PEOPLE
FOR
PUGET
SOUND
pugetsound.org

March 31, 2003

Chief, Protected Resources Division
National Marine Fisheries Service
525 NE Oregon Street, Suite 500
Portland, OR 97232

Re: Comments in Response to Proposed Rule Listing the Eastern North Pacific Southern Resident Stock of Killer Whales (*Orcinus orca*) as "Depleted" Under the Marine Mammal Protection Act (MMPA)

Dear Chief,

This letter contains our comments on the Proposed Rule, issued by the National Marine Fisheries Service (NMFS) in January 2003 (68 Fed. Reg. 4747, January 30, 2003) to designate the Eastern North Pacific Southern Resident stock (herein referred to as "Southern Residents") of killer whales as depleted under the Marine Mammal Protection Act (MMPA). These comments are submitted on behalf of People For Puget Sound, Friends of the San Juans, Orca Network and the Animal Protection Institute.

Let us say at the outset that it would be far more effective to list the Southern Residents under the Endangered Species Act. The ESA, in contrast to the MMPA, provides a mandate and a process for implementing protections and a recovery plan, including the consultation requirement under Section 7. It is our belief that the science supports an ESA listing, and that the practicalities of recovering the Southern Resident population depend on actions far beyond the usual authorities of NMFS, which are most applicable to preventing the direct harassment and killing of marine mammals.

That being said, we provide these comments to advance as far as possible the protection and recovery of the Southern Resident population of orca whales.

The inland marine and estuarine waters of Puget Sound and the Georgia Basin provide a valuable habitat for fish and wildlife, including the region's renowned Pacific salmon and killer whales. The region has experienced enormous human population growth in recent decades. Based on current rates, this region is estimated to have a total Puget Sound/Georgia Basin population of up to 9,000,000 by 2020 (PSWQAT, 2002). This growth means increased stress to local marine wildlife populations, particularly Southern Resident killer whales.

In contrast, the Southern Resident orca population has experienced alarming instability over the past 30 years. The current population is experiencing a decline that is incomparable to any previous population fluctuation in the

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Southern Resident's known history (refer to figure). The scientific as well as the environmental community believes that anthropogenic impacts pose an unacceptable risk to the survival of the Southern Resident stock and their habitat. Multiple factors may be causing the decline or impeding the recovery of this stock. We believe that a reduction in prey availability and the presence of toxins and contaminants are the most significant factors. Increased presence of vessels and vessel noise may also contribute to the recent decline. Oil spills are recognized as perhaps the greatest acute threat to the population, especially in their diminished state.

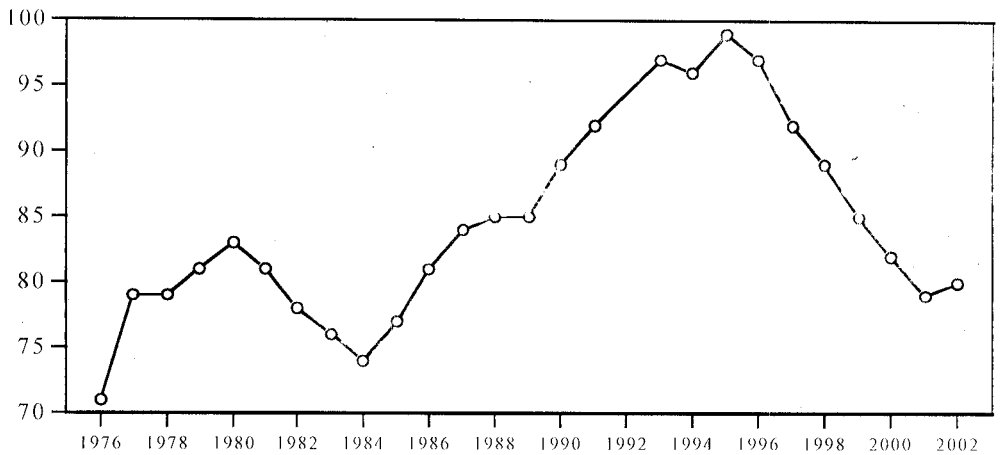
We recommend conservation measures and identify associated data gap needs for the likely major factors that should be considered for incorporation into a subsequent conservation plan for the Southern Resident killer whale population. On a more abbreviated scale, we will address other anthropogenic factors that may have also indirectly contributed to the recent decline. Because of the factors summarized below, we urge NMFS to list the Southern Resident stock of killer whales as depleted under MMPA and to implement a comprehensive conservation plan.

I. Background

The Southern Resident stock is a trans-boundary stock that inhabits inland waterways of southern British Columbia and Washington, including the Georgia Strait, Strait of Juan de Fuca, and Puget Sound. The population of the Southern Residents has been determined annually since 1976 through photo-identification methods (Center for Whale Research, unpubl. data). Three pods are known (J, K and L) and are generally present in these waters from April to October. Little is known of their range and distribution during winter months. Only the J-pod is seen on a semi-regular basis in Puget Sound throughout winter (Center for Biological Diversity, 2001). From 1976 to 1995, the Southern Resident stock increased approximately 35% from 71 to 99 individuals before the recent precipitous decline. According to the Center for Whale Research, the current number for the stock is 80 whales, a decrease of approximately 20% since peaking in 1995 (Center for Whale Research, 2002 Orca Survey).

In April 2001, a petition was formally filed by the Center for Biological Diversity and other co-petitioners to list the Southern Resident stock as an endangered species under the Endangered Species Act (ESA) (Center for Biological Diversity, 2001). On May 31, 2002, NMFS announced its decision and published a notice of determination declaring that this population did not constitute a species, subspecies, or "significant" distinct population segment (DPS) (67 Fed. Reg. 44133, July 1, 2002), and chose not to list them under ESA. NMFS, however, immediately published an advanced notice of proposed rulemaking (ANPR) (67 Fed. Reg. 44132, July 1, 2002) requesting scientific information on the stock and likely factors that led to its recent decline. After reviewing comments received from the ANPR and the best scientific information available, NMFS proposed to designate this stock as depleted under MMPA.

Total Population of the Southern Resident Killer Whale, 1976-2002 (Center for Whale Research, unpubl. data).



Under MMPA, a species is designated as depleted when it falls below its optimum sustainable population. The MMPA defines optimum sustainable population (OSP) as "the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the optimum carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element." NMFS regulations at 50 CFR 216.3 clarify the definition of OSP as a population size that falls within a range of a given species that is the largest supportable within the ecosystem to the level that results in the maximum net productivity level (MNPL).

The best available scientific information of historical abundance for the Southern Resident stock suggests a size of 140-200 whales as a proxy for carrying capacity (K), or estimated MNPL. Using 60% of K as the final rule for determining a depleted status, the MNPL for the Southern Resident stock ranges from 84-120 whales (68 Fed. Reg. 4747, January 30, 2003). According to the Center for Whale Research, the current number for the stock is at 80 whales, a decrease of approximately 20% since peaking in 1995 (Center for Whale Research, 2002 Orca Survey). A stock of 80 whales is below the lower bound of the MNPL range.

In recent years, NMFS has designated the following species as depleted under MMPA: Mid-Atlantic coastal migratory bottlenose dolphin (Tursiops truncatus), Eastern spinner dolphin (Stenella longirostris orientalis), North Pacific (or Guadalupe) fur seal (Arctocephalus townsendi), Northeastern offshore spotted dolphin (Stenella attenuata), coastal spotted dolphin (Stenella attenuata graffmani), and the Cook Inlet beluga whale (Delphinapterus leucas). A conservation plan has been developed for the Guadalupe fur seal.

II. Likely Major Factors for Decline

A. Contaminants

Urbanization, industrialization and other development in the greater Puget Sound and the Georgia Basin region have contaminated marine and freshwater inland waters and sediments. Effects of contamination in the Puget Sound food web are becoming quite clear. Myer et al. (1998) found higher prevalences of necrotic liver lesions in English sole (Pleuronectes vetulus) at contaminant sites in Puget Sound. Juvenile salmonids (chinook Oncorhynchus tshawytscha and chum O. keta) were exposed to levels comparable to levels which have previously been shown to cause impaired growth and increased mortality in samples collected from the Hylebos Waterway in central Puget Sound (Collier et al., 1998). Harbor seals (Phoca vitulina) are the most abundant marine mammal species in Washington State and provide some of the most consistent data on contamination trends in Puget Sound. Current concentrations of polychlorinated biphenyls (PCBs) in harbor seal pups continue to be at levels that exhibit immunotoxicity (Calambokidis et al., 2001).

Southern Residents have received a great deal of attention recently due to their exposure and accumulation of toxic chlorinated organic compounds. These synthetic organochlorine compounds include PCBs, DDT and its derivatives (i.e. DDE), dioxins and furans. These compounds are part of a group of toxins known as persistent bioaccumulative toxics (PBTs). Cockcroft et al. (1989) suggest that marine mammals may accumulate organochlorines to a greater degree than terrestrial animals because of their inability to metabolize these compounds. The first demonstrated case of a causal relationship between pollutants and a physiological response from any marine mammal occurred when Reijnders (1986) showed that the reproductive success of female common seals declined dramatically when fed polluted fish from the Dutch Wadden Sea. Diets showed significant differences in their content of PCBs and DDT. High levels of PCBs and DDT in beluga whales from the St. Lawrence Estuary and Gulf of St. Lawrence in Canada are believed to be a major factor in the non-recovery of this population (Martineau et al., 1987). Much like the current status of the Southern Residents, this small population of a few hundred beluga whales continues to be one of the most contaminated cetacean populations in the world.

Because organochlorine compounds are persistent in the environment and lipophilic, they tend to accumulate in fat or adipose tissue of marine animals. Marine mammals often possess thick layers of blubber, and accumulate these compounds in these fat deposits. Southern Residents are contaminated with PCBs, as well as other toxic organochlorines including DDT, dioxins and furans (Ross et al., 2000; Jarman et al., 1996). These toxins may affect both fecundity and mortality rates. There is increasing evidence that elevated concentrations of organochlorine compounds cause reproductive and skeletal abnormalities, immunotoxicity, and endocrine disruption (Ross et al., 2000; Schmidt and Johnson, 2001). The proximity of Southern Residents to Puget Sound's and the Georgia Strait's highly industrialized areas likely explains their high organochlorine exposures relative to the Northern Resident stock.

A1. Conservation Measures
The Southern Residents need a consistently abundant supply of uncontaminated prey to survive and recover. Cleaning up and preventing introduction of additional contaminants to the environment should be a priority. Pollution regulations, enforcement and cleanup must strengthened to address the conservation of killer whales. And because Southern Residents regularly move between Canadian and U.S. waters, meaningful protection will be achieved only through the actions of both Canadian and U.S. governments.

There needs to be an assurance that studies involving the collection of tissues for subsequent toxicological analyses are valid and without bias. Minimizing tissue sample variability should be considered when collecting tissues from stranded animals. This guideline was proposed as a goal in NMFS' Marine Mammal Health and Stranding Response Program (Becker et al., 1994). In other words, a conservation plan should address how long an animal may be dead before it is rendered unsuitable for sampling of contaminants. Temporal changes in selected contaminants of marine mammal tissues following death may occur and would not represent the original contaminant load of the animal at the time of death. Work with small odontocetes suggest that tissue collection should be limited to tissues of freshly dead animals due to the fact that concentrations of organochlorine compounds lost during decomposition (Borrell and Aguilar, 1990). Strandings of Southern Residents are not common and each datum collected is valuable, but researchers should be aware of uncertainties in measuring organochlorine concentrations if tissues are collected from animals that exhibit at least some post-mortem decomposition. Coordination of stranding networks between Canadian authorities and NMFS will need to exist as incidences of unusual die-offs or strandings and occasions of contamination incidents are not confined to a specific boundary.

The following actions are recommended to decision-makers at NMFS and Washington State to clean up and prevent contaminants from entering the habitat of Southern Residents (Schmidt and Johnson, 2001):

- Shift to the "Precautionary Principle" - Regulators must place the burden of proof on those entities/users that alter the Southern Resident's habitat. A "wait-and-see" approach which allows for environmental degradation and pollution to occur so long as the consequences are uncertain or undescribed has led some species to the brink of extinction. This approach is unacceptable. Under the Precautionary Principle, users would demonstrate that their activities are not harmful to species and ecosystems before engaging in them.

- Phase out the discharge of PBTs by 2010 - 1) Prohibit new sources of PBT discharges, and to establish a 2010 deadline for zero PBT discharges from existing sources; and 2) Phase out strategy should include all PBTs, not just a select list of chemicals. Alternatives to more traditional and polluting forms of construction materials and products exist (e.g. PBT-treated wood for pilings and piers) and should be utilized.

- Enforce current regulations and goals - 1) Strengthen enforcement to provide a meaningful deterrent for polluters; 2) Update state and federal water quality

standards. The federal Clean Water Act has not been significantly updated in eight years; 3) Discharge permit renewals should reflect progress toward the Clean Water Act goal of zero discharge of toxic pollutants; and 4) PBT pollution from stormwater and other non-point runoff sources must be prevented and controlled.

- Clean up historic pollution - Contaminated sediments must be cleaned up to levels that protect the most sensitive marine species in the ecosystem. Removal and treatment of contaminated sediments should be encouraged in place of capping and natural recovery methods. The Environmental Protection Agency (EPA) maintains a National Priorities List (NPL) of all known Superfund sites, including 34 located in the Greater Puget Sound region (Bain et al., 2002). Point sources for organochlorine contamination in Puget Sound include Elliott Bay, Commencement Bay, Port Hadlock, Whidbey Island Naval Air Station, Keyport Undersea Warfare Engineering Station, and the Puget Sound Naval Shipyard (Center for Biological Diversity, 2001). Regulatory agencies must determine and enforce stringent cleanup deadlines for contaminated sites.

- Inform and involve the public - Homeowners within the Puget Sound region were identified as an on-going source of new contaminants at the 2002 Orca Recovery Conference. Education about the impact of lawn and household chemicals on water quality is an important step. Businesses, environmental organizations, and government agencies must encourage the use of alternative methods to current chemical uses to insure healthy watersheds. Agencies must keep the decision-making process accessible to the public and expand involvement in review of permits and policies.

A2. Data Gaps

Limited data are available on levels of environmental contaminants in Southern Resident tissues. More research is needed in order to determine environmental trends related to the health of this stock. Because so few studies exist on the contaminant effects of Southern Residents, historical concentrations of organochlorines in their tissues are unknown. A comparative approach with populations with higher levels (i.e. Transients) and lower levels of contaminants (i.e. Northern Residents) would be productive in determining the trend of toxins (Bain et al., 2002).

Scientists should continue to test the validity of applying minimally-invasive biopsy sampling to collect data from live animals in the stock. Scientists at the 2002 Orca Recovery Conference suggested among others these approaches to this type of sampling: 1) establishing minimum size sampling criteria and developing testable hypotheses regarding effects of contaminants are necessary; 2) hormone levels measured from biopsy sampling could be used to detect for pregnancies and subsequent data would help clarify whether reproductive failure was occurring as a result of contaminant exposure; 3) other cetacean species could be used as bio-indicators to assess the magnitude of the problem (e.g. harbor porpoise); and 4) Cytochrome P450 levels measured from biopsy samples could be used to test for evidence that contaminants have been mobilized. If biopsy sampling methods are used, scientists must address legitimate concerns of putting additional stress on the Southern

Residents. Quality assurance must also be implemented to provide accurate analytical data regardless of collection method.

B. Prey Availability

The Southern Residents have specialized to consume salmon as their primary food source (Balcomb et al., 1980; Bigg et al., 1987). Mass of salmonid species ranges from 2 kg to 15 kg (Weitkamp, 2002). There is both inter- and intraspecies variation in the length of time salmonids remain in streams, their geographic and temporal distributions, and spawning times and locations.

Large salmonids are considered to be important prey species of Southern Residents. However, they are present in Puget Sound for only about six months of the year (see table below). Although current population levels are low, steelhead (Oncorhynchus mykiss) may form an important component of the diet when other salmonids are absent (Bain et al., 2002). It may be possible that Southern Residents depend on particular salmon species at particular times. Thus, a decline of the sockeye population (Oncorhynchus nerka), while not a large portion of the average diet overall, could negatively affect Southern Residents during June and July.

Southern Resident killer whale's relative dietary and temporal dependence on various salmonid species.

Common Name	Genus Oncorhynchus	% Southern Resident Diet1	Seasonal Presence in Puget Sound2
Chinook	O. tshawytscha	38	May-Sept.
Pink	O. gorbuscha	10	Aug., Sept.
Coho	O. kisutch	4	Oct.-Dec.
Chum	O. keta	4	Oct.-Dec.
Sockeye	O. nerka	3.5	June, July
Steelhead	O. mykiss	2.5	Year round3
Salmon4	Unknown	31	Unknown
Other fish	N/A	7	Unknown

1. Ford et al. 1998
2. Weitkamp, 2002
3. except May
4. Osborne, 1999

Caloric expenditure is related to activity level. When killer whales spend more time foraging to cope with prey scarcity, they need to catch more fish to balance their nutritional budget than when fish are abundant (Bain et al., 2002). Thus, Southern Resident recovery is inexorably linked to salmon recovery.

Natural stocks of salmon have become depleted in recent years. The Puget Sound chinook and the summer-run Hood Canal chum were listed as "threatened" under ESA in 1999. There also appears to be a decline in a number of other fish species. In 2001, NMFS completed a review of seven Puget Sound marine fish species for listing under ESA. Although they decided not to list six of these species, NMFS suggested that such widespread declines of multiple fish species indicate an ecosystem-scale problem of deeper concern than the decline of a single species (PSWQAT, 2002).

B1. Conservation Measures

A recovery team has been established to work with independent salmon populations to assess abundance, productivity and diversity, and to decide what would make the populations viable. The team developed general goals and a specific recovery plan. NMFS is working with local and tribal governments as co-managers. Funding and citizen support are seen as critical to success (Nobel, 2002).

Nobel (2002) also noted a full recovery of local salmon stocks is a practical impossibility. Riverine survival of many salmonids is related to flow. Human activities that affect run-off or flow can harm fish survival (Wright, 2002). Wright (2002) also pointed out populations can reach stable states that are below historical population estimates – fish stocks are managed to approximately 70-80% of their natural levels, which can also limit fish predator populations. Further, vitality (body size and overall health) is considered to be a better indicator of environmental health of fish species than population size alone, however this is not a widely available statistic.

It is not only important to recover salmon populations, but also to protect habitat in an ecosystem approach to recovery. Habitat quality assessments must include data on all habitats utilized by salmon throughout their life cycle, as well as their prey species availability. Scientists at the 2002 Orca Recovery Conference suggest protecting Cherry Point herring from oil and removing the Elwha Dam to increase salmon spawning. It is believed that Southern Residents are declining in large part due to inconsistent quantity and quality of prey species. A comprehensive, well-funded strategic plan, coordinated by government and non-governmental agency team leaders, and which involves key stakeholders and the scientific community is the best tool for orca recovery (Bain et al., 2002).

B2. Data Gaps - Killer Whale Foraging

Further research is required to expand on the limited orca feeding and foraging dataset. Scientists participating in the 2002 Orca Recovery Conference called for the following studies:

- Studies using tags which record time, depth, and video images would be valuable in determining whether feeding occurs at depth and whether the species involved are the same as those determined through scale sampling methodologies.

- Extensive analyses of fish distribution and abundance would allow testing for correlation in fish population trends and whale population trends (i.e. a high correlation indicating that fish population was an important dietary component for the whale), and allow better estimates of historical population levels.

- Determination of the year-round range of Southern Residents via passive hydrophone arrays, satellite tracking, gathering data from fishery observers, establishing sighting networks, and dedicated shipboard or aerial survey efforts. Results could then be compared to fish distributions to determine prey availability.

C. Vessel Impacts

Whale watching has increased dramatically in Washington State and British Columbia. Current estimates indicate commercial loads of 250,000 passengers per year (Osborne, 2002). This volume of traffic raises concerns about its potential to harm killer whales (Kruse, 1991; Osborne, 1991; Duffus and Dearden, 1993; Phillips and Baird, 1993; Williams et al., 1998).

It is also essential to note that the Southern Resident community frequents one of the busiest shipping highways in the world, with the ports of Vancouver and Puget Sound responsible for approximately 6000 ship transits per year. Consideration of vessel impacts on whales should by no means be restricted to vesselos

Commercial and recreational water traffic may pose a risk to the survivability of killer whales. Both Northern (Williams, 2002) and Southern (Smith, 2002) Residents have been shown to change their direction of travel (termed "horizontal avoidance") in response to an approaching vessel. Potential negative impacts of vessel traffic include the energetic cost of responses and masking effects of boat noise.
Noise generated by vessel traffic may interfere both with foraging and social communication. Northern Resident killer whales in Johnstone Strait generate high amplitude impulse sounds when chasing salmon, potentially to stun or even kill prey. These sounds range in frequency between 200-700 Hz and have an average peak frequency of 306 Hz (Marten et al., 2001), and thus have the potential to be obscured by motor noise.

Killer whale calls have a mixed-directionality, which means changes in call spectra due to signaler orientation to a receiver can provide cues as to the signaler's direction of movement (Miller, 2002). If call spectra are affected by vessel traffic (or other sources of noise), individual spacing and other coordinated behaviors which may be regulated by these calls could suffer.

Finally, noise is a factor of habitat quality that requires attention. Anthropogenic sources of noise, including offshore drilling, airguns, sonar and vessel traffic, occur at a variety of levels over a wide range of frequencies. Source levels of these sounds may exceed 240 dB re 1 uPa, but 180 dB re 1 uPa is often used as the cut-off for expectation of immediate injury (Palmer, 2002). Orcas have shown strong behavioral responses to levels as low as 135 dB re 1 uPa, suggesting the current standard of 120 dB re 1 uPa to

be most appropriate when considering noise impact (Bain et al., 2002). The noise level of boats circling killer whales in Puget Sound is considered to be very close to the critical level assumed to cause permanent hearing loss over prolonged exposure (Erbe, 2000).

C1. Conservation Measures

The Whale Watch Operator's Association Northwest (WWOAN, unpubl. data) is a group of companies dedicated to responsible wildlife viewing. With the help of leading marine mammal biologists and researchers, this organization has developed a set of voluntary guidelines for operating vessels around the Southern Residents and other wildlife, for both commercial and recreational boaters. These guidelines are appended to this document.

These Best Practices Guidelines are significantly more stringent than the laws and regulations currently in effect in both Canada and the U.S. Where a situation has not been addressed in these Best Practices Guidelines it is the intention that the prevailing regulation of the relevant jurisdiction be observed - federal Fisheries Act (Canada) and the MMPA (U.S.). Member vessel operators are required to be thoroughly familiar with sets of regulations and ensure compliance at all times, in addition to complying with these WWOA-NW Best Practices Guidelines.

Soundwatch is an educational group sponsored by The Whale Museum. They distribute information and guidelines to recreational boaters on the water and monitor compliance with the above guidelines. Soundwatch monitoring has shown to increase compliance with voluntary guidelines regarding distance (80% to over 90%) for commercial whale watchers (Smith, 2002). Monitoring is clearly an important aspect of any conservation plan, and further funding and expansion of the Soundwatch project would be beneficial to the recovery of Southern Residents.

Commercial operators could serve as an educational platform to increase awareness as well (Wright and Bennett, 2002). However, Wallace (2003) found that although this possibility exists, some commercial operators are not implementing educational strategies. It is important to note that recreational boaters and other non-commercial traffic also routinely seek out killer whale pods and could benefit from education and monitoring programs.

Scientists participating in the 2002 Orca Recovery Conference recommended the following policy statements regarding noise:

- Maximum noise exposure should be limited
- Noise exposure at levels above 120 dB re 1 uPa should still require a permit
- Duration of exposure should be taken into account
- Mechanisms for impact in addition to hearing damage and immediate injury should be considered (i.e. temporary threshold shifts, loss of habitat due to avoiding noise, and missed prey or impeded communication due to masking).
- Production of high levels of noise should be avoided in areas used by large numbers of marine mammals.

C2. Data Gaps

Although studies have focused both on Northern Residents in Johnstone Strait and Southern Residents in Haro Strait, site variability and methodologies precludes direct comparison of these results. Long-term studies of the effects of vessel traffic have been generally limited to a small portion of the killer whale's range and focus on a single behavior state, making extrapolation to broader contexts difficult (Bain et al., 2002). Scientists have suggested the following areas for further study:

- A continuation of land-based efforts to determine if current results are unduly influenced by small sample size. Tracking whales with TDR tags and velocity meters could assess underwater behavior as well.

- A comparison of the magnitude of the response to whale watching using each individual as its own control over several seasons to test for habituation or increasing tolerance of vessel traffic.

- Studies focusing on the noise generated by commercial and recreational whale watching vessels which include measuring source levels from a wide range of vessels operating at various speeds, and measurements of received levels close to whales. Ambient noise measurements would place data from these studies in the proper context.

- Ear histology and tissues bordering air spaces should be examined during stranding events for evidence of acoustic trauma.

- Noise should be monitored using calibrated recording systems and a catalog of loud noise sources should be developed containing spectra, source levels, dates, and locations.

D. Oil Spills

The A-B pod - one of the most visible and prominent resident killer whale pods in Prince William Sound in Alaska - has declined by a third since the Exxon Valdez oil spill (Dalheim and Matkin, 1994; Matkin et al., 1999). Members of this pod were observed in areas where oil was visible on the water. Although cetaceans generally do not suffer acute and/or long-term impacts from oil spills as do other marine mammals (i.e. pinnipeds and sea otters), the observations noted from Prince William Sound indicate that large spills may at least be indirectly responsible for orca population declines.

The risk of a large oil spill in the Southern Resident's habitat is high. The Puget Sound Water Quality Action Team, which monitors the status and trends of key indicators of the health of Puget Sound waters, estimates that 15 billion gallons of crude oil and refined petroleum products are transferred through the Strait of Juan de Fuca and Puget Sound annually. During the ESA status review of the Southern Resident stock, the NMFS Biological Review Team found the risk of an oil spill to be the most acute threat to their continued survival (Bain et al. 2002). The most likely impact on the Southern

Residents would be changes in the availability of food organisms as a result of a spill. Spills within Marine Protected Areas (MPAs) and other sensitive habitat areas would devastate marine resources critical to the local ecosystem that high trophic-level species such as killer whales depend on. Much like organochlorine compounds, long-term effects on benthic organisms and nearshore habitat may occur where high levels of petroleum hydrocarbon pollutants are incorporated into bottom sediments and tidal zones (Hansen 1985).

D1. Conservation Measures
Participants at the 2002 Orca Recovery Conference concurred that this was one factor that could be easily addressed. The state of Washington currently maintains a rescue tugboat at Neah Bay on the outer coast for prevention of oil spills from disabled vessels, but this tugboat is currently funded for only 200 days of service annually (PSWQAT, 2002), and a permanent source of funding has not been indentified. Additional funding for this rescue tug boat is needed to provide service 365 days.

NMFS must coordinate oil spill containment and emergency response measures with the U.S. Coast Guard and Canadian authorities. The Prince William Sound Regional Advisory Committee provides a model established in the Oil Pollution Act of 1990 (OPA '90) that should be replicated in other areas with large ports such as Puget Sound (Bain et al., 2002). The use of penalties is an effective incentive to maintain safe practices.

D2. Data Gaps
There currently is a collaborative effort by local and state agencies to inventory marine shoreline resources and nearshore habitats. Shorelines that would be most sensitive to an oil spill should be determined. A classification method should be used based on a particular shoreline or habitat's sensitivity to an oil spill. Appropriate shoreline cleanup methods that are the most effective in the event of a spill also need to be established.

III. Other Factors

Entanglement due to fishing gear appears to be insignificant in the decline of the Southern Resident killer whale population. A few gear entanglements have been reported in British Columbia waters (Center for Biological Diversity, 2001). Incidental mortality in fisheries through accidental entanglement in fishing gear appears to be rare for this species. Observer programs in the northern Washington marine set gillnet fishery and Puget Sound region salmon gillnet fisheries of the 1990s did report encounters with Southern Resident whales, but no entanglements or mortalities were observed (NMFS, 2001). Few data exist concerning the mortality of marine mammals incidental to Canadian commercial fisheries. Conservation measures would include increased vessel patrols to remove fishing gear and floating nets from within the Southern Resident's habitat and additional funding from the National Oceanic and Atmospheric Administration (NOAA) and the Northwest Straits Commission to continue to support efforts for the removal of derelict fishing gear in the Strait of Juan de Fuca and Puget Sound.

Habitat loss and degradation from human development are major threats to the health of marine species in Puget Sound and southern British Columbia waters. Marine nearshore and waterfront development alters shoreline geophysical processes and affects habitat for forage fish species, an important component in the diet of salmonids. Habitat restoration has become a key element in the recovery of local salmon stocks. Modifications to shorelines (e.g. overwater structures) also affect the distribution and abundance of eelgrass beds. Eelgrass beds are critical to the local food web, providing home to micro/macrobenthos and protection and foraging areas for migrating salmonids. Local and state agencies should provide incentives to commercial and private property landowners who modify their projects in ways that restore and protect the marine nearshore environment.

Invasive species could have devastating ecosystem impacts. These species threaten native species and are considered nuisances. Spartina infestations are concentrated in northern and central Puget Sound and can alter nearshore habitat. Funding from the Washington State Department of Agriculture and partners must be sufficient to eliminate these infestations. Ballast water, hulls, and anchor chains from vessels should be inspected for invasive organisms. Rapid response plans to stop invasive species should be developed (Bain et al., 2002).

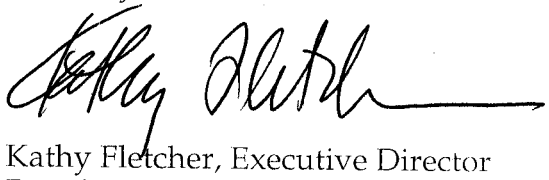
IV. Conclusion

We believe that the Proposed Rule to designate the Eastern North Pacific Southern Resident stock of killer whales (Orcinus orca) as depleted under the Marine Mammal Protection Act (MMPA) is warranted. The current population size of this stock meets the statutory definition of a depleted stock, as defined by NMFS, because it has fallen below the lower bound of the established MNPL range. Once designated as depleted, ves a conservation plan should be immediately developed by NMFS to restore the health and recovery of this population.

We also urge NMFS immediately to issue a Proposed Rule to designate the Southern Resident stock as either threatened or endangered under ESA. In Canada, the Committee on the Status of Endangered Wildlife recently listed the Southern Resident stock as "threatened" (Center for Biological Diversity, 2001). While a depleted listing under MMPA may provide the basis for development of a conservation plan, it will not sufficiently provide for the recovery of this trans-boundary stock of killer whales.

Thank you for the opportunity to provide written comments on this Proposed Rule.

Sincerely,



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V. References

Bain, D.E., W. Anderson, F. Felleman, M. Harris, and P. Higgins (eds.). 2002. Orca Recovery Conference Report. University of Washington, Seattle, WA. May 31-June 2, 2002.

Balcomb, K.C., J.R. Boran, R.W. Osborne, N.J. Haenel. 1980. Observations of killer whales (Orcinus orca) in Greater Puget Sound, State of Washington, NTISPB80-224728, U.S. Department of Commerce, Springfield, VA.

Becker, P.R., D. Wilkinson, and T.I. Lillestolen. 1994. Marine mammal health and stranding response program: program development plan. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-OPR-94-2. 35 pp.

Bigg, M.A., G.M. Ellis, J.K.B. Ford, K.C. Balcomb. 1987. Killer whales: a study of their identification, genealogy, and natural history in British Columbia and Washington State. Phantom Press, Nanaimo, B.C.

Borrell, A. and A. Aguilar. 1990. Loss of organochlorine compounds in the tissues of a decomposing stranded dolphin. Bulletin of Environmental Contamination and Toxicology 45: 46-53.

Calambokidis, J., S. Jeffries, P. Ross, and M. Ikonomou. 2001. Temporal trends in Puget Sound harbor seals. Puget Sound Research Proceedings, 2001, Seattle, WA.

Center for Biological Diversity. 2001. Petition to list the southern resident killer whale (Orcinus orca) as an endangered species under the Endangered Species Act. 108 pages. Center for Biological Diversity, Berkeley, CA.

Center for Whale Research, 1359 Smugglers Cove Rd., Friday Harbor, WA 98250.

Cockcroft, V.G, A.C. Decock, D.A. Lord and G.J. B. Ross. 1989. Organochlorines in bottlenose dolphins Tursiops truncatus from the east coast of South Africa. South Africa Journal of Marine Science 8: 207-217.

Collier, T.K., L.L. Johnson, C.M. Stehr, M.S. Myers, and J.E. Stein. 1998. A comprehensive assessment of the impacts of contaminants on fish from an urban waterway. Marine Environmental Research 46 (1-5): 243-247.

Dalheim, M.E., and C.O. Matkin. 1994. Assessment of injuries to Prince William Sound killer whales. Pp 163-171 in Marine Mammals and the Exxon Valdez Oil Spill (ed. T.R. Loughlin). Academic Press, San Diego, New York.

Duffus, D.A. and P. Dearden. 1993. Recreational use, valuation, and management of killer whales (Orcinus orca) on Canada's Pacific Coast. Environmental Conservation 20:149-156.

Erbe, C. 2000. Underwater noise of whale watching boats and its effects on marine mammals. IWC Scientific Report SC/52/WW11, presented to the Workshop on

Assessing the Long-term Effects of Whale Watching on Cetaceans, International Whaling Commission, 12-13 June, 2000, Adelaide, Australia.

Ford, J.K.B., G.M. Ellis, L.G. Barrett-Lennard, A.B. Morton, R.S. Palm, K.C. Balcomb. 1998. Dietary specialization in two sympatric populations of killer whales (Orcinus orca) in coastal British Columbia and adjacent waters. Canadian Journal of Zoology 77: 2000.

Hansen, D.J. 1985. The potential effects of oil spills and other chemical pollutants on marine mammals occurring in Alaskan waters. OCS Report MMS 85-0031, US. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region, Anchorage, Alaska.

Hayteas, D.L. and D.A. Duffield. 2000. High levels of PCB and p,p-DDE found in the blubber of killer whales (Orcinus orca). Marine Pollution Bulletin 40(6): 558-561.

Jarman, W.M., R.J. Nordstrom, D.C.G. Muir, B. Rosenburg, M. Simon, R.W. Baird. 1996. Levels of organochlorine compounds including PCDDs and PCDFs in the blubber of cetaceans from the west coast of North America. Marine Pollution Bulletin 32: 426-436.

Kruse, S. 1991. The interactions between killer whales and boats in Johnstone Strait, B.C. In Dolphin Societies (eds. K. Pryor and K.S. Norris). University of California Press, Berkeley, CA.

Marten, K., D. Herzing, M. Poole, K.N. Allman. 2001. The acoustic predation hypothesis: linking underwater observations and recordings during odontocete predation and observing the effects of loud impulsive sounds on fish. Aquatic Mammals 27(1): 56-66.

Martineau, D., P. Beland, C. Desjardins, and A. Lagace. 1987. Levels of organochlorine chemicals in tissues of beluga whales (Delphinapterus leucas) from the St. Lawrence Estuary, Quebec, Canada. Archives of Environmental Contamination and Toxicology 16: 137-147.

Matkin, C.O., G.M. Ellis, P. Olesiuk, and E.L. Saulitis. 1999. Association patterns and genealogies of resident killer whales (Orcinus orca) in Prince William Sound, Alaska. Fishery Bulletin 97:900-919.

Miller, P.J.O. 2002. Mixed-directionality of killer whale stereotyped calls: a direction of movement cue? Springer-Verlag, New York.

Myers, M.S., L.L. Johnson, T. Hom, T.K. Collier, J.E. Stein, and U. Varanasi. 1998. Toxicopathic hepatic lesions in subadult English sole (Pleuronectes vetulus) from Puget Sound, Washington, USA: relationships with other biomarkers of contaminant exposure. Marine Environmental Research 45(1): 47-67.

National Marine Fisheries Service (NMFS). 2001. Stock Assessment Report: Killer Whale (Orcinus orca): Eastern north pacific southern resident stock. Office of Protected Resources.

Nobel, J. 2002. Endangered Species Act strategies and salmon restoration. Pg. 4 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

Osborne, R.W. 1991. Trends in killer whale movements, vessel traffic, and whale watching in Haro Strait. Puget Sound Research Proceedings 1991, Seattle, WA.

Osborne, R.W. 1999. A historical ecology of Salish Sea "Resident" killer whales (Orcinus orca): with implications for management. Ph.D. dissertation, Department of Geography, University of Victoria.

Osborne, R. 2002. The history of whale watching on Southern Residents. Pg. 13 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

Palmer, M. 2002. LFA Sonar. Pg. 17 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

Phillips, N.E. and R.W. Baird. 1993. Are killer whales harassed by boats? Victoria Naturalist 50(3):10-11.

Puget Sound Water Quality Action Team (PSWQAT). 2002. Puget Sound's Health 2002. Office of the Governor, State of Washington.

Reijnders, P.J.H. 1986. Reproductive failure in common seals feeding from polluted coastal waters. Nature, London 324: 456-457.

Ross, P.S., G.M. Ellis, M.G. Ikonomu, L.G. Barrett-Lennard, R.F. Addison. 2000. High PCB concentrations in free ranging Pacific killer whales, Orcinus orca: effects of age, sex, and dietary preferences. Marine Pollution Bulletin 40: 504-515.

Schmidt, M. and P. Johnson. 2001. Toxics in the Puget Sound food web. A report by People For Puget Sound.

Smith, J. 2002. Effects of whale watching on Southern Residents. Pg. 13 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

Wallace, R.L. 2003. Social influences on conservation: Lessons from U.S. recovery programs for marine mammals. Conservation Biology 17(1):104-115.

Weitkamp, L. 2002. The status of fish stocks in the Pacific Northwest. Pg. 4 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

Whale Watch Operators Association Northwest (WWOAN), P O Box 2404, Friday Harbor, WA, 98250, email:info@nwwhalewatchers.org, website: www.nwwhalewatchers.org.

Williams, R.M., A.W. Trites, and D.E. Bain. 1998. Interactions between boats and killer whales (Orcinus orca) in Johnstone Strait, B.C., Canada. Page 149 in Abstracts of the World Marine Mammal Science Conference, January 1998, Monaco.

Williams, R. 2002. Effects of vessel traffic on Northern Resident behavior. Pg. 13 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

Wright, B. and M. Bennett. 2002. Research, education, and conservation activities of WWOANW. Pg. 13 in Orca Recovery Conference Report (eds. D.E. Bain, W. Anderson, F. Felleman, M. Harris, P. Higgins) University of Washington, Seattle, WA. May 31-June 2, 2002.

VI. Guidelines for Operation of Vessels in the Vicinity of Resident Killer Whales

1) A vessel shall approach an area of known or suspected whale activity with extreme caution.
2) A vessel within 1/2 mile (880 yards) of a whale is considered to be in the vicinity of whales and is required to abide by all of these Best Practices Guidelines as are relevant.
3) If a vessel operator is unaware of the whales' location he must maintain a vigilant watch for whales at all times. Mere observation of whale watching vessels in the distance does not fulfill this responsibility as individual whales may be encountered anywhere and at any time. Maintaining a vigilant watch often includes significant speed reductions.
4) A vessel approaching the vicinity of whales - within 1/2 mile (880 yards) of a whale - is considered to be in the slow-down zone and must gradually reduce speed such that vessel speed is no more than 7 knots at 1/4 mile (440 yards) off or closer. This speed transition shall also be observed when disengaging the vicinity of whales.
5) As the vessel approaches, the distribution of whales and the positioning of other viewing vessels should be surveyed. Communication with other member vessels is strongly encouraged at this point (on the designated marine radio frequency.
6) A vessel approaching the vicinity of whales from ahead must apply the Stop & Wait Viewing Sequence once inside 1/2 mile (880 yards) of the nearest whale or within 1/4 mile (440 yards) of a vessel maintaining its priority sequence and waiting for the whales to arrive.
7) A vessel approaching the vicinity of whales from behind must apply the Parallel Viewing Sequence once inside 1/2 mile (880 yards) of the nearest whale or within 1/4 mile (440 yards) of a vessel maintaining its priority paralleling sequence. A vessel may disengage the area to reposition at any time (See Parallel Viewing Sequence).

8) A vessel approaching the vicinity of whales from the side must apply the Parallel Viewing Sequence once inside 1/2 mile (880 yards) of the nearest whale or within 1/4 mile (440 yards) of a vessel maintaining its priority paralleling sequence. A vessel may disengage the area to reposition at any time (See Parallel Viewing Sequence).

Parallel Viewing Sequence:

9) A vessel approaching the vicinity of whales from behind or from the side must apply the Parallel Viewing Sequence once inside 1/2 mile (880 yards) of the nearest whale or within 1/4 mile (440 yards) of a vessel maintaining its priority paralleling sequence. A vessel may disengage the area to reposition at any time.

10) When approaching a whale or a group of whales from behind or from the side the vessel operator must ensure his vessel moves to the outside of the nearest group of whales, and outside the vessels already accompanying these whales, and head in a direction parallel to the direction these whales are traveling, maintaining existing view angles of all vessels previously on scene.

11) Vessels in more favorable positions should limit their time in that position to 15 minutes and then allow other vessels engaged in viewing that more favorable position.

12) Vessels should stay to the outside of the whale(s) they are watching, maintaining the vessel on the ocean (deep-water) side of the whales farthest away from shore.

13) Vessels should travel in a direction parallel to the direction the whales are traveling, maintaining a minimum distance of 100 yards (300 feet), 100 meters (328 feet) when in Canadian waters.

14) A vessel's speed should be the same as the whale's speed or slower. However, when traveling slower than the speed of the whales, a vessel relinquishes its priority sequence. This technique is generally used to disengage the vicinity of whales when the intention is to break away and return to port.

15) A vessel approaching the vicinity of whales from ahead must apply the Stop & Wait Viewing Sequence once inside 1/2 mile (880 yards) of the nearest whale or within 1/4 mile (440 yards) of a vessel maintaining its priority sequence and waiting for the whales to arrive.

Stop & Wait Viewing Sequence:

16) A vessel approaching a whale or group of whales from the side or from behind may apply the Stop & Wait Viewing Sequence but only if it does not engage in viewing, namely maintains a minimum distance of 1/2 mile (880 yards) from the nearest whale and the nearest whale watching vessel and moves to approach the whales from ahead (see above).

17) When approaching a whale or a group of whales from ahead the vessel operator must ensure his vessel enters the sequence of viewing vessels such that all other vessels on scene prior to his vessel will all be afforded a viewing opportunity prior to his vessel, given that the current course of

the whales at the particular time is extrapolated on the whale's most likely course. Once the vessel is in viewing sequence, it must stop, shut down engines and allow the whales to travel toward the vessel, if they so choose. The Master of an inspected and certified vessel is provided with limited latitude - shut down of engines is not required only if the Master of an inspected and certified vessel has sufficient safety or seamanship reasons to avoid shutdown of main and auxiliary engines.

18) A vessel engaged in the Stop & Wait Viewing Sequence may have whales approach inside 100 yards (300 feet) only if it has followed all relevant procedures.

19) Each whale in the vicinity must be allowed to pass a minimum of 1/8 mile (220 yards) before restarting engines.

20) Repositioning is most relevant to vessels utilizing the Stop & Wait Viewing Sequence. To reposition a vessel must disengage the vicinity of whales by allowing each whale in the vicinity to pass a minimum of 1/8 mile (220 yards) before restarting engines. The vessel then proceeds on a course perpendicular to the current course of the particular whales at a maximum speed of 7 knots until it is at least 1/4 mile (440 yards) away from the nearest whale after which point it can make the speed transition until it is at least 1/2 mile (880 yards) away from the nearest whale after which point it is not in the vicinity of whales. This is the minimum required buffer zone and, in addition, the vessel must be outside and behind any other vessel engaged in a similar maneuver, maintaining its current priority sequence. At this point the vessel is able to engage in viewing and able to employ either viewing sequence.

21) A vessel within 1/2 mile (880 yards) of a whale is considered to be in the vicinity of whales.

22) A vessel within 1/4 mile (440 yards) of a whale is considered to be in the vicinity of whales and engaged in viewing.

At All Times in the Vicinity of Whales:

23) It is incumbent on the vessel operator to be able to recognize resting behavior.

24) A vessel shall not approach a resting whale from behind, leaving a minimum clearance of 1/8 mile (220 yards).

25) A vessel shall not approach a resting whale from ahead or be ahead of resting whales while in the vicinity of whales.

26) A vessel in the vicinity of a resting whale shall always employ the Parallel Viewing Sequence. The Stop & Wait Viewing Sequence shall not be utilized at anytime when whales are resting in the vicinity, unless the vessel is maneuvered in such a manner that the nearest whale passes the vessel a minimum of 100 yards (300 feet), 100 meters (328 feet) when in Canadian waters.

27) A vessel in the vicinity of a foraging or feeding whale shall employ the Stop & Wait Viewing Sequence. The Parallel Viewing Sequence shall not be utilized at anytime when whales are feeding or foraging in the vicinity.

28) Whenever a vessel is upwind of and in the vicinity of a whale, engine exhaust emissions are to be minimized, either by shutting down one or more main and auxiliary engines.

29) A vessel shall limit its cumulative time in the vicinity of whales on any one tour to a maximum of 33% of the scheduled tour length. For a 3-hour tour this is a maximum of 1 hour spent in the vicinity of whales. Vessels should further limit the amount of time in the vicinity of whales on days when there are a large number of vessels with the animals. On these occasions vessels should spend more of their tour observing other marine wildlife (birds, porpoises, seals, etc.) in other locations.

30) A vessel shall not leapfrog, that is to repeatedly maneuver to intercept the course of the whales. Vessels are, however, able to disengage the vicinity of whales and subsequently re-engage the vicinity of whales.

31) All sonar, depth sounders, fish finders and other underwater transducers should be shut off whenever a vessel is in the vicinity of whales.

32) Vessels shall ensure a boat-free foraging zone for the whales when they are near shore by maintaining a position seaward of the whales and not positioning within 1/8 mile (220 yards) of any shoreline when whales are in the vicinity.

33) A vessel's speed shall never exceed 30 knots when it is within 1/2 mile (880 yards) of any shoreline at any time during a tour.