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Final Report – NA04NMF4390016

Cetacean stranding response in Washington with special attention to gray whales and harbor porpoise

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Abstract

Cascadia responded to 81 cetacean strandings of at least 11 species during the grant period. These documented the post UME rate of mortality in gray whales which showed low levels of mortality in the years immediately following a major mortality event in 1999-2000 but which was slightly elevated above average in 2005 and 2006. We documented a continued occurrence of fin whale mortalities related to ship strikes. An Unusual Mortality Event of harbor porpoise was documented during the grant period and has continued through the end of the grant. Contaminant analyses revealed higher levels of chlorinated hydrocarbons in odontocetes compared to baleen whales and were generally highest in harbor porpoise although these are not implicated as a cause of the UME.

Executive Summary

The primary goal of the project was to improve stranding response to cetaceans in Washington State and to collect more detailed information on health, contaminant, human impacts, and stock structure for a variety of cetacean species. Special attention was given to the post-UME monitoring of gray whales and the recovery of harbor porpoise for genetic and contaminant samples. Harbor porpoise examinations became even more detailed when a UME was declared during 2006 for Washington and Oregon.

In addition to stranding response, we improved our ability to store stranding and necropsy data, catalog and manage samples, and generate reports by creating a relational Access database for our current and archived stranding data. We also purchased new freezers to accommodate the increase in samples collected and archived for analysis.

We have continued to work closely with collaborators at WDFW, BC Ministry of Agriculture, and NMFS Montlake Labs (NWFSC) and have established and maintained excellent working relationships with these agencies. Many of the large whale examinations were conducted jointly with WDFW and BC Ministry of Agriculture, and a number of the small cetaceans were worked up with biologists from WDFW.

In total we responded to 81 cetacean strandings from 2004 through 2007. We investigated all reports of large whales (34 total) throughout the state during this time period; these included 25 gray whales, 2 fin whales, 2 humpback whales, 1 minke whale, 1 pygmy sperm whale, 1 killer whale, 1 sperm whale and one *Kogia* (subspecies unknown). The majority of small cetaceans examined were harbor porpoises; though we also responded to two common dolphins, one Dall's porpoise, one Pacific white-sided dolphin, and one Dall's/harbor porpoise hybrid.

Ship strikes were the primary cause of death of fin whales which have shown in clustered periods in many cases brought in on the bow of ships. Gray whales went through a major mortality event ion 1999 and 2000 and initially showed low levels of mortality in the subsequent years (2001 to 2004). Rates of strandings in Washington State have since increased peaking in 2005 but were still below levels seen in 1999 and 2000.

Contaminant analyses of some of these samples conducted by NWFSC revealed highest levels of organic pollutants in small cetaceans and toothed whales and lower levels in the baleen whales. Higher levels of some metals and trace elements were also higher in odontocetes compared to baleen whales.

Results from the activities in this grant have been presented at scientific symposia as well as in peer reviewed literature with additional publications planned. There has also been a close collaboration with other network members including development of a consistent database.

Project goals and objectives

The primary goal of the project was to enhance response to cetacean strandings in Washington State and obtain more detailed information on contaminants, health status and stock structure for harbor porpoise and gray whales. Specific objectives included:

1. Obtain more detailed information from cetacean strandings in Washington State.
2. Obtain information to better understand gray whale strandings in these post-unusual mortality event years; including sample collection and examination of live gray whales in areas of Puget Sound associated with strandings in the past.
3. Obtain additional samples and data necessary for determining stock structure of harbor porpoise using genetics and contaminant ratios in tissues of new and archived stranded animals including information on health effects.
4. Improve our stranding information database and facilities for handling and archiving samples.

Description of work and accomplishments

Research was conducted on several fronts under this project, including: 1) post-UME monitoring of gray whales through stranding response; 2) increased sample collection for human impacts, pathology, genetics, life history and contaminants from small cetaceans on the Washington outer coast and Southern Puget Sound and large cetaceans statewide; 3) evaluation of live gray whales reported in unusual areas or at unusual times of year; 4) contaminant analysis of archived and new cetacean samples; and 5) development of a cohesive stranding database for our historic and current stranding and necropsy data. These are discussed in detail in different sections below.

In total we responded to 81 cetacean strandings from 2004 through 2007 (Table 1, Appendix Table A1); however, stranding response activities in 2004 and 2005 were covered under a previous Prescott grant (NA04NMF4390116). We investigated all reports of large whales (34 total) throughout the state during this time period; these included 25 gray whales, 2 fin whales, 2 humpback whales, 1 minke whale, 1 pygmy sperm whale, 1 killer whale, 1 sperm whale and one *Kogia* (subspecies unknown). The majority of small cetaceans examined were harbor porpoises; though we also responded to two common dolphins, one Dall's porpoise, one Pacific white-sided dolphin, and one Dall's/harbor porpoise hybrid.

Table 1. Summary of strandings of cetaceans in Washington State that Cascadia Research responded to from 2004 through 2007. This reflects all strandings of large cetaceans in the state, and only the small cetacean strandings in which Cascadia participated in the response or examination.

	Year				
Species	2004	2005	2006	2007	Totals
Common Dolphin, unk subspecies	0	0	1	0	1
Common Dolphin, Short-Beaked	0	0	1	0	1
Dall's Porpoise	0	1	0	0	1
Fin Whale	0	0	2	0	2
Gray Whale	2	11	8	4	25
Harbor Porpoise	2	7	17	16	42
Humpback Whale	1	0	1	0	2
Hybrid, Dall's/Harbor Porpoise	0	0	0	1	1
Killer Whale	0	0	0	1	1
Kogia, subspecies unknown	0	0	0	1	1
Minke Whale	0	0	1	0	1
Pacific White-Sided Dolphin	0	0	1	0	1
Pygmy Sperm Whale	0	1	0	0	1
Sperm Whale	0	0	0	1	1
Totals	5	20	32	24	81

Cascadia acted as the lead responder in large whale strandings; coordinating a number of agencies (including WDFW, Central Puget Sound Stranding Network, NMFS, Raverty) in the cooperative response and examination of stranded animals, particularly those in fresh condition. We also took the lead in response and examination of all small cetaceans stranded on the outer coast and south Puget Sound and provided response assistance and necropsy expertise to other local stranding networks on several harbor porpoise strandings in the northern Puget Sound and the Strait of Juan de Fuca. The rapid response facilitated by this grant allowed for the recovery of animals in fresher condition and more thorough internal and external examinations in many cases. Samples from most of these cases have been processed and cause of death has been categorized and tallied (Table 2). Cause of mortality was undetermined for more than half of the cetaceans examined (41 of 81) due to carcass condition or lack of significant pathological or gross findings. Where cause of death could be determined, human interaction and infectious or parasitic agents were the most common findings, resulting in mortality in 11 and 12 cases, respectively. Other causes included trauma of natural origin (7), nutritional or metabolic (2), and perinatal mortality (6). Results are pending for two other cases.

Some of the specific patterns of stranding and causes of death for some of the cetaceans examined are described in more detail below. This includes some of the results of tests on tissues including contaminants.

Table 2. Cetacean cause of death based on gross examination and/or pathology results.

Species	Cause of Death Category								Totals
	Ship Strike	Fishery Interaction	Accident/Trauma (natural)	Infectious/ Parasitic	Nutritional/ Metabolic	Perinatal/Abortion (calf or mother)	Undetermined	Results Pending	
Common Dolphin, unk subspecies	0	0	0	0	0	0	1	0	1
Common Dolphin, Short-Beaked	0	0	0	1	0	0	0	0	1
Dall's Porpoise	0	0	0	1	0	0	0	0	1
Fin Whale	2	0	0	0	0	0	0	0	2
Gray Whale	1	2	2	1	2	0	17	0	25
Harbor Porpoise	0	5	5	8	0	5	18	1	42
Humpback Whale	1	0	0	0	0	0	1	0	2
Hybrid, Dall's/Harbor Porpoise	0	0	0	0	0	0	1	0	1
Killer Whale	0	0	0	0	0	0	1	0	1
Kogia, subspecies unknown	0	0	0	0	0	0	1	0	1
Minke Whale	0	0	0	0	0	0	1	0	1
Pacific White-Sided Dolphin	0	0	0	1	0	0	0	0	1
Pygmy Sperm Whale	0	0	0	0	0	1	0	0	1
Sperm Whale	0	0	0	0	0	0	0	1	1
Totals	4	7	7	12	2	6	41	2	81

Gray whales

Gray whales were the most frequently reported stranded large cetacean in Washington State. Cascadia responded to 25 reports of stranded gray whales; these encompassed all gray whale strandings for the state. In the years following the 1999-2000 gray whale unusual mortality event (UME), the numbers of strandings in Washington have remained low; mortalities increased again in 2005 and 2006. Though not nearly to the levels reached during the UME, the 2005 total of 11 strandings in Washington was the 2nd highest since 1977 other than the 1999-2000 mortality event (Figure 1). When cause of death could be determined it included a variety of factors including ship strike, fishery interaction, other trauma, and starvation (Table 2).

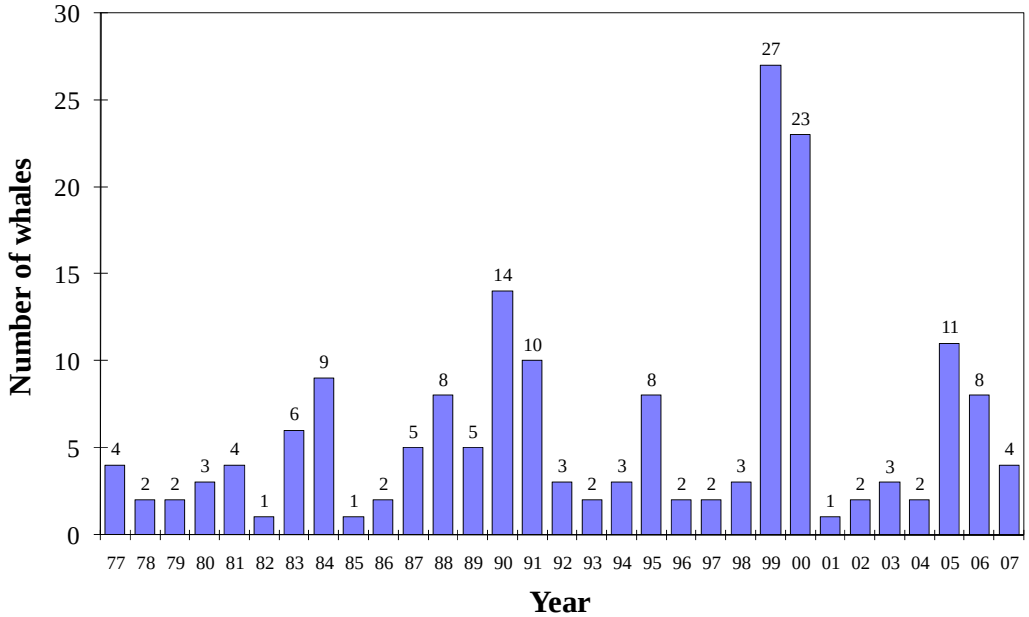

Figure 1. Gray whale strandings in Washington State, 1977-2007.

Fin Whale Ship Strikes

Two fin whales were reported dead and examined in 2006, both killed by ship strikes. Examination of a dead fin whale that washed up in Lummi Bay on 14 May 2006 revealed that the animal had been struck while alive by a ship and this had been the cause of death. A team of over a dozen scientists, students, and a veterinary pathologist coordinated by Cascadia Research conducted the examination with the help of members of the Lummi Nation. The participants were members of the Northwest Marine Mammal Stranding Network authorized by NMFS to respond to strandings and included members from Cascadia Research, Washington Department of Fish and Wildlife, and the British Columbia Ministry of Agriculture and Food. The team concluded the cause of death was a result of ship strike due to the presence of both external and internal injuries (bruising and hemorrhaging) to the right side of the animal consistent with a large blunt trauma, internal bleeding, and the otherwise good condition of the animal.

The second fin whale was reported floating at the Port of Everett and was examined on 9 November 2006 and was a juvenile male fin whale that was likely killed and brought into the area by a ship. The whale had also been entangled and was in poor condition even before it was struck. The whale was very decomposed and had likely been dead for a week or more at the time of the examination. While the initial report of the whale was on 8 November, the whale had probably been there for a number of days since workers reported first smelling something bad coming from under the pier adjacent to where the whale was first seen several days before sighting the animal. Examination of the whale revealed it had been entangled in rope that had cut deep grooves into the side of its jaw and likely had prevented it from opening its mouth. The condition of the injuries and the extensive growth on the rope indicated it had been in the water and entangling the whale for many weeks or months. The presence of hemorrhaging around the entanglement injuries confirmed these had occurred prior to death and not been picked up during the period the dead whale floated around. The whale had a very thin blubber layer (2-4 cm, 1-2 inches) with relatively little oil in it. This was likely the result of being unable to feed for some time. Additionally, the whale also appeared to have been struck by a large object while alive based on external markings and hemorrhaging underneath the blubber layer just behind the head. These injuries, the discovery of the whale at an active port away from areas fin whales are seen alive, and the history of fin whale strandings in Washington all indicate this was likely an animal struck by a ship and dragged into this area on the bow of the boat.

These represent the 4th and 5th fin whales since 2002 to have stranded in Washington State, all of these apparently as a result of ship strikes. Fin whales are known to be vulnerable to impact due to their large size and feeding near the surface. In 2002, three fin whales were recovered in Puget Sound that had died as a result of ship strikes (Douglas et al. 2008). Two of these came into the Sound wrapped around the bows of ships, one of these on the bow of a tanker arriving at Cherry Point, only a few miles north of where the current fin whale was first spotted.

Other Large Cetaceans

Other large cetaceans examined during the grant including sperm whales, minke whale, and humpback whale (Table 1). One of these was a more unusual case of a minke whale that came ashore alive then died. The minke whale live stranded on the afternoon of August 23, 2006 in

Little Skookum Inlet, in the south end of Puget Sound, near Shelton, Washington. Local residents had seen the whale swimming in the inlet all morning, and shortly after noon the whale appeared to deliberately beach itself on a shell-covered mud bank. A team from Cascadia Research was immediately dispatched, but the whale had died before they arrived on the scene. Biologists from Cascadia Research and the Washington Department of Fish and Wildlife conducted the necropsy on August 24, 2006. The stranded minke whale was a 6.92 m (22'8") sub-adult female. The animal was in fair physical condition and appeared to have been feeding within the last week, although likely not within the last couple of days. Apart from injuries sustained during the stranding, there were no external signs of trauma. Based on the internal examination of the lungs, during the stranding the whale had been lying on its side and had inhaled debris from the beach, which may have resulted in death. A variety of tissues were collected for genetics, contaminants, histopathology and food habit analysis. The pathology report has been received but there were no significant findings. The cause of death thus far remains undetermined.

Harbor Porpoise

In 2006, we documented a significant increase in harbor porpoise strandings on the outer coast of Washington. We responded to 17 stranded harbor porpoises in 2006 alone (Table 1), many of which were neonates and yearlings. Similar increases were noted throughout Washington and Oregon by other stranding response groups (Figure 2), and an Unusual Mortality Event was declared for the Northwest region in late 2006. We responded to another 16 stranded porpoises in 2007, and the UME has remained open into 2008. We increased efforts to recover fresh carcasses to collect full suites of samples whenever possible, and provided other stranding network members with response assistance and necropsy expertise. Through external examinations and histopathology, we have documented several cases of fisheries interaction, Toxoplasmosis, and Crypotococcosis. Genetic and contaminant samples have been collected from all animals examined; skin samples have been submitted to SWFSC for genetic analysis.

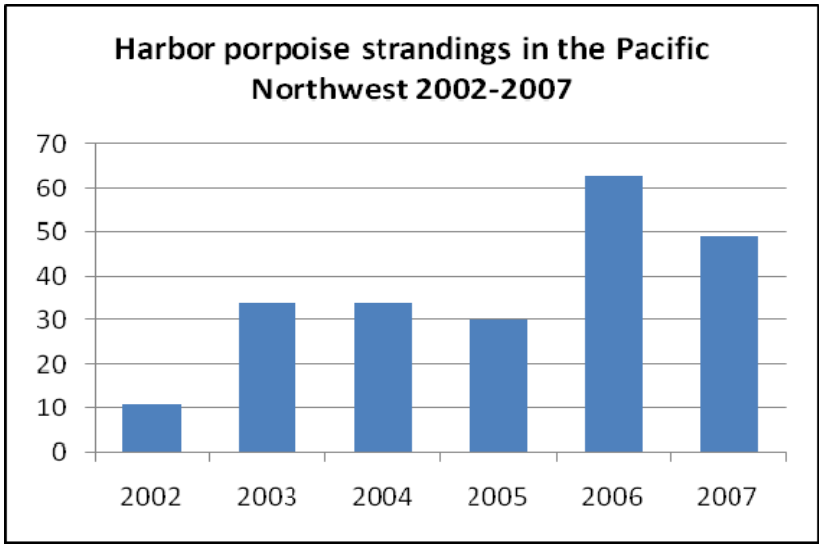

Figure 2. Harbor porpoise strandings in Washington and Oregon, 2002-2007

Harbor porpoise in South Puget Sound

Harbor porpoise are common in the northern Puget Sound, Strait of Juan de Fuca, and on the Washington outer coast. They used to be common in southern Puget Sound prior to the 1950s, but south Puget Sound sightings have been rare since the 1970s. We received several reports from south Puget Sound during the summer and fall of 2007 that matched the description of harbor porpoise and received photos that provided confirmation for one sighting. Surveys we conducted did not locate any of these animals. In late 2007, three harbor porpoise were recovered from southern Puget Sound, including one likely Dall's/harbor porpoise hybrid. Two of the porpoises showed signs of net entanglement (confirmed as likely cause of death in the fresher animal by histopathology). While it is encouraging that harbor porpoise may be attempting to return to part of their former range, the high mortality given the likely small numbers that were in the area indicates human interactions may limit this possible recovery.

Contaminant Analysis

Contaminant analyses of 51 blubber samples from 48 stranded and 3 live biopsied cetaceans were conducted by Northwest Fisheries Science Center (Tables 3 and 4). Part of the funding for this was under this Prescott proposal except going directly to NWFSC through an inter-agency transfer. Samples analyzed included 9 species and while most were from 2002-2006, some historical samples of interest going back to 1987 were also analyzed. Results by species for principal groups of contaminants are summarized below (Table 3). A number of broad species-related patterns were apparent from the data:

1. The five species of Odontocetes (incl. common dolphin, harbor porpoise, sperm whale and Baird's and Cuvier's beaked whales) had higher concentrations of most contaminants than the four species of baleen whales examined (gray whales, minke whales, fin whale, and humpback whale). This is consistent with the general patterns that have been noted in other areas where baleen whales have lower concentrations primarily by virtue of their feeding lower on the food chain often away from coastal areas near contaminant sources (O'Shea and Brownell 1994).
2. Highest concentrations of all contaminants except total DDTs were found in harbor porpoise, all of which were from the outer coast.
3. Highest average and single concentrations of total DDTs were found in Baird's beaked whale. The two different Baird's beaked whales had very divergent levels, however, with the known female having dramatically lower levels of most contaminants (110 ng/g total DDT for example) than the unknown sex animal (35,000 ng/g total DDT). This could make sense if the other animal was a male (sex was not able to be determined in the field and genetic tests of sex are not available at this time). Both had high levels of lipids (88 and 91%) so emaciation does not appear to be a factor in the elevated levels.
4. Gray whales were the most extensively analyzed species (29 samples) consistent with past results, levels of contaminants were fairly low in gray whales and many of the animals had very low levels of lipids (14 of 29 with <10% lipids in the blubber), including three based on biopsy of live animals in Puget Sound and the San Juan Islands. Highest lipid levels were in a gray whale that died in December 2005 near Marrowstone Island and represented one of the few animals that would have died right after the feeding season.

5. The emerging contaminant PBDE was found in all but one of the small cetaceans and toothed whales but only half of the baleen whales. Levels in small cetaceans were higher than in any group similar to the results for other contaminants.
6. A minke whale that washed up at Bainbridge Island in 1987 had some of the highest contaminant levels of any of the baleen whales, potentially reflecting the more coastal nature of this species and the potential that it was an animal that more regularly fed near contaminated areas.

Table 3. Contaminant results from analyses conducted by NWFSC on cetaceans collected by Cascadia Research. Unless otherwise noted, values are means in ppm (ng/g, wet weight).

								PBDEs	
Species	Region	n	Lipids	CHLDs	tDDTs	tHCHs	t40CBs	>LOQ	Mean
Baird's beaked whale	OC	2	89%	194	17,555	83	3,588	1	170
common dolphin	OC	1	48%	1,700	15,000	230	5,400	1	250
Cuvier's beaked whale	OC	4	89%	1,115	12,475	68	5,200	4	54
fin whale	NPS	1	65%	45	110	80	81	1	4
	OC	1	66%	29	200	21	75	1	13
gray whale	CPS	3	30%	105	90	152	137	1	1
	NPS	7	24%	284	299	277	415	3	37
	OC	19	20%	159	191	161	246	4	5
harbor porpoise	OC	6	76%	1,313	9,550	393	7,450	6	865
humpback whale	OC	2	43%	95	600	95	330	2	61
minke whale	NPS	1	61%	470	1,700	100	5,400	1	71
sperm whale	OC	4	58%	425	5,400	47	1,593	4	46
Overall		51	43%	438	3,688	177	1,934		219

Table 4. Summary of contaminant results on cetaceans for analyses conducted by NWFSC grouped by species group. Unless otherwise noted, values are means in ppm (ng/g, wet weight).

							PBDEs	
Group	n	Lipids	CHLDs	tDDTs	tHCHs	t40CBs	>LOQ	Mean
Baleen whales	34	27%	175	271	172	418	13	26
Small cetaceans	7	72%	1,369	10,329	370	7,157	7	777
Toothed whales	10	76%	655	10,661	62	3,435	9	64
Overall	51	43%	438	3,688	177	1,934	29	219

Tests of tissues of liver and kidney of cetaceans for metals and trace elements are shown in Table 5. Gray whales had dramatically higher concentrations of Aluminum in liver tissues than other cetaceans, a finding consistent with past findings and likely the result of gray whales ingesting sediment (which contains high levels of aluminum) as part of their normal bottom-feeding. Concentrations of cadmium, mercury (including methyl mercury), selenium, and silver in liver were all consistently higher in the three species of odontocetes (Baird's beaked whale, common dolphin, and Pygmy sperm whale) than in the four species of baleen whales.

Table 5. Summary of levels of metals and trace elements in cetacean liver and kidney. For multiple samples values are means. All concentrations are ppm (mg/kg, dry wt.).

Species	n	% dry	Alum.	Arsenic	Cadmium	Copper	Lead	Mercury	Methyl Mercury	Nickel	Selenium	Silver	Zinc
Liver													
Baird's Beaked Whale	1	26	5.0	1.8	10.8	13.4	0.1	262	10.3	0.09	29.8	12.1	78
Fin Whale	1	28	2.0	1.0	8.4	18.2	0.1	0.5	0.23	0.09	0.72	0.01	131
Gray Whale	8	23	106	0.3	1.0	40.6	0.1	0.4	0.04	0.60	0.52	0.31	275
Humpback Whale	1	57	32.2	0.8	0.5	1.0	0.5	0.2	0.05	0.79	0.08	ND	8
Minke Whale	1	30	3.0	0.2	2.5	22.6	0.0	1.4	0.30	0.1	0.18	0.04	149
Pygmy Sperm Whale	1	32	2.0	0.6	9.5	6.9	0.2	15.4	2.27	0.15	18.3	2.10	46
Sh.-beak common dolph	1	25	ND	2.1	50.7	29.0	0.1	275	3.84	0.07	69.3	4.00	148
Kidney													
Fin Whale	1	25	65.1	0.96	17.3	8.14	0.03	0.24	0.04	0.21	0.46	0.01	56
Gray Whale	7	18	9.8	0.5	2.2	8.7	0.07	0.23	0.04	1.34	1.06	0.04	153
Humpback Whale	2	43	35.8	0.54	0.09	4.2	0.11	0.61	0.06	1.69	0.35	0.05	106
Minke Whale	1	25	8	0.38	31.2	17.2	0.13	2.90	0.22	0.32	0.73	0.01	141

Stranding Database

The increase in response and sampling created the need to better catalog, manage, and archive stranding data and samples. We developed a relational Access database to standardize our historic and current stranding event, necropsy, and sample data to allow for easy report generation, sample tracking, and the exporting of Level A data to the national database. We also purchased two additional freezers to house archived samples.

Problems encountered

Overall the project was successful in meeting the goals set out. The grant was extended from the initial period of performance which allowed a greater number of animals to be examined and samples collected. There were delays in getting some of the contaminant analyses completed partly as a result of a backlog of samples faced by NWFSC after the Katrina Hurricane in whose aftermath they were called upon to analyze samples from that area. These problems were overcome and the grant has been successful.

Additional and continued work

Cetacean stranding response will continue with the support of another Prescott grant awarded to Cascadia Research in 2007.

Accomplishment of goals

All of the objectives outlined were addressed during the project period and in this report. The project exceeded expectations in terms of number of animals examined, time period covered, and samples collected. Some of the objectives of this grant, such as looking at harbor porpoise status and health were very timely with the occurrence of a harbor porpoise Unusual Mortality Event which Cascadia has helped to work on.

Dissemination of results

Results of the research conducted under this grant have been disseminated in a number of ways. We prepared and presented findings on our work under the Prescott stranding grant at several scientific conferences, and a recent paper on the incidence of ship strikes in Washington State is currently in press. A partial list of publications and presentations is included below. Our Access stranding database has been shared with other local stranding networks in an effort to encourage consistency in data collection throughout the region. Our results were also reported to NMFS and entered into the national stranding database. We continue to work on additional presentations and manuscripts for publication on stranding results.

Partial list of Publications and Presentations by Cascadia Research Personnel and Collaborators related to strandings

Douglas, A.B., J. Calambokidis, S. Raverty, S.J. Jeffries, D.M. Lambourn, and S.A. Norman. 2008. Incidence of ship strikes of large whales in Washington State. *Journal of the Marine Biological Association.* In press

Huggins, J.L., K. Wilkinson, S.A. Raverty, M.B. Hanson, S.A. Norman, J.K. Gaydos, D.A. Duffield, D.M. Lambourn, J. Rice, J. Calambokidis, J.B. Norberg, L.M. Barre, S.D. Reimer, T.K. Rowles, and T.R. Spradlin. 2007. Marked increase in harbor porpoise mortality in the Pacific Northwest, 2006-2007. Abstract (Proceedings) 17th Biennial Conference on the Biology of Marine Mammals, Cape Town, South Africa, November 29-December 3, 2007.

Douglas, A, Calambokidis, J, Raverty, S, Jeffries, S, Lambourn, D, Norman, S. 2007. Ship strikes of large whales off Washington State, USA: an analysis using stranding records from 1980-2006. Abstract (Proceedings) 17th Biennial Conference on the Biology of Marine Mammals, Cape Town, South Africa, November 29-December 3, 2007.

Raverty, S, Hanson, B, Huggins, J, Calambokidis, J, Hall, A, Lambourn, D, Norman, S, Gaydos, J, Ellis, G, and Ford, K. 2007. Multispecies outbreak of Cryptococcosis (Cryptococcus gatti) in stranded harbor, Dall's porpoises and a Pacific white sided dolphin in the northeastern Pacific. Preconference Workshop: Conservation Medicine on Marine Mammals. Society of Marine Mammalogy, Cape Town, South Africa, November, 2007

Raverty, S, Hanson, B, Lambourn D, Jeffries, S, Gaydos, J, Haulena, M, Ford, J, Calambokidis, J, and Ross, P. 2007. Pathology of marine mammals stranded in the northeastern Pacific Ocean, 1999-2006. American College of Veterinary Pathologists Annual Meeting. Savannah, Georgia, Nov 10-14, 2007

Raverty, S, Zabek, E, Gaydos, J, Ross, PS, Hanson, M, Norman, S, Calambokidis, J, Ford, J, Haulena, M, Lambourn, D and Jeffries, S. 2007. An overview of Salmonella spp recovered from marine mammals, wildlife and production animals at the Animal Health Center, Abbotsford, British Columbia from 1999 to 2006. International Association of Aquatic Animal, Medicine Annual Conference, Orlando, Florida, May 5-9, 2007

Raverty, S, Etheridge, S, Hanson, M, Norman, S, Calambokidis, J, Huggins, J, Ford, J, James, E, and Grigg, M. 2007. Sarcocystosis due to Sarcocystis neurona in a stranded Pacific white-sided dolphin (Lagenorhynchus obliquidens) and harbor porpoise (Phocoena phocoena) in the Pacific Northwest. International Association of Aquatic Animal, Medicine Annual Conference, Orlando, Florida, May 5-9, 2007

Calambokidis, J, S. Raverty, D. Lambourn, S. Jeffries, and S. and Norman. 2006. Post mortem findings of juvenile stranded grey whales (*Escherichtius robustus*) in the northeastern Pacific, April to May, 2005. European Cetacean Society Meeting. Gydnia, Poland, April 2-7, 2006

Raverty, S, J. Calambokidis, D. Lambourn, S. Jeffries, and S. and Norman. 2006. An overview of post mortem findings of stranded grey whale (*Escherichtius robustus*) in Washington State, April to July, 2005. International Association of Aquatic Animal Medicine Annual Conference, Nassau, Bahamas, May 6-10, 2006

Brock, K, D. Lambourn, S. Jeffries, J. Barron, J. Calambokidis, J. Huggins, S. Norman, and S. Raverty. 2006 Hydramnios in a lactating pygmy sperm whale (*Kogia breviceps*) stranded in Washington: post-mortem findings and implications from a stranded calf. International Association of Aquatic Animal Medicine Annual Conference, Nassau, Bahamas, May 6-10, 2006

Expenditures

Expenses for the entire project period are summarized below in relation to the total grant amount.

		Proposed		Spent to 12/31/2007	
Category	**Total**	**Federal**	**In kind**	**Fed**	**Match**
Total wages	$ 44,400	$34,096	$10,304	$ 37,018	$ 4,396
Fringe benefits	$ 11,988	$ 9,206	$ 2,782	$ 9,625	$ 1,143
Supplies	$ 7,000	$ 1,400	$ 5,600	$ 1,897	
Travel & boat	$ 3,604	$ 2,854	$ 750	$ 3,191	$ 1,250
Collaborator costs	$ 21,000	$21,000		$ 16,398	$ 13,230
Total direct costs	$ 87,992	$68,556	$19,436	$ 68,129	$ 20,019
Indirect - Fed cap 25%	$ 27,278	$15,039	$12,239	$ 15,392	$ 11,933
Total cost	$ 115,270	$83,595	$31,675	$ 83,521	$ 31,952
% non-federal share			27.5%		28%

Table A1. Summary of stranded cetaceans responded to by Cascadia Research from 2004-2007.

Field ID	Common Name	Date	Location	Carcass Condition	Sex	Estimated Age Class	External Comments	Primary Cause of Death
CRC-500	Gray Whale	5/8/2004	Ocean Shores	Advanced	Male	Yearling	Very decomposed made measurements difficult, animal laying on sternal side, skin sloughing,exposed tissue muscle, snout and flukes have shark bites. Trail edge of left fluke is scavenged and tip missing. Parasites present desc. as whale lice and barnacles.	External Exam only
CRC-501	Gray Whale	5/20/2004	Floating off Cape Elizabeth	Advanced	Unknown	SubAdult	Carcass opened up and partly evicerated, Seen in water, anchored to crab gear, tied around caudal peduncle. Not possible to determine if entagled live or tied off dead.	External Exam only
CRC-509	Humpback Whale	7/6/2004	Kalaloch	Advanced	Male	Yearling	whale had been floating along coast for possible 1.5 weeks. Advanced decomposition on left dorsal side, possible impact? Skin 80% gone, bones pull away. Parasites: barnacles. Scratches, scars, and bites post-mortem; bites on lateral <18 cm, 12 cm, 8 cm, 7 cm; bites ventral peduncle.	Accident/Trauma (possible ship strike)
CRC-514	Harbor Porpoise	7/10/2004	Twin Harbors St. Pk, Westport	Fresh	Male	Calf	Right ventral from mid-jaw to 3 cm behind anus scraped off--attributed to rolling in surf. Pink froth coming out of blowhole. Beak area bruised, esophageal area bruised near beak.	Undetermined
CRC-526	Harbor Porpoise	7/21/2004	Kalaloch	Moderate	Female	Adult	Severe scavenging on back, flank and top of head, skin sloughing on ventral side	External Exam only
CRC-538	Gray Whale	4/19/2005	Sandy Point, Whidbey Island	Fresh	Male	Yearling	Skin sloughing about 75%, barnacles and cyamids. Some bloating ws evident on ventral side. Prepubescent Scrapes and abrasions around tail stock from towing animal post-mortem. No obvious scars or injuries. Barnacles on head, whale lice along flanks, genital slit. 4.2cm barnacle size	Accident/Trauma (ship strike)
CRC-541	Gray Whale	4/28/2005	Grayland County Line Beach Access	Fresh	Male	Yearling	Possible entangelment on head, bleeding in heart, blubber consistancy was dry, not very high in lipids, Barnacles on head , few cyamids around barnacles on head.	Accident/Trauma (entanglement)
CRC-542	Gray Whale	5/5/2005	Bremerton Navel shipyard	Fresh	Female	SubAdult	Whale live stranded between two peirs at ship yard on 3-4 May, External barnacles and cyamids on body, barnacles only on left side of head.	Nutritional/Metabolic

CRC-543	Gray Whale	5/13/2005	Quinault Reservation, Whale Crk south of Queets R	Moderate	Female	Yearling	Rake marks on pecs, flukes and dorsal. Do not look very fresh. Bruising on ventral sternum area. Cyamids on pecs, not many mostly dried out.	Accident/Trauma
CRC-545	Gray Whale	5/16/2005	Quinault Reservation	Moderate	Male	Adult	skin mostly gone 50%, bloated, postmortem shark bites on caudal peduncle.	Undetermined
CRC-546	Gray Whale	5/24/2005	Long Beach	Moderate	Male	SubAdult	V shaped cut from Rt lateral side midway between dorsal hump and flukes, deep to the bone/through the muscle. 9 baleen plates were cut out. few live barnacles on head. 80% skin gone	External Exam only
CRC-547	Gray Whale	5/24/2005	Ocean City	Advanced	Unknown	SubAdult	Scavanged bones exposed, no skin, blubber dry	External Exam only
CRC-550	Harbor Porpoise	5/27/2005	Seaview, Long Beach	Moderate	Male	SubAdult	Spinal cord visible through opening in dorsal, left jaw partially torn.	External Exam only
CRC-552	Harbor Porpoise	5/27/2005	Long Beach	Moderate	Unknown	SubAdult	many open wounds; intestines out	External Exam only
CRC-554	Harbor Porpoise	5/27/2005	Long Beach	Advanced	Unknown	Unknown	Photos taken, too decayed for measurements	External Exam only
CRC-556	Gray Whale	5/27/2005	Long Beach	Advanced	Unknown	Yearling	Animal decayed, bones exposed little skin	External Exam only
CRC-558	Gray Whale	5/28/2005	Jefferson's Cove, Oil City	Advanced	Unknown	Yearling	No skin remaining, lots of maggots, blubber unmeasurable. Small square cut out of left lateral side.	External Exam only
CRC-560	Harbor Porpoise	6/3/2005	Ocean Shores	Fresh	Female	SubAdult	Porpoise transferred to Brad Hanson on 4 Jun 2005, for necropsy.	Infectious/Parasitic
CRC-563	Harbor Porpoise	6/22/2005	Long Beach	Fresh	Female	Adult	Transferred to Brad Hanson for necropsy. Animal freshly dead, scavanged by birds (eyes missing), some circular healed scars on right dorsal. Scars healed on rt. Dorsal. Foam coming from mouth.	Undetermined
CRC-601	Harbor Porpoise	7/11/2005	Haro Strait	Fresh	Female	Adult	Pp killed by members of J Pod, collected immediately and necropsied within 2 hours at the Whale Museum. Final diagnosis: Trauma. Parasites: pulmonary nematodes most likely Halocercus spp.; hepatobiliary change on right caudal liver lobe most likely due to infection by Campula spp. Multiple scars on body	Accident/Trauma (resident killer induced)
CRC-641	Gray Whale	7/26/2005	Noah Dock, Steilacoom	Fresh-Mod	Male	Calf	Bloated and releasing gasses. Est. girth 213 x 2. Killer whale rakes on fluke, blister/cyst on L side of genital slit, large white patch on dorsal right side. Whale lice on snout and flippers, largest barnacle ~3cm.	Nutritional/Metabolic

CRC-685	Harbor Porpoise	8/12/2005	Ocean Shores	Fresh	Unknown	Calf	Slightly scavenged on head, puncture wound on dorsal towards peduncle. Picked up by Beacon Pest Control and transported to Aberdeen, where picked up by DLC. Brad Hanson picked up animal from JAC home on 8/13/05	Undetermined
CRC-697	Dall's Porpoise	11/11/2005	Vashon Island	Fresh	Male	Adult	No scavenging. On beach~48 hrs at time of collection. No external signs of trauma. Small scrape on L side of head (post-mortem dragging up the beach). Bleeding from mouth when hung up in NMML freezer.	Infectious/Parasitic
WDFW1105-05	Pygmy Sperm Whale	11/11/2005	Moclips	Fresh	Female	Adult	fractured jawbone, both sides--most likely post-mortem. 8Lx10Wx4D cm defect on rt mid-lateral cranial tailstock, appears to be scavenged thru to abdominal cavity. Trailing edge of dorsal fin--healed defects due to trauma (possibly). Body full of scratches due to decimation of skin. 2 areas with possible healed wounds (or lesions) about 4.5 cm diameter. Numerous crescent-shaped linear wounds rt lateral body. Both eyes present.	Perinatal/Abortion (pup or mother) Uterine hydrops
CRC-700	Gray Whale	12/8/2005	Marrowstone Island	Fresh-Mod	Male	SubAdult	On back, no id photo. Fluke ID may be useable. Skin slightly sloughing, lice dead. Large gash on R side caudal peduncle. Large wound on R fluke lobe. Bruising at ventral insertion of left pectoral. No bruising or hemorrhaging at cross-section of fluke and	External Exam only
CRC-701	Harbor Porpoise	1/12/2006	Pacific Beach	Fresh	Female	Adult	Scavenging around eyes and lower jaw, left eye missing. Rt side at jaw scavenged through to oral cavity. Large fish in mouth. No external signs of trauma or HI. Scavenging around blowhole and on left flank.	Accident/Trauma (asphyxiation)
CRC-702	Pacific White-sided Dolphin	1/19/2006	Grayland Access	Fresh	Female	Adult	Scavenging at eyes and mouth, appears healthy, not emaciated	Infectious/Parasitic
CRC-703	Common Dolphin, Sub-species unknown	1/24/2006	Pt Grenville	Moderate	Unknown	Adult	External organs heavily scavenged and decomposing rapidly. Most tissue around snout is missing, Rt pec fin gone. Not much skin left, stomach, lungs and most of heart gone. Left side of jawbone was broken upon removal	External Exam only
CRC-704	Gray Whale	1/24/2006	Rialto Beach	Fresh-Mod	Female	Calf	No skin on rostrum. Fairly fresh (scavenged) umbilical area. Left pec fin abnormally bent. Large absess/ growth on ventral tail stock (Length=18cm, Width=9cm, Raised 6cm from body). One cyamid on lower jaw.	Undetermined

CRC-706	Harbor Porpoise	3/1/2006	Moclips	Fresh	Female	Adult	Brought to NMML freezers for Brad Hanson on 2 Mar 06. Scavenging on right side of head. Scratches behind dorsal fin on both sides, no indentation. Long superficial scratch(w/out indentation) on l side from dorsal fin to head, slightly curved. Healed wound on l side behind dorsal fin ~4 in long. No signs of entanglement on pec fins or tailstock	Results Pending
CRC-708	Harbor Porpoise	3/16/2006	Ocean Shores	Moderate	Male	Adult	Eyes gone, severely scavenged abdominal cavity. Kidneys, intestines, and most of liver gone, others too decomposed for sampling. Teeth not very worn, skin starting to slough. Heart is only organ intact enough to sample.	External Exam only
CRC-709	Harbor Porpoise	3/16/2006	Wishkah St. Bridge, Chehalis River	Fresh	Female	Yearling	Entangled in steelhead gillnet, 6mi up the Chehalis River. Fisherman claimed was still alive when entangled on 3/14/06, had to cut fluke off to get the porpoise out of the net. Gash on middle left side (gaff wound?), tail cut off to release from net (tail recoved, but separate from rest of body).	Accident/Trauma (fishery interaction
CRC-711	Harbor Porpoise	5/9/2006	Ocean Shores, Chance Ala Mer Beach Access	Moderate	Male	SubAdult	Bloated, skin sloughing, skin almost completely gone on right side. Jaw, eyes, and blowhole scavenged. Laceration (2 parallel lines) on left flipper ~2.5-3 cm long (could be rake marks?). Small scavenged hole behind dorsal fin. Tongue gone, teeth worn and fully developed.	Undetermined
CRC-712	Fin Whale	5/14/2006	Lummi Bay: floating, towed to Portage Island	Fresh-Mod	Male	SubAdult	Towed to Portage Island (N48 42.94 W122 36.79) on 15 May 06 by Lummi tribe members for necropsy. Bloated. Skin largely intact, losing skin caudal peduncle (due to towing), some blistering. At 11 meters from fluke notch, transverse impression on right dorsal surface just posterior to pec fin. Estimated age: 2-5 years	Accident/Trauma (ship strike)
CRC-715	Gray Whale	5/24/2006	Ocean Beach Park	Advanced	Unknown	Yearling	Multiple scratches on right dorsal surface, deep lacerations on left pec fin (possible entanglement?). Not visible/ missing baleen on left side. No skin. Broken skin along tail stock. No external parasites due to lack of skin.	External Exam only

CRC-718	Gray Whale	5/29/2006	Ocean City Beach entrance, Quinalt	Moderate	Male	Yearling	severe entanglement. Quinalt police removed crabpot as evidence. Ropes wrapped around fluke, tailstock, mid-body, and thru baleen. Rope scarring on head and left side, right side not available. Internal organs decomposed and most unrecognizable. Some bruising in blubber around genital area and on sternum. Cyamids and barnacles on head.	Accident/Trauma (entanglement)
CRC-724	Gray Whale	6/6/2006	N Side Quinault River	Unknown	Unknown	Unknown	NO RESPONSE. CRC notified on 6/6/06. Due to location, had to wait for minus low tide. By the time tides were cooperating and a Quinault escort could be arranged, whale was said to be no longer there. Kelly Curtis has photos and reporting party information. Will send to CRC at a later time.	No exam
CRC-719	Gray Whale	6/7/2006	Pacific Beach, Quinault Reservation	Fresh-Mod	Female	Yearling	Metal file protruding from tongue (may have been pre-mortem)-appears to have entered from right side of mouth. File 27cm long, 1.0 cm in diameter, pushed almost all the way into tongue. Cyamids on head, anus, and genital slit. Barnacles present on head and flippers.	Undetermined
CRC-722	Harbor Porpoise	6/9/2006	Pacific Beach campground	Fresh-Mod	Male	SubAdult	Heavily scavenged head and chest-no organs remain in thoracic cavity. Small area of scavenging on right side near insertion of dorsal fin. Tip of dorsal fin cut off (appears to be knife inflicted and post mortem). Possible rope indent/abrasion on leading edge of left fluke.	Undetermined
CRC-727	Gray Whale	6/27/2006	Samish Bay	Advanced	Unknown	Yearling	No skin, bones visible on portions of flippers, tailstock, head and back. No baleen, tongue swollen and decomposing. Lying on right side, body slightly curved, both fluke lobes folded over toward midde of fluke. Although flies present, no external species-specific parasites on carcass.	External Exam only
CRC-732	Harbor Porpoise	7/10/2006	Midway Beach, Twin Harbors	Moderate	Female	Calf	scavenging on right side from just behind right eye to dorsal fin. Right side open, sand in abdominal cavity. Scavenging on left lower jaw. Skin starting to slough.	Perinatal/Abortion (pup or mother)
CRC-733	Harbor Porpoise	7/11/2006	Ocean Shores Jetty	Fresh	Female	Calf	whiskers present, no external signs of trauma.	Perinatal/Abortion (pup or mother)
CRC-754	Harbor Porpoise	7/15/2006	Twin Harbors state park	Fresh-Mod	Female	Calf	Rake markes (porpoise or dolphin) and bite wound on fluke. Rakes 6-8 cm long, 05-1.1 cm between teeth marks. Bite is 4.5cm long--punctured thru mid-right lobe. Rt lobe swollen around bite. Left eye scavenged, skin sloughing, appears thin.	Accident/Trauma

CRC-755	Gray Whale	7/19/2006	Duk Pt. Near Ozette, NWA	Moderate	Male	Yearling	Long crescent shaped scar on left lateral side of animal from mid-body to dorsal hump. Cyamids and barnacles dead and mostly on fluke. Rake marks concentrated from dorsal hump to peduncle and on lower jaw, healed. Twenty-seven sets seen, all healed. Pec tips missing. Blood from blowhole and poss. Mouth. No external signs of trauma. Skin starting to split and peel, falls easily from blubber. lots of white scarring on rostrum.	Undetermined
06Er21JulWI-01	Gray Whale	7/21/2006	Maxwelton Beach, Clinton	Fresh	Male	Yearling	heavy infestation of cyamids--head, back, fluke, pecs, genital area covered. Very thin, relatively fresh rake marks and some bite wounds (not healed) on fluke, tailstock, pec fins, underside of jaw. Bleeding from blowhole and eye. Large healed scar across back. Laying on left side.	Accident/Trauma
CRC-757	Harbor Porpoise	7/23/2006	Long Beach, north of Bolstat approach	Fresh	Female	Calf	slight scavenging on lower jaw. Both eyes intact. Band of skin that wraps all the way around the head just in front of eyes broken open in places, looks like shark bite.	Accident/Trauma
CRC-766	Harbor Porpoise	8/11/2006	Moclips beach	Moderate	Male	Adult	scavenged head and abdomen, bloated. Skin dry and burned.	Undetermined
CRC-767	Harbor Porpoise	8/15/2006	Off Sekiu	Fresh	Male	SubAdult	incidental catch form to be filled out and sent in by High Tide Seafoods. 3X3 cm "waffle pattern" on side of animal from net. 8cm slice under lower jaw (from cutting net loose?) scrapes on snout, pec fins, and dorsal fin. Hemorrhage inside eyes.	Accident/Trauma (fishery interaction
CRC-768	Harbor Porpoise	8/18/2006	Ocean City Beach	Fresh-Mod	Male	Calf	Scavenged rt side from jaw to chest-tongue and all LN are gone. Eyes scavenged. No rakes or external signs of trauma. Scavenged around umbilica area. Skin sloughing.	Perinatal/Abortion (pup or mother)
CRC-769	Harbor Porpoise	8/22/2006	Off Sekiu	Fresh	Male	Adult	incidental catch form to be filled out and sent in by High Tide Seafoods. Chunks missing from pectoral fins, lascerations around dorsal fin. Skin starting to slough. Scarring around nose. Abrasion marks behind eyes and blowhole and in front of blowhole. Round penetrating wound one head, 16 cm from blowhole to the left (gaff?). 6cm slice on lower jaw, probably where cut from net. Hemorrhaging in eyes	Accident/Trauma (fishery interaction

CRC-770	Minke Whale	8/24/2006	Little Skookum Inlet	Fresh	Female	SubAdult	Live stranded and died before responders arrived. Little chevron distinguishment. Fresh wound on lower right pec fin. Scratches on ventral surface from thrashing on oyster beds. Healed cookie-cutter shark wounds on ventral dorsal fin area. Potential bite wounds near end of throat pleats.	Undetermined
CRC-773	Harbor Porpoise	9/16/2006	Twin Harbors State Park	Fresh	Female	Yearling	Slight scavenging on the left side of the head, left eye gone. Right eye present. Superficial scavenging on the left side of the dorsal fin back to the fluke (fluke is clean). Froth from blowhole.	Undetermined
CRC-774	Harbor Porpoise	9/16/2006	Twin Harbors State Park	Fresh	Male	Calf	Both eyes present. Moderate scavenging around head. Skin starting to slough. No external signs of trauma.	Infectious/Parasitic
CRC-776	Humpback Whale	10/5/2006	Klipsan Beach	Moderate	Female	Adult	Laying on back, slightly tipped to the right. Throat extremely bloated. Few whale lice scattered over body, barnacles on head, genital area, pecs and fluke. Healed scratches on right side of tailstock. No external signs of trauma.	Undetermined
CRC-777	Harbor Porpoise	10/19/2006	Moclips Beach	Fresh-Mod	Male	Adult	Heavily scavenged on right side of head, from pec to gape. Tongue scavenged, remaining swollen. Rt eye scavenged. Skin sloughing, some pecking on right side. Scavenging around blowhole. No signs of trauma or human interaction. Animal is obviously thin.	Infectious/Parasitic
CRC-778	Fin Whale	11/9/2006	Port of Everett	Advanced	Male	SubAdult	Floating left side up, much of the skin gone. Depression in body around base of head, some superficial scrapes and abrasions (probably from being lodged under the pier), possible rake marks on fluke. Deep entanglement scars on upper and lower jaw (left side--right side not visible). Rope still attached to right side--collected by CRC.	Accident/Trauma (ship strike)
CRC-779	Short-beaked Common Dolphin	11/29/2006	Twin Harbors State Park	Fresh	Female	SubAdult	Animal was laying on left side. Left pec fin and L fluke missing (appear to be bitten off--possible shark, unclear if pre- or post-mortem). R fluke lobe gnawed on. Scavenging at L eye and L lower jaw, scavenged above L pec fin thru to thoraic cavity. Some skin starting to slough. Numerous old and healed rake marks (4mm apart, appear to be dolphin rakes) on left and right flanks. No external parasites.	Infectious/Parasitic

CRC-782	Kogia, subspecies unknown	1/7/2007	Shi Shi Beach, N of Pt of Arches	Fresh-Mod	Unknown	Unknown	Sighted and photographed on 31 Dec 06, reported on 2 Jan 07. Tides and weather uncooporative, response delayed until 7 Jan 07. By the time we were able to get out to Shi Shi beach, Petroleum Creek was impassable due to recent heavy rains. Unsure if carcass is still there…recent storms may have washed it off the beach.	No exam
CRC-781	Gray Whale	1/8/2007	1.2 Miles South of Brown's Point	Moderate	Female	Adult	Laying on back and tipped to right side. Bloated, large patches of skin gone on head and back, no external signs of trauma. Small pockets of blistered skin on L side of head behind eye and rt side forward of pec fin insertion, filled with clear reddish fluid.	Undetermined
WDFW0107-02	Harbor Porpoise	1/13/2007	Bainbridge Island	Fresh	Male	SubAdult	Skin just starting to slough. R tail stock large area of scavenging. Possible scavenging mid back, and at genital and anus. Numerous lesions in head, back and sides, Small line of puncture wound just above eye another small line of puncture wounds back behind skull	Infectious/Parasitic
07-WC-001	Harbor Porpoise	1/22/2007	Bellingham Bay	Fresh	Male	Adult	Laying on rt side on beach. Little abrasion onf rt edge of fluke. Some blood in eyes, some scavenging L lower jaw all the way to bone. Minor scavenging near genital slit. Some nematodes crawling out of mouth.	Infectious/Parasitic
WDFW0407-04	Harbor Porpoise	4/10/2007	Neah Bay	Fresh-Mod	Female	Adult	Heavily scavenged rt side, head to just behind dorsal fin. All the way to bu not into thoracic cavity. Small scavenged spots elsewhere on body. Both eyes gone. Porpoise/dolphin rakes on L pec--Posterior: 2cm long, 1cm apart, 7 rakes. Anterior: 14 rakes, 0.7-1cm apart. Skin sloughing. Teeth #s 6-8 missing on L lower jaw.	Infectious/Parasitic
CRC-786	Gray Whale	4/29/2007	Johnson Point, Olympia	Fresh	Female	SubAdult	Markedly thin, lying on ventral side. Few old healed rake marks on fluke dorsal. Some abrasion on dorsal tailstock. Mild to moderate infestation of cyamids scattered over full body length. Skin drying and starting to slough. No bloating.	Infectious/Parasitic

CRC-787	Harbor Porpoise	5/1/2007	Ocean Shores	Fresh	Female	Adult	head appears small relative to rest of body. Body robust behind head. Potential 2nd generation Pp/Pd hybrid. Severe scavenging left side of head, from ant pec insertion to mid lower left jaw. Left eye gone, rt intact. Superficial scavenging dorsal surface right, minor scavenging around genital slit. Genital area appears bruised and slightly distended. Missing most teeth, few remaining are very worn.	Infectious/Parasitic
CRC-788	Harbor Porpoise	5/5/2007	Ocean City	Fresh	Unknown	Adult	was reported up in the high tide line at 0800 on 5-May by enforcement officer driving the beach. JLH went out to pick up but by 1030 the animal had disappeared. Tide was out--appears to have been removed from beach by unknown party. Contacted everyone in area authorized to remove animal, no one knows where it went. Likely harbor porpoise based on detailed description by enforcement officer. 5ft long, 125lbs. White on belly, darkens gradually to dark gray on rest of body. Triangular, solid gray dorsal fin, short rostrum. Fish lodged in mouth. Fresh animal, no scavenging.	No exam
CRC-789	Killer Whale	5/22/2007	Twin Harbor State Park	Fresh-Mod	Female	Adult	4 rake marks on dorsal fin. 2.5cm between rakes, ~44cm long. L side. Dorsal surface detached from rest of body--length 1.44m of dorsal present with fin intact. Rest of body not found. Some bird scavenging below dorsal fin. Rake marks appear fresh.	Undetermined
CRC-792	Gray Whale	6/2/2007	Kalaloch Beach #1, just N of access	Advanced	Female	SubAdult	most skin gone. Few small patches of skin on lower jaw, abdomen and back. Lying on right side. Tissue gone on portions of head and back, but cannot tell if decomp or scavenging. Back just behind head is opened up, carcass deflated, baleen gone, bones exposed on end of left flipper. No external signs of trauma or entanglement. Some large circular chunks taken out of blubber along flank, possibly shark scavenging.	External Exam only
WDFW0607-04	Harbor Porpoise	6/8/2007	Moclips	Fresh	Male	Adult	Scavanging/possible predation is 58cm long and encompasses entire left abdominal cavity and minimal lowest portion of thoracic cavity. Left eye and lower jaw is scavanged. No other signs of trauma on the body other then the scavenged area.	Undetermined

WDFW0607-25	Harbor Porpoise	6/20/2007	Paradise Cove, E Sequim Bay	Fresh	Female	SubAdult	Live on E side of bay at about 1pm on 20 Jun 07. Pushed back into water and swam to other side of bay and restranded. Porpoise was continued to be pushed off and walked around lagoon continued to restrand. Reported as quivering not able to swim on own. No ability to remove from area for better assessment, decision made to euthanize at site. Multiple lesions/ulcers on head, lateral sides, pec fins, tailstock, and flukes. Conjunctiva red. Numerous lacerations (like cracks in skin) all over body before death. Small laceration on ventral jaw surface.	Undetermined
CRC-795	Gray Whale	6/28/2007	Copalis	Advanced	Unknown	SubAdult	laying on left side, most skin gone except for small patch on tailstock and head. Somewhat bloated but beginning to deflate. Most of tissue from tailstock gone, fluke is missing. Unclear how removed. Upper right jaw broken at the gape, likely from rolling in surf. Much tissue gone from head. Some bloody fluid leaching from blubber on lateral side.	External Exam only
CRC-796	Harbor Porpoise	6/28/2007	Pacific Beach State Park	Mod-Adv	Unknown	SubAdult	5/8" nylon braid tied around tailstock, probably post-mortem but can't be sure due to decomposition and scavenging. All tissue scavenged from both sides of tailstock and entire right side of body. Internal organs scavenged, remaining are too decomposed for sampling. Skin on L side cracked and peeling.	External Exam only
CRC-798	Harbor Porpoise	7/11/2007	Ocean Shores	Fresh	Female	Adult	large bites (shark) taken from back at dorsal fin to axilla and just behind dorsal fin midway to tail stock; bites ventrally all along abdominal cavity; additional lacerations at tail stock; bite on the right mid-lateral all the way through ribs; uterus exposed; some intestines hanging out; more bite wounds at right eye and right ventral throat area. Pregnanat with full-term fetus.	Accident/Trauma (shark attack)
CRC-798Fetus	Harbor Porpoise	7/11/2007	Ocean Shores	Fresh	Female	Fetus, in mother	body condition was good-excellent; in process of being born (head down/ amniotic sac broken); very large fetus	Perinatal/Abortion (pup or mother)
CRC-802	Harbor Porpoise	7/15/2007	Kalaloch	Fresh-Mod	Not Determined	Calf	no organs left - ventral side completely scavenged to spine; bite marks/scavenging along dorsal side as well; some skin sloughing	External exam only

CRC-801	Harbor Porpoise	7/21/2007	Ocean Shores	Fresh	Male	Calf	scavenging on right side of head from insertion of pec fin to just behind rostrum, small amt scavenging at gape on left side.Tongue completely gone. Rt eye scavenged, L eye intact. Skin starting to slough, appears to have dried out (cracked). No external signs of truama.	Perinatal/Abortion (pup or mother)
CRC-803	Harbor Porpoise	7/31/2007	Moclips	Adv	Male	Calf	minimal bird scavenging on left side of head, skull shattered, carcass is deflated, skin is baked	Unable to Determine
07Pp21AugWH-06	Harbor Porpoise	8/21/2007	Blaine	Fresh	Female	Calf	live stranded, picked up dead by WCMMSN on same day. Transferred to CRC on 8/22/07 for necropsy on 8/23/07. some superficial scavenging on tailstock. Small (2cm long) skin-deep cut on right flank.	Infectious/Parasitic
CRC-826	Harbor Porpoise	10/30/2007	Henderson Bay, N Carr Inlet	Moderate	Female	Adult	reported 29 Oct 07 but first seen on 26-Oct. Area where tribal fishing has been occuring, found in immediate area of CRC-827 (another harbor porpoise). Both eyes scavenged, scavenging on both sides of head from lower jaw up to eyes. Large scavenged patch of missing skin and blubber on right flank from scapula to dorsal fin. Tips of both pec fins missing (scavenged?). Skin gone on left flank just behind dorsal fin to mid tailstock. Cervix appears distended. Single line impression around head on lower jaw just behind eye, potential entanglement scarring at tip of rostrum both sides lower jaw.	Accident/Trauma (fishery interaction)
CRC-827	Harbor Porpoise	10/30/2007	Henderson Bay, N Carr Inlet	Mod-Adv	Male	Yearling	reported 29 Oct 07 but first seen on 26-Oct. Area where tribal fishing has been occuring, found in immediate area of CRC-826 (another harbor porpoise). Heavily scavenged L side head to behind pec fin, ventral abdominal area scavenged as well. Possible line scars on rt flank.	Accident/Trauma (fishery interaction)
WDFW1207-04	Hybrid, Harbor/Dall's Porpoise	12/20/2007	Henderson Bay, N Carr Inlet	Fresh	Male	Adult	L side--some abrasion from rolling in the surf, some discharge from blowhole. No external signs of trauma, no signs of fishery interaction.	Undetermined
CRC-833	Sperm Whale	12/31/2007	Mouth of Queets River	Fresh	Female	Calf	floated away and was recovered and examined at Kalaloch on 11 Jan 2008.	Results Pending