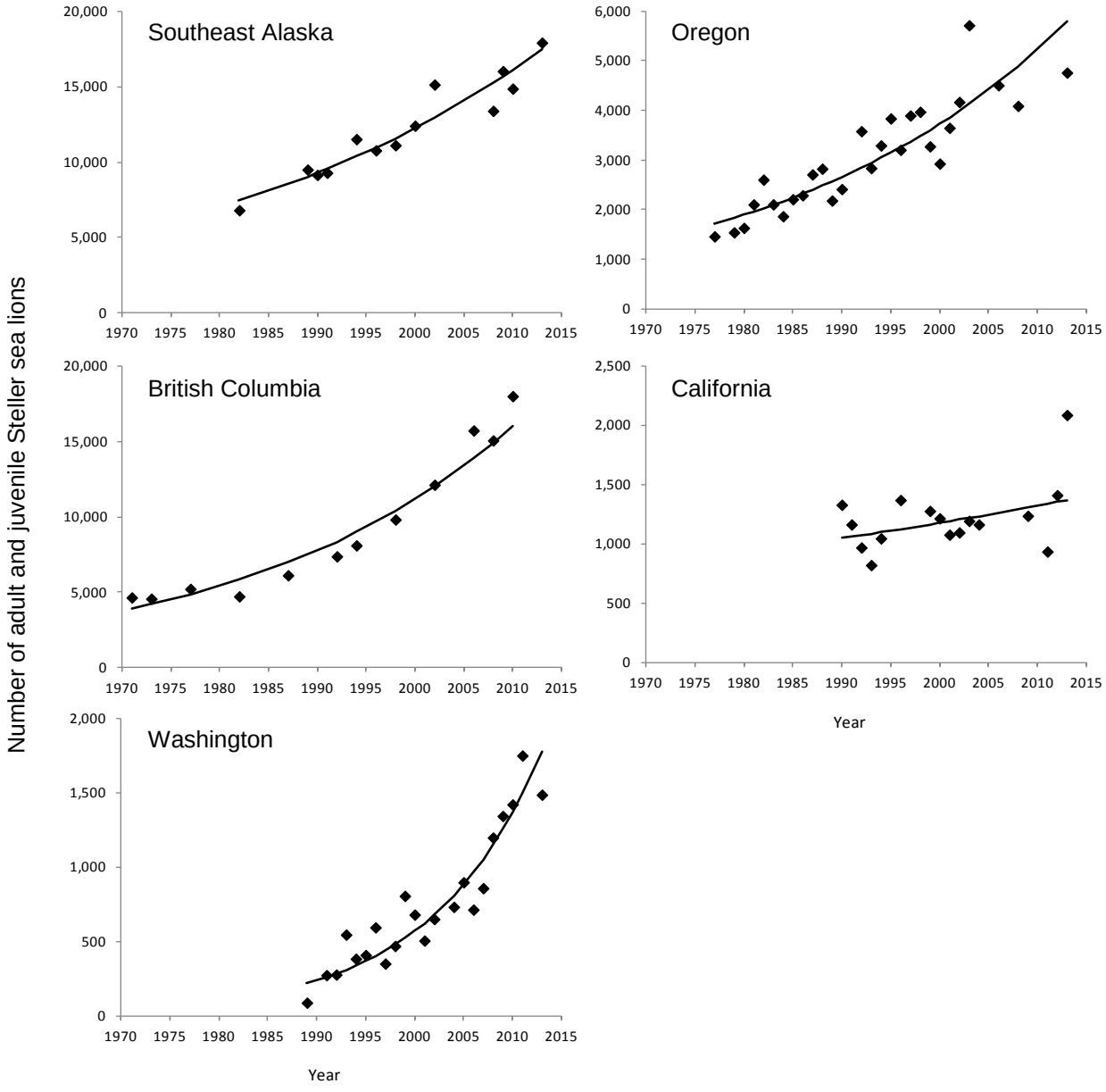
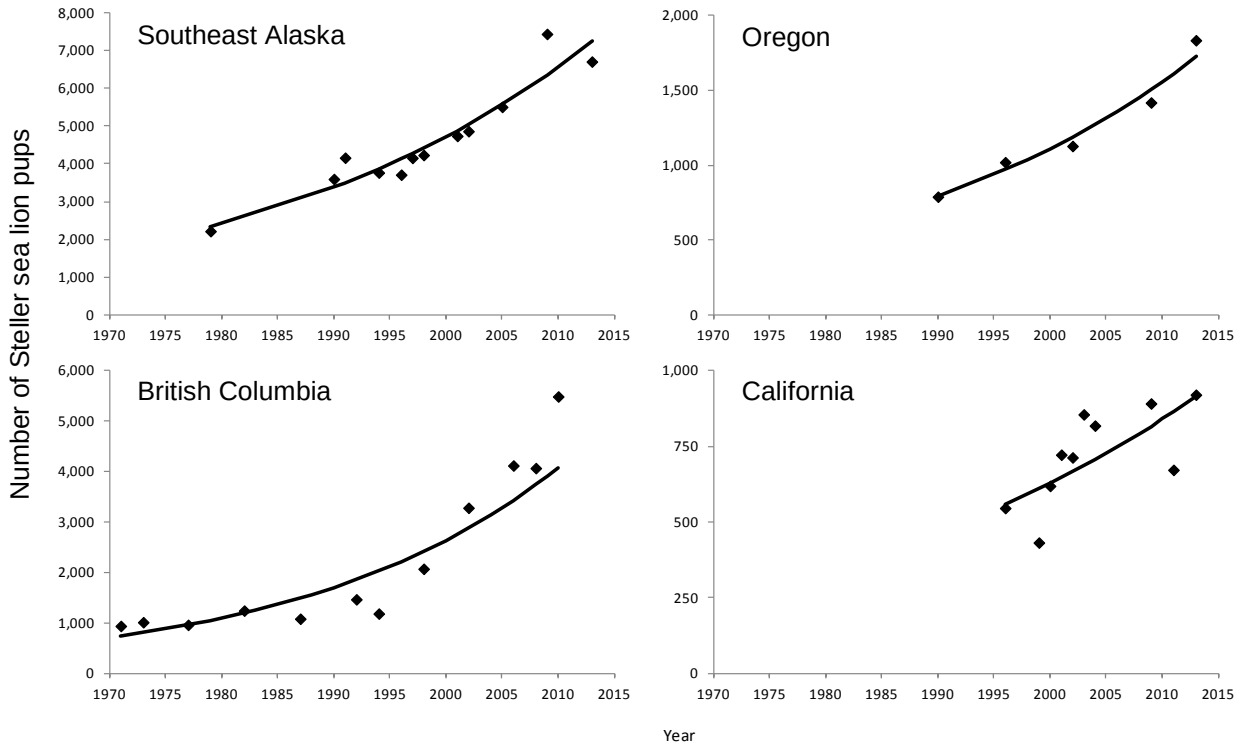


Figure 3. Counts of eastern DPS Steller sea lion pups in Southeast Alaska (1979-2013; National Marine Fisheries Service, unpubl. data), British Columbia (1971-2010; Department of Fisheries and Oceans Canada, unpubl. data), Oregon (1990-2013; Oregon Department of Fish and Wildlife, unpubl. data; National Marine Fisheries Service, unpubl. data), and California (1995-2011; National Marine Fisheries Service, unpubl. data). Annual rates of change in counts (±95% CI) were 3.37% (2.67, 4.07) for Southeast Alaska, 4.49% (3.13, 5.88) for British Columbia, 3.43% (2.30, 4.58) for Oregon, and 2.95% (0.30, 5.66) for California. All trends are significantly greater than 0 ($p<0.05$). Lines represent log-linear regression estimates. (Trend data and figure provided by L. Fritz, National Marine Mammal Laboratory.)



Washington past. Steller sea lion abundance in Washington is typically highest in the non-breeding season and declines during the breeding season when many adults move to rookeries in Oregon, northern California, British Columbia, and Southeast Alaska (Everitt et al. 1979, Speich et al. 1987, NMFS 1992a, Gearin and Scordino 1995). Depending on the area of the state, non-breeding season numbers have been variously reported to peak in late winter and early spring (Everitt et al. 1979, 1980, Steiger and Calambokidis 1986, Speich et al. 1987) or in late summer, fall, and winter (Everitt et al. 1980, Gearin and Scordino 1995). Timing of peak occurrence has changed from spring to fall during the past half century at a major haulout on the British Columbia side of the Strait of Juan de Fuca (Edgell and Demarchi 2012).

Archeological evidence dating back to about 1000 A.D. indicates that Steller sea lions formerly bred in Washington (Etnier 2007), although no confirmed records of pupping exist between the time of Euro-American settlement and 1992. Limited information is available on the early historical abundance of the species in the state. George Cantwell reported 2,000-3,000 Steller sea lions at Jagged Island[1] during the

[1] The historical names of several islands and rocks differ from current usage. The name Jagged Island used by Kenyon and Scheffer (1961) and Scheffer (1995) refers to the modern island pair of Carroll Island and Sea Lion Rock. The former Sea Lion Rock is now Jagged Island.

summers from 1914-1916 (Kenyon and Scheffer 1961), and Makah Indians once considered the species plentiful around Waadah Island in Neah Bay (Gunther 1936).

During the late 1930s to mid-1940s, Scheffer (1995) reported that several hundred Steller sea lions were typically present along the outer Washington coast year-round except in May and June, when numbers dwindled to just a few animals. Jagged Island[1] was the most important site for the species at that time, with Willoughby Rock, Split Rock, Sea Lion Rock[1], Tatoosh Island, and an unnamed rock 2 km west of the Ozette River mouth also occupied. Scheffer (1995) wrote that "stragglers" occasionally visited the Strait of Juan de Fuca and Grays Harbor during this period. In March 1944, Scheffer and Macy (1944) conducted an aerial survey of the northern outer coast and estimated about 500 animals for the entire state, but acknowledged that the population may have varied with season. From 1936 to 1949, staff from the Washington Department of Fisheries reported a severe decline in numbers during regular aerial flights past Jagged Island[1] and Split Rock, with numbers at Jagged Island[1] falling from about 600 to 100 animals (Scheffer 1995). This decline coincided with a period of bounty hunting (see Factors Affecting Continued Existence – Intentional Killing).

Kenyon and Scheffer (1961) reported that the Washington population never exceeded 500 animals from 1949 to 1959, and reported high counts of 250 animals at Umatilla Reef in July 1959 and 200 animals at Jagged Island[1] in February 1953. During the 1950s, Jagged Island[1] and Split Rock were favorite winter haulouts, whereas Umatilla Reef and Jagged Island[1] were the main summer haulouts. Most breeding season counts during the 1950s and 1960s averaged less than 100 animals, although one high count of 355 animals was made in July 1959 (Appendix A; Kenyon and Scheffer 1961, Pitcher et al. 2007).

After protections were in place, abundance slowly grew during the 1970s, when total estimates reached about 700 sea lions during the non-breeding season but remained at about 100 animals during the summer (Everitt and Jeffries 1979). Numbers also increased in Washington's inner marine waters during this decade, with a maximum of 259 animals recorded during monthly counts between November 1977 and December 1979 in the Strait of Juan de Fuca and northern Puget Sound (Everitt et al. 1979, 1980). Favored haulouts were Race Rocks and Sombrio Point along southern Vancouver Island and Sucia Island in the San Juan Islands. Most animals departed this area from June to August.

Few data are available for the outer coast during the 1980s, but numbers likely remained stable or continued to slowly expand (Appendix A). Numbers in southern Puget Sound increased during this decade, with high counts of 80-102 animals reported in 1982-1984 (Steiger and Calambokidis 1986, Jeffries 1990). However, Gearin and Scordino (1995) estimated that <50 animals used all of the Strait of Juan de Fuca and Puget Sound in the mid-1990s.

Washington present. Numbers of Steller sea lions have increased substantially in Washington since the early 1990s. From 1989 to 2013, summer trend counts at four island complexes along the outer coast increased an average of 9.13% (95% CI = 7.03-11.27%) annually, with aggregate counts at the sites rising from about 250-300 animals during the early 1990s to 1,471-1,749 animals during 2011-2013 (Figure 2, Appendix A). A count of 2,157 animals in July 2014 is the highest count to date and represents more than a doubling of numbers over the past decade (Appendix A). Sea lions tallied during these summer surveys presumably are mostly immatures and non-breeding adults (Pitcher et al. 2007). Peak abundance in state waters (excluding animals at nearby haulouts in Oregon and British Columbia) is roughly estimated to have grown from 1,000-1,500 animals in the mid-1990s (Gearin and Scordino 1995) to 2,000-2,500 animals at present (P. Gearin, pers. comm.). Overall abundance within Washington is greatest along the outer coast, with fewer individuals found in inland waters east of Cape Flattery. Numbers in the inner marine waters have not been quantified in recent years, but as many as 100 animals have been counted during the winter at the mouth of the Nisqually River (S. Jeffries, pers. comm.). Steller sea lions currently use 22 haulouts in

Washington, with the six largest haulouts found along the outer Olympic coast (Table 2, Figure 1). Bodelteh Island is the single largest haulout (P. Gearin, pers. comm.).

Abundance in Washington is supplemented by sizeable numbers of animals from haulouts in bordering areas of Oregon and British Columbia, many of which forage in Washington's waters. These haulouts include the South Jetty at the Columbia River mouth (Oregon), which has up to 2,000 animals (Table 2), and sites along southern Vancouver Island and in the Strait of Georgia (British Columbia), which have at least 3,000 animals during the non-breeding season (Alava et al. 2012, Edgell and Demarchi 2012).

Steller sea lions have begun to breed and pup in Washington as recovery of the eastern DPS has proceeded. Pupping was first recorded in 1992, when a single pup was observed by WDFW on Carroll Island (Anonymous 1992, WDW 1993; S. Jeffries, pers. comm.). Pup numbers have slowly increased since then, with 47 and 60 pups documented in 2013 and 2014, respectively (J. Scordino, pers. comm.; S. Jeffries, pers. comm.). Nearly all pups are produced at Carroll Island and Sea Lion Rock. A few are also born at an unnamed rock west of Bodelteh Island known as West Bodelteh, at an unnamed rock north of Capa Alava known as Guano Rock, and at Tatoosh Island, but pups born at these three locations are exposed to high sea conditions and prone to being washed off these sites. With the ongoing increase in pupping in Washington, it is likely that at least one of these sites will be classified as a rookery in the future.

Western DPS. In contrast to the increasing trend of the eastern DPS, the western DPS has experienced a major decline in recent decades. Decreases in this DPS were first detected in the 1970s, when sea lion numbers in the Gulf of Alaska and Aleutian Islands fell from a minimum of 140,000 animals in 1956-1960 to about 110,000 animals in 1976-1979 (Allen and Angliss 2014). Counts in the Alaska portion of the DPS reached an estimated low of 18,300 animals in 2000, representing a total decline of about 87% since 1956-1960. Significant decreases also occurred in Russia, where the combined number of pups and non-pups fell from an estimated 27,000 in the 1960s to 13,000 in the 1990s (Burkanov and Loughlin 2005). The declines in Alaska were characterized by poor juvenile survival and reduced birth rates (Holmes and York 2003, Holmes et al. 2007, Horning and Mellish 2012).

Sea lion abundance in the western DPS began increasing after 2000 (Fritz et al. 2013), with the most recent size estimate for pups and non-pups placed at 79,300 animals for 2008-2012 (Allen and Angliss 2014). This included an estimated 52,200 animals in western and central Alaska and 27,100 animals in Russia. However, numbers of both pups and non-pups continue to decline in some areas of the range, including the western and central Aleutians (west of Samalga Pass) and parts of Russia (Fritz et al. 2013, Allen and Angliss 2014).

CONSERVATION STATUS AND PROTECTIONS

Federal status and laws. Steller sea lions were listed as threatened under the federal Endangered Species Act in 1990. Upon recognizing the two DPSs in 1997, the National Marine Fisheries Service reclassified the western DPS as endangered, while retaining the eastern DPS as threatened. Federal delisting of the eastern DPS occurred in December 2013 (NOAA 2013).

In 1993, critical habitat was designated in Alaska as a 37-km (20-nautical mile) buffer around all rookeries and major haulouts, as well as associated aquatic, terrestrial, and air zones within 0.9 km (3,000 ft), and three large offshore foraging areas, except in Southeast Alaska, where the 37-km buffer was excluded (NOAA 1993). Major haulouts were defined as sites where >200 animals were counted at least once since 1970. In Oregon and California, critical habitat was designated as the aquatic and air zones within 0.9 km of rookeries; no critical habitat was created in Washington because of the absence of rookeries (NOAA 1993). Despite delisting of the eastern DPS in 2013, critical habitat remains in effect for the population until further rulemaking is conducted (NOAA 2013). However, the National Marine Fisheries Service does not intend to

conduct Section 7 consultations for federal actions that may affect critical habitat for the eastern DPS (NOAA 2013).

Steller sea lions remain protected throughout their U.S. range under the Marine Mammal Protection Act (MMPA), which prohibits the taking (defined as harassing, hunting, capturing, killing, or attempting to harass, hunt, capture, or kill) and importation of the species and products derived from it. Occupied habitat is also protected. The MMPA exempts harvest by Alaska Natives for subsistence purposes or for creating and selling handicrafts, and an annual average of about 200 animals from the western DPS and 12 from the eastern DPS are taken for these uses (Allen and Angliss 2014). It also allows some incidental take during commercial fishing operations and some other circumstances. Under the MMPA, permits may be issued for research, public display, and commercial/educational photography. Also under the MMPA, the western DPS is considered "depleted" and is therefore classified as a "strategic stock," whereas the population status of the eastern DPS, with respect to optimum sustainable population size, has not been formally assessed and is therefore undetermined pending further assessment (B. Norberg, pers. comm.).

Western Washington treaty tribes maintain that federal treaties preserve their rights to hunt and fish, including marine mammals, and incidentally take marine mammals for the protection of gear and catch. The MMPA amendments of 1994 included language that changes in the law introduced that year did not alter any treaty between the United States and one or more Indian tribes. Federal case law (*Anderson v Evans* 2004) recognized the treaty right of one tribe to hunt gray whales and ruled they may exercise their treaty right consistent with provisions of the MMPA.

National marine sanctuary (NMS) regulations (15 CFR 922 Subpart O, 152(a)), which apply to the Olympic Coast NMS off the outer northwest coast of Washington, contain prohibitions on the taking and possessing of any marine mammal in the sanctuary, except as authorized by the MMPA and Endangered Species Act, or allowed through tribal treaty rights. The regulations also prohibit the disturbance of marine mammals by aircraft flying below 610 m (2,000 ft) over waters within 1.85 km (1 nmi) of Flattery Rocks, Quillayute Needles, and Copalis national wildlife refuges or within 1.85 km seaward from the coastal boundary of the sanctuary, with certain exceptions.

State status and laws. Steller sea lions were state listed as threatened under Washington Administrative Code (WAC 232-12-011; Appendix A) in 1993. This designation prohibits the hunting, malicious killing, and possession of the species, but does not protect it from harassment (RCW 77.15.130). Furthermore, WAC 232-12-011 specifically exempts protection to sea lions that are "threatening to damage or are damaging commercial fishing gear being utilized in a lawful manner or when said mammals are damaging or threatening to damage commercial fish being lawfully taken with commercial gear." Violations of the law are a misdemeanor offense, with penalties ranging up to 90 days imprisonment, a $1,000 fine, or both. The species also receives protection under WAC 232-12-064, which prohibits the capture, importation, possession, transfer, and holding of most wildlife in the state.

Canadian status and laws. Steller sea lions received protection under the federal Fisheries Act in 1970, which ended most commercial harvest and culling. However, limited killing of nuisance individuals was licensed under this law to protect fish farms. First Nations peoples were also exempted from harvest prohibitions. Steller sea lions were designated as a species of "special concern" under the Species at Risk Act (SARA) in 2005, which ended the issuance of licenses for removal of nuisance animals, and by the Committee on the Status of Endangered Species in Canada (COSEWIC) in 2013. Other Canadian federal laws benefiting Steller sea lions include (1) the Marine Mammal Regulations of the Fisheries Act, which prohibit disturbance of the species except where authorized by license, (2) the Oceans Act, which protects the habitat of all marine mammals, and (3) the Canada National Parks Act, which gives extra protection to particular rookeries. The province of British Columbia includes the species on its Blue List, meaning that it is sensitive or vulnerable to human activities or natural events (B.C. Conservation Data Centre 2014).

MANAGEMENT ACTIVITIES

Management plans. A U.S. federal recovery plan for Steller sea lions was written in 1992 (NMFS 1992b) and was revised in 2008 to give separate recovery actions for each DPS (NMFS 2008). A number of management actions were taken under the original plan, including (1) reductions in disturbance of important rookeries and haulouts, (2) reductions in the incidental catch of the species in commercial fishing operations, (3) reductions in intentional take by prohibiting shooting of Steller sea lions, and (4) a major expansion of research on the species, especially on threats and competitive interactions with commercial fisheries. The 2008 recovery plan focused most of its efforts on the declining western DPS. Because of the growth of the eastern DPS to historically high levels and the absence of major threats, the 2008 recovery plan directed only two actions toward this population. These were to initiate a status review to determine whether to delist the DPS (which was accomplished in 2013; NOAA 2013) and to develop a 10-year post-delisting monitoring plan.

Canada released its own federal management plan for Steller sea lions in 2011, which identifies several main conservation actions (DFOC 2011). These are (1) protection from disturbance and fisheries-related entanglement, (2) management of prey resources, disturbance, exposure to contaminants and oil spills, and entanglement sources, (3) research on species biology and threats, (4) population monitoring, and (5) outreach and communication.

WDFW has never prepared a state recovery plan for the species in part because of the existence of a U.S. federal recovery plan. Under WDFW's Priority Habitats and Species (PHS) program, Steller sea lions are considered a priority species and their haulouts are listed as priority areas. However, specific management recommendations under this program have never been developed for this species.

Habitat protection in Washington. Most of the islands and rocks used as haulouts by Steller sea lions in the state are part of the Flattery Rocks, Quillayute Needles, Copalis, or San Juan Islands national wildlife refuges operated by the U.S. Fish and Wildlife Service. Upland portions of these sites are closed to human visitation to protect wildlife and other resources, and the U.S. Fish and Wildlife Service has implemented a voluntary buffer zone where visitors should stay at least 180 m (600 ft) offshore to avoid disturbing wildlife. Many haulouts are also included in the Washington Islands and San Juan Islands wilderness areas. Waters surrounding the outer coastal haulouts are managed as part of the Olympic Coast National Marine Sanctuary administered by the National Oceanic and Atmospheric Administration.

Other management activities. The National Marine Fisheries Service, WDFW, other state, provincial, and tribal agencies, and partner groups have monitored population size (see Population Status and Trend) and sources of mortality in the eastern DPS (Allen and Angliss 2014). This work has included responding to stranded individuals and performing necropsies on carcasses.

Steller and California sea lions have increased in abundance below Bonneville Dam on the Columbia River since 2002, where they've eaten substantial numbers of migrating salmon and steelhead from listed stocks, as well as white sturgeon (Keefer et al. 2012, Brown et al. 2013, Stansell et al. 2013). Since about 2005, wildlife managers from WDFW and the Oregon Department of Fish and Wildlife have worked with federal and tribal partners to harass and chase both species away from the area immediately below the dam. Some California sea lions have been permanently removed through captures or lethal means, but this has not yet been done for Steller sea lions because of their threatened status under federal (i.e., Endangered Species Act) and state laws (Brown et al. 2013).

FACTORS AFFECTING CONTINUED EXISTENCE

The eastern DPS of Steller sea lions has been adversely impacted by a wide range of natural and human factors since the 1800s. Thirteen categories of known or potential threats are summarized below, with particular attention given to conditions in Washington. Although none of these factors now appear to be preventing recovery of the population, all should continue to be monitored in the future and managed to minimize their impacts whenever possible.

Climate change. Global climate change is predicted to be the largest threat to most species of marine mammals in the coming decades (Kovacs et al. 2012) because of its capacity to alter marine ecosystems through changes in ocean temperatures, currents, stratification, nutrient cycling, increasing acidification, higher sea levels, and increased occurrence of unusual and extreme environmental conditions such as strong El Niño events (NRC 2008, 2010, Hoegh-Guldberg and Bruno 2010, Doney et al. 2012). Although not well studied, several likely impacts to Steller sea lions include (1) the alteration of marine food webs through changes in coastal upwelling patterns, warmer water temperatures, ocean acidification, changes in prey availability (including species range shifts), and changes in other ecological processes; (2) rising sea level, which may submerge or change wave energy levels at some traditional rookeries and haulouts; and (3) increased exposure to novel diseases and parasites. The decline of the western DPS that coincided with a period of ocean regime shift beginning in 1976-1977 illustrates that Steller sea lions may be highly sensitive to future climate change (Trites et al. 2007b).

Impacts of climate change will probably occur unevenly within the range of Steller sea lions, with some areas affected more severely than others (Doney et al. 2012, Gruber et al. 2012, Iles et al. 2012). There is speculation that climate change may be one of the factors causing a northward shift in the abundance of Steller sea lions in the eastern DPS and the failure of population recovery in California (NMFS 2013).

Steller sea lions may be more resilient to climate change than many other marine mammal species because of their generalist diet and extended north-south geographic range. However, overall dietary flexibility is moderated by the fact that Steller sea lions have fewer foraging options during the breeding season, when adequate prey must be found near rookeries (NMFS 2013). Given the ongoing size increase in the eastern DPS, the effects of climate change on the population are probably relatively minor at present, except perhaps in California (NMFS 2013). However, impacts are expected to expand in the future as climate change progresses.

Reduced prey abundance through competition with fisheries. Healthy populations of Steller sea lions require an abundance of high quality prey. Fisheries have the potential to deplete the availability and reduce the quality (i.e., size, age, caloric value) of prey eaten by Steller sea lions, which can lower foraging efficiency and cause acute or chronic nutritional stress. Adequate prey populations are particularly critical during the pupping season when nursing females must find enough suitable prey near rookeries to ensure the survival of pups, and during winter when energy needs are highest. The decline of the western DPS is widely believed to at least partly result from poorer dietary conditions causing reduced body growth, birth rates, and survival, although the roles of commercial fisheries and pollock consumption by sea lions in the decline remains undetermined (Trites and Donnelly 2003, Trites et al. 2007b, Atkinson et al. 2008, Rosen 2009, NMFS 2010, DFOC 2011, Calkins et al. 2013).

Numerous fisheries targeting groundfish, salmon, and forage fish exist within the range of the eastern DPS (see NMFS 2010, 2013). In Washington, these include commercial salmon fisheries using trolling, gillnets, reefnets, and purse seining along the outer coast and/or in the inner marine waters. There are also fisheries for Pacific hake (outer coast, trawl), Pacific sardines (outer coast, purse seine), sablefish (*Anoplopoma fimbria*; outer coast, pots, longline), sole (outer coast, trawl), spiny dogfish (outer coast, trawl), rockfish (outer coast, trawl), and other species. Significant recreational fisheries also exist for groundfish, salmon, and forage fish.

Fish stocks along the U.S. west coast are managed sustainably through a number of management procedures and regulatory mechanisms. Given the continuing growth of the eastern DPS and the lack of any evidence indicating nutritional stress in the population, current fisheries do not appear to limit the population. However, this could change in the future as the eastern DPS continues to increase in size and more animals compete for available prey resources.

Human disturbance. Steller sea lions at haulouts and rookeries are susceptible to disturbance by boats (including kayaks), aircraft, people on foot, construction, fishing and shellfishing activities, and research (DFOC 2011, NMFS 2013). These types of disturbance can cause sea lions to temporarily abandon haulouts and rookeries for periods of several hours to several weeks, and in severe cases have led to permanent site abandonment (Johnson et al. 1989, Brown 1997, Wilson et al. 2012). Serious disturbances (e.g., some types of research, extremely loud noises) at rookeries can be highly disruptive, and can cause stampeding by animals and deaths among pups from drowning, trampling, or separation from mothers. Nevertheless, animals often habituate to some forms of ongoing human activity and will occupy haulouts in areas of high vessel traffic, marinas, and naval bases (DFOC 2011).

Steller sea lions in aquatic habitats can also be disturbed by a number of activities. These include shipping, fishing, naval activities, offshore oil and gas exploration, marine construction, and alternative energy development, all of which can produce either chronic or acute underwater noise or visual disturbances that interfere with foraging and displace animals from feeding locations (DFOC 2011, NMFS 2013). Many of these activities have expanded in the range of the eastern DPS in recent decades, although levels of these activities generally have not increased along the outer Washington coast during this time frame (L. Antrim, pers. comm.).

Various laws (Endangered Species Act, Marine Mammal Protection Act, Canada's Marine Mammal Regulations from the Fisheries Act), management practices (Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment), and marine mammal viewing guidelines for boaters (Be Whale Wise) have helped to greatly reduce disturbance of the species. Establishment of coastal national wildlife refuges, national parks, marine sanctuaries, and other protected areas has resulted in restrictions on human access to many of the sites used by Steller sea lions, especially in Washington.

Incidental take in fishing or aquaculture gear. Steller sea lions from the eastern DPS are accidentally killed or injured in different commercial or recreational fisheries when they become entangled in nets and other gear, or ingest fishing hooks (Raum-Suryan et al. 2009, DFOC 2011, NMFS 2013). Drowning is the most frequent outcome of net entanglement. The most commonly ingested hooks are those from salmon troll fisheries using flashers and from longline gear (Raum-Suryan et al. 2009).

Based on fisheries observer data, opportunistic observations, and stranding data, Allen and Angliss (2014) provided a minimum estimated mortality rate incidental to U.S. and Canadian fisheries of 49 animals per year for the eastern DPS, but this is probably a substantial underestimate of actual losses because many individuals likely die at sea and go unrecorded (Raum-Suryan et al. 2009, DFOC 2011). Nevertheless, mortality from this source is considered small compared to the overall population size (NMFS 2013). Based on observer data, an estimated average combined loss of 5.7 animals per year occurred in 3 groundfish and halibut fisheries off Washington, Oregon, and California from 2005-2009 (Allen and Angliss 2014). The northern Washington marine set gillnet fishery has also caused past deaths, but no data are available for it since 1998 (Allen and Angliss 2014).

Entanglement and drowning in the netting of marine aquaculture operations occurs primarily in British Columbia, where the vast majority of net-pens in western North America are located. Entanglement rates are not well documented, but appear to be low (DFOC 2011).

Entanglement in marine debris. Discarded debris such as plastic packing bands, rubber bands, fishing net fragments, rope, and monofilament line can become caught around the necks and flippers of Steller sea lions, causing abrasions or deeply cutting into tissue as animals grow (Calkins 1985, Raum-Suryan et al. 2009). Animals sometimes recover from these wounds, but in many cases their injuries are fatal. Raum-Suryan et al. (2009) reported that 0.26% of all Steller sea lions in Southeast Alaska and northern British Columbia showed evidence of being entangled by marine debris or swallowing hooks (see above) during 2001-2007, with about half of these involving packing bands, rubber bands, and other debris. Although there are successful programs for rescuing and disentangling pinnipeds elsewhere in the world (Raum-Suryan et al. 2009), disentanglement efforts have been directed at only a small number of Steller sea lions to date (B. Norberg, pers. comm.).

Intentional killing. Commercial hunters killed Steller sea lions for their hides, oil, and body parts in portions of the eastern DPS during the 1800s and early 1900s (Bonnot 1928, Rowley 1929, Stewart et al. 1993), with additional commercial harvest occurring in British Columbia from 1956-1966 (DFOC 2008). Persecution shifted to government-sponsored control programs by the 1900s to 1920s because of the species' depredation on fishing operations and perceived negative impacts on fish stocks (Townsend 1918, Bonnot 1928). Bounties were established in Washington, Oregon, and British Columbia by the 1910s or 1920s and, together with some direct control programs conducted by government personnel, resulted in thousands of animals being killed, including in adjoining areas of northern California (Townsend 1918, Scheffer 1928, Rowley 1929, Pearson and Verts 1970, DFOC 2008). These control efforts, plus widespread shooting by fishermen, are considered the main causes of the decline of the eastern DPS and the elimination of some rookeries through the 1960s (Rowley 1929, DFOC 2011). In Washington, a bounty of $2.50 per sea lion was paid by the state in 1922 (Remington 1922). This reached $8 per animal from 1944 to 1948 (paid by the Washington Department of Fisheries), but was lowered to $3 per animal in 1949 because of strongly reduced sea lion numbers (Scheffer 1995). Bounties for sea lions ended in 1960 (Jeffries 1990).

Steller sea lions received protection from intentional killing in British Columbia in 1970 and the U.S. in 1972, although some killing of "nuisance" animals was allowed to deter impacts to commercial fishing operations (DFOC 2011). This protection resulted in illegal shootings by fishermen, which continues to the present despite additional federal protections being granted in both the U.S. and in British Columbia (Allen and Angliss 2014). The current extent of illegal shooting is unknown, but is probably relatively small and not thought to threaten the overall population (NMFS 2013). A few individuals are found dead from gunshot wounds in Washington in some years, but this is likely an underestimate of illegal killing (NMFS 2013).

Subsistence harvest. Steller sea lions were historically hunted by at least four tribes in Washington, including the Quinault, Quileute, Hoh, and Makah (Swan 1870, Frachtenberg 1916, Olson 1936, Pettitt 1950, Curtis 1970, Huelsbeck 1983, Etnier 2007, Miller 2010), as well as by other tribes along the west coast of North America. A number of tribes in Washington have retained the right to hunt sea lions and other marine mammals within their treaties and have not relinquished this right. Within the eastern DPS, subsistence harvest currently continues only among Alaska Natives, who have recently taken an average of 12 animals annually in Southeast Alaska, and First Nations in British Columbia, who kill an unknown but small number of animals each year (DFOC 2011, Allen and Angliss 2014). This level of harvest has a negligible impact on the overall population (DFOC 2011).

Environmental contaminants. Like other marine mammals, Steller sea lions are susceptible to a variety of environmental contaminants that bioaccumulate upward through marine food webs to high-level predators. These substances include organochlorines (e.g., polychlorinated biphenyls [PCBs], dioxins, DDT and its derivatives, various other pesticides and herbicides), polybrominated dephenyl ethers (PBDEs), heavy metals (e.g., mercury, copper, selenium, zinc), and other pollutants (O'Shea 1999, O'Hara and O'Shea 2001, Barron et al. 2003). Organochlorines and PBDEs enter marine ecosystems through atmospheric transport, runoff, and point source pollution; they persist in the environment for very long periods and accumulate in fatty

tissues. High levels of organochlorines and PBDEs can potentially interfere with reproduction and immune and endocrine function and may cause cancers (e.g., Ylitalo et al. 2005), whereas elevated concentrations of metals can variously produce neurotoxic effects and harm organ function. Resulting effects from contaminants can be acute, including death, or chronic and sublethal, and can have population-level impacts when severe. As in other marine mammals, females transfer much of their fat-soluble contaminant burden to their pups during nursing (Wang et al. 2011, Kubo et al. 2014).

Current evidence indicates that exposure to toxic pollutants does not currently threaten the overall eastern DPS (NMFS 2008, 2013). However, there is concern that elevated concentrations of some chemicals have played a role in preventing the recovery of Steller sea lions in southern and central California, which is the most industrialized region inhabited by the species (Sydeman and Jarman 1998, Blasius and Goodmanlowe 2008). Low to high levels of PCBs have been recorded in the species in Southeast Alaska and British Columbia (Lee et al. 1996, Krahn 1997, Krahn et al. 2001, Wang et al. 2011, Alava et al. 2012). Alava et al. (2012) reported that >80% of sampled animals in the Strait of Georgia, British Columbia, exceeded the threshold levels for PCB toxicity established for harbor seals (*Phoca vitulina*). Toxicity levels for PBDEs have not yet been established, so it is unknown whether these chemicals may already be causing health problems. Studies have shown relatively low levels of heavy metals in Steller sea lions (NMFS 2008), with the exception of mercury in some western DPS populations (Rea et al. 2013).

Oil spills. Oil spills pose a continuing risk to Steller sea lions throughout the eastern DPS (NMFS 2013). Sea lions can receive exposure to spilled oil at sea, at haulouts and rookeries, or through contaminated prey, with impacts varying by size of the spill, location, type of oil, time of year, and other factors. Effects have been poorly documented, but can include death, potentially chronic health concerns, and premature births (Loughlin et al. 1996, NMFS 2013). In general, Steller sea lions may be relatively resistant to oil impacts and may require direct exposure to large amounts of fresh oil before impacts occur. Animals do not appear to avoid oiled areas, as noted after the *Exxon Valdez* oil spill in Alaska, when animals were sighted swimming in or near oil slicks and occupying oiled rookeries (Calkins et al. 1994). Testing of animals near this spill found no indication of tissue damage due to oil toxicity, but long-term impacts to health were not monitored (Calkins et al. 1994, Loughlin et al. 1996).

As a shipping and oil-refining hub, Washington experienced seven major oil spills ranging from 0.1-2.3 million gallons along the outer coast, the Strait of Juan de Fuca, and the lower Columbia River between 1964 and 1991 (Neel et al. 2007). It is unknown whether any of these harmed Steller sea lions. Increased safety measures and prevention programs since the 1990s have helped reduce the number and scale of vessel spills globally, as well as in Washington, where no spills exceeding 100,000 gallons have occurred since 1991 (Etkin and Neel 2001, Neel et al. 2007). However, the sheer volume of shipping traffic makes oil spills a persistent threat in the state. Shipping routes for major ports in Seattle, Tacoma, and Vancouver, B.C., as well as several major oil refineries and the third largest naval base in the U.S., all traverse waters used by Steller sea lions in Washington. Marine vessel transits in Washington numbered 7,100 in 2013, with hundreds of tank ships and tanker barges annually transporting more than 15 billion gallons of crude oil, fuel, and other chemicals (Etkin and Neel 2001, Puget Sound Action Team 2005, Neel et al. 2007, WSDOE 2014). The risk of spills in Steller sea lion habitat in Washington is expected to increase in the next several decades as tanker traffic from ports in British Columbia and possibly Washington increases due to expanded oil and natural gas production in the interior of North America and as offshore oil and gas development off Vancouver Island likely begins (NMFS 2013). Barges, freighters, container ships, ferries, naval vessels, and large fishing and recreational craft also carry oil and fuel in volumes large enough to produce a significant spill. Places where spills are most likely to occur include the San Juan Islands and adjacent waters and the Strait of Juan de Fuca (including the western entrance), where smaller numbers of Steller sea lions generally occur. However, oil spill risk will grow along the outer coast, where most of Washington's larger haulouts for Steller sea lions occur, if oil shipments through this area increase as expected.

Among the safety measures instituted to prevent marine oil spills in Washington since the 1990s is the establishment of an Area to Be Avoided (ATBA) within the Olympic Coast National Marine Sanctuary off the northwestern coast, which encourages large vessels to stay well offshore during transit along the coast (WSDOE 2014). Additional risk mitigation is provided by a rescue tug stationed in Neah Bay that is able to respond to impaired vessels near the entrance to the Strait of Juan de Fuca. Use of single-hull tanker vessels, including barges, was completely phased out in the U.S. in January 2015. Canada has also instituted regulations and measures to minimize the risk of accidental spills (e.g., Transportation of Dangerous Goods Act; DFOC 2011).

Disease and parasites. Steller sea lions are infected by a number of diseases and parasites, but none are known to have caused significant mortality or seriously impacted populations (see references in NMFS 2008). Various parasites and diseases reported in the species in Washington and nearby areas include leptospirosis, toxoplasmosis, and coxiellosis (Cameron et al. 2008, Kersh et al. 2010, 2012, Gibson et al. 2011, Palacios et al. 2011). The increasing population trend in the eastern DPS and the resulting higher densities of animals at some haulouts and rookeries could lead to higher transmission rates of some diseases and parasites (e.g., hookworm, *Uncinaria* sp.) in the future (NMFS 2013). Other stresses on populations, both natural and human-caused, can also increase the incidence of disease and parasites.

Exposure to novel diseases and parasites is an emerging concern for many marine mammal populations, including Steller sea lions (DFOC 2011, NMFS 2013). Exposure can occur through a number of processes expected to increase in the future, including climate change and related changes in ocean conditions; runoff from terrestrial sources such as stormwater, sewage outflow, and agriculture, which can introduce pathogens from terrestrial mammals; and release of rehabilitated marine mammals back into the wild. One highly virulent disease that has reached the North Pacific since 2000 is phocine distemper virus (Goldstein et al. 2009), which has previously caused two large-scale epidemics killing large numbers of harbor seals in northern Europe (Härkönen et al. 2006). Serologic testing for this virus has detected evidence of exposure among Steller sea lions in Alaska, but no mortality from the disease has yet been documented (NMFS 2013).

Harmful algal blooms. Also known as "red tides," harmful algal blooms result from rapid, temporary increases in local populations of particular dinoflagellates, protists, or other phytoplankton. Harmful algal blooms have increased globally in recent decades and while their underlying causes are complex and incompletely understood, some laboratory experiments predict further increased occurrence with climate change (Anderson 1997, Peperzak 2003, Lewitus et al. 2012). Blooms involving the diatoms of *Pseudo-nitzschia* spp. (which produce domoic acid) are especially toxic to marine mammals, with impacts including mortality and chronic health damage (e.g., neurological symptoms) after eating prey with high levels of algal toxins (Van Dolah et al. 2005, Goldstein et al. 2008). California sea lions are among the species most commonly affected in North America (Torres de la Riva et al. 2009, Bargu et al. 2012). This suggests that Steller sea lions may also be susceptible, but few if any reports of acute algal poisoning exist thus far for the species (NRC 2003; J. Rice, pers. comm.).

Several large harmful algal blooms involving various phytoplankton, including *Pseudo-nitzschia*, have occurred in Washington and Oregon, and caused strandings and mortality of seabirds (Phillips et al. 2011, Lewitus et al. 2012), but none are known to have resulted in strandings of Steller sea lions. Eight of 28 stranded Steller sea lions tested by WDFW between 2004 and 2012 showed very low levels of domoic acid poisoning that would not have caused stranding (D. Lambourn, pers. comm.). Saxitoxins, which cause paralytic shellfish poisoning, have also been recorded in low levels in a few Steller sea lions in Washington, but have not caused any known mortality to date (J. Scordino, pers. comm.; D. Lambourn, pers. comm.).

Predation. Transient killer whales are a regular predator of Steller sea lions in the eastern DPS (e.g., Ford et al. 1998, Heise et al. 2003). However, unlike in the western DPS, where there has been speculation that killer whale predation may be a significant limiting factor on that population (Springer et al. 2003, Williams et al.

2004), predation by killer whales is not considered extensive enough to prevent the continued growth of the eastern DPS (NMFS 2013). Similarly, there is no evidence that shark predation is a threat to the eastern DPS (NMFS 2013).

Mortality from scientific research. Research provides valuable information required for conservation of the eastern DPS, but can result in incidental injuries and deaths among study animals (NMFS 2009). During the 11-year period from 2000 to 2010, 21 individuals (1.9 animals/year) in this population died from research-related causes (Angliss and Outlaw 2008, Allen and Angliss 2014).

CONCLUSIONS AND RECOMMENDATION

The eastern DPS of Steller sea lions, including the animals found in Washington, experienced a major decline in abundance through much of the 1900s due primarily to human control efforts. Protections implemented during and after the 1970s against deliberate killing and other threats have resulted in a sustained period of population growth. From 1979 to 2010, numbers of non-pups and pups in the eastern DPS increased at average annual rates of 2.99% and 4.18%, respectively, with the overall population growing from an estimated 18,313 animals to 70,174 animals. In Washington, numbers of non-pups at four sites used for trend analysis increased at an average annual rate of 9.13% between 1989 and 2013, and small but increasing numbers of pups have been born in the state since 1992. Sustained population growth since 1979 and the lack of significant threats resulted in federal delisting of the eastern DPS in December 2013. Based on these same considerations, it seems likely that Steller sea lion numbers in Washington will continue to increase until reaching carrying capacity with prey resources at some unknown point in the future. Additionally, the recent increase in pup production in Washington suggests that the state will likely support one or more recognized rookeries in the future. The eastern DPS of Steller sea lions is adversely impacted by a number of known or potential human-related factors, but none of these have prevented recovery of the population during the past few decades. Climate change is expected to be an important future threat to the eastern DPS by altering ocean conditions and potentially reducing prey availability.

The species no longer meets the definition of being threatened under Washington law, which is described as "likely to become ….. endangered ….. within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats" (WAC 232-12-297). Similarly, it does not meet the definition of state sensitive, which is being "vulnerable or declining and is likely to become endangered or threatened in a significant portion of its range within the state without cooperative management or removal of threats" (WAC 232-12-297). WDFW therefore recommends that Steller sea lions be delisted at the state level in Washington. The species will remain classified as "protected wildlife" under state law (Appendix A; WAC 232-12-011) and will continue to receive significant protections under the federal Marine Mammal Protection Act. However, delisting could lead to the future lethal removal of small numbers of individuals at locations where authorized by federal and state law.

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Appendix A. Counts of non-pup Steller sea lions at four haulout complexes during the summer (mid-June to late August) in Washington, 1915-2014. These sites are surveyed consistently for determining population trends and are therefore known as "trend sites."

Date	Split Rock Complex[a]	Sea Lion Rock/Carroll Island Complex[b]	Bodelteh/Cape Alava/Umatilla Reef Complex[c]	Tatoosh Complex[d]	Total[e]
02-Aug-1915	12	-[f]	-	-	-
10-Aug-1915	-	2,000 or more	-	-	2,000 or more
14-Jun-1916	0	-	-	-	-
10-Aug-1916	-	2,000-3,000	-	-	2,000-3,000
24-Jul-1917	-	1,000 or more	-	-	1,000 or more
15-Aug-1921	-	≥300	-	-	300
24-Jun-1938	-	1	-	-	-
25-Jun-1941	-	3	-	-	-
13-Jul-1959	5	100	250	-	355
29-Aug-1976	21	213	20	-	254
20-Aug-1986	-	57	2	4	Incomplete
18-Aug-1987	-	145	25	0	Incomplete
19-Aug-1988	0	221	21	1	243
22-Jun-1989	89	0	0	0	89
08-Jul-1989	-	5	0	0	incomplete
17-Jun-1991	152	107	0	0	259
17-Jun-1991	109	180	0	0	289
01-Jul-1991	-	171	0	0	incomplete
02-Jul-1991	145	-	70	0	incomplete
21-Jun-1992	-	150	0	0	incomplete
22-Jun-1992	84	201	0	0	285
06-Jul-1992	63	203	0	0	266
08-Jul-1992	47	235	0	0	282
24-Jun-1993	205	121	220	-	546
07-Jul-1993	-	66	505	2	incomplete
30-Jul-1993	-	214	260	11	incomplete
16-Jun-1994	219	18	162	0	399
22-Jun-1994	143	9	217	0	369
18-Aug-1994	-	188	91	7	incomplete
25-Aug-1994	-	366	202	59	627[g]
29-Aug-1994	-	324	218	126	668[g]
16-Jun-1995	390	26	138	1	555
11-Jul-1995	276	61	48	0	385
12-Jul-1995	174	59	54	0	287
25-Aug-1995	169	345	213	337	1,064
30-Aug-1995	-	403	371	117	891[g]
18-Jun-1996	258	215	94	1	568
19-Jun-1996	295	215	129	1	640
09-Jul-1996	257	100	260	4	621
10-Jul-1996	304	132	160	3	599
11-Jul-1996	172	88	220	2	482
12-Jul-1996	285	160	214	0	659
24-Jun-1997	82	151	4	5	242
25-Jun-1997	108	87	12	6	213
26-Jun-1997	-	-	1	13	incomplete

Date	Split Rock Complex[a]	Sea Lion Rock/Carroll Island Complex[b]	Bodelteh/Cape Alava/Umatilla Reef Complex[c]	Tatoosh Complex[d]	Total[e]
07-Jul-1997	162	338	2	1	503
11-Jul-1997	112	336	0	0	448
09-Jul-1998	231	220	0	60	511
10-Jul-1998	138	241	0	50	429
17-Jun-1999	409	491	31	3	934
06-Jul-1999	383	361	4	23	771
08-Jul-1999	-	408	2	47	incomplete
09-Jul-1999	295	349	26	44	714
20-Jun-2000	322	438	86	1	847
11-Jul-2000	249	388	16	24	677
12-Jul-2000	204	287	27	0	518
14-Jul-2000	-	379	30	25	incomplete
20-Jun-2001	286	372	0	0	658
22-Jun-2001	181	489	0	0	670
09-Jul-2001	88	231	1	13	333
10-Jul-2001	135	233	26	25	419
13-Jul-2001	189	257	0	5	451
19-Jun-2002	-	-	-	-	705
09-Jul-2002	-	-	-	-	596
07-Jul-2004	329	150	105	64	648
24-Jun-2004	414	120	0	0	534
23-Jun-2004	418	293	294	10	1,015
13-Jul-2005	241	442	38	177	898
09-Aug-2006	335	397	81	22	835
11-Jul-2006	342	355	17	0	714
19-Jun-2007	541	317	0	0	858
07-Jul-2008	292	679	189	38	1,198
13-Jul-2009	330	970	25	18	1,343
02-Jul-2010	470	562	418	73	1,523
12-Jul-2010	408	677	234	35	1,354
16-Jul-2010	634	368	297	86	1,385
11-Jul-2011	611	921	182	35	1,749
10-Jul-2013	237	854	54	326	1,471
15-Jul-2013	212	757	101	431	1,501
8-Jul-2014	344	1,091	58	664	2,157

[a] This complex contains Split and Willoughby Rocks and a series of 4-5 smaller rocks, one of which is Rock 535 to the south.
[b] This complex consists of two main islands and 5-6 smaller offshore rocks in their vicinity. Carroll Island is a large sea stack with four rocks used as haulouts around its perimeter. Sea Lion Rock is about 1.1 km south of Carroll Island and contains several smaller haulout rocks east of the main island.
[c] This complex includes the Bodelteh Islands, a chain of 4 islets and numerous small rocks that extend offshore of Cape Alava and include East Bodelteh Island (consisting of two "twin" stacks separated by a low lying reef), Sail Bodelteh Island (a sail-shaped rock west of East Bodelteh), and West Bodelteh Island (a low lying rock west of Sail Bodelteh and the westernmost of the Bodelteh chain); Guano Rock, a small rock about 0.8 km north of the Bodelteh Islands; and Umatilla Reef, a reef northwest of the Bodelteh Islands that is exposed only during lower tides.
[d] This complex includes Northeast Rock, a small rock on the northeast side of Tatoosh Island; North Center Rock, a small rock off the north side of Tatoosh Island; and West Reef, a low lying reef on the west side of Tatoosh Island that is partially exposed during all tides. Sea lions also haul out along the northwest side of Tatoosh Island proper.
[e] Sources: counts from 1915-1941 (Scheffer 1995); 1959 (Kenyon and Scheffer 1961); 1976-2013 (WDFW, unpubl. data except where noted otherwise).
[f] A dash indicates that the island complex was either not surveyed or the count data are unavailable.
[g] From Gearin and Scordino (1995).

Appendix B. Washington Administrative Code:

232-12-011. Wildlife classified as protected shall not be hunted or fished;
232-12-014. Wildlife classified as endangered species;
232-12-297. Endangered, threatened and sensitive wildlife species classification.

WAC 232-12-011 Wildlife classified as protected shall not be hunted or fished. Protected wildlife are designated into three subcategories: threatened, sensitive, and other.
(1) Threatened species are any wildlife species native to the state of Washington that are likely to become endangered within the foreseeable future throughout a significant portion of their range within the state without cooperative management or removal of threats. Protected wildlife designated as threatened include:

Common Name	Scientific Name
Mazama pocket gopher	*Thomomys mazama*
western gray squirrel	*Sciurus griseus*
Steller (northern) sea lion	*Eumetopias jubatus*
North American lynx	*Lynx canadensis*
ferruginous hawk	*Buteo regalis*
marbled murrelet	*Brachyramphus marmoratus*
green sea turtle	*Chelonia mydas*
loggerhead sea turtle	*Caretta caretta*
greater sage-grouse	*Centrocercus urophasianus*
sharp-tailed grouse	*Phasianus columbianus*

(2) Sensitive species are any wildlife species native to the state of Washington that are vulnerable or declining and are likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. Protected wildlife designated as sensitive include:

Common Name	Scientific Name
gray whale	*Eschrichtius gibbosus*
common Loon	*Gavia immer*
peregrine falcon	*Falco peregrinus*
bald eagle	*Haliaeetus leucocephalus*
Larch Mountain salamander	*Plethodon larselli*
pygmy whitefish	*Prosopium coulteri*
margined sculpin	*Cottus marginatus*
Olympic mudminnow	*Novumbra hubbsi*

(3) Other protected wildlife include:

Common Name	Scientific Name
cony or pika	*Ochotona princeps*
least chipmunk	*Tamius minimus*
yellow-pine chipmunk	*Tamius amoenus*
Townsend's chipmunk	*Tamius townsendii*
red-tailed chipmunk	*Tamius ruficaudus*
hoary marmot	*Marmota caligata*
Olympic marmot	*Marmota olympus*
Cascade golden-mantled ground squirrel	*Spermophilus saturatus*
golden-mantled ground squirrel	*Spermophilus lateralis*
Washington ground squirrel	*Spermophilus washingtoni*
red squirrel	*Tamiasciurus hudsonicus*
Douglas squirrel	*Tamiasciurus douglasii*
northern flying squirrel	*Glaucomys sabrinus*
Wolverine	*Gulo gulo*
painted turtle	*Chrysemys picta*
California mountain kingsnake	*Lampropeltis zonata*

All birds not classified as game birds, predatory birds or endangered species, or designated as threatened species or sensitive species; all bats, except when found in or immediately adjacent to a dwelling or other occupied building; mammals of the order Cetacea, including whales, porpoises, and mammals of the order Pinnipedia not otherwise classified as endangered species, or designated as threatened species or sensitive species. This section shall not apply to

hair seals and sea lions which are threatening to damage or are damaging commercial fishing gear being utilized in a lawful manner or when said mammals are damaging or threatening to damage commercial fish being lawfully taken with commercial gear.

[Statutory Authority: RCW 77.12.047, 77.12.020. 08-03-068 (Order 08-09), § 232-12-011, filed 1/14/08, effective 2/14/08; 06-04-066 (Order 06-09), § 232-12-011, filed 1/30/06, effective 3/2/06. Statutory Authority: RCW 77.12.047, 77.12.655, 77.12.020. 02-11-069 (Order 02-98), § 232-12-011, filed 5/10/02, effective 6/10/02. Statutory Authority: RCW 77.12.047. 02-08-048 (Order 02-53), § 232-12-011, filed 3/29/02, effective 5/1/02; 00-17-106 (Order 00-149), § 232-12-011, filed 8/16/00, effective 9/16/00. Statutory Authority: RCW 77.12.040, 77.12.010, 77.12.020, 77.12.770. 00-10-001 (Order 00-47), § 232-12-011, filed 4/19/00, effective 5/20/00. Statutory Authority: RCW 77.12.040, 77.12.010, 77.12.020, 77.12.770, 77.12.780. 00-04-017 (Order 00-05), § 232-12-011, filed 1/24/00, effective 2/24/00. Statutory Authority: RCW 77.12.020. 98-23-013 (Order 98-232), § 232-12-011, filed 11/6/98, effective 12/7/98. Statutory Authority: RCW 77.12.040. 98-10-021 (Order 98-71), § 232-12-011, filed 4/22/98, effective 5/23/98. Statutory Authority: RCW 77.12.040 and 75.08.080. 98-06-031, § 232-12-011, filed 2/26/98, effective 5/1/98. Statutory Authority: RCW 77.12.020. 97-18-019 (Order 97-167), § 232-12-011, filed 8/25/97, effective 9/25/97. Statutory Authority: RCW 77.12.040, 77.12.020, 77.12.030 and 77.32.220. 97-12-048, § 232-12-011, filed 6/2/97, effective 7/3/97. Statutory Authority: RCW 77.12.020. 93-21-027 (Order 615), § 232-12-011, filed 10/14/93, effective 11/14/93; 90-11-065 (Order 441), § 232-12-011, filed 5/15/90, effective 6/15/90. Statutory Authority: RCW 77.12.040. 89-11-061 (Order 392), § 232-12-011, filed 5/18/89; 82-19-026 (Order 192), § 232-12-011, filed 9/9/82; 81-22-002 (Order 174), § 232-12-011, filed 10/22/81; 81-12-029 (Order 165), § 232-12-011, filed 6/1/81.]

WAC 232-12-014 Wildlife classified as endangered species. Endangered species include:

Common Name	**Scientific Name**
pygmy rabbit	*Brachylagus idahoensis*
fisher	*Martes pennanti*
gray wolf	*Canis lupus*
grizzly bear	*Ursus arctos*
sea otter	*Enhydra lutris*
sei whale	*Balaenoptera borealis*
fin whale	*Balaenoptera physalus*
blue whale	*Balaenoptera musculus*
humpback whale	*Megaptera novaeangliae*
black right whale	*Balaena glacialis*
sperm whale	*Physeter macrocephalus*
killer whale	*Orcinus orca*
Columbian white-tailed deer	*Odocoileus virginianus leucurus*
woodland caribou	*Rangifer tarandus caribou*
American white pelican	*Pelecanus erythrorhynchos*
brown pelican	*Pelecanus occidentalis*
sandhill crane	*Grus canadensis*
snowy plover	*Charadrius alexandrinus*
upland sandpiper	*Bartramia longicauda*
spotted owl	*Strix occidentalis*
Streaked horned lark	*Eremophila alpestris strigata*
western pond turtle	*Clemmys marmorata*
leatherback sea turtle	*Dermochelys coriacea*
mardon skipper	*Polites mardon*
Oregon silverspot butterfly	*Speyeria zerene hippolyta*
Taylor's checkerspot	*Euphydryas editha taylori*
Oregon spotted frog	*Rana pretiosa*
northern leopard frog	*Rana pipiens*

[Statutory Authority: RCW 77.12.047, 77.12.655, 77.12.020. 06-04-066 (Order 06-09), § 232-12-014, filed 1/30/06, effective 3/2/06. Statutory Authority: RCW 77.12.047, 77.12.655, 77.12.020. 02-11-069 (Order 02-98), § 232-12-014, filed 5/10/02, effective 6/10/02. Statutory Authority: RCW 77.12.040, 77.12.010, 77.12.020, 77.12.770, 77.12.780. 00-04-017 (Order 00-05), § 232-12-014, filed 1/24/00, effective 2/24/00. Statutory Authority: RCW 77.12.020. 98-23-013 (Order 98-232), § 232-12-014, filed 11/6/98, effective 12/7/98; 97-18-019 (Order 97-167), § 232-12-014, filed 8/25/97, effective 9/25/97; 93-21-026 (Order 616), § 232-12-014, filed 10/14/93, effective 11/14/93. Statutory Authority: RCW 77.12.020(6). 88-05-032 (Order 305), § 232-12-014, filed 2/12/88. Statutory Authority: RCW 77.12.040. 82-19-026 (Order 192), § 232-12-014, filed 9/9/82; 81-22-002 (Order 174), § 232-12-014, filed 10/22/81; 81-12-029 (Order 165), § 232-12-014, filed 6/1/81.]

WAC 232-12-297 Endangered, threatened, and sensitive wildlife species classification.

PURPOSE

1.1 The purpose of this rule is to identify and classify native wildlife species that have need of protection and/or management to ensure their survival as free-ranging populations in Washington and to define the process by which listing, management, recovery, and delisting of a species can be achieved. These rules are established to ensure that consistent procedures and criteria are followed when classifying wildlife as endangered, or the protected wildlife subcategories threatened or sensitive.

DEFINITIONS

For purposes of this rule, the following definitions apply:

2.1 "Classify" and all derivatives means to list or delist wildlife species to or from endangered, or to or from the protected wildlife subcategories threatened or sensitive.

2.2 "List" and all derivatives means to change the classification status of a wildlife species to endangered, threatened, or sensitive.

2.3 "Delist" and its derivatives means to change the classification of endangered, threatened, or sensitive species to a classification other than endangered, threatened, or sensitive.

2.4 "Endangered" means any wildlife species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state.

2.5 "Threatened" means any wildlife species native to the state of Washington that is likely to become an endangered species within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats.

2.6 "Sensitive" means any wildlife species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened in a significant portion of its range within the state without cooperative management or removal of threats.

2.7 "Species" means any group of animals classified as a species or subspecies as commonly accepted by the scientific community.

2.8 "Native" means any wildlife species naturally occurring in Washington for purposes of breeding, resting, or foraging, excluding introduced species not found historically in this state.

2.9 "Significant portion of its range" means that portion of a species' range likely to be essential to the long-term survival of the population in Washington.

LISTING CRITERIA

3.1 The commission shall list a wildlife species as endangered, threatened, or sensitive solely on the basis of the biological status of the species being considered, based on the preponderance of scientific data available, except as noted in section 3.4.

3.2 If a species is listed as endangered or threatened under the federal Endangered Species Act, the agency will recommend to the commission that it be listed as endangered or threatened as specified in section 9.1. If listed, the agency will proceed with development of a recovery plan pursuant to section 11.1.

3.3 Species may be listed as endangered, threatened, or sensitive only when populations are in danger of failing, declining, or are vulnerable, due to factors including but not restricted to limited numbers, disease, predation, exploitation, or habitat loss or change, pursuant to section 7.1.

3.4 Where a species of the class Insecta, based on substantial evidence, is determined to present an unreasonable risk to public health, the commission may make the determination that the species need not be listed as endangered, threatened, or sensitive.

DELISTING CRITERIA

4.1 The commission shall delist a wildlife species from endangered, threatened, or sensitive solely on the basis of the biological status of the species being considered, based on the preponderance of scientific data available.

4.2 A species may be delisted from endangered, threatened, or sensitive only when populations are no longer in danger of failing, declining, are no longer vulnerable, pursuant to section 3.3, or meet recovery plan goals, and when it no longer meets the definitions in sections 2.4, 2.5, or 2.6.

INITIATION OF LISTING PROCESS

5.1 Any one of the following events may initiate the listing process.

5.1.1 The agency determines that a species population may be in danger of failing, declining, or vulnerable, pursuant to section 3.3.

5.1.2 A petition is received at the agency from an interested person. The petition should be addressed to the director. It should set forth specific evidence and scientific data which shows that the species may be failing, declining, or vulnerable, pursuant to section 3.3. Within 60 days, the agency shall either deny the petition, stating the reasons, or initiate the classification process.

5.1.3 An emergency, as defined by the Administrative Procedure Act, chapter 34.05 RCW. The listing of any species previously classified under emergency rule shall be governed by the provisions of this section.

5.1.4 The commission requests the agency review a species of concern.

5.2 Upon initiation of the listing process the agency shall publish a public notice in the Washington Register, and notify those parties who have expressed their interest to the department, announcing the initiation of the classification process and calling for scientific information relevant to the species status report under consideration pursuant to section 7.1.

INITIATION OF DELISTING PROCESS

6.1 Any one of the following events may initiate the delisting process:

6.1.1 The agency determines that a species population may no longer be in danger of failing, declining, or vulnerable, pursuant to section 3.3.

6.1.2 The agency receives a petition from an interested person. The petition should be addressed to the director. It should set forth specific evidence and scientific data which shows that the species may no longer be failing, declining, or vulnerable, pursuant to section 3.3. Within 60 days, the agency shall either deny the petition, stating the reasons, or initiate the delisting process.

6.1.3 The commission requests the agency review a species of concern.

6.2 Upon initiation of the delisting process the agency shall publish a public notice in the Washington Register, and notify those parties who have expressed their interest to the department, announcing the initiation of the delisting process and calling for scientific information relevant to the species status report under consideration pursuant to section 7.1.

SPECIES STATUS REVIEW AND AGENCY RECOMMENDATIONS

7.1 Except in an emergency under 5.1.3 above, prior to making a classification recommendation to the commission, the agency shall prepare a preliminary species status report. The report will include a review of information relevant to the species' status in Washington and address factors affecting its status, including those given under section

3.3. The status report shall be reviewed by the public and scientific community. The status report will include, but not be limited to an analysis of:

7.1.1 Historic, current, and future species population trends.

7.1.2 Natural history, including ecological relationships (e.g. food habits, home range, habitat selection patterns).

7.1.3 Historic and current habitat trends.

7.1.4 Population demographics (e.g. survival and mortality rates, reproductive success) and their relationship to long term sustainability.

7.1.5 Historic and current species management activities.

7.2 Except in an emergency under 5.1.3 above, the agency shall prepare recommendations for species classification, based upon scientific data contained in the status report. Documents shall be prepared to determine the environmental consequences of adopting the recommendations pursuant to requirements of the State Environmental Policy Act (SEPA).

7.3 For the purpose of delisting, the status report will include a review of recovery plan goals.

PUBLIC REVIEW

8.1 Except in an emergency under 5.1.3 above, prior to making a recommendation to the commission, the agency shall provide an opportunity for interested parties to submit new scientific data relevant to the status report, classification recommendation, and any SEPA findings.

8.1.1 The agency shall allow at least 90 days for public comment.

FINAL RECOMMENDATIONS AND COMMISSION ACTION

9.1 After the close of the public comment period, the agency shall complete a final status report and classification recommendation. SEPA documents will be prepared, as necessary, for the final agency recommendation for classification. The classification recommendation will be presented to the commission for action. The final species status report, agency classification recommendation, and SEPA documents will be made available to the public at least 30 days prior to the commission meeting.

9.2 Notice of the proposed commission action will be published at least 30 days prior to the commission meeting.

PERIODIC SPECIES STATUS REVIEW

10.1 The agency shall conduct a review of each endangered, threatened, or sensitive wildlife species at least every five years after the date of its listing. This review shall include an update of the species status report to determine whether the status of the species warrants its current listing status or deserves reclassification.

10.1.1 The agency shall notify any parties who have expressed their interest to the department of the periodic status review. This notice shall occur at least one year prior to end of the five year period required by section 10.1.

10.2 The status of all delisted species shall be reviewed at least once, five years following the date of delisting.

10.3 The department shall evaluate the necessity of changing the classification of the species being reviewed. The agency shall report its findings to the commission at a commission meeting. The agency shall notify the public of its findings at least 30 days prior to presenting the findings to the commission.

10.3.1 If the agency determines that new information suggests that classification of a species should be changed from its present state, the agency shall initiate classification procedures provided for in these rules starting with section 5.1.

10.3.2 If the agency determines that conditions have not changed significantly and that the classification of the species should remain unchanged, the agency shall recommend to the commission that the species being reviewed shall retain its present classification status.

10.4 Nothing in these rules shall be construed to automatically delist a species without formal commission action.

RECOVERY AND MANAGEMENT OF LISTED SPECIES

11.1 The agency shall write a recovery plan for species listed as endangered or threatened. The agency will write a management plan for species listed as sensitive. Recovery and management plans shall address the listing criteria described in sections 3.1 and 3.3, and shall include, but are not limited to:

11.1.1 Target population objectives.

11.1.2 Criteria for reclassification.

11.1.3 An implementation plan for reaching population objectives which will promote cooperative management and be sensitive to landowner needs and property rights. The plan will specify resources needed from and impacts to the department, other agencies (including federal, state, and local), tribes, landowners, and other interest groups. The plan shall consider various approaches to meeting recovery objectives including, but not limited to regulation, mitigation, acquisition, incentive, and compensation mechanisms.

11.1.4 Public education needs.

11.1.5 A species monitoring plan, which requires periodic review to allow the incorporation of new information into the status report.

11.2 Preparation of recovery and management plans will be initiated by the agency within one year after the date of listing.

11.2.1 Recovery and management plans for species listed prior to 1990 or during the five years following the adoption of these rules shall be completed within 5 years after the date of listing or adoption of these rules, whichever comes later. Development of recovery plans for endangered species will receive higher priority than threatened or sensitive species.

11.2.2 Recovery and management plans for species listed after five years following the adoption of these rules shall be completed within three years after the date of listing.

11.2.3 The agency will publish a notice in the Washington Register and notify any parties who have expressed interest

to the department interested parties of the initiation of recovery plan development.

11.2.4 If the deadlines defined in sections 11.2.1 and 11.2.2 are not met the department shall notify the public and report the reasons for missing the deadline and the strategy for completing the plan at a commission meeting. The intent of this section is to recognize current department personnel resources are limiting and that development of recovery plans for some of the species may require significant involvement by interests outside of the department, and therefore take longer to complete.

11.3 The agency shall provide an opportunity for interested public to comment on the recovery plan and any SEPA documents.

CLASSIFICATION PROCEDURES REVIEW

12.1 The agency and an ad hoc public group with members representing a broad spectrum of interests, shall meet as needed to accomplish the following:

12.1.1 Monitor the progress of the development of recovery and management plans and status reviews, highlight problems, and make recommendations to the department and other interested parties to improve the effectiveness of these processes.

12.1.2 Review these classification procedures six years after the adoption of these rules and report its findings to the commission.

AUTHORITY

13.1 The commission has the authority to classify wildlife as endangered under RCW 77.12.020. Species classified as endangered are listed under WAC 232-12-014, as amended.

13.2 Threatened and sensitive species shall be classified as subcategories of protected wildlife. The commission has the authority to classify wildlife as protected under RCW 77.12.020. Species classified as protected are listed under WAC 232-12-011, as amended.

[Statutory Authority: RCW 77.12.047, 77.12.655, 77.12.020. 02-02-062 (Order 01-283), § 232-12-297, filed 12/28/01, effective 1/28/02. Statutory Authority: RCW 77.12.040. 98-05-041 (Order 98-17), § 232-12-297, filed 2/11/98, effective 3/14/98. Statutory Authority: RCW 77.12.020. 90-11-066 (Order 442), § 232-12-297, filed 5/15/90, effective 6/15/90.]

Appendix C. WDFW responses to public comments received during both the 90-day public review period of the draft *Washington State Periodic Status Review for the Steller Sea Lion* conducted from September 12 to December 11, 2014, and the 14-day public review period for the final report conducted under the State Environmental Policy Act (SEPA) from January 9-23, 2015. The comments presented here are summaries of the remarks provided by one or more people.

Section	Comment and Response
General comments	1. I agree with state delisting of Steller sea lions.
	WDFW is recommending that Steller sea lions be removed from the Washington threatened species list because the species no longer meets the definition of threatened under state law (WAC 232-12-297, Section 2.5). The species also does not meet the definition of sensitive status under state law, thus delisting is the most appropriate action to take regarding the species' legal status (WAC 232-12-297, Section 2.6). The eastern distinct population segment (DPS) of Steller sea lions (i.e., those animals that breed from Southeast Alaska to California, including Washington) showed steady growth of about 3% (non-pups) and 4.2% (pups) per year on average from 1979 to 2010. This resulted in the population reaching an estimated 70,174 animals by 2010. Based on this information, NOAA Fisheries determined that the eastern DPS was sufficiently recovered to allow federal delisting in 2013. Steller sea lion abundance has grown more rapidly in Washington than in the overall DPS, with an average annual growth rate of 9.13% (non-pups) from 1989 to 2013. Numbers in Washington during the summer survey period increased from about 250-300 animals during the early 1990s to 2,157 animals during 2014. The species has also shown increased breeding activity in Washington since 1992, when pupping was recorded for the first time in the 20th century. Pup numbers had expanded to 60 individuals by 2014.
	2. The Steller sea lion population has recovered now and there is no valid reason to not state delist them. Delisting by the federal government should be sufficient for WDFW to do the same.
	WDFW agrees with the first remark. See the response to Comment 1. Federal delisting is an important consideration, but WDFW must consider the status of a species in Washington only before it proposes delisting a species.
	3. Please protect Steller sea lions and do not remove them from the state threatened species list.
	See the response to Comment 1.
	4. Under WAC 232-12-297, Section 4.1, state delisting of a species must be based "solely on the basis of [its] biological status" and "the preponderance of scientific data available." Other factors cannot be considered.
	See the response to Comment 1.
	5. Why are you delisting Steller sea lions when so few remain on the planet? This population is too fragile to allow delisting at the state level.
	There were an estimated 70,174 Steller sea lions in the eastern DPS in 2010 and about 80,000 in the western DPS during 2008-2012. Steller sea lions are not considered an especially at-risk species because they have a broad diet and a fairly large geographic range. Furthermore, the eastern DPS has shown rapid population growth since the 1970s after it received protection from most intentional killing. This growth has occurred despite a number of known or potential threats to the population from climate change, reduced prey abundance through competition with fisheries, human disturbance, incidental take in

Section	Comment and Response
	fishing gear, entanglement in marine debris, illegal killing, environmental contaminants, oil spills, diseases and parasites, and harmful algal blooms.
	6. I believe that sea lion numbers have been growing rapidly in Washington over the past two decades.
	This statement is correct. Both Steller sea lions and California sea lions have been increasing in Washington during the past several decades.
	7. Sea lions are overabundant now and are causing many problems. They (1) negatively affect sturgeon, salmon, and bottom fish populations, and aquatic ecosystems, (2) are a nuisance and a danger to people using docks, (3) are a source of beach pollution, and (4) are too tame and readily steal fish from fishing lines.
	These concerns are beyond the scope of the delisting recommendation made in this periodic status review. Under WAC 232-12-297, Section 4.1, state delisting of a species must be based "solely on the basis of [its] biological status" and "the preponderance of scientific data available." Other factors cannot be considered. State delisting of Steller sea lions is being recommended because the species has recovered in abundance and is no longer considered vulnerable to becoming endangered in Washington. Delisting is not being recommended for the purpose of controlling Steller sea lions to reduce conflicts with people. *California sea lions far outnumber Steller sea lions during much of the year in Washington and it is likely that this is the species being referenced by some commenting citizens.*
	8. Sea lions are overabundant in parts of the state, such as the Columbia River, and should be lethally controlled.
	The only action being evaluated under the current proposal is whether Steller sea lions should be delisted under state law (WAC 232-12-297). Although state delisting could lead to the future lethal removal of small numbers of individual Steller sea lions at locations where authorized by federal and state law, management of the species after delisting is not part of the current proposal and is therefore beyond the scope of the current recommendation. Significant future management actions by WDFW, such as any control actions, would be evaluated through a separate public review process if proposed.
	9. WDFW should work with federal agencies and other entities to pursue all appropriate means necessary (active hazing, removal, lethal removal, etc.) to reduce predation on federally listed salmonids by Steller sea lions. It's important to have the option for lethal removal of nuisance individuals.
	See the response to Comment 8.
	10. State delisting will allow WDFW to better manage the threat that Steller sea lions pose to white sturgeon on the Columbia River.
	See the response to Comment 8.
	11. I'm afraid that a lethal control program for Steller sea lions will begin soon after they are delisted. Steller sea lions should not be blamed for the decline of salmon, which is caused by dams, overfishing, pollution, introduction of non-native species, and other human activities.
	See the response to Comment 8.

Section	Comment and Response
	12. You need to stop controlling marine wildlife just for maintaining sport fishing opportunities and need to start caring about other wildlife species too.
	This concern is beyond the scope of the delisting recommendation made in this periodic status review. No lethal control actions have been directed at Steller sea lions in Washington by state or federal agencies in recent decades.
	13. Greater support for healthy fish runs is needed by building more hatcheries, managing for truly sustainable harvest levels, public education, proper management of hatcheries, and minimizing pollution rather than by controlling sea lions.
	This concern is beyond the scope of the delisting recommendation made in this periodic status review. Under WAC 232-12-297, Section 4.1, state delisting of a species must be based "solely on the basis of [its] biological status" and "the preponderance of scientific data available." Other factors cannot be considered.
	14. Sea lions bring nothing to the economy, whereas salmonids bring in millions.
	See the response to Comment 13.
	15. Steller sea lions contribute to local economies through increased wildlife-related tourism.
	See the response to Comment 13.
	16. Steller sea lions do little for the enjoyment of people along the Columbia River.
	See the response to Comment 13.
	17. Steller sea lions threaten salmon recovery and the many taxpayer dollars spent to date on salmon recovery.
	See the response to Comment 13.
	18. Hot branding of sea lions should not be conducted.
	The only action being evaluated under the current proposal is whether Steller sea lions should be delisted under state law (WAC 232-12-297). Research or management methods involving the species are not part of the proposal and are beyond the scope of the current recommendation.

Washington State Status Reports, Periodic Status Reviews, Recovery Plans, and Conservation Plans

Status Reports

2015	Tufted Puffin
2007	Bald Eagle
2005	Mazama Pocket Gopher, Streaked Horned Lark, and Taylor's Checkerspot
2005	Aleutian Canada Goose
2004	Killer Whale
2002	Peregrine Falcon
2000	Common Loon
1999	Northern Leopard Frog
1999	Olympic Mudminnow
1999	Mardon Skipper
1999	Lynx Update
1998	Fisher
1998	Margined Sculpin
1998	Pygmy Whitefish
1998	Sharp-tailed Grouse
1998	Sage-grouse
1997	Aleutian Canada Goose
1997	Gray Whale
1997	Olive Ridley Sea Turtle
1997	Oregon Spotted Frog
1993	Larch Mountain Salamander
1993	Lynx
1993	Marbled Murrelet
1993	Oregon Silverspot Butterfly
1993	Pygmy Rabbit
1993	Steller Sea Lion
1993	Western Gray Squirrel
1993	Western Pond Turtle

Periodic Status Reviews

2015	Steller Sea Lion

Recovery Plans

2012	Columbian Sharp-tailed Grouse
2011	Gray Wolf
2011	Pygmy Rabbit: Addendum
2007	Western Gray Squirrel
2006	Fisher
2004	Sea Otter
2004	Greater Sage-Grouse
2003	Pygmy Rabbit: Addendum
2002	Sandhill Crane
2001	Pygmy Rabbit: Addendum
2001	Lynx
1999	Western Pond Turtle
1996	Ferruginous Hawk
1995	Pygmy Rabbit
1995	Upland Sandpiper
1995	Snowy Plover

Conservation Plans

2013	Bats

Reports, reviews, and plans are available on the Washington Department of Fish and Wildlife website at: http://wdfw.wa.gov/publications/search.php

References Reviewed for the *Washington State Periodic Status Review for the Steller Sea Lion*

Table B presents the 176 references that are cited in the *Washington State Periodic Status Review for the Steller Sea Lion*. Each reference is categorized for its level of peer review pursuant to section 34.05.271 RCW, which is the codification of Substitute House Bill 2661 that passed the Washington Legislature in 2014. A key to the review categories under section 34.05.271 RCW is provided in Table A. References were categorized by Gary Wiles in January 2015.

Individual papers cited in the *Washington State Periodic Status Review for the Steller Sea Lion* cover a number of topics discussed in the report, including information on: 1) the species' taxonomy, distribution, and biology; 2) habitat requirements; 3) population status and trends; 4) conservation status and protections; 5) management activities; and 6) factors affecting the continued existence of the species.

Table A. Key to 34.05.271 RCW Categories:

Category Code	34.05.271(1)(c) RCW
i	(i) Independent peer review: review is overseen by an independent third party.
ii	(ii) Internal peer review: review by staff internal to the department of fish and wildlife.
iii	(iii) External peer review: review by persons that are external to and selected by the department of fish and wildlife.
iv	(iv) Open review: documented open public review process that is not limited to invited organizations or individuals.
v	(v) Legal and policy document: documents related to the legal framework for the significant agency action including but not limited to: (A) federal and state statutes; (B) court and hearings board decisions; (C) federal and state administrative rules and regulations; and (D) policy and regulatory documents adopted by local governments.
vi	(vi) Data from primary research, monitoring activities, or other sources, but that has not been incorporated as part of documents reviewed under the processes described in (c)(i), (ii), (iii), and (iv) of this subsection.
vii	(vii) Records of the best professional judgment of department of fish and wildlife employees or other individuals.
viii	(viii) Other: Sources of information that do not fit into one of the categories identified in this subsection (1)(c).

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