USA PROGRESS REPORT ON CETACEAN RESEARCH, May 2005 TO April 2006, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2003

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The following information summarizes cetacean research conducted or supported by the U.S. National Marine Fisheries Service at Silver Spring, Maryland (NMFS HQ), and by the six NMFS Science Centers; Alaska Fisheries Science Center (AFSC) and Northwest Fisheries Science Center (NWFSC) in Seattle, Washington; Southwest Fisheries Science Center (SWFSC), La Jolla, California; Northeast Fisheries Science Center (NEFSC), Woods Hole, Massachusetts; Southeast Fisheries Science Center (SEFSC), Miami, Florida; and the Pacific Islands Fisheries Science Center (PISFC) in Honolulu, Hawaii. Information was also contributed by the Center for Coastal Studies, Provincetown, Massachusetts, Alaska Department of Fish and Game (ADFG), Anchorage, Alaska, the Alaska Beluga Whale Committee (ABWC), and the North Slope Borough (NSB), Barrow, Alaska, and the National Museum of Natural History (NMNH), Smithsonian Institution, Washington, DC. The following information was compiled in consultation with the above agencies.

USA Atlantic and Gulf of Mexico Waters

1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Atlantic spotted dolphin	*Stenella frontalis*	Atlantic and Gulf of Mexico	4.1, 4.3, 7.1, 7.3, 11.1
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Western N. Atlantic	4.2, 4.3, 7.3
Baird's beaked whale	*Berardius bairdii*	Atlantic and Gulf of Mexico	4.3
Beaked whale	*Ziphiidae spp.*	Western N. Atlantic	4.3, 11.1
Beluga whale	*Delphinapterius leucas*	Western N. Atlantic	7.3
Blainville's beaked whale	*Mesoplodon densirostris*	Atlantic and Gulf of Mexico	4.3
Bottlenose dolphin	*Tursiops truncatus*	Western N. Atl. Coastal and Offshore, Gulf of Mexico	2.1, 3.1, 4.1, 4.2, 4.3, 7.3, 9, 11.1, 11.2
Bryde's whale	*Balaenoptera edeni*	Atlantic and Gulf of Mexico	6.2
Clymene dolphin	*S. clymeme*	Atlantic and Gulf of Mexico	4.3
Common dolphin	*Delphinus delphis*	Atlantic and Gulf of Mexico	4.3, 7.3
Cuvier's Beaked Whale	*Ziphius cavirostris*	Atlantic and Gulf of Mexico	4.3
Dwarf sperm whale	*Kogis simus*	Atlantic and Gulf of Mexico	4.3
False Killer Whale	*Pseudorca crassidens*	Atlantic and Gulf of Mexico	4.3
Fin whale	*B. physalus*	Western N. Atlantic	4.3, 6.2
Fraser's Dolphin	*Lagenodelphis hosei*	Atlantic and Gulf of Mexico	4.3
Gervais' Beaked Whale	*Mesoplodon europaeus*	Atlantic and Gulf of Mexico	4.3
Harbor porpoise	*Phocoena phocoena*	Atlantic and Gulf of Mexico	4.2, 4.3, 7.3
Humpback whale	*Megaptera novaeangliae*	Atlantic and Gulf of Mexico	2.1, 3.1, 4.1, 4.3, 6.2, 11.1
Long-finned pilot whale	*Globicephala melas*	Atlantic and Gulf of Mexico	4.3
Melon Headed whale	*Peponocephala electra*	Atlantic and Gulf of Mexico	4..3, 7.3
Minke whale	*Balaenoptera acutorostrata*	Western N. Atlantic	2.1, 4.3, 6.2, 6.2
Pantropical spotted dolphin	*Stenella attenuata*	Gulf of Mexico	4.3
Pilot whale	*Globicephala melas and G. macrorhynchus*	W. N. Atlantic, Gulf of Mexico	2.1, 3.1, 4.1, 4.3, 7.1, 7.3
Pygmy Killer Whale	*Feresa attenuata*	Atlantic and Gulf of Mexico	4.3
Pygmy Sperm Whale	*Kogia breviceps*	Atlantic and Gulf of Mexico	4.3, 7.3, 11.1
No. Right whale	*Eubalaena glacialis*	Western N. Atlantic	2.1, 3.1, 4.1, 4.3, 6.2, 11.1
Risso's dolphin	Grampus griseus	Western N. Atlantic, Gulf of Mexico	4.3, 7.1, 7.3
Rough-toothed Dolphin	*Steno bredanensis*	Atlantic and Gulf of Mexico	4.3
Sei whale	*Balaenopterra borealis*	Western N. Atlantic	2.1, 6.2
Short-finned Pilot Whale	*Globicephala macrorhynchus*	Atlantic and Gulf of Mexico	4.3
Sowerby's Beaked Whale	*Mesoplodon bidens*	Atlantic and Gulf of Mexico	4.3
Sperm whale	*Physeter macrocephalus*	Western N. Atlantic	2.1, 4.1, 4.3, 9, 11.1

Spinner dolphin	*Stenella longirostrus*	Atlantic and Gulf of Mexico	4.3
Striped dolphin	*Stenella coeruleoalba*	Atlantic and Gulf of Mexico	4.3, 7.3
White-beaked dolphin	*Lagenorhynchus albirostris*	Atlantic and Gulf of Mexico	7.3

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

SHIPBOARD SURVEYS

NEFSC

NOAA RESEARCH VESSEL R/VALBATROSS IV -NORTHERN RIGHT WHALE SURVEY 28 APRIL - 20 MAY 2005 (AL05-04)

The southern border of the study area included Great South Channel, which is also the southern most portion of the Great South Channel Right Whale Critical Habitat area. The northern border included the waters surrounding the northeast portion of Cape Cod, (Provincetown, MA) and northernmost portion of the Great South Channel (GSC) including the waters north of Cultivator's Shoal. The primary objectives of the cruise were to conduct marine mammal observations from the near-shore waters of Cape Cod to throughout the Great South Channel Right Whale Critical Habitat area. Specific goals included: (1) photographing and biopsy sampling of large cetaceans (North Atlantic right whales, sei and humpback whales) for individual identification; (2) running transect lines to determine cetacean distribution; (3) attaching time-depth-recorder (TDR) tags on right whales; (4) providing support for the Right Whale Sighting Advisory System (SAS); (5) conducting oceanographic CTD/OPC/VPR stations throughout the GSC Right Whale Critical Habitat area; (6) deploying oceanographic drifters to observe ocean currents and drift in and around the Great South Channel; and (7) deploying and retrieving acoustic pop-up buoys in the GSC.

NOAA RESEARCH VESSEL R/V DELAWARE II- PILOT WHALE BIOPSY CRUISE 6 JULY - 21 JULY 2005 (DE05-09)

The principal objective of this cruise was to biopsy and photograph pilot whales (*Globicephala* spp.) distributed from the southern extreme of Georges Bank to south of the southern boundary for the 2004 pelagic cetacean assessment strata used by the Northeast Fisheries Science Center (the 38th Parallel). Collected tissues were to be used to distinguish between and determine distribution and geographic overlap of long-finned (*Globicephala melas*) and short-finned pilot whales (*G. macrorhynchus*) during the time of year used for conducting a pelagic cetacean assessment cruise (line-transect population size estimation cruise). If sea and weather conditions permitted, upon locating a group of pilot whales the large vessel would stop and deploy small boats for photographic and biopsy attempts.

NOAA RESEARCH VESSEL R/V DELAWARE II-LARGE WHALE SURVEY 28 JULY - 16 AUGUST 2005 (DE05-10)

Cruise objectives included charting right whale (*Eubalaena glacialis*) distribution on the Northeast Peak of Georges Bank, identifying food resources, and photographing individual right whales encountered for mark-recapture analyses. In addition, systematic visual and oceanographic surveys were conducted in the Bay of Fundy and over Roseway Basin to provide data for predictive modeling of right whale distribution.

TIOGA

Mark Baumgartner, in collaboration with NEFSC scientists, conducted baleen whale research between August 7 and September 30 in Massachusetts Bay and tagged two right whales and three humpback whales with suction cup tags.

NEAQ

Dr. Moira Brown, of the New England Aquarium, conducted a right whale biopsy sampling effort in May and June 2005 with the primary goal to obtain genetic material for the identification of new calves.

FUJI AIRSHIP CRUISES

Taking advantage of an offer to provide an airship, Dr. William Lang, WHOI, worked with Fuji Corporation to conduct aerial photographic surveys of large whales with high definition television. They managed to approach 5 different right whales off Florida. In a similar effort in the Gulf of Maine they approached no right whales but photographed other large whales from 250 yards or greater.

PCCS COLLABORATIONS

As part of research conducted in collaboration with scientists with the Provincetown Center for Coastal Studies, right whales and humpback whales were approached for photo id and/or biopsy. This collaboration benefited NEFSC in extending coverage of Cape Cod Bay for right whales and the greater Gulf of Maine for humpbacks.

SEFSC

NOAA R/V Gordon Gunter, 14 June – 16 August 2005. ATLANTIC BIOPSY SURVEY

This survey was conducted between Florida and New Jersey on the continental shelf and inner continental slope. Visual line transect surveys were conducted; however, the primary objective of the survey was to collect biopsy samples from bottlenose dolphins and pilot whales to support ongoing efforts to assess population structure in these species. The first leg focused on the continental shelf between central Florida to North Carolina, and covered water depths between 15 and 50 m as this is the primary mixing zone for the two morphotypes of bottlenose dolphin. Biopsy samples were collected from bottlenose dolphins and Atlantic spotted dolphins in this area. The second leg focused on collecting samples from pilot whales (*Globicephala sp.*) over the inner continental shelf and along the shelf break from Cape Hatteras, North Carolina to New Jersey. During the third leg, operations again centered on the continental shelf off of North Carolina, and attempts were made to net bottlenose dolphins and place satellite tags on them to track movements. The primary sightings included bottlenose dolphins (n = 144), sperm whales (n = 59), and pilot whales (n = 36). Biopsy samples were collected primarily from bottlenose dolphins (n = 69) and pilot whales (n = 62).

AERIAL SURVEYS

NEFSC

North Atlantic Right Whale Sighting System (NARWSS)

The North Atlantic Right Whale Sighting Survey (NARWSS) is a NOAA Fisheries Service program dedicated to locating and recording the seasonal distribution of right whales off the northeastern United States. There were four primary types of surveys flown: broadscale, focused surveys in the Great South Channel (GSC) Critical Habitat, focused surveys over potential and realized Dynamic Area Management (DAM) closure zones, and focused surveys in a designated Navy bombing range located over Cashes Ledge, referred to as W-104B. Broadscale surveys were flown along systematic east-west tracklines that covered all Federal waters west of the Hague line from south of Long Island, New York, to Eastport, Maine. These surveys were flown to provide a synoptic view of right whale distribution; a completed series indicates coverage of the entire area. Surveys focused on the GSC served the dual purpose of providing relatively current locations of right whale aggregations to commercial shipping traffic and high photographic recapture rates of individuals for vital rate models of the population. DAM confirmation flights included flights made to investigate reported sightings of right whale aggregations outside existing closures, as well as monitoring aggregations' duration of residence within established DAM zones. Focused surveys in W-104B were conducted by NARWSS in cooperation with the Navy prior to scheduled bombing exercises to determine the presence or absence of marine mammals and sea turtles. Additional focused flights made to relocate reported whale carcasses or entangled whales as well as provide support for disentanglement efforts. A total of 114 systematic broadscale flights, 5 critical habitat surveys, 7 DAM surveys and 3 Cashes Ledge surveys were made in 2005. The total number of right whales surveyed (tally of estimated group size, not the number of unique individuals identified from photographs) was 831.

SEFSC

NR

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

The following U.S. organizations responded to a request for information on their use of "platforms of opportunity" to collect cetacean data in 2005.

NORTH ATLANTIC						
Institution	**US region**	**Species***	**Platform type**	**Data type****	**Collected by**	**Regional Archive*****
Allied Whale, College of the Atlantic, ME	NE	AB	Whale watch	1,2,3,4	Naturalist, dedicated observer	Yes
Blue Ocean Society, NH	NE	ABCDGHI	Whale watch	1,3,4	Naturalist	Yes
Center for Oceanic Research and Education, MA	NE	**ABCDEFGHIJ KMOPT**	Whale watch	1,2,3,4,7	Naturalist, dedicated observer	Yes
Coastal Research & Education Society of Long Island, NJ	NE	ABCGOIMP	**Whale watch**	1,3,4,5	Naturalist, trained volunteers	---

Provincetown Center for Coastal Studies, MA	NE	ABCDFGHIP	Whale watch	1,2,3,4,5,7	Naturalist, dedicated observer	Yes
Whale Center of New England, MA	NE	ABCDFGHIP	Whale watch, ferry	1,2,3,4,5,7	Naturalist, dedicated observer	Yes
Whale and Dolphin Conservation Society, MA	NE	**ABCEFGHI**	Whale watch	1,3,4,5	Naturalist	Yes

***Species codes**: A) *Megaptera novaeangliae*, B) *Balaenoptera physalus*, C) *Balaenoptera acutorostra*, D) *Eubalaena glacialis*, E) *Balenoptera musculus*, F) *Balaenoptera borealis*, G) *Lagenorhynchus acutus*, H) *Phocoena phocoena*, I), *Globicephala melas*, J) *Ziphiidae* spp. K) *Physeter macrocephalus*, L) *Stenella longirostris*, M) *Tursiops truncatus*, N) *Stenella attenuata*, O) *Delphinus delphis*, P) *Grampus griseus*, R) unspecified odontocete species, S) Orcinus orca, T) *Stenella coeruleoalba,* U) *Globicephala macrorhynchus,* V) *Feresa attenuata*

****Data types**: 1) cetacean sighting data, 2) survey effort data (varied from general location to logged positions), 3) animal behavior, 4), photo-ID (for at least one listed species), 5) management-oriented data (fisheries interactions, ship strike, harassment), 6) scat/prey collection, 7) environmental data

--- Data not available

***Archives: **data for one or more listed species were contributed to a regional or oceanic archive. Responders reported contributing data to the following other institutions: Allied Whale (ME), New England Aquarium (MA), Provincetown Center for Coastal Studies (MA), Whale Center New England (MA)**

2.2 Analyses/development of techniques
NR

3. Marking data
3.1 Field work
3.1.1 NATURAL MARKING DATA
NEFSC

Species	Feature	Area/stock	Calendar year/season/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Right whale	Callosities	W. N. Atlantic	2005/934	Y	NA	R. Pace/NEFSC
Humpback whale	Flukes	Caribbean	2005/756	Y	NA	R. Pace/NEFSC
Humpback whale	Fluke/dorsal	W.N. Atlantic	2005/251	Y	NA	R. Pace/NEFSC
Pilot whale	Head/dorsal	W. N. Atlantic	2005/57	N	0	R. Pace/NEFSC

SEFSC

Species	Feature	Area/stock	Calendar year/season/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Bottlenose Dolphin	Dorsal Fin	Gulf of Mexico	2005/summer/NA	Y	NA	Keith Mullin/SEFSC
Bottlenose Dolphin	Dorsal Fin	W.N. Atlantic/Coastal North Carolina	2005/summer/NA	Y	NA	A. Hohn/SEFSC
Unidentified Pilot Whale	Dorsal Fin, Body Shape, Coloration	W.N. Atlantic/Inner Continental Slope	2005/summer/NA	N	NA	L. Garrison/SEFSC

3.1.2. ARTIFICIAL MARKING DATA
NR

3.1.3 TELEMETRY DATA
NEFSC
NR

SEFSC

Species	Tag type	No. successfully deployed	Maximum time transmitting	Contact person/institute
Bottlenose Dolphin	Satellite	4	Not determined. Still transmitting	A. Hohn/SEFSC

3.2 Analyses/development of techniques
NR

4. Tissue/biological samples collected
4.1 Biopsy samples for Calendar Year 2005
NEFSC

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Humpback whale	Gulf of Maine	66	Y	NA	NA	Richard Pace/NEFSC
Humpback whale	Caribbean	2100	Y	NA	NA	Richard Pace/NEFSC
Pilot whale	W.N. Atlantic	51	Y	NA	NA	Richard Pace/NEFSC
Northern right whale	W.N. Atlantic	17	Y	NA	NA	Richard Pace/NEFSC

SEFSC

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Bottlenose Dolphin	Gulf of Mexico	2005/summer/ 98	Y	0	NA	K. Mullin/SEFSC
Atlantic Spotted Dolphin	Atlantic	2005/summer/ 15	Y	0	NA	P. Rosel/SEFSC
Bottlenose Dolphin	Atlantic	2005/summer/ 58	Y	0	NA	P. Rosel/SEFSC
Fin Whale	Atlantic	2005/summer/5	Y	0	NA	P. Rosel/SEFSC
Pantropical Spotted Dolphin	Atlantic	2005/summer/ 8	Y	0	NA	P. Rosel/SEFSC
Pilot Whale	Atlantic	2005/summer/ 62	Y	0	NA	P. Rosel/SEFSC
Sperm Whale	Atlantic	2005/summer/ 1	Y	0	NA	P. Rosel/SEFSC

4.2 Samples from directed catches or bycatches for Calendar Year 2003
NEFSC

Species	Area/stock	Calendar year/ season total*	Archived (Y/N)	Tissue type(s)	Contact person/institute
Atlantic white-sided dolphin	W.N. Atlantic	13	Y	Blubber, DNA, head, kidney, muscle, reproductive organs	Frederick Wenzel/NEFC
Bottlenose dolphin	W.N. Atlantic	2	Y	Blubber, DNA, head, jaw, muscle	Frederick Wenzel/NEFC
Harbor porpoise	W.N. Atlantic	5	Y	Blubber, DNA	Frederick Wenzel/NEFC

*number of samples does not represent number of takes

SEFSC
NR

4.3 Samples from stranded animals for Calendar Year 2005
NEFSC

Species	NW Atlantic	Mid-Atlantic	Archived (Y/N)	Tissue type(s)	Contact person/institute

Atlantic White-sided Dolphin	45	3	Y	*	Mendy Garron, NER Stranding Network
Baird's Beaked Whale	0	1	Y	*	Mendy Garron, NER Stranding Network
Blainville's Beaked Whale	0	1	Y	*	Mendy Garron, NER Stranding Network
Bottlenose Dolphin	0	60	Y	*	Mendy Garron, NER Stranding Network
Common Dolphin	43	5	Y	*	Mendy Garron, NER Stranding Network
Dwarf Sperm Whale	0	1	Y	*	Mendy Garron, NER Stranding Network
Fin Whale	2	3	Y	*	Mendy Garron, NER Stranding Network
Harbor Porpoise	34	30	Y	*	Mendy Garron, NER Stranding Network
Humpback Whale	2	2	Y	*	Mendy Garron, NER Stranding Network
Pilot Whale (long-finned)	16	8	Y	*	Mendy Garron, NER Stranding Network
Northern Right Whale	1	2	Y	*	Mendy Garron, NER Stranding Network
Pygmy Sperm Whale	0	1	Y	*	Mendy Garron, NER Stranding Network
Rissos Dolphin	9	10	Y	*	Mendy Garron, NER Stranding Network
Striped Dolphin	0	3	Y	*	Mendy Garron, NER Stranding Network
Unidentified Balaenopterid	0	1	Y	*	Mendy Garron, NER Stranding Network
Unidentified Dolphin/Porpoise	0	1	Y	*	Mendy Garron, NER Stranding Network

*Samples include some or all of the following: hard parts (i.e. teeth, jaw, skull, baleen, entire skeleton, etc) and/or soft parts (i.e. skin, gonads, muscle, blubber, blood, organs, etc).

Data are entered as represented by the NOAA Fisheries NER Stranding Network and have not been formally reviewed by NOAA Fisheries.

SEFSC

Species	Atlantic	Gulf of Mexico	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Atlantic Spotted Dolphin	2	8	Y	*	Blair Mase, SER Stranding Network
Atlantic White-Sided Dolphin	2	0	Y	*	Blair Mase, SER Stranding Network
Blainville's Beaked Whale	2	0	Y	*	Blair Mase, SER Stranding Network
Bottlenose Dolphin	242	346	Y	*	Blair Mase, SER Stranding Network
Clymene Dolphin	1	1	Y	*	Blair Mase, SER Stranding Network
Common Dolphn	4	0	Y	*	Blair Mase, SER Stranding Network
Cuvier's Beaked Whale	0	1	Y	*	Blair Mase, SER Stranding Network
Dwarf Sperm Whale	4	5	Y	*	Blair Mase, SER Stranding Network
False Killer Whale	1	0	Y	*	Blair Mase, SER Stranding Network
Fin Whale	1	0	Y	*	Blair Mase, SER Stranding Network
Fraser's Dolphin	0	1	Y	*	Blair Mase, SER Stranding Network
Gervais' Beaked Whale	1	0	Y	*	Blair Mase, SER Stranding Network
Harbor Porpoise	15	0	Y	*	Blair Mase, SER Stranding Network
Humpback Whale	1	0	Y	*	Blair Mase, SER Stranding Network
Long-finned pilot whale	1	0	Y	*	Blair Mase, SER Stranding Network
Melon headed whale	0	1	Y	*	Blair Mase, SER Stranding Network
Northern Right Whale	2	0	Y	*	Blair Mase, SER Stranding Network
Pantropical Spoted Dolphin	1	2	Y	*	Blair Mase, SER Stranding Network
Pygmy Killer Whale	1	1	Y	*	Blair Mase, SER Stranding Network
Pygmy Sperm Whale	31	1	Y	*	Blair Mase, SER Stranding Network
Risso's Dolphin	6	3	Y	*	Blair Mase, SER Stranding Network
Rough-toothed Dolphin	37	13	Y	*	Blair Mase, SER Stranding Network
Sei Whale	1	0	Y	*	Blair Mase, SER Stranding Network
Short-finned Pilot Whale	5	0	Y	*	Blair Mase, SER Stranding Network
Sowerby's Beaked Whale	1	0	Y	*	Blair Mase, SER Stranding Network
Sperm Whale	2	0	Y	*	Blair Mase, SER Stranding Network
Spinner Dolphin	1	1	Y	*	Blair Mase, SER Stranding Network

Striped Dolphin	1	1	Y	*	Blair Mase, SER Stranding Network

*e.g. liver, skin, blubber etc.

4.4 Analyses/development of techniques
NR

5. Pollution studies
NR

6. Statistics for large cetaceans
6.1 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2005
NR

6.2 Non-natural mortality for the calendar year 2003
NESFC and SEFSC

Species	Area/stock	Male	Females	Total	Cause	Methodology
Northern right whale	Eastern USA		1	1	ship strike	*Review of NMFS records
Humpback whale	North Atlantic		1	1	ship strike	*Review of NMFS records
Sei whale	Nova Scotia Stock	1		1	ship strike	*Review of NMFS records
Brydes whale	Western N. Atlantic	1		1	entanglement	*Review of NMFS records
Minke whale	Western N. Atlantic	2	2	5	entanglement	*Review of NMFS records

* Subsequent review of NMFS/NER stranding records found sufficient information to confirm the cause of death as collision with vessel or fishery interaction/entanglement.

6.2.1 STRANDINGS OR DEAD WHALES ENCOUNTERED AT SEA CALENDAR YEAR 2003
NESFC and SEFSC

Whale species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
A. northern right whale	F	Off Digby, NS	ship strike	NA	NOAA/NEFSC Woods Hole, MA Tim Cole tcole@whsun1.wh.whoi.edu
B. humpback whale	F	Chesapeake Bay mouth, VA	ship strike	NA	see above
C. humpback whale	U	Petit Manan Island, ME	entanglement	NA	see above
D. sei whale	M	Norfolk, VA	ship strike	NA	see above
E. minke whale	M	Glouster, MA (42˚40.8'N 70˚39.6'W)	entanglement	NA	see above
F. minke whale	F	Martha's Vineyard, MA (41˚21.0'N 70˚47.5'W)	entanglement	NA	see above
G. minke whale	Unk	Harwich, MA (41˚37.3'N 70˚03.0'W)	entanglement	NA	see above
H. minke whale	M	Chatham, MA (41˚40'N 69˚55'W)	entanglement	NA	see above
I. minke whale	F	Maine (43˚42'N 69˚58'W)	entanglement	NA	see above
J. Brydes whale	M	New Hanover, NC (33˚55'N 78˚13'W)	entanglement	NA	see above

Comments:
A. Large fracture in skull, sub-dermal hemorrhage.
B. Major trauma to head, hematoma.
C. Floating offshore wrapped in line.
D. A large gash into muscle tissue extended from behind dorsal midline on left side almost all the way around to the ventral midline on the right sides through blubber layer and into some muscle.
E. Line marks of head and dorsal fin, cut across back anterior to dorsal fin.
F. Wrapped in netting.
G. Hemorrhaging in areas with net marks.
H. Wrapped in lobster gear.
I. External chaffing marks and belly slit open.

6.2.2 OBSERVED OR REPORTED SHIP STRIKES CALENDAR YEAR 2003
NESFC and SEFSC

Whale species	Sex	Date	Location	Vessel type	Speed	Fate	Source or contact

Northern right whale	F	Oct 2, 2003	off Digby, NS	NA	NA	D	NOAA/NEFSC Woods Hole, MA Tim Cole tcole@whsun1.wh.whoi.edu
Sei Whale	M	Feb 19, 2003	Norfolk, VA	NA	NA	D	See above
Humpback whale	F	June 6, 2003	Chesapeake Bay mouth, VA	NA	NA	D	See above

6.2.3 FISHERY BYCATCH 2003

NESFC and SEFSC

Whale species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Northern Right Whale	F	14 Jan	Jacksonville, FL	D	NA	NA	DA	NOAA/NEFSC Woods Hole, MA Tim Cole tcole@whsun1.wh.whoi.edu
Humpback Whale	U	9 July	Bay of Fundy, Canada	D	NA	NA	DA	See above
Humpback Whale	U	12 July	Oregon Inlet, NC	D	NA	NA	DA	See above
Humpback Whale	U	16 Aug	off Cape Cod, MA	D	NA	NA	DA	See above
Humpback Whale	U	15 Aug	Petit Manan Island, ME	D	NA	NA	DA	See above
Humpback Whale	U	18 Aug	off Cape Cod, MA	D	NA	NA	DA	See above
Brydes Whale	M	March 13	New Hanover, NC	D			DA	See above
Minke Whale	M	24 May	Glouster, MA (42˚40.8'N 70˚39.6'W)	D	NA	NA	DA	See above
Minke Whale	F	31 May	Martha's Vineyard, MA (41˚21.0'N 70˚47.5'W)	D	NA	TX	DA	See above
Minke Whale	U	9 Aug	Harwich, MA (41˚37.3'N 70˚03.0'W)	D	NA	NA	DA	See above
Minke Whale	M	28 Jun	Chatham, MA (41˚40'N 69˚55'W)	D	lobster	NA	DA	See above
Minke Whale	F	13 Sept	Maine (43˚42'N 69˚58'W)	D	NA	NA	DA	See above

6.3 Earlier years' statistics
NR

7. Statistics for small cetaceans

7.1 For the calendar years 2003, 2004 and 2005

7.2 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2005
NR

7.3 Non-natural mortality for the calendar year 2004
Cause of death determinations are unavailable for small cetaceans. See below sections for strandings and fisheries bycatch.

7.3.1 STRANDINGS OR DEAD SMALL CETACEANS ENCOUNTERED AT SEA 2004

NEFSC

Species	Sex	Location	Cause of Death	Det	Source or contact institution, contact name and telephone and/or e-mail

Atlantic white-sided dolphin	F	39.56ºN, 74.24ºW	U	U	Mendy Garron, NER Stranding Network, NMFS Regional Office, Gloucester. MA (978)-281-9300 x 6528.
Atlantic white-sided dolphin	F	40.85ºN, 72.45ºW	U	U	see above
Atlantic white-sided dolphin	F	41.82ºN, 70.00ºW	U	U	see above
Atlantic white-sided dolphin	F	41.82ºN, 70.00ºW	U	U	see above
Atlantic white-sided dolphin	F	42.30ºN, 70.88ºW	U	U	see above
Atlantic white-sided dolphin	F	42.30ºN, 70.88ºW	U	U	see above
Atlantic white-sided dolphin	F	42.30ºN, 70.88ºW	U	U	see above
Atlantic white-sided dolphin	F	42.37ºN, 70.97ºW	U	U	see above
Atlantic white-sided dolphin	F	42.39ºN, 70.98ºW	U	U	see above
Atlantic white-sided dolphin	F	42.57ºN, 70.75ºW	U	U	see above
Atlantic white-sided dolphin	F	42.61ºN, 70.66ºW	U	U	see above
Atlantic white-sided dolphin	F	43.27ºN, 70.58ºW	U	U	see above
Atlantic white-sided dolphin	F	U	U	U	see above
Atlantic white-sided dolphin	F	U	U	U	see above
Atlantic white-sided dolphin	M	37.87ºN, 75.44ºW	U	U	see above
Atlantic white-sided dolphin	M	37.87ºN, 75.43ºW	U	U	see above
Atlantic white-sided dolphin	M	37.90ºN, 75.40ºW	U	U	see above
Atlantic white-sided dolphin	M	37.92ºN, 75.39ºW	U	U	see above
Atlantic white-sided dolphin	M	41.63ºN, 70.32ºW	U	U	see above
Atlantic white-sided dolphin	M	41.81ºN, 69.94ºW	U	U	see above
Atlantic white-sided dolphin	M	41.83ºN, 69.94ºW	U	U	see above
Atlantic white-sided dolphin	M	41.93ºN, 70.55ºW	U	U	see above
Atlantic white-sided dolphin	M	41.93ºN, 70.07ºW	U	U	see above
Atlantic white-sided dolphin	M	42.01ºN, 70.08ºW	U	U	see above
Atlantic white-sided dolphin	M	42.26ºN, 70.96ºW	U	U	see above
Atlantic white-sided dolphin	M	42.26ºN, 70.82ºW	U	U	see above
Atlantic white-sided dolphin	M	42.30ºN, 71.04ºW	U	U	see above
Atlantic white-sided dolphin	M	42.38ºN, 70.97ºW	U	U	see above
Atlantic white-sided dolphin	M	42.67ºN, 70.66ºW	U	U	see above
Atlantic white-sided dolphin	M	42.72ºN, 70.25ºW	U	U	see above
Atlantic white-sided dolphin	M	43.44ºN, 70.36ºW	U	U	see above
Atlantic white-sided dolphin	M	43.72ºN, 70.12ºW	U	U	see above
Atlantic white-sided dolphin	M	44.86ºN, 66.98ºW	U	U	see above
Atlantic white-sided dolphin	U	41.82ºN, 69.96ºW	U	U	see above
Atlantic white-sided dolphin	U	41.91ºN, 70.06ºW	U	U	see above
Atlantic white-sided dolphin	U	41.92ºN, 70.06ºW	U	U	see above
Atlantic white-sided dolphin	U	41.92ºN, 71.06ºW	U	U	see above
Atlantic white-sided dolphin	U	41.92ºN, 70.06ºW	U	U	see above
Atlantic white-sided dolphin	U	41.92ºN, 70.05ºW	U	U	see above
Atlantic white-sided dolphin	U	41.93ºN, 70.07ºW	U	U	see above
Atlantic white-sided dolphin	U	41.99ºN, 70.01ºW	U	U	see above
Atlantic white-sided dolphin	U	42.03ºN, 70.62ºW	U	U	see above
Atlantic white-sided dolphin	U	42.05ºN, 70.64ºW	U	U	see above
Atlantic white-sided dolphin	U	42.27ºN, 70.85ºW	U	U	see above
Atlantic white-sided dolphin	U	42.43ºN, 70.94ºW	U	U	see above
Atlantic white-sided dolphin	U	43.95ºN, 69.30ºW	U	U	see above
Atlantic white-sided dolphin	U	U	U	U	see above
Atlantic white-sided dolphin	U	U	U	U	see above
Atlantic white-sided dolphin	U	U	U	U	see above
Beluga whale	M	43.64ºN, 70.25ºW	U	U	see above
Bottlenose dolphin	F	36.57ºN, 75.87ºW	U	U	see above
Bottlenose dolphin	F	36.60ºN, 75.88ºW	U	U	see above

Bottlenose dolphin	F	36.61ºN, 75.88ºW	U	U	see above
Bottlenose dolphin	F	36.75ºN, 75.94ºW	U	U	see above
Bottlenose dolphin	F	36.83ºN, 75.97ºW	U	U	see above
Bottlenose dolphin	F	36.87ºN, 75.98ºW	U	U	see above
Bottlenose dolphin	F	36.90ºN, 76.48ºW	U	U	see above
Bottlenose dolphin	F	36.91ºN, 76.08ºW	U	U	see above
Bottlenose dolphin	F	36.91ºN, 76.07ºW	U	U	see above
Bottlenose dolphin	F	36.92ºN, 76.07ºW	U	U	see above
Bottlenose dolphin	F	37.05ºN, 76.36ºW	U	U	see above
Bottlenose dolphin	F	37.07ºN, 76.28ºW	U	U	see above
Bottlenose dolphin	F	37.09ºN, 75.37ºW	U	U	see above
Bottlenose dolphin	F	37.09ºN, 75.37ºW	U	U	see above
Bottlenose dolphin	F	37.15ºN, 75.97ºW	U	U	see above
Bottlenose dolphin	F	37.26ºN, 76.43ºW	U	U	see above
Bottlenose dolphin	F	37.51ºN, 76.29ºW	U	U	see above
Bottlenose dolphin	F	37.70ºN, 75.58ºW	U	U	see above
Bottlenose dolphin	F	37.87ºN, 75.45ºW	U	U	see above
Bottlenose dolphin	F	37.87ºN, 76.24ºW	U	U	see above
Bottlenose dolphin	F	37.87ºN, 75.43ºW	U	U	see above
Bottlenose dolphin	F	37.92ºN, 75.33ºW	U	U	see above
Bottlenose dolphin	F	37.93ºN, 75.32ºW	U	U	see above
Bottlenose dolphin	F	37.97ºN, 75.28ºW	U	U	see above
Bottlenose dolphin	F	38.16ºN, 76.44ºW	U	U	see above
Bottlenose dolphin	F	38.25ºN, 75.13ºW	U	U	see above
Bottlenose dolphin	F	38.29ºN, 76.07ºW	U	U	see above
Bottlenose dolphin	F	38.75ºN, 75.08ºW	U	U	see above
Bottlenose dolphin	F	39.17ºN, 76.12ºW	U	U	see above
Bottlenose dolphin	F	41.24ºN, 70.10ºW	U	U	see above
Bottlenose dolphin	F	41.50ºN, 71.32ºW	U	U	see above
Bottlenose dolphin	F	U	U	U	see above
Bottlenose dolphin	F	U	U	U	see above
Bottlenose dolphin	M	36.54ºN, 75.58ºW	U	U	see above
Bottlenose dolphin	M	36.60ºN, 75.88ºW	U	U	see above
Bottlenose dolphin	M	36.60ºN, 75.88ºW	U	U	see above
Bottlenose dolphin	M	36.73ºN, 75.94ºW	U	U	see above
Bottlenose dolphin	M	36.80ºN, 75.93ºW	U	U	see above
Bottlenose dolphin	M	36.80ºN, 75.26ºW	U	U	see above
Bottlenose dolphin	M	36.82ºN, 75.97ºW	U	U	see above
Bottlenose dolphin	M	36.88ºN, 75.98ºW	U	U	see above
Bottlenose dolphin	M	36.91ºN, 76.08ºW	U	U	see above
Bottlenose dolphin	M	36.91ºN, 76.07ºW	U	U	see above
Bottlenose dolphin	M	36.92ºN, 76.06ºW	U	U	see above
Bottlenose dolphin	M	36.93ºN, 76.03ºW	U	U	see above
Bottlenose dolphin	M	36.95ºN, 76.24ºW	U	U	see above
Bottlenose dolphin	M	37.02ºN, 75.99ºW	U	U	see above
Bottlenose dolphin	M	37.04ºN, 76.29ºW	U	U	see above
Bottlenose dolphin	M	37.07ºN, 76.28ºW	U	U	see above
Bottlenose dolphin	M	37.08ºN, 75.96ºW	U	U	see above
Bottlenose dolphin	M	37.09ºN, 75.95ºW	U	U	see above
Bottlenose dolphin	M	37.12ºN, 75.97ºW	U	U	see above
Bottlenose dolphin	M	37.14ºN, 75.27ºW	U	U	see above
Bottlenose dolphin	M	37.17ºN, 75.99ºW	U	U	see above
Bottlenose dolphin	M	37.18ºN, 75.99ºW	U	U	see above
Bottlenose dolphin	M	37.20ºN, 76.10ºW	U	U	see above
Bottlenose dolphin	M	37.22ºN, 76.46ºW	U	U	see above

Bottlenose dolphin	M	37.30ºN, 75.78ºW	U	U	see above
Bottlenose dolphin	M	37.33ºN, 76.27ºW	U	U	see above
Bottlenose dolphin	M	37.41ºN, 76.39ºW	U	U	see above
Bottlenose dolphin	M	37.56ºN, 75.60ºW	U	U	see above
Bottlenose dolphin	M	37.61ºN, 75.62ºW	U	U	see above
Bottlenose dolphin	M	37.72ºN, 75.57ºW	U	U	see above
Bottlenose dolphin	M	37.79ºN, 75.96ºW	U	U	see above
Bottlenose dolphin	M	37.87ºN, 75.43ºW	U	U	see above
Bottlenose dolphin	M	37.88ºN, 75.35ºW	U	U	see above
Bottlenose dolphin	M	37.94ºN, 75.44ºW	U	U	see above
Bottlenose dolphin	M	37.96ºN, 76.04ºW	U	U	see above
Bottlenose dolphin	M	38.16ºN, 75.17ºW	U	U	see above
Bottlenose dolphin	M	38.36ºN, 75.07ºW	U	U	see above
Bottlenose dolphin	M	38.51ºN, 75.05ºW	U	U	see above
Bottlenose dolphin	M	38.61ºN, 75.08ºW	U	U	see above
Bottlenose dolphin	M	38.64ºN, 75.07ºW	U	U	see above
Bottlenose dolphin	M	38.73ºN, 75.08ºW	U	U	see above
Bottlenose dolphin	M	38.80ºN, 75.17ºW	U	U	see above
Bottlenose dolphin	M	38.90ºN, 75.29ºW	U	U	see above
Bottlenose dolphin	M	38.91ºN, 75.30ºW	U	U	see above
Bottlenose dolphin	M	38.93ºN, 74.93ºW	U	U	see above
Bottlenose dolphin	M	38.93ºN, 75.32ºW	U	U	see above
Bottlenose dolphin	M	39.04ºN, 74.76ºW	U	U	see above
Bottlenose dolphin	M	39.17ºN, 74.68ºW	U	U	see above
Bottlenose dolphin	M	39.23ºN, 74.63ºW	U	U	see above
Bottlenose dolphin	M	39.41ºN, 74.36ºW	U	U	see above
Bottlenose dolphin	M	39.48ºN, 74.48ºW	U	U	see above
Bottlenose dolphin	M	39.65ºN, 74.17ºW	U	U	see above
Bottlenose dolphin	M	39.72ºN, 74.57ºW	U	U	see above
Bottlenose dolphin	M	39.73ºN, 74.12ºW	U	U	see above
Bottlenose dolphin	M	39.74ºN, 74.11ºW	U	U	see above
Bottlenose dolphin	M	39.99ºN, 74.57ºW	U	U	see above
Bottlenose dolphin	M	41.20ºN, 71.57ºW	U	U	see above
Bottlenose dolphin	M	U	U	U	see above
Bottlenose dolphin	M	U	U	U	see above
Bottlenose dolphin	U	36.91ºN, 76.07ºW	U	U	see above
Bottlenose dolphin	U	36.99ºN, 76.02ºW	U	U	see above
Bottlenose dolphin	U	37.19ºN, 75.82ºW	U	U	see above
Bottlenose dolphin	U	37.21ºN, 76.01ºW	U	U	see above
Bottlenose dolphin	U	37.23ºN, 76.01ºW	U	U	see above
Bottlenose dolphin	U	37.30ºN, 76.02ºW	U	U	see above
Bottlenose dolphin	U	37.32ºN, 75.75ºW	U	U	see above
Bottlenose dolphin	U	37.33ºN, 75.74ºW	U	U	see above
Bottlenose dolphin	U	37.38ºN, 75.99ºW	U	U	see above
Bottlenose dolphin	U	37.63ºN, 75.60ºW	U	U	see above
Bottlenose dolphin	U	37.69ºN, 75.58ºW	U	U	see above
Bottlenose dolphin	U	37.74ºN, 75.55ºW	U	U	see above
Bottlenose dolphin	U	37.81ºN, 75.51ºW	U	U	see above
Bottlenose dolphin	U	37.81ºN, 75.51ºW	U	U	see above
Bottlenose dolphin	U	37.96ºN, 75.29ºW	U	U	see above
Bottlenose dolphin	U	38.27ºN, 75.12ºW	U	U	see above
Bottlenose dolphin	U	38.32ºN, 75.10ºW	U	U	see above
Bottlenose dolphin	U	38.46ºN, 75.05ºW	U	U	see above
Bottlenose dolphin	U	38.60ºN, 75.06ºW	U	U	see above
Bottlenose dolphin	U	38.60ºN, 75.09ºW	U	U	see above

Bottlenose dolphin	U	38.68ºN, 74.07ºW	U	U	see above
Bottlenose dolphin	U	38.77ºN, 75.08ºW	U	U	see above
Bottlenose dolphin	U	38.91ºN, 75.30ºW	U	U	see above
Bottlenose dolphin	U	39.53ºN, 74.26ºW	U	U	see above
Bottlenose dolphin	U	39.75ºN, 74.11ºW	U	U	see above
Bottlenose dolphin	U	39.76ºN, 74.10ºW	U	U	see above
Bottlenose dolphin	U	U	U	U	see above
Bottlenose dolphin	U	U	U	U	see above
Bottlenose dolphin	U	U	U	U	see above
Common dolphin	F	37.14ºN, 35.97ºW	U	U	see above
Common dolphin	F	38.12ºN, 75.15ºW	U	U	see above
Common dolphin	F	38.34ºN, 75.08ºW	U	U	see above
Common dolphin	F	38.92ºN, 74.94ºW	U	U	see above
Common dolphin	F	39.14ºN, 74.70ºW	U	U	see above
Common dolphin	F	39.27ºN, 74.58ºW	U	U	see above
Common dolphin	F	39.91ºN, 74.73ºW	U	U	see above
Common dolphin	F	39.96ºN, 74.67ºW	U	U	see above
Common dolphin	F	40.20ºN, 74.01ºW	U	U	see above
Common dolphin	F	40.63ºN, 73.21ºW	U	U	see above
Common dolphin	F	40.65ºN, 73.14ºW	U	U	see above
Common dolphin	F	41.63ºN, 70.32ºW	U	U	see above
Common dolphin	F	41.67ºN, 70.02ºW	U	U	see above
Common dolphin	F	41.70ºN, 71.39ºW	U	U	see above
Common dolphin	F	41.77ºN, 70.08ºW	U	U	see above
Common dolphin	F	41.80ºN, 70.01ºW	U	U	see above
Common dolphin	F	41.81ºN, 70.00ºW	U	U	see above
Common dolphin	F	41.88ºN, 70.01ºW	U	U	see above
Common dolphin	F	41.90ºN, 70.00ºW	U	U	see above
Common dolphin	F	41.93ºN, 70.07ºW	U	U	see above
Common dolphin	F	42.29ºN, 70.88ºW	U	U	see above
Common dolphin	M	36.93ºN, 75.00ºW	U	U	see above
Common dolphin	M	37.12ºN, 75.97ºW	U	U	see above
Common dolphin	M	37.15ºN, 75.98ºW	U	U	see above
Common dolphin	M	37.87ºN, 75.45ºW	U	U	see above
Common dolphin	M	37.87ºN, 75.44ºW	U	U	see above
Common dolphin	M	38.12ºN, 75.18ºW	U	U	see above
Common dolphin	M	38.21ºN, 75.15ºW	U	U	see above
Common dolphin	M	38.65ºN, 75.07ºW	U	U	see above
Common dolphin	M	38.67ºN, 75.07ºW	U	U	see above
Common dolphin	M	39.09ºN, 74.72ºW	U	U	see above
Common dolphin	M	39.16ºN, 74.69ºW	U	U	see above
Common dolphin	M	39.16ºN, 74.69ºW	U	U	see above
Common dolphin	M	39.22ºN, 74.65ºW	U	U	see above
Common dolphin	M	39.31ºN, 74.56ºW	U	U	see above
Common dolphin	M	39.39ºN, 74.40ºW	U	U	see above
Common dolphin	M	39.59ºN, 74.22ºW	U	U	see above
Common dolphin	M	39.97ºN, 74.07ºW	U	U	see above
Common dolphin	M	40.28ºN, 73.98ºW	U	U	see above
Common dolphin	M	40.73ºN, 72.87ºW	U	U	see above
Common dolphin	M	41.29ºN, 70.18ºW	U	U	see above
Common dolphin	M	41.30ºN, 70.05ºW	U	U	see above
Common dolphin	M	41.31ºN, 70.01ºW	U	U	see above
Common dolphin	M	41.31ºN, 70.01ºW	U	U	see above
Common dolphin	M	41.41ºN, 70.71ºW	U	U	see above
Common dolphin	M	41.50ºN, 71.09ºW	U	U	see above

Common dolphin	M	41.57ºN, 70.47ºW	U	U	see above
Common dolphin	M	41.57ºN, 70.64ºW	U	U	see above
Common dolphin	M	41.61ºN, 70.65ºW	U	U	see above
Common dolphin	M	41.81ºN, 70.00ºW	U	U	see above
Common dolphin	M	41.83ºN, 70.00ºW	U	U	see above
Common dolphin	M	41.90ºN, 70.00ºW	U	U	see above
Common dolphin	M	U	U	U	see above
Common dolphin	U	37.27ºN, 75.80ºW	U	U	see above
Common dolphin	U	37.83ºN, 75.49ºW	U	U	see above
Common dolphin	U	38.94ºN, 74.97ºW	U	U	see above
Common dolphin	U	38.94ºN, 74.97ºW	U	U	see above
Common dolphin	U	40.36ºN, 73.97ºW	U	U	see above
Common dolphin	U	41.69ºN, 70.73ºW	U	U	see above
Common dolphin	U	41.81ºN, 69.94ºW	U	U	see above
Common dolphin	U	41.84ºN, 69.94ºW	U	U	see above
Common dolphin	U	41.91ºN, 70.07ºW	U	U	see above
Common dolphin	U	41.93ºN, 70.07ºW	U	U	see above
Harbor porpoise	F	37.00ºN, 76.30ºW	U	U	see above
Harbor porpoise	F	38.60ºN, 75.06ºW	U	U	see above
Harbor porpoise	F	38.75ºN, 76.04ºW	U	U	see above
Harbor porpoise	F	40.68ºN, 73.02ºW	U	U	see above
Harbor porpoise	F	40.77ºN, 72.75ºW	U	U	see above
Harbor porpoise	F	40.82ºN, 72.56ºW	U	U	see above
Harbor porpoise	F	40.92ºN, 73.36ºW	U	U	see above
Harbor porpoise	F	41.31ºN, 70.02ºW	U	U	see above
Harbor porpoise	F	41.78ºN, 70.50ºW	U	U	see above
Harbor porpoise	F	41.78ºN, 70.50ºW	U	U	see above
Harbor porpoise	F	41.84ºN, 70.54ºW	U	U	see above
Harbor porpoise	F	41.90ºN, 70.54ºW	U	U	see above
Harbor porpoise	F	42.28ºN, 70.89ºW	U	U	see above
Harbor porpoise	F	42.32ºN, 70.99ºW	U	U	see above
Harbor porpoise	F	42.37ºN, 71.00ºW	U	U	see above
Harbor porpoise	F	42.39ºN, 71.07ºW	U	U	see above
Harbor porpoise	F	42.44ºN, 70.74ºW	U	U	see above
Harbor porpoise	F	42.45ºN, 70.94ºW	U	U	see above
Harbor porpoise	F	43.61ºN, 70.21ºW	U	U	see above
Harbor porpoise	F	43.77ºN, 69.95ºW	U	U	see above
Harbor porpoise	F	44.46ºN, 68.88ºW	U	U	see above
Harbor porpoise	F	44.46ºN, 68.88ºW	U	U	see above
Harbor porpoise	F	44.51ºN, 68.79ºW	U	U	see above
Harbor porpoise	M	36.89ºN, 75.99ºW	U	U	see above
Harbor porpoise	M	36.92ºN, 75.99ºW	U	U	see above
Harbor porpoise	M	36.99ºN, 76.49ºW	U	U	see above
Harbor porpoise	M	37.86ºN, 75.39ºW	U	U	see above
Harbor porpoise	M	39.27ºN, 74.57ºW	U	U	see above
Harbor porpoise	M	39.60ºN, 75.88ºW	U	U	see above
Harbor porpoise	M	39.90ºN, 74.75ºW	U	U	see above
Harbor porpoise	M	40.45ºN, 74.19ºW	U	U	see above
Harbor porpoise	M	40.54ºN, 74.40ºW	U	U	see above
Harbor porpoise	M	40.59ºN, 73.63ºW	U	U	see above
Harbor porpoise	M	40.62ºN, 73.27ºW	U	U	see above
Harbor porpoise	M	40.68ºN, 73.02ºW	U	U	see above
Harbor porpoise	M	40.82ºN, 72.56ºW	U	U	see above
Harbor porpoise	M	41.37ºN, 71.57ºW	U	U	see above
Harbor porpoise	M	41.74ºN, 70.33ºW	U	U	see above

Harbor porpoise	M	41.77ºN, 70.10ºW	U	U	see above
Harbor porpoise	M	41.79ºN, 70.03ºW	U	U	see above
Harbor porpoise	M	41.81ºN, 69.97ºW	U	U	see above
Harbor porpoise	M	41.84ºN, 70.00ºW	U	U	see above
Harbor porpoise	M	41.89ºN, 69.96ºW	U	U	see above
Harbor porpoise	M	41.93ºN, 70.07ºW	U	U	see above
Harbor porpoise	M	41.93ºN, 70.03ºW	U	U	see above
Harbor porpoise	M	41.94ºN, 70.03ºW	U	U	see above
Harbor porpoise	M	41.94ºN, 70.03ºW	U	U	see above
Harbor porpoise	M	42.01ºN, 70.68ºW	U	U	see above
Harbor porpoise	M	42.05ºN, 70.07ºW	U	U	see above
Harbor porpoise	M	42.05ºN, 70.13ºW	U	U	see above
Harbor porpoise	M	42.30ºN, 70.92ºW	U	U	see above
Harbor porpoise	M	42.32ºN, 70.99ºW	U	U	see above
Harbor porpoise	M	42.42ºN, 70.98ºW	U	U	see above
Harbor porpoise	M	42.43ºN, 70.97ºW	U	U	see above
Harbor porpoise	M	42.43ºN, 70.97ºW	U	U	see above
Harbor porpoise	M	42.54ºN, 70.87ºW	U	U	see above
Harbor porpoise	M	42.58ºN, 70.72ºW	U	U	see above
Harbor porpoise	M	42.90ºN, 70.81ºW	U	U	see above
Harbor porpoise	M	43.44ºN, 70.37ºW	U	U	see above
Harbor porpoise	M	43.76ºN, 70.20ºW	U	U	see above
Harbor porpoise	M	44.42ºN, 68.99ºW	U	U	see above
Harbor porpoise	M	U	U	U	see above
Harbor porpoise	U	36.72ºN, 75.93ºW	U	U	see above
Harbor porpoise	U	37.79ºN, 75.52ºW	U	U	see above
Harbor porpoise	U	38.19ºN, 75.14ºW	U	U	see above
Harbor porpoise	U	38.94ºN, 74.88ºW	U	U	see above
Harbor porpoise	U	39.06ºN, 74.77ºW	U	U	see above
Harbor porpoise	U	39.40ºN, 74.37ºW	U	U	see above
Harbor porpoise	U	39.54ºN, 74.26ºW	U	U	see above
Harbor porpoise	U	39.90ºN, 74.08ºW	U	U	see above
Harbor porpoise	U	39.94ºN, 74.69ºW	U	U	see above
Harbor porpoise	U	39.98ºN, 74.06ºW	U	U	see above
Harbor porpoise	U	40.24ºN, 73.99ºW	U	U	see above
Harbor porpoise	U	40.30ºN, 73.98ºW	U	U	see above
Harbor porpoise	U	40.57ºN, 74.39ºW	U	U	see above
Harbor porpoise	U	41.49ºN, 71.25ºW	U	U	see above
Harbor porpoise	U	41.49ºN, 71.25ºW	U	U	see above
Harbor porpoise	U	41.65ºN, 69.95ºW	U	U	see above
Harbor porpoise	U	41.81ºN, 70.32ºW	U	U	see above
Harbor porpoise	U	41.92ºN, 70.05ºW	U	U	see above
Harbor porpoise	U	41.92ºN, 70.05ºW	U	U	see above
Harbor porpoise	U	41.93ºN, 70.03ºW	U	U	see above
Harbor porpoise	U	41.93ºN, 70.06ºW	U	U	see above
Harbor porpoise	U	41.93ºN, 70.03ºW	U	U	see above
Harbor porpoise	U	41.93ºN, 70.03ºW	U	U	see above
Harbor porpoise	U	41.93ºN, 70.03ºW	U	U	see above
Harbor porpoise	U	42.07ºN, 70.24ºW	U	U	see above
Harbor porpoise	U	42.17ºN, 70.72ºW	U	U	see above
Harbor porpoise	U	42.30ºN, 70.91ºW	U	U	see above
Harbor porpoise	U	42.44ºN, 70.74ºW	U	U	see above
Harbor porpoise	U	42.58ºN, 70.74ºW	U	U	see above
Harbor porpoise	U	42.58ºN, 70.74ºW	U	U	see above
Harbor porpoise	U	42.59ºN, 70.69ºW	U	U	see above

Harbor porpoise	U	42.61ºN, 70.66ºW	U	U	see above
Harbor porpoise	U	42.66ºN, 70.71ºW	U	U	see above
Harbor porpoise	U	42.98ºN, 70.76ºW	U	U	see above
Harbor porpoise	U	43.48ºN, 70.64ºW	U	U	see above
Harbor porpoise	U	43.50ºN, 70.38ºW	U	U	see above
Harbor porpoise	U	43.55ºN, 70.12ºW	U	U	see above
Harbor porpoise	U	43.63ºN, 70.21ºW	U	U	see above
Harbor porpoise	U	43.65ºN, 70.23ºW	U	U	see above
Harbor porpoise	U	43.85ºN, 69.95ºW	U	U	see above
Harbor porpoise	U	U	U	U	see above
Long-finned pilot whale	F	40.95ºN, 72.16ºW	U	U	see above
Long-finned pilot whale	F	41.51ºN, 71.00ºW	U	U	see above
Long-finned pilot whale	F	43.83ºN, 69.68ºW	U	U	see above
Long-finned pilot whale	F	43.87ºN, 69.88ºW	U	U	see above
Long-finned pilot whale	M	40.58ºN, 73.69ºW	U	U	see above
Long-finned pilot whale	M	40.73ºN, 72.87ºW	U	U	see above
Long-finned pilot whale	M	44.36ºN, 68.05ºW	U	U	see above
Long-finned pilot whale	U	41.23ºN, 71.58ºW	U	U	see above
Long-finned pilot whale	U	43.80ºN, 69.38ºW	U	U	see above
Melon-headed whale	M	38.96ºN, 74.85ºW	U	U	see above
Pygmy sperm whale	F	39.96ºN, 74.07ºW	U	U	see above
Pygmy sperm whale	F	40.63ºN, 73.23ºW	U	U	see above
Pygmy sperm whale	F	40.70ºN, 72.91ºW	U	U	see above
Pygmy sperm whale	M	40.59ºN, 73.76ºW	U	U	see above
Pygmy sperm whale	U	37.73ºN, 75.57ºW	U	U	see above
Rissos dolphin	F	37.94ºN, 75.31ºW	U	U	see above
Rissos dolphin	F	38.38ºN, 75.07ºW	U	U	see above
Rissos dolphin	F	40.57ºN, 74.09ºW	U	U	see above
Rissos dolphin	F	41.38ºN, 70.45ºW	U	U	see above
Rissos dolphin	F	41.90ºN, 70.54ºW	U	U	see above
Rissos dolphin	M	38.77ºN, 75.08ºW	U	U	see above
Rissos dolphin	M	38.77ºN, 75.08ºW	U	U	see above
Rissos dolphin	M	40.78ºN, 72.69ºW	U	U	see above
Rissos dolphin	M	41.13ºN, 72.33ºW	U	U	see above
Rissos dolphin	M	41.35ºN, 70.66ºW	U	U	see above
Rissos dolphin	M	44.47ºN, 68.89ºW	U	U	see above
Rissos dolphin	M	U	U	U	see above
Rissos dolphin	U	41.26ºN, 70.19ºW	U	U	see above
Rissos dolphin	U	41.38ºN, 71.55ºW	U	U	see above
Striped dolphin	F	41.45ºN, 70.55ºW	U	U	see above
Striped dolphin	M	40.59ºN, 73.54ºW	U	U	see above
Striped dolphin	M	44.52ºN, 67.61ºW	U	U	see above
Striped dolphin	U	42.37ºN, 71.05ºW	U	U	see above
Unidentified cetacean	U	41.45ºN, 70.73ºW	U	U	see above
Unidentified cetacean	U	41.63ºN, 69.72ºW	U	U	see above
Unidentified cetacean	U	41.66ºN, 70.62ºW	U	U	see above
Unidentified cetacean	U	41.79ºN, 69.85ºW	U	U	see above
Unidentified cetacean	U	43.99ºN, 69.67ºW	U	U	see above
Unidentified cetacean	U	44.05ºN, 68.41ºW	U	U	see above
Unidentified cetacean	U	44.27ºN, 68.23ºW	U	U	see above
Unidentified cetacean	U	44.47ºN, 68.85ºW	U	U	see above
Unidentified cetacean	U	U	U	U	see above
Unidentified cetacean	U	U	U	U	see above
Unidentified marine mammal	U	41.36ºN, 71.61ºW	U	U	see above
Unidentified marine mammal	U	43.04ºN, 70.71ºW	U	U	see above

Unspecified dolphin	U	38.94ºN, 74.87ºW	U	U	see above
Unspecified dolphin	U	38.95ºN, 74.91ºW	U	U	see above
Unspecified dolphin	U	39.20ºN, 74.66ºW	U	U	see above
Unspecified dolphin	U	39.25ºN, 74.61ºW	U	U	see above
Unspecified dolphin	U	39.27ºN, 74.66ºW	U	U	see above
Unspecified dolphin	U	39.53ºN, 74.27ºW	U	U	see above
Unspecified dolphin	U	39.59ºN, 74.24ºW	U	U	see above
Unspecified dolphin	U	39.65ºN, 74.17ºW	U	U	see above
Unspecified dolphin	U	41.08ºN, 72.09ºW	U	U	see above
Unspecified dolphin	U	41.45ºN, 70.60ºW	U	U	see above
Unspecified dolphin	U	U	U	U	see above
Unspecified Phocenidae porpoise	U	44.82ºN, 67.17ºW	U	U	see above
Unspecified pilot whale	U	37.54ºN, 75.62ºW	U	U	see above
Unspecified toothed whale	M	40.57ºN, 74.01ºW	U	U	see above
Unspecified toothed whale	U	40.62ºN, 73.28ºW	U	U	see above
White-beaked dolphin	M	44.08ºN, 68.82ºW	U	U	see above

SEFSC

Species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
Atlantic Spotted Dolphin	U	Alabama	CBD*	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Alabama	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Alabama	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Alabama	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Atlantic Spotted Dolphin	U	Puerto Rico	CBD	M	Blair Mase/SEFSC
Atlantic White-sided dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Atlantic White-sided dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Blainville's beaked whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Blainville's beaked whale	U	Puerto Rico	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Alabama	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Alabama	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Alabama	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC

Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Lousiana	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Lousiana	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Mississippi	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
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Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Bottlenose dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Clymene dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Clymene dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Common dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Common dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Common dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Common dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Cuvier's beaked whale	U	Texas	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Texas	CBD	M	Blair Mase/SEFSC
Dwarf sperm whale	U	Texas	CBD	M	Blair Mase/SEFSC
False killer whale	U	Virgin Islands	CBD	M	Blair Mase/SEFSC
Fin whale	U	Florida	CBD	M	Blair Mase/SEFSC
Fraser's dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Gervias' beaked whale	U	Florida	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC

Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Harbor porpoise	U	North Carolina	CBD	M	Blair Mase/SEFSC
Long-finned pilot whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Melon-headed whale	U	Texas	CBD	M	Blair Mase/SEFSC
Pantropical spotted dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Pantropical spotted dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Pantropical spotted dolphin	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy killer whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy killer whale	U	Texas	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Florida	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Pygmy sperm whale	U	South Carolina	CBD	M	Blair Mase/SEFSC
Risso's dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Risso's dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Risso's dolphin	U	Florida	CBD	M	Blair Mase/SEFSC

Risso's dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Risso's dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Risso's dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC
Risso's dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
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Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
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Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Rough-toothed dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Short-finned pilot whale	U	Florida	CBD	M	Blair Mase/SEFSC
Short-finned pilot whale	U	Florida	CBD	M	Blair Mase/SEFSC

Short-finned pilot whale	U	Florida	CBD	M	Blair Mase/SEFSC
Short-finned pilot whale	U	Florida	CBD	M	Blair Mase/SEFSC
Short-finned pilot whale	U	North Carolina	CBD	M	Blair Mase/SEFSC
Sowerby's beaked whale	U	Georgia	CBD	M	Blair Mase/SEFSC
Spinner dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Spinner dolphin	U	Texas	CBD	M	Blair Mase/SEFSC
Striped dolphin	U	Florida	CBD	M	Blair Mase/SEFSC
Striped dolphin	U	North Carolina	CBD	M	Blair Mase/SEFSC

*CBD= could not be determined.

7.3.2 OBSERVED OR REPORTED SHIP STRIKES 2004

NR.

7.3.3 FISHERY BYCATCH 2003

NEFSC

Species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Atlantic white-sided dolphin	U	4/28/03	41.96ºN, -69.94ºW	D	winter flounder	GNS	F	NEFSC, 166 Water Street, Woods Hole MA 02543 Dana Belden, 508-495- 2136 dbelden@whsun1.wh.whoi.edu
Atlantic white-sided dolphin	M	3/9/03	41.84ºN, -68.35ºW	D	monkfish	TBB	F	see above
Atlantic white-sided dolphin	U	4/7/03	41.72ºN, -69.73ºW	D	cod	TBB	F	see above
Atlantic white-sided dolphin	U	2/10/03	42.33ºN, -69.29ºW	R	monkfish	TBB	F	see above
Atlantic white-sided dolphin	U	8/21/03	42.05ºN, -68.28ºW	D	monkfish	TBB	F	see above
Atlantic white-sided dolphin	F	6/12/03	41.78ºN, -68.62ºW	D	monkfish	TBB	F	see above
Atlantic white-sided dolphin	U	3/7/03	42.71ºN, -69.7ºW	D	monkfish	TBB	F	see above
Atlantic white-sided dolphin	F	3/23/03	41.89ºN, -68.37ºW	D	monkfish	TBB	F	see above
Atlantic white-sided dolphin	F	4/9/03	42.16ºN, -67.34ºW	D	cod	TBB	F	see above
Atlantic white-sided dolphin	M	4/25/03	41.82ºN, -69.31ºW	D	witch flounder	TBB	F	see above
Atlantic white-sided dolphin	U	3/6/03	41.53ºN, -68.82ºW	U	haddock	TBB	F	see above
Atlantic white-sided dolphin	U	3/6/03	41.53ºN, -68.82ºW	D	haddock	TBB	F	see above
Atlantic white-sided dolphin	M	4/10/03	41.4ºN, -69.3ºW	D	haddock	TBB	F	see above
Atlantic white-sided dolphin	M	4/12/03	42.28ºN, -67.38ºW	D	American lobster	TBB	F	see above
Atlantic white-sided dolphin	F	4/12/03	42.28ºN, -67.38ºW	D	American lobster	TBB	F	see above
Atlantic white-sided dolphin	U	7/19/03	42.08ºN, -67.58ºW	U	Atlantic herring	TM	F	see above
bottlenose dolphin	U	5/9/03	35.21ºN, -75.64ºW	D	Spanish mackerel	GNS	F	see above
harbor porpoise	U	2/6/03	39.92ºN, -72.99ºW	D	monkfish	GNS	F	see above
harbor porpoise	U	11/16/03	42.6ºN, -70.38ºW	D	monkfish	GNS	F	see above
harbor porpoise	U	3/16/03	42.48ºN, -70.44ºW	R	cod	GNS	F	see above
harbor porpoise	U	11/16/03	42.59ºN, -70.42ºW	D	cod	GNS	F	see above
harbor porpoise	F	11/16/03	42.59ºN, -70.41ºW	D	cod	GNS	F	see above
harbor porpoise	U	3/12/03	42.38ºN, -70.65ºW	D	cod	GNS	F	see above
harbor porpoise	F	3/18/03	40.1ºN, -70.42ºW	R	monkfish	GNS	F	see above
harbor porpoise	F	3/18/03	40.09ºN, -70.34ºW	D	monkfish	GNS	F	see above
harbor porpoise	U	4/30/03	41.08ºN, -71.35ºW	D	monkfish	GNS	F	see above
harbor porpoise	U	9/24/03	42.8ºN, -70.31ºW	D	cod	GNS	F	see above
harbor porpoise	U	5/28/03	42.01ºN, -69.95ºW	D	unknown flounder	GNS	F	see above

harbor porpoise	U	6/18/03	42.77ºN, -68.59ºW	D	monkfish	GND	F	see above
harbor porpoise	U	6/11/03	42.73ºN, -68.59ºW	D	monkfish	GND	F	see above
Risso's dolphin	U	9/25/03	41.98ºN, -68.03ºW	D	monkfish	TBB	F	see above
unknown dolphin	U	3/23/03	41.98ºN, -69.05ºW	R	monkfish	TBB	F	see above
unknown porpoise/dolphin	U	4/30/03	41.02ºN, -71.36ºW	D	monkfish	GNS	F	see above
unknown porpoise/dolphin	U	4/30/03	41.01ºN, -71.35ºW	D	monkfish	GNS	F	see above
unknown porpoise/dolphin	U	4/30/03	41.01ºN, -71.35ºW	D	monkfish	GNS	F	see above
unknown porpoise/dolphin	U	4/30/03	41.07ºN, -71.36ºW	D	monkfish	GNS	F	see above
unknown toothed whale	U	10/24/03	42.04ºN, -67.87ºW	D	Atlantic herring	PTM	F	see above
white-beaked dolphin	M	3/18/03	36.59ºN, -75.05ºW	D	summer flounder	TBB	F	see above

SEFSC

Species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Beaked Whale	U	2/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Beaked Whale	U	2/2203	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Unid. Dolphin	U	1/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Atlantic Spotted Dolphin	U	6/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Bottlenose Dolphin	U	4/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Common Dolphin	U	8/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Common Dolphin	U	10/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	11/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	9/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	8/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	10/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	9/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	10/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	11/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	10/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	7/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	9/2003	NW Atlantic	D	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	9/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	10/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	10/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Risso's Dolphin	U	11/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Striped Dolphin	U	8/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Pilot Whale	U	7/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Pilot Whale	U	9/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC

Pilot Whale	U	9/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Pilot Whale	U	9/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Baleen Whale	U	8/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC
Minke Whale	U	5/2003	NW Atlantic	R	Tuna/ Swordfish	LLD	F	L. Garrison/SEFSC

Data from: Garrison, L. P. and P. M. Richards. 2004. Estimated Bycatch of Marine Mammals and Turtles in the U.S. Atlantic Pelagic Longline Fleet During 2003. NOAA Technical Memorandum NMFS-SEFSC-527: 57 p.

7.4 Earlier years' statistics
NR

8. Strandings
NEFSC
Mendy Garron, Northeast Region Stranding Network, NMFS Regional Office, Gloucester. MA (978)-281-9300 x 6528.
SEFSC
Blair Mase, Southeast Region Stranding Network, Southeast Fisheries Science Center, 75 Virginia Beach Dr., Miami, FL 33149

9. Other studies and analyses
NEFSC
Sperm Whale Catch History
This ongoing research program is designed to provide annual regional estimates of catches of sperm whales by all fisheries from the mid-18th century to the early 20th century. This program was designed to make use of voyage logbooks to determine the changing spatial distribution of sperm whaling over time, as well as oil yields per whale caught and numbers of sighted vessels. The largest costs will be reading a representative sample of the roughly 5,000 extant logbooks from the US fishery. Subsequent to that workshop, a complete database of information about each of the US voyages was assembled. Secondary sources on 19th century whaling voyages were compared to determine consistency, and preliminary comparisons to original whaling logbooks were begun. The voyage database will be augmented with information from a sample of logbooks, and information on numbers and distribution of sperm whale catches for those voyages are planned to be used to estimate regional annual catches (E. Josephson, NEFSC).
SEFSC
Gulf of Mexico:
A photo-identification study of bottlenose dolphins in Mississippi Sound (north-central Gulf of Mexico) was conducted. Mississippi Sound is a 1600 km^2 marine area with as many as 2000 bottlenose dolphins. These photo-identification surveys built on previous photo-id work but focused on three small discreet habitat areas to test hypotheses about ranging patterns and site-fidelity of dolphins. The results of this work are part of an overall study of bottlenose dolphin stock structure in inshore waters of the Gulf of Mexico. Systematic surveys were conducted from a 7-m boat in each area on 18 survey days and dolphin groups photographed. (Contact: K. Mullin, SEFSC).

Sperm whale photo-identification studies were continued in a 53,000 km^2 region south of the Mississippi River delta in the north-central Gulf of Mexico. The objectives of this ongoing study are to collect photo-identification data to test hypotheses concerning the site-fidelity and association patterns of sperm whales. Surveys were conducted from an 18-m vessel during 2005 Systematic surveys were conducted in a zig-zag pattern along the 1000-m isobath for 3 to 5 days each month. A two-element passive acoustic array was used to track and locate sperm whales for photo-identification. (Contact: K. Mullin, SEFSC).

Southwest Atlantic:
The ongoing photo-identification study of bottlenose dolphins in Biscayne Bay, FL was continued. Surveys are undertaken on three days each month throughout the year. A small vessel systematically surveys a selected region of Biscayne bay, photographing all bottlenose dolphins encountered. In addition, targeted biopsy sample collections were undertaken during the fall and spring to for this population to determine sex ratios, evaluate potential population structure, and explore contaminant loading in this population. The photo-identification component of this survey and the associated photographic catalogue has been ongoing for 10 years. (Contact: L. Garrison, SEFSC).

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11. Publications
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USA Pacific Waters

1. Species and stocks studied

Common name	IWC recommended scientific name	Area/stock(s)	Items referred to
Baird's beaked whale	*Berardius bairdii*	Gulf of Alaska/Bering Sea	2
Blue whale	*Balaenoptera musculus*	Eastern Pacific	4.1, 4.3
Bottlenose dolphin	*Tursiops truncatus*	Eastern Pacific	4.1, 4.3, 7.3
Bottlenose dolphin	*Tursiops truncatus*	Captive Atlantic	9
Bowhead whale	*Balaena mysticetus*	Bering-Chukchi-Beaufort Seas	2, 3, 9
Bryde's whale	*Balaenoptera edeni*	Eastern Pacific/ Central equatorial Pacific	4.1, 6.2
Central American spinner dolphin	*Stenella longirostris centroamericana*	Eastern Pacific	4.1
Coastal spotted dolphin	*Stenella attenuata graffmani*	Eastern Pacific	4.1
Dall's porpoise	*Phocoenoides dalli*	Eastern Pacific/Bering Sea	2, 4.3, 7.3
Dusky dolphin	*Lagenorhynchus obscurus*	Eastern Pacific	4.1
Drawf sperm whale	*Kogia sima*	Central equatorial Pacific	7.3
Eastern spinner dolphin	*Stenella longirostris orientalis*	Eastern Pacific	4.1
False killer whale	*Pseudorca crassidens*	Eastern Pacific	4.1, 7.3
Fin whale	*Balaenoptera physalus*	Eastern Pacific/ Gulf of Alaska/Bering Sea	2, 3, 4.1, 4.3, 9
Gray whale	*Eschrictius robustus*	Eastern Pacific /Gulf of	2, 3, 4.1, 4.3, 9
Harbor porpoise	*Phocoena phocoena*	Eastern North Pacific/ Gulf of Alaska/Bering Sea	2, 4.3, 9
Humpback whale	*Megaptera novaeangliae*	Eastern Pacific/ Central equatorial Pacific	2, 3, 4.1, 6.2
Killer whale	*Orcinus orca*	Eastern Pacific/ Bering Sea	2.1, 3.1, 4.1, 4.3, 5, 9, 7
Killer whale	*Orcinus orca*	Antarctic/Type C, Type B	4.1, 9
Long-beaked common dolphin	*Delphinus capensis*	Eastern Pacific	4.1, 4.2, 7.3
Melon-headed whale	*Peponocephala electra*	Central equatorial Pacific	7.3
Minke whale	*Balaenoptera acutorostrata*	N. Pacific/SE Alaska/Bering	2, 3, 4.1
Northern right whale	*Eubalaena glacialis*	Florida/North Atlantic	5
North Pacific Right whale	*Eubalaena japonica*	Gulf of Alaska/Bering Sea	3. 4, 9
Northern right whale dolphin	*Lissodelphis borealis*	Eastern Pacific	4.2, 7.3
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*	Eastern Pacific/Bering Sea	2, 4.1
Pantropical spotted dolphin	*Stenella attenuata*	Eastern Pacific	4.1
Pygmy sperm whale	*Kogia breviceps*	Central equatorial Pacific	7.3
Risso's dolphin	*Grampus griseus*	Eastern Pacific	4.1, 4.2, 7.3
Rough-toothed dolphin	*Steno bredanensis*	Eastern Pacific/ Central	3.1, 4.1
Short-beaked common dolphin	*Delphinus delphis*	Eastern Pacific	4.1, 4.2, 4.3, 7.3
Short-finned pilot whale	*Globicephala macrorhynchus*	Eastern Pacific/ Central equatorial Pacific	4.1, 4.2, 7.3
Southern right whale	*Eubalaena australis*	Argentina/South Atlantic	4.3
Sperm whale	*Physeter macrocephalus*	Eastern Pacific/Bering Sea/	2, 3, 4.1, 6.2
Striped dolphin	*Stenella coeruleoalba*	Eastern Pacific/ Central equatorial Pacific	4.1, 7.3, 9
Tres Marias spinner dolphin	*Stenella attenuata*	Eastern Pacific	4.1
Common dolphin, unidentified to species	*Delphinus spp.*	Eastern Pacific	4.1, 7.3.1
Spotted dolphin, unidentified to subspecies	*Stenella attenuate spp.*	Eastern Pacific	4.1
Spinner dolphin, unidentified to subspecies	*Stenella longirostris spp.*	Eastern Pacific/ Central equatorial Pacific	3.1, 4.1, 7.3
Whale, unidentified	*Balaenoptera spp.*	Eastern Pacific/ Central equatorial Pacific	7..3
White whale	*Delphinapterus leucus*	Cook Inlet, Alaska, Beaufort	2, 3, 4.2, 4.3, 9

2. Sightings data
NR

2.1 Field work
2.1.1 SYSTEMATIC
AFSC
Aerial Surveys of Beluga Whales in Cook Inlet, Alaska
The National Marine Fisheries Service (NMFS) conducted an aerial survey of the beluga population in Cook Inlet, Alaska, 31 May to 9 June 2005. The survey (54.5 flight hrs) was flown in a twin-engine, high-wing aircraft at an altitude of 244 m (800 ft) and speed of 185 km/hr (100 kt), consistent with NMFS' surveys conducted each year since 1993. The flights in June 2005 included one or more surveys of coastal areas (flown 1.4 km offshore) around the entire inlet and 1,363 km of transects across the inlet, effectively searching 28% of Cook Inlet but nearly 100% of the coastal areas. Paired, independent observers searched on the coastal (left) side of the plane, where virtually all beluga sightings occur, while a single observer was on the right. A computer operator/data recorder was also on the left side. After finding beluga groups, a series of aerial passes was made with two pairs of primary observers each making four or more independent counts of each group. Daily median counts made in optimal viewing conditions on six different days were 23-155 belugas in the Susitna delta (between the Beluga and Little Susitna Rivers), 0-43 in Knik Arm, 0-21 in Turnagain Arm, 24-66 in Chickaloon Bay, and 0-29 at Fire Island. No belugas were seen elsewhere, such as in the central or lower Inlet. On these annual surveys, belugas have often been seen in the Susitna area, Knik Arm, Turnagain Arm, and Chickaloon Bay, but never before have significant numbers been seen near Fire Island. The highest of the daily median estimates (a very rough but quick index of relative abundance, not corrected for effort nor for estimates of whales missed) for June 2005 is 192 belugas. This is below index counts for years prior to 1998 (305 in 1993, 281 in 1994, 324 in 1995, 307 in 1996, and 264 in 1997), but it is similar to other counts made during the past seven years (193 in 1998, 217 in 1999, 184 in 2000, 211 in 2001, 192 in 2002, 174 in 2003, and 187 in 2004). (Contact: D. Rugh, AFSC)

Bowhead whales
Aerial surveys were used to locate bowhead whales during their spring migration through the Bering Sea from 8 April to 2 May 2005. Flights were conducted on 19 of the 25 available days. Survey effort was concentrated in the area between St Lawrence Island and Diomede Islands because earlier surveys by NMML found bowheads more frequently in that area than in other areas. When whales were found, they were photographed using the method described by Koski et al. (1992) and Angliss et al. (1995). Bowhead whales were seen and photographed on most days from 10 to 24 April (454 photographs containing 962 whale images), but more than half of these (245 photographs containing 664 images) were obtained on 13 and 14 April, when a large aggregation of mating whales was found northeast of St. Lawrence Island (Koski et al., 2005). (Contact: D. Rugh, AFSC)

Gray Whales off Washington Coast
From February 25 to October 13, 2005, vessel surveys for gray whales were conducted along the northwestern Washington coast and western Strait of Juan de Fuca. The surveys covered 670 nautical miles and represented 55 hours of survey effort. During these surveys, 33 gray whales were sighted and 29 were photographed for identification. Seventeen of the sightings were made in the Strait of Juan de Fuca and 16 on the northwest coast of Washington. The southwest coast of Vancouver Island was not surveyed by NMML in 2005. (Contact: M. Gosho, AFSC)

Gray Whales off Kodiak Island, Alaska
The east coast of Kodiak Island, Alaska from Cape Chiniak to Ugak Bay was surveyed for gray whales from August 31 to September 5, 2005. During this period, approximately 190 gray whales were photographed. The images are still being matched for identification. (Contact: M. Gosho, AFSC)

2005 Alaska Cetacean Ecosystem (ACE) Cruise
The Alaska Cetacean Ecosystem (ACE) cruise was conducted by the National Marine Mammal Laboratory (NMML) in the western Gulf of Alaska and Bering Sea between 31 May and 11 July 2005. A total of 2482 miles of visual survey effort were conducted aboard the F/V Alaskan Enterprise, a 150ft crabber/processor. Five crew members and 12 scientists participated in the cruise, with typically 5 crew and 7-8 scientists aboard at any time. Visual surveys were conducted during daylight hours between 0730 and 2200, using two fixed-mount 25x magnification binoculars, and hand-held 7x magnification binoculars. All sightings of marine mammals were recorded using the real-time data logging program WinCRUZ. Survey effort was suspended after some sightings to allow for additional data collection. Where possible, a 22ft rigid-hulled inflatable boat was launched for closer approaches during these "encounters", but alternatively encounters were made during close manoeuvres in the ship.
Digital SLR cameras were used to take high quality photographs to document species occurrence and individual identity based on natural markings. Images were shot as Nikon Electronic Format (NEF) files, allowing later

conversion to high-resolution Tif files for storage. Tissue samples were collected using remote biopsy techniques using both crossbows and cartridge-powered rifles. Skim samples were frozen in glass vials for stable isotope analyses and placed in DMSO for genetic analyses, and blubber samples were stored in cryovials placed in liquid nitrogen. Acoustic recordings were collected by deploying omni-directional remote sonobuoys, which transmitted sounds back to the ship using VHF signals.
There were 918 marine mammal sightings in total, comprising 10 different cetacean species, three pinniped species, and sea otters (see table below). Photographs of individually distinctive natural markings were collected from 5 species and biopsy tissue samples were collected from four species.

List of marine mammal species sighted, along with the number of sightings for each species.

Species	# Sightings
Minke Whale (*Balaenoptera acutorostrata*)	102
Fin Whale (*Balaenoptera physalus*)	55
Baird's beaked whale (*Berardius bairdii*)	3
Gray whale (*Eschrichtius robustus*)	29
White-sided dolphin (*Lagenorhynchus obliquidens*)	2
Humpback whale (*Megaptera novaeangliae*)	104
Killer whale (*Orcinus orca*)	29
Harbor porpoise (*Phocoena phocoena*)	46
Dall's porpoise (*Phocoenoides dalli*)	138
Sperm whale (*Physeter macrocephalus*)	68
Northern fur seal (*Callorhinus ursinus*)	131
Stellar sea lion (*Eumetopias jubatus*)	13
Sea otter (*Enhydra lutris*)	65

2005 SPLASH Survey
In collaboration with scientists from other institutions in California, Washington, Alaska, Canada, and Russia, National Marine Mammal Laboratory (NMML) researchers conducted work on humpbacks during the summer of 2005, the second feeding season sampled for the SPLASH project (Structure of Populations, Levels of Abundance, and Status of Humpbacks). NMML's task was to sample whales off Kodiak Island, along the eastern Aleutian Islands, and in the Bering Sea, from early August to mid-September, aboard the NOAA ship Oscar Dyson. The cruise was plagued with bad weather and mechanical problems which forced the cancellation of the third leg in late September; despite this, sampling was remarkably successful. Several large aggregations of humpbacks were encountered, and the cruise obtained 360 biopsy samples of humpback whales and close to 500 tail photos for individual identification. Along the way, skin samples were also obtained from killer whales, fin whales, gray whales, and Baird's beaked whales. Skin samples from the summer cruise will go to the Southwest Fisheries Science Center in La Jolla, California, for genetic analysis which will help to determine population structure as well as sex and genotype of all sampled whales. Photographs go to the central SPLASH archive at Cascadia Research in Olympia, Washington, where they will be compared to thousands of other photos taken throughout the North Pacific.

Southeast Alaska Vessel Surveys
Vessel surveys aboard the NOAA Ship John N. Cobb were initiated in 1991 in Southeast Alaska to determine the abundance and distribution of cetaceans throughout inside waters. Each year, two to three surveys were completed. Although all cetaceans observed are recorded, the target species are killer whales and humpback whales, with the intent to find and photograph as many as possible. Two surveys were conducted in 2005; one in July and one in September (duration = approximately 14 days each survey).

NWFSC
A Shipboard visual and acoustic survey off the continental shelf waters of Washington and Northern Oregon, USA and the Westside of Vancouver Island, British Columbia, Canada was conducted 13 March – 1 April, 2006. The presence of northern resident killer whale off the Washington coast and southern resident killer whales in the Strait of Juan de Fuca and off the Columbia River was documented. (Contact: Brad Hanson, NWFSC)

PIFSC
Pacific Islands Cetacean Ecosystem Assessment Survey (PICEAS)
The PICEAS 2005 cruise was an ecosystem survey in the U.S. EEZ waters of Palmyra and Johnston Atoll and adjacent waters south of Hawaii where Hawaiian long-line fishing occurs. We collected line-transect data on cetacean abundance and density to estimate abundance for all cetacean species present in the study area; photo-ID data on false killer whales, spinner dolphins, and other key species for population structure; and biopsy samples for genetic studies of population structure.

SWFSC
Collaborative Survey of Cetacean Abundance and the Pelagic Ecosystem (CSCAPE)

The CSCAPE 2005 cruise was a collaboration between the National Marine Fisheries Service and the National Marine Sanctuary (NMS) Program to assess the abundance and distribution of marine mammals and to characterize the pelagic ecosystem off the U.S. West Coast. The primary objective was to conduct a marine mammal assessment survey out to a distance of approximately 300 nautical miles, with additional fine-scale surveys within the NMS boundaries. The primary field methods employed during the CSCAPE research program were photo-identification and biopsy sampling of cetacean species of special interest within the study area.

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

NORTH PACIFIC

Institution	US region	Species*	Platform type	Data type**	Collected by	Regional Archive***
Channel Island National Marine Sanctuary Naturalist Corps, CA	SW	AE	Whale watch	1,4	Naturalist, dedicated observer	Yes
Island Marine Institute, HI	HI	AR	Whale watch	1,2,3,4,5	Naturalist, dedicated observer	Yes
Monterey Bay Whale Watch, CA	SW	AE	Whale watch	1,4	Naturalist, dedicated observer	Yes
Oceanic Society, CA	SW	**AE**	Whale watch	1,4	Naturalist, dedicated observer	Yes
San Francisco Bay Whale Watching, CA	SW	AE	Whale watch	1,4	Naturalist, dedicated observer	Yes
Univ. of Alaska SE, AK	NW	KS	Fishing vessels, Boaters	1,4,5	Captain, crew	Yes
Wild Dolphin Society, HI	HI	ALMN	Whale watch	1,2,3,4,7	Captain, crew, observers	No
Wild Whale Research Foundation, HI	HI	JMUV	Whale watch	1,4	Vessel captain/ researcher	Yes

***Species codes**: A) *Megaptera novaeangliae*, B) *Balaenoptera physalus*, C) *Balaenoptera acutorostra*, D) *Eubalaena glacialis*, E) *Balenoptera musculus*, F) *Balaenoptera borealis*, G) *Lagenorhynchus acutus*, H) *Phocoena phocoena*, I), *Globicephala melas*, J) *Ziphiidae* spp. K) *Physeter macrocephalus*, L) *Stenella longirostris*, M) *Tursiops truncatus*, N) *Stenella attenuata*, O) *Delphinus delphis*, P) *Grampus griseus*, R) unspecified odontocete species, S) Orcinus orca, T) *Stenella coeruleoalba,* U) *Globicephala macrorhynchus,* V) *Feresa attenuata*

****Data types**: 1) cetacean sighting data, 2) survey effort data (varied from general location to logged positions), 3) animal behavior, 4), photo-ID (for at least one listed species), 5) management-oriented data (fisheries interactions, ship strike, harassment), 6) scat/prey collection, 7) environmental data

--- Data not available

***Archives: **data for one or more listed species were contributed to a regional or oceanic archive. Responders reported contributing data to the following other institutions: Cascadia Research (WA), National Biological Information Infrastructure, National Marine Mammal Laboratory (WA), Scripps Institute of Oceanography (CA)**

Sightings of killer whales were reported by the general public and commercial boat operators in ports and harbors along the west coast as part of a coast-wide sighting network. These reports provide information on where Southern Resident killer whale pods are in the late fall, winter and early spring when they are not in Puget Sound or the Georgia Basin and will help identify habitat-use and potential foraging areas during the winter.

2.2 Analyses/development of techniques

AFSC

Aerial photographs of bowhead whales were examined for image quality and whale identifiability. Resightings between each database from spring surveys near Pt Barrow, summer surveys in the Beaufort Sea, and spring

surveys in the northern Bering Sea will provide a ratio indication of how probable it is that whales mix between these areas.

NWFSC, SWFSC, PIFSC

NR

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

AFSC

Species	Feature	Area/stock	Calendar year/season/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Beluga whale	DNA	Bristol Bay, AK	2005 / 11	Y	41	L. Quackenbush, ADFG
Bowhead whale	Dorsal surface	B-C-B	Spring 2005: / 962 images	Y	16,734	Koski, LGL
"	"	"	Sept 2005 / 114	Y		George, NSB
Humpback whale	Fluke	Bering Sea	2005 / 256	Y	?	C. Sims, N. Friday, P. Wade/ J. Durban/AFSC;
Humpback whale	Fluke	Gulf of Alaska	2005 / 401	Y	?	C. Sims, N. Friday, P. Wade, J. Durban/AFSC
Humpback whale	Fluke Dorsal fin	SE Alaska	203 16	Y	?	M. Dahlheim, C. Sims & N. Friday/AFSC
North Pacific right whale[1]	Callosities	Kodiak Is.	Aug. 2005/1	Y	~62	K. Shelden/AFSC
Killer whale	Dorsal fin & saddle	SE Alaska	2005 / 189	Y		M. Dahlheim, AFSC
Killer whale	Dorsal fin & saddle	Gulf of Alaska	2005 / 14	Y		J. Durban , AFSC
Killer whale	Dorsal fin & saddle	Bering Sea	2005 / 400	Y		J. Durban, AFSC
Minke whale	Gulf of Alaska	Bering Sea	2005 / 2	Y		J. Durban, AFSC
Sperm whale	Fluke	Bering Sea	2005 / 10	Y		J. Durban, AFSC
Fin whale	Dorsal	Gulf of Alaska	2005 / 1	Y		J. Durban, AFSC
Fin whale	Dorsal	Bering Sea	2005 / 1	Y		J. Durban, AFSC

[1] The only sighting and sampling of a right whale in the eastern North Pacific in 2005 was of a single individual observed off Kodiak in August; this sighting was made incidental to a humpback whale survey. There were no dedicated surveys for North Pacific right whales in 2005.

The gray whales have not yet been identified so the count of whales in the catalogue cannot be updated (Gosho, AFSC)

Aerial photographs of the dorsal surface of bowhead whales have been collected since the 1970s. The primary collections are housed at LGL (King City, Canada) the National Marine Mammal Lab (Seattle, Washington, USA).

NWFSC

Species	Feature	Area/stock	Calendar year/season/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Killer whale	Dorsal Fin and Saddle Patch	Southern Resident population-N. Pacific, California Current	2005/ all animals, multiple photos	Y	90 for Southern Resident killer whales	Ken Balcomb/Center for Whale Research

PIFSC

Species	Feature	Area/stock	Calendar year/season	no. of IDs /season	Catalogued (Y/N)	Catalogue total	Contact person /institute
Humpback Whale	Fluke	Hawaii	Winter 2004	1033	Y	1033[a]	D.Mattila/HIHWNMS
Bottlenose Dolphin	Dorsal fin	Hawaii	Winter 2004	---	Y	---	D.Mattila/HIHWNMS
False Killer Whale	Dorsal fin	Hawaii	Winter 2004	---	Y	---	D.Mattila/HIHWNMS

Killer Whale	Dorsal fin/saddle	Hawaii	Winter 2004	---	N	---	D.Mattila/HIHWNMS
Melon-headed Whale	Dorsal fin	Hawaii	Winter 2004	---	Y	---	D.Mattila/HIHWNMS
Pantropical Spotted Dolphin	Dorsal fin	Hawaii	Winter 2004	---	N	---	D.Mattila/HIHWNMS
Rough-toothed Dolphin	Dorsal fin	Hawaii	Winter 2004	---	Y	---	D.Mattila/HIHWNMS
Short-finned Pilot Whale	Dorsal fin	Hawaii	Winter 2004	---	Y	---	D.Mattila/HIHWNMS
Spinner Dolphin	Dorsal fin	Hawaii	Winter 2004	---	N	---	D.Mattila/HIHWNMS
Humpback Whale	Fluke	Hawaii	Winter 2005	1392	Y	2425[b]	D.Mattila/HIHWNMS
Bottlenose Dolphin	Dorsal fin	Hawaii	Winter 2005	---	Y	---	D.Mattila/HIHWNMS
Cuviers Beaked Whale	Dorsal fin	Hawaii	Winter 2005	---	Y	---	D.Mattila/HIHWNMS
False Killer Whale	Dorsal fin	Hawaii	Winter 2005	---	Y	---	D.Mattila/HIHWNMS
Melon-headed Whale	Dorsal fin	Hawaii	Winter 2005	---	Y	---	D.Mattila/HIHWNMS
Pantropical Spotted Dolphin	Dorsal fin	Hawaii	Winter 2005	---	N	---	D.Mattila/HIHWNMS
Short-finned Pilot Whale	Dorsal fin	Hawaii	Winter 2005	---	Y	---	D.Mattila/HIHWNMS
Spinner Dolphin	Dorsal fin	Hawaii	Winter 2005	---	N	---	D.Mattila/HIHWNMS
Rough-toothed	Dorsal fin	American Samoa	Summer 2006	---	N	U	Dave Johnston/PIFSC
Spinner dolphin	Dorsal fin	American Samoa	Summer 2006	---	N	U	Dave Johnston/PIFSC

a. Total at the end of 2004.
b. Total for 2004 and 2005.

SWFSC
NR

3.1.2. ARTIFICIAL MARKING DATA
NR

3.1.3 TELEMETRY DATA
NR

3.2 Analyses/development of techniques
NR

4. Tissue/biological samples collected
4.1 Biopsy samples
AFSC

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Humpback whale	Bering Sea	130		?		J. Durban, P. Wade, AFSC
Humpback whale	Gulf of Alaska	220		?		J. Durban, P. Wade, AFSC
Humpback whale	SE Alaska	2005 / 16	Y	16		M. Dahlheim/AFSC
North Pacific right whale	Kodiak Is.	2005 / 1	Y	Y	?	K. Shelden/AFSC
Beluga whale	Bristol Bay	Spring / 11	Y	11	41	L. Quakenbush, ADFG
Gray whale	Eastern NP	0				M. Gosho, AFSC
Killer whale	SE Alaska	2005 / 9	Y	9		M. Dahlheim, AFSC
Killer whale	Gulf of Alaska	2005 / 2	Y	2		J. Durban, AFSC
Killer whale	Bering Sea	2005 / 31	Y	31		J. Durban, AFSC
Minke whale	Bering Sea	2005 / 1	Y	1		J. Durban, AFSC
Sperm whale	Bering Sea	2005 / 2	Y	2		J. Durban, AFSC

NWFSC
Samples received by NWFSC 4/1/2005 through 4/20/2006

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Gray whale	N. Pacific	2005/Spring n=1	Y	0	1	John Durban, NMML

Killer whale	N. Pacific/AK	2005/Spring-Summer n=23	N	23	0	John Durban, NMML
Killer whale	N. Pacific/AK transient	2005/Spring n=1	N	1	0	John Durban, NMML
Killer whale	Antarctic Type C	2005/Winter n=15	N	15	0	Bob Pittman, SWFSC
Minke whale	SE Alaska	n=1	Y	1	0	John Durban, NMML
Sperm whale	SE Alaska	n=2	N	0	2	John Durban, NMML
Killer whale	N. Pacific/AK	2005/Spring-Summer n=23	Y	0	2	Craig Matkin, North Gulf Oceanic Society
Gray whale	N. Pacific	2005/Spring n=1	Y	0	1	Craig Matkin, North Gulf Oceanic Society
Humpback whale	N. Pacific	2005/Spring n=32	Y	0	32	Craig Matkin, North Gulf Oceanic Society
Killer whale	SE Alaska	2003/n=6 2005/n=1	Y	0	7	Jan Straley, University of Alaska SE
Killer whale	Antarctic Type C	2006/Winter n=14	Y	0	14	Bob Pittman, SWFSC
Killer whale	Antarctic Type B	2006/Winter n=1	Y	0	1	Bob Pittman, SWFSC
Minke whale	Antarctic	2006/Winter n=1	Y	0	1	Bob Pittman, SWFSC
Blue whale	Eastern Tropical Pacific	2003/Fall n=1	N	1	0	Bob Pittman, SWFSC

PIFSC

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Spinner dolphin	American Samoa	18	Y	0	18	Dave Johnston/PIFSC
R. toothed dolphin	American Samoa	9	Y	0	9	Dave Johnston/PIFSC
S. Finned pilot whale	C. Pacific	3	Y	0	3	Dave Johnston/PIFSC
Humpback Whale	Hawaii	Winter 2004/541	Y	352	541	D.Mattila/HIHWNMS
False Killer Whale	Hawaii	Winter 2004/1	Y	0	1	D.Mattila/HIHWNMS
Melon-headed Whale	Hawaii	Winter 2004/5	Y	0	5	D.Mattila/HIHWNMS
Spinner Dolphin	Hawaii	Winter 2004/1	Y	0	1	D.Mattila/HIHWNMS
Humpback Whale	Hawaii	Winter 2005/667	Y	0	1209	D.Mattila/HIHWNMS
Bottlenose Dolphin	Hawaii	Winter 2005/10	Y	0	10	D.Mattila/HIHWNMS

SWFSC

Biopsy samples collected by and archived at the Southwest Fisheries Science Center. The total holdings number is the total number of samples archived at the SWFSC for molecular genetic analyses for each species listed.

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings through 12/31/2003	Contact person/institute
Blue whale	Eastern Pacific	24	Y	1	634	SWFSC, S. Chivers
Bottlenose dolphin	Eastern Pacific	113	Y	12	1734	SWFSC, S. Chivers
Bryde's whale	Eastern Pacific	11	Y	11	97	SWFSC, S. Chivers
Central American spinner dolphin	Eastern Pacific	7	Y	7	26	SWFSC, S. Chivers
Coastal spotted dolphin	Eastern Pacific	102	Y	52	293	SWFSC, S. Chivers
Dusky dolphin	Eastern Pacific	4	Y	1	5	SWFSC, S. Chivers
Eastern spinner dolphin	Eastern Pacific	35	Y	4	321	SWFSC, S. Chivers
False killer whale	Eastern Pacific	7	Y	7	106	SWFSC, S. Chivers
Fin whale	Eastern Pacific	4	Y	2	223	SWFSC, S. Chivers
Gray whale	Eastern Pacific	4	Y	3	400	SWFSC, S. Chivers
Humpback whale	Eastern Pacific	12	Y	10	706	SWFSC, S. Chivers

Killer whale	Eastern Pacific	30	Y	30	364	SWFSC, S. Chivers
Long-beaked common dolphin	Eastern Pacific	32	Y		306	SWFSC, S. Chivers
Pacific white-sided dolphin	Eastern Pacific	8	Y		170	SWFSC, S. Chivers
Pantropical spotted dolphin	Eastern Pacific	63	Y		1309	SWFSC, S. Chivers
Risso's dolphin	Eastern Pacific	17	Y	17	98	SWFSC, S. Chivers
Rough-toothed dolphin	Eastern Pacific	13	Y		102	SWFSC, S. Chivers
Short-beaked common dolphin	Eastern Pacific	64	Y	8	1109	SWFSC, S. Chivers
Short-finned pilot whale	Eastern Pacific	48	Y	46	390	SWFSC, S. Chivers
Sperm whale	Eastern Pacific	4	Y	4	1714	SWFSC, S. Chivers
Striped dolphin	Eastern Pacific	6	Y		328	SWFSC, S. Chivers
Tres Marias spinner dolphin	Eastern Pacific	24	Y		30	SWFSC, S. Chivers
Common dolphin, unidentified to species	Eastern Pacific	1	Y		61	SWFSC, S. Chivers
Spotted dolphin, unidentified to subspecies	Eastern Pacific	11	Y		187	SWFSC, S. Chivers
Spinner dolphin, unidentified to subspecies	Eastern Pacific	12	Y		18	SWFSC, S. Chivers

4.2 Samples from directed catches or bycatches

AFSC, PIFSC

NR

NWFSC

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)	Contact person/institute
White whale	Cook Inlet	2005 n=1	Y	Skin, blubber, liver, kidney, muscle, gonad, spleen	Barb Mahoney, NMFS

SWFSC

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)	Contact person/institute
Long-beaked common dolphin	E. N. Pacific	2005/1	Y	Head, skin, stomach, gonads	K. Danil, SWFSC
Northern right whale dolphin	E. N. Pacific	2005/1	Y	Head, skin, stomach, gonads	K. Danil, SWFSC
Risso's dolphin	E. N. Pacific	2005/4	Y	Head, skin, stomach, ovaries	K. Danil, SWFSC
Short-beaked common dolphin	E. N. Pacific	2005/17	Y	Head, skin, stomach, gonads	K. Danil, SWFSC
Short-finned pilot whale	E. N. Pacific	2005/1	Y	Skin	K. Danil, SWFSC

4.3 Samples from stranded animals

AFSC

NR

NWFSC

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)	Contact person/institute
Harbor porpoise	Eastern North Pacific/ Georgia Basin	1996-2005 n=19	Y	Blubber, skin	Brad Hanson, NWFSC
Dall's porpoise	Eastern North Pacific/ Georgia Basin	1999-2005 n=10	Y	Blubber, skin	Brad Hanson, NWFSC
Killer whale	Glacier Bay NP, AK	2005 Fall n=1	Y	Blubber, skin	Barb Mahoney, NMFS
White whale	Cook Inlet	2005 n=3	Y	Blubber, skin	Barb Mahoney, NMFS

Bottlenose dolphin	Eastern North Pacific	2004 n=1	Y	blubber	Stepahnie Norman NMFS
Southern right whale	Argentina, South Atlantic	2003/n=4 2004/n=1	Y	Blubber, skin	Vicki Rowntree, Insituto de Conservacion de Ballenas
Harbor porpoise	Eastern North Pacific/ Georgia Basin	2005 n=3	Y	blubber, muscle, skin, kidney, liver, jaw, fin	Brad Hanson, NWFSC
Harbor porpoise	Pacific Ocean/Puget Sound	2005 n=4	Y	Muscle (*longissimus dorsi* – juveniles and adults)	Dawn Noren, NWFSC
Killer whale	Pacific Ocean	2006 n=1	Y	Muscle (*longissimus dorsi* – juvenile)	Dawn Noren, NWFSC

PIFSC

Species	Area/stock	Calendar year/season total	Archived (Y/N)	Tissue type(s)	Contact person/ institute
Humpback Whale	Hawaii	Winter 2005/1	Y	skin	D.Mattila/HIHWNMS

SWFSC

Summary of stranded cetacean specimens found along the beaches of San Diego County, California including tissue type collected.

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)	Contact person/institute
Bottlenose dolphin	E. N. Pacific	3	Y	Head, skin, stomach, gonads	K. Danil, SWFSC
Gray whale	E. N. Pacific	1	Y	Skin, blubber	K. Danil, SWFSC
Fin whale	E. N. Pacific	2	Y	Head, skin, blubber, gonads	K. Danil, SWFSC
Short-beaked common dolphin	E. N. Pacific	11	Y	Skin	K. Danil, SWFSC

4.4 Analyses/development of techniques

NR

5. Pollution studies

AFSC, PIFSC, SWFSC

NR

NWFSC

Northern right whale (Eubalaena glacialis). Dorsal, lateral, and ventral sections of blubber from a northern right whale neonate that stranded on the Georgia Bight in the state of Florida, USA, in February 2004 were analyzed for a suite of POPs, including PCBs, DDTs, chlordanes, HCHs, and other chlorinated pesticides, as well as lipid composition as part of the Marine Mammal Health and Stranding Response Program of NOAA Fisheries' Office of Protected Resources. The only POPs detected in the samples were p,p'-DDE and PCBs, at levels approaching the limits of detection. DDE was present at levels of 2-5 ng/g, wet weight, whereas total PCBs ranged from not detected to 2 ng/g, wet weight. Lipid concentration in the blubber was unusually low, approximately 0.5% of the wet weight. (Contact: Jennie Bolton, NWFSC)

Killer whale (Orcinus orca). Dorsal sections of blubber and muscle from a female west coast transient killer whale that stranded near Bandon in the state of Oregon, USA, were analyzed for a suite of POPs and for stable isotopes of carbon and nitrogen. Blubber was analyzed for fatty acid profiles. This work was conducted as part of the Marine Mammal Health and Stranding Response Program of NOAA Fisheries' Office of Protected Resources. (Contact: Jennie Bolton, NWFSC)

Killer whale (Orcinus orca). Several feeding ecology studies that include contaminant analyses are discussed in section 9 below.

6. Statistics for large cetaceans

6.1 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2005.

Species	Type of catch	Area/stock	Males	Females	Total landed	Struck and lost
Bowhead whale	Aboriginal	E.N. Pacific			55	13

6.2.1 STRANDINGS OR DEAD WHALES ENCOUNTERED AT SEA

AFSC, NWFSC, SWFSC

NR

PIFSC (2005)

Whale species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
humpback whale	NA	O'ahu	NA	NA	Dave Johnston/PIFSC
humpback whale	NA	O'ahu	NA	NA	see above
bryde's whale	NA	Tinean	NA	NA	see above
humpback whale	NA	O'ahu	NA	NA	see above
humpback whale	NA	Maui	NA	NA	see above
humpback whale	NA	Maui	NA	NA	see above
sperm whale	NA	American Samoa	NA	NA	see above
sperm whale	NA	American Samoa	NA	NA	see above

6.2.2 OBSERVED OR REPORTED SHIP STRIKES

AFSC, NWFSC, SWFSC

NR

PIFSC

Whale species	Sex	Date	Location	Vessel type	Speed	Fate	Source or contact
humpback whale	U	Feb 06, 2005	20 72.17" N 156 81.17" W	Ferry	NA	NA	Dave Johnston/PIFSC
humpback whale	U	Feb 21, 2005	21 15.04" N 158 01.06" W	fishing vessel	NA	NA	See above
humpback whale	U	Feb 25, 2005	U	sail boat	NA	NA	See above
humpback whale	U	Feb 28, 2005	20 50.038" N 156 41.89" W	U	NA	NA	See above

6.2.3 FISHERY BYCATCH

NR

6.3 Earlier years' statistics

AFSC

The targeted fish species for the two humpback whales entangled in pot gear lines in 2002 was sablefish (Perez 2006).

NWFSC, PIFSC, SWFSC

NR

7. Statistics for small cetaceans

7.2 Direct catches

NR

7.3 Non-natural mortality

NA

7.3.1 STRANDINGS OR DEAD SMALL CETACEANS ENCOUNTERED AT SEA

AFSC, NWFSC

NR

PIFSC (2005)

Species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
Unidentified whale	U	Kaua'i	NA	NA	Dave Johnston/PIFSC dave.johnston@noaa.gov
pygmy sperm whale	F	Maui	NA	NA	see above
pygmy sperm whale	F	Maui	NA	NA	see above
pygmy sperm whale	F	Maui	NA	NA	see above
pygmy sperm whale	M	Maui	NA	NA	see above
spinner dolphin	U	Hawai'i	NA	NA	see above
Unidentified whale	U	Maui	NA	NA	see above
striped dolphin	F	O'ahu	NA	NA	see above
striped dolphin	F	O'ahu	NA	NA	see above
striped dolphin	M	O'ahu	NA	NA	see above
pilot whale	U	O'ahu	NA	NA	see above
pilot whale	U	American Samoa	NA	NA	see above
dwarf sperm whale	U	Maui	NA	NA	see above
dwarf sperm whale	U	Maui	NA	NA	see above
spinner dolphin	F	Lana'i	NA	NA	see above
spinner dolphin	F	O'ahu	NA	NA	see above
spinner dolphin	F	O'ahu	NA	NA	see above
melon-headed whale	M	O'ahu	NA	NA	see above

SWFSC

Species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
Risso's dolphin	U	34°00'N 118°50'W	Shooting, possible interaction with squid purse seine fishery	DA	Org.: US NMFS SWFSC Address: 8604 La Jolla Shores Dr, La Jolla, CA 92037 Contact: Jim Carretta Tel.: 858.546.7171 E-mail:
Long-beaked common dolphin	U	33°43'N 117°59'W	Fishery interaction, flukes cut off	DA	
Long-beaked common dolphin	U	34°16'N 119°16'W	Fishery interaction, flukes cut off	DA	
Long-beaked common dolphin	U	33°43'N 117°59'W	Halibut set gillnet fragments wrapped around head	DA	

Unidentified common dolphin	U	34°20.9'N 119°26.6'W	Shooting, positive metal detector scan	DA	
Bottlenose dolphin	U	32°42'N 117°00'W	4 inch mesh wrapped around flukes	DA	

7.3.2 OBSERVED OR REPORTED SHIP STRIKES

AFSC, NWFSC, PIFSC

NR

SWFSC

Species	Sex	Date	Location	Vessel	Speed	Fate	Source or contact
Dall's porpoise	U	22 Sep	36°41'N 121°48'W	Unknown	Unknown	D	Same as above

7.3.3 FISHERY BYCATCH

Calendar year 2003

NWFSC

NR

AFSC

Species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Killer whale(T)	U (Juv)	03/20	5635N 17002W	D	Pollock	TM	F	Perez (2006)
Killer whale(R)	F (Juv)	09/09	5932N 17731W	D	Cod	LLS	F	Perez (2006)

Juv = Juvenile
(T) Transient KW stock; (R) Resident KW stock (M.Dalheim, AFSC)

PISFC

Species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Bottlenose Dolphin				D	Tuna	LL	F	Michelle Yuen/PIFSC michelle.yuen@noaa.gov
Unidentified Cetacean				D	Tuna	LL	F	Same as above
False Killer Whale		17 Oct		D	Tuna	LL	F	Same as above
False Killer Whale		3 Nov		D	Tuna	LL	F	Same as above
Unidentified Whale		23 Nov		D	Tuna	LL	F	Same as above

SWFSC

Species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Northern right whale dolphin	F	11 Jan	32°05'N 118°56'W	D	Swordfish	GND	F	Org.: US NMFS SWFSC Address: 8604 La Jolla Shores Drive, La Jolla, CA 92037 Contact: Jim Carretta Tel.: 858.546.7171 E-mail: Jim.Carretta@noaa.gov
Short-finned pilot whale	F	3 Oct	33°46'N 121° 27'W	D	Swordfish	GND	F	Same as above
Risso's dolphin	F	16 Nov	35°53'N 121° 56'W	D	Swordfish	GND	F	Same as above
Risso's dolphin	M	16 Nov	35°53'N 121° 56'W	D	Swordfish	GND	F	Same as above
Risso's dolphin	M	16 Nov	35°53'N 121° 56'W	D	Swordfish	GND	F	Same as above
Risso's dolphin	M	16 Nov	35°53'N 121° 56'W	D	Swordfish	GND	F	Same as above

Short beaked common dolphin	F	3 Jan	32°26'N 118°05'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	7 Dec	32°22'N 118°14'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	19 Dec	32°37'N 117°51'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	8 Nov	33°08'N 118°20'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	7 Dec	32°22'N 118°14'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	9 Dec	32°54'N 119°00'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	8 Nov	33°08'N 118°20'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	8 Nov	33°08'N 118°20'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	30 Sep	32°30'N 117°30'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	21 Aug	32°30'N 118°42'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	21 Aug	32°30'N 118°42'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	10 Nov	33°05'N 118°13'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	27 Oct	32°43'N 119°22'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	F	16 Oct	33°07'N 118°48'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	14 Jan	32°29'N 118°01'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	19 Oct	32°37'N 118°53'W	D	Swordfish	GN D	F	Same as above
Short beaked common dolphin	M	30 Sep	32°30'N 117°31'W	D	Swordfish	GN D	F	Same as above
Long beaked common dolphin	M	15 Jul	34°09'N 119°23'W	D	White seabass	GN D	F	Same as above
Unidentified whale	U	19 Dec	32°38'N 117°51'W	A	Swordfish	GN D	F	Same as above

7.2 Earlier years' statistics
NR

8. Strandings
AFSC, NWFSC
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PIFSC
Contact David Schofield, Stranding and Emergency Response Coordinator for the Pacific Islands Regional Office.

SWFSC
NMFS, Southwest Fisheries Science Center: Kerri Danil 858-546-7001

9. Other studies and analyses
AFSC
Passive Acoustic Sampling Two autonomous recording packages (ARPs) were recovered in October 2004 after a year-long deployment in the Alaskan Beaufort Sea to monitor waters northeast of Barrow, Alaska for bowhead whale calls. Deployment was accomplished through collaboration with researchers conducting the NSF-sponsored Shelf Basin Interaction study (http://sbi.utk.edu). Analyses of call reception was conducted in 2005. Calls from bowhead and gray whales were received, with the latter recorded over-winter (Moore et al. 2006). Unfortunately, due to battery failure, one recorder quit after 3 months and the other after 7.5 months. Bowhead calls were recorded on both instruments, from deployment (September 2003) through mid-December 2003, and again from late March 2004 through mid-May 2004, when the second instrument failed. These data are being

quantified, along with ambient noise measurements, for publication in peer-reviewed journals. (Contact: S. Moore, AFSC)

Three ARPs were deployed along the Bering Sea shelf break and two HARPs were moored in the southeast Bering Sea middle-shelf, in spring and autumn 2005; these instruments were re-cycled (recovered, data downloaded and redeployed) in April 2006. Deployment sites were selected to optimize detection of calls from North Pacific right whales. Right whale calls have been detected on the middle-shelf from May through November and calls of fin whales detected over-winter in the Bering Sea. Further analyses of data from these and previously deployed recorders is underway, as part of a graduate student (L. Munger) dissertation at Scripps Institution of Oceanography. (Contact: S. Moore, AFSC)

Arctic Issues The AFSC participated in two Working Groups (5 = gateways and margins; 6 = shelves) as part of research planning at the 2nd International Conference on Arctic Research Planning (ICARPII), held in Copenhagen, November 2005. ICARPII will follow-on research initiated during the International Polar Year (IPY) to commence in March 2007. Presentations and research planning documents were circulated among USA (RUSALCA), European (DAMOCLYES) and Canadian (GWAMM & CFL) IPY project leads. The goal is the inclusion of cetacean research in broad-scale studies focused on the Arctic ecosystem and climate change. (Contact: S. Moore, AFSC)

Bowhead whales In February 2005, a workshop was held in Seattle, Washington, to develop research plans to evaluate stock structure of bowheads found in the Bering, Chukchi and Beaufort Seas (George et al., 2005). In March 2006, a second workshop was held, also in Seattle, providing an opportunity to update researchers on progress made in the preceding year regarding studies pertinent to stock analysis. The focus of these projects is to provide management-related information to the IWC in time for the 2007 Scientific Committee meeting (with data available by November 2006). (Contact: S. Moore, AFSC)

Critical Habitat was designated for North Atlantic right whales in 1994. In October 2000, NMFS was petitioned by the Center for Biological Diversity to designate CH for North Pacific right whales. In February 2002, NMFS announced its decision that CH could not be designated at that time because the essential biological requirements of the population were not sufficiently understood. However, in June 2005, a federal judge found this reasoning invalid and ordered the agency to publish a proposed rule designating CH by 28th October 2005. As a result of this order, information was reviewed by the Alaska Fisheries Science Center to assist in an assessment of which areas may represent CH for right whales in the eastern North Pacific. The Alaska Regional Office of NMFS subsequently proposed designating two areas, one in the southeastern Bering Sea and another off the eastern coast of Kodiak Island.

Abundance of Beluga Whales in Cook Inlet, Alaska
The National Marine Fisheries Service (NMFS) conducted an aerial survey of the beluga population in Cook Inlet, Alaska, 31 May to 9 June 2005. Abundance was estimated at 278 (CV18%) . Although lower than estimates in previous years, this estimate is not significantly different from the 5-year average for 2000-2004 . (Contact: R. Hobbs, AFSC)

NWFSC
Feeding ecology of eastern North Pacific killer whales from fatty acid, stable isotope, and organochlorine analyses of blubber biopsies Herman *et al.,* (2005)
Blubber biopsy samples from eastern North Pacific killer whales *Orcinus orca* were analyzed for fatty acids, carbon and nitrogen stable isotopes and organochlorine contaminants. Fatty acid profiles were sufficiently distinct among the 3 reported ecotypes (‘resident,’ ‘transient’ or ‘offshore’) to enable individual animals to be correctly classified by ecotype and also by mitochondrial DNA (mtDNA) haplotype. Profiles of PCBs also enabled unambiguous classification of all 3 killer whale ecotypes, but stable isotope values lacked sufficient resolution. Fatty acid, stable isotope and PCB profiles of the resident and transient ecotypes were consistent with those expected for these whales based on their reported dietary preferences (fish for resident whales, marine mammals for transients). In addition, these ecotype profiles exhibited broad similarity across geographical regions, suggesting that the dietary specialization reported for resident and transient whales in the well-studied eastern North Pacific populations also extends to the less-studied killer whales in the western Gulf of Alaska and Aleutian Islands. Killer whales of the same ecotype were also grouped by region of sample collection. The mean stable isotope ratios of various regional groups differed considerably, suggesting that the prey preferences of these North Pacific killer whales may be both region and ecotype specific. Furthermore, 3 specific ecotypes of killer whales were found to have measured stable isotope values that were consistent with dietary preferences reported in the literature. Finally, although the offshore population had blubber fatty acid profiles implicating fish as its primary prey, contaminant and stable isotope results were equally congruent with predation on marine mammals. (Contact: Peggy Krahn, NWFSC)

Assessing the feeding ecology of Antarctic Type C killer whales using chemical tracers Krahn *et al.,* (2006)

Top predators in the marine environment integrate chemical tracers acquired from their prey to reflect the prey species consumed. These chemical tracers—stable isotopes ratios of carbon and nitrogen, fatty acids and persistent organic pollutants (POPs)—were determined in blubber biopsy samples from Type C killer whales (*Orcinus orca*) from Antarctica. Type C whales were shown to have fatty acid, stable isotope and POP profiles that were very different from those of the eastern Tropical Pacific and eastern North Pacific killer whale populations studied to date. For example, stable isotope results showed that these whales occupy a lower trophic position than found for the other populations. In addition, Type C whales exhibited POP concentrations that were much lower than those in the other killer whale populations, as well as POP patterns and ratios that were distinct from those of the other populations. Furthermore, these results for Type C killer whale were also compared to those from a small number of Antarctic marine fish species postulated to comprise a sizeable portion of their diet. The chemical tracers from Antarctic fish were consistent with the fish diet observed in the field for Type C whales. (Contact: Peggy Krahn, NWFSC)

Use of chemical profiles in assessing the feeding ecology of eastern North Pacific killer whales Krahn *et al*., (In review)
Top predators in the marine environment integrate chemical signals acquired from their prey to reflect both the prey species consumed and the regions from which the prey were taken. These chemical signals— fatty acid profiles; stable isotope ratios of carbon and nitrogen; and persistent organic pollutants (POPs) concentrations, patterns and ratios—were measured in blubber biopsy samples from North Pacific killer whales (*Orcinus orca*). Fatty acid and PCB profiles were sufficiently distinct among the three reported ecotypes—fish-eating "residents," marine mammal-eating "transients" and "offshores"—to correctly classify the whales in this study by ecotype using discriminant function models. In addition, POP concentrations and ratios were used to provide insight into the dietary preferences of killer whales, particularly for the offshore ecotype about which little dietary information is available. This study suggests that offshore killer whales are consuming prey species that are distinctly different from those of sympatric resident and transient killer whales. (Contact: Peggy Krahn, NWFSC)

Annual Southern Resident killer whale survey
The annual photo-identification survey was conducted to document all individual Southern Resident killer whales present in the population in late spring and early summer each year. This is the continuation of the long-term monitoring effort (since mid-1970s) that reports the presence or absence of individuals for demographic and population dynamics studies. (Contact: Ken Balcolmb, Center for Whale Research)

Genetic studies
A study to investigate the evolution of population genetic structure of killer whales (*Orcinus orca*) in the North Pacific found that: 1) populations are founded and expand along matrilines – coastal populations founded after last glacial maxima, 2) ongoing male-mediated gene flow occurs among populations, including among ecotypes, 3) isolation exists by distance and by ecotype, but there is no evidence for a species-level distinction 4) diversity levels are similar in different resident populations, but transients show higher diversity and effective population size. Another study that investigated historical bone and tooth samples to identify western U.S. ecotypes of killer whales found that for the only 6 samples from northern CA (the hypothesized range of Southern Residents); all were Transients. However, one sample from the 1800's in 'California' was a Northern Resident haplotype. (Contact: Mike Ford, NWFSC)

Diving physiology studies
Muscle samples (*longissimus dorsi*) from stranded, freshly dead harbor porpoise and killer whales of all age and sex classes in excellent condition are being collected to assess muscle myoglobin content in this important swimming muscle. These data will be used to assess muscle oxygen stores and diving duration capabilities. Samples from all age classes, including neonates and juveniles are being collected to assess how diving capabilities improve with age, as has been observed in other pinniped and cetacean species. Limitations in juvenile diving capabilities may have important implications for survival if prey resources are limited. (Contact: Dawn Noren, NWFSC)

Energetics studies
A study was conducted to measure the energetic cost of surface active behaviors (breaches, tail slaps, etc.) that can be performed in response to vessel disturbance. To accomplish this, oxygen consumption of two trained bottlenose dolphins was measured using flow-through respirometry following bouts of surface active behaviors (tail slaps and breaches) that have been performed by cetaceans in response to disturbance by vessels. In order to assess how the number of successive behaviors performed in a bout affects metabolism, oxygen consumption following both low intensity bouts of breaches (n=5 breaches in a row) and high intensity bouts of breaches (n=10 breaches in a row) were be measured. Data are currently being analyzed, but preliminary results suggest that bouts of breaches are energetically more expensive than bouts of tail slaps. Although tail slaps increase metabolism over resting values, these increases are not as significant as the increase in metabolism caused by breaches. These data in combination with field behavioral studies of cetacean vessel interactions (e.g., Southern

Resident killer whales, see below) will allow us to assess whether cetaceans incur increased energetic costs in the presence of vessels. By knowing the metabolic cost of these behaviors, we will better understand the potential for vessel disturbance to increase energetic requirements (e.g., prey consumption) and the potential impact to individuals. (Contact: Dawn Noren, NWFSC)

Vessel interactions and noise effects on Southern Resident killer whales
Research projects on vessel interactions were conducted in 2003, 2004, and 2005. In 2005 behavioral and respiration data were collected from a small boat during 88 focal follows (≥ 15 min) of 26 adult male and female whales to evaluate the energetic costs to whales in response to vessels. This third season of data collection resulted in a total of 143 focal follows (≥ 15 min) of 29 individual whales for the study. Preliminary results suggest that in adult male killer whales surface durations following dives decrease when the number of vessels increases, but this relationship plateaus when a greater number of vessels (approximately 15) are present. Additional data for this study will be collected in 2006. Concurrent with this study, killer whale group behavior data were collected to examine the influence of vessels on social behavior. Land-based surveys of killer whale behavior and vessel traffic were also conducted, and preliminary analyses of data from three field seasons (2003-2005) suggest that the Southern Resident killer whales tend to travel in less direct paths and demonstrate less foraging behavior when vessels are present. (Contact: Dawn Noren, NWFSC)

Noise characterization in Puget Sound
A study was conducted in May 2004 collected acoustic source level data from a representative sample of major vessel classes under typical operating conditions. Whale watch vessel noise appeared to be dependent on vessel size. Largest vessels (container ship) were found to have significant noise at mid-to-high frequencies (10-80 kHz). A study modelling sound propagation in Haro Strait found that this area is acoustically complex due to its variable bathymetry and substrates. Model data fit well with actual data collected in Haro Strait. A study that collected sound inputs on a hydrophone array nearly continuously for 18 months in 2004 and 2005 found that large commercial ships are the dominant source of ambient noise in the Haro Strait during the day and the night in the winter. Recreational vessels make significant contributions to the noise budget during summer days. A longitudinal study of vessel noise and killer whale vocalizations found an increase in whale call duration in the presence of boat noise for all three pods following the increase in the number of tourist vessels over the past decade. This is highly suggestive that this is an anti-masking strategy. Compilation of information on vessel activities off San Juan Island was continued and is being added to the long-term data base on vessels in Puget Sound. (Contact: Brad Hanson, NWFSC)

Distribution and habitat of Southern Resident killer whales
Studies on winter and summer distribution of Southern Resident killer whales were continued in 2005. A study of summer habitat use by each of the three Southern Resident killer whale pods used data from a network that supplies Southern Resident killer whale sighting information in the San Juan Island region to the whale watch industry. Results to date indicate that although Southern Resident killer whales are often sighted on the west side of San Juan Island, there is variation in the frequency that each pod uses that area as well as variation in use of other areas of Puget Sound region. Another study investigated the movements of whales in their summer range in relation to measures of salmon abundance. In years of relatively lower salmon availability whales used more area and movements were more complex. (Contact: Brad Hanson, NWFSC)

Additional sightings of killer whales off the U.S. west coast during the winter were obtained through continuation of the coast-wide sighting network. Opportunistic sightings are obtained from fisherman, the general public, fishery observes and other scientists. Southern resident killer whales were sighted in California in 2004 and 2005 and were observed off the Washington coast in 2005. (Contact: Dawn Noren, NWFSC)

Results of passive acoustic recorders deployed in winter 2005 off the Washington coast documented the presence of northern resident and transient killer whales. In February 2006, passive acoustic recorders were moored off Washington to monitor occurrence of killer whales and other cetaceans during the spring/early summer period. The hydrophones will be recovered in July (Contact: Brad Hanson, NWFSC).

A Shipboard visual and acoustic survey off the continental shelf waters of Washington and Northern Oregon, USA and the Westside of Vancouver Island, British Columbia, Canada was conducted 13 March – 1 April, 2006. The presence of northern resident killer whale off the Washington coast and southern resident killer whales in the Strait of Juan de Fuca and off the Columbia River were documented. (Contact: Brad Hanson, NWFSC)

Social dynamics of Southern Resident killer whales
A retrospective assessment is in progress of photographic identification data of all Southern Resident killer whales between 1977 and 2003. Individual-based longitudinal data collected by the Center for Whale Research, WA and Fisheries & Oceans Canada (DFO) were amalgamated to provide a comprehensive dataset for this small, endangered killer whale population. These individual-based longitudinal data and known genealogies

allowed assessment of changes in the social structure of the SRKW population at the level of both the individual and the matriline, the most stable social unit. Using both coefficients of association and novel Bayesian clustering methods, we quantified the stability of social affiliations within this killer whale population based on data from more than 1360 encounters, and 118000 high quality individual killer whale identifications. Inter-annual comparisons of social patterns from these photographic data demonstrated dramatic changes in the social affiliations of these killer whales within the last decade, coinciding with the most recent period of population decline. Moreover, pod-specific changes suggest differences in the social stability within the socially-defined pods. Understanding these social dynamics may provide insight into the influence of social structure on population demographics, and help identify critical changes in key ecological forces driving such social changes. (Contact: Kim Parsons, NWFSC)

Southern Resident killer whale foraging and prey
Prey remains were collected in on 25 days in fall 2004 and summer 2005 in conjunction with behavioral cues of predation events for Southern Resident killer whales. Prey remains were collected from 49 of 136 cues. Of these cues, 37 were high energy suggesting prey pursuit of these events from which 18 yielded prey remains. However, prey mains were yielded from 31 of 99 low energy (i.e. moderate directional or non-directional, converging with other whales, surfacing after a long dive) behaviors. Of fish remains collected 76%, (37) were chinook, 18% (9) were chum (mostly from October), and 6% (3) were coho. (Contact: Brad Hanson, NWFSC)

2006 Symposium on Southern Resident killer whales
The Northwest Fisheries Science Center hosted the 2006 Symposium on Southern Resident killer whales in Seattle, WA April 3-5, 2006. The symposium showcased results of over 30 research projects being conducted on Southern Resident killer whales and funded by NOAA NMFS NWFSC (Northwest Fisheries Science Center), Canadian DFO (Department of Fisheries and Oceans), and WDFW (Washington Department of Fish and Wildlife). Other scientists with applicable research also presented results of their studies, and some information on Northern Resident killer whales were also presented. A discussion was also conducted to assess the research results and determine future research needs to best address the risk factors and data gaps in order to provide information for conservation and management actions concerning Southern Resident killer whales (Contact: M. Ford, NWFSC).

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SWFSC
The SWFSC's investigations of dolphin stocks historically depleted by the eastern tropical Pacific (ETP) tuna purse-seine fishery (Pantropical spotted and spinner dolphins) are conducted with an ecosystem approach. In addition to investigating the status and trends of these dolphin stocks, auxiliary projects are conducted to improve our understanding of their surrounding environment. Data analyses, processing and publications in 2005 included: (a) direct work on depleted ETP dolphin stocks, (b) investigations of dolphin energetics, and (c) research on non-depleted ETP cetaceans.

Depleted Dolphin Stocks
The SWFSC conducted line-transect research cruises in 1986 through 1990, 1998 through 2000, and in 2003 to investigate Pantropical spotted and spinner dolphin stocks. From data collected on these cruises, abundance and trends of these stocks were estimated and evaluated through 2000 (Gerrodette & Forcada 2005). Line-transect sightings data from the 2003 monitoring cruise were carefully edited and processed, and updated abundance estimates were published in 2005 (Gerrodette *et al*. 2005).

Further enhancements were made to a model designed to estimate the exposure of dolphins to the tuna fishery in the ETP. This model will be central to an upcoming series of examinations on the relationship of fishery exposure and potential individual and population-level effects such as indicators of stress, calf production, and behavior. An initial paper describing the model and demonstrating some of its properties is scheduled to be submitted by the end of summer, 2006.

Work was begun on a Bayesian examination of a suite of single and two-phase models to describe growth in cetaceans. Initial runs have been using data from common dolphins (*Delphinus delphis*); however, later studies will include both spotted and spinner dolphin data (*Stenella attenuata and S. longirostris*). The results of this study will provide a better understanding of key features of patterns of cetacean growth.

A comprehensive life history study is in progress (Larese & Chivers) to update vital parameters for eastern and whitebelly spinner dolphins. This study is improved over previous studies (Perrin *et al.* 1977, Perrin & Henderson 1984) primarily for three reasons: 1) the sample size is much larger (~1,200 specimens vs. ~250 specimens for each subspecies), 2) ages were estimated based on a calibration study (Myrick *et al.* 1984), and 3)

sample preparation and handling was improved. Updated life history information may provide insight into the lack of expected recovery for these subspecies.

Escorza-Treviño *et al.* (2005) reported the results of a genetic analysis of population structure of coastal spotted dolphins (*Stenella attenuata graffmani*) in the ETP. Both mitochondrial sequences and microsatellite loci indicated the presence of four distinct populations from northern Mexico south to Ecuador and Peru. Except for the northernmost population, these populations were also found to be distinct from samples of offshore spotted dolphins (*Stenella attenuata attenuata*). This is the first study to show evidence of subdivision in this population, suggesting that further studies be conducted to identify proper stock boundaries for management.

Dolphin Energetics

During the period May 2005 through April 2006, several studies initiated in prior years were completed. The Dolphin Energetics Program continued to focus on investigating potential effects of tuna purse-seine set evasion on dolphin mothers and calves. Field work was completed for the dolphin swimming kinematics study, which entailed collecting digital video of three dolphin mothers from late term pregnancy through two years postpartum, and of four dolphin calves (1 calf from two weeks postpartum, the other 3 calves from birth) through two years postpartum. The final (two years postpartum) videos were collected in November 2005. Analysis of the digital video provides data for determining swim speed and effort (fluke stroke amplitude and velocity) of dolphin calves swimming in echelon and independently, and of dolphin mothers during near-term pregnancy and non-pregnant.

The study estimating velocity duration limits for ETP spotted dolphin calves swimming unassisted indicated that dolphin calves up to at least two years of age are likely to have difficulty sustaining speeds typical of tuna purse-seine set evasion (Edwards 2006). Estimated power requirements for neonates are about four times higher than adult power requirements to maintain any given speed. Even at two years of age, power requirements for calves are 50% higher than adult levels. Therefore, calves, particularly the younger, smaller individuals, will tire much more quickly than the adults during fishery interactions when swimming unassisted.

The review of dolphin calf behavioral and physiological development (Noren and Edwards, In Review) indicates that ETP dolphin calves up to at least 12 months postpartum are likely to have physiological difficulty remaining near or reuniting with their mothers during evasion of tuna purse-seine sets, and that behavioral dependence on the mother is likely to persist through at least two years of age.

The study of dolphin calf swimming kinematics from birth through one month postpartum demonstrated that dolphin calves in echelon position can swim significantly faster and farther with less effort than dolphin calves swimming unassisted (Noren *et al.*, Submitted). Results indicate that 0-1 month old calves cannot maintain proximity to the mother unless in echelon position, even at normal (non-chase) swim speeds.
The combined message from these studies is that dolphin calves, particularly during the early months, are quite likely to have difficulty maintaining proximity to their mothers during fishery evasion, and are at substantial risk of unobserved fishery-related mortality if permanently separated from their mothers prior to two or three years of age.

Non-depleted ETP Cetaceans

Refinement of ETP common dolphin life history analyses continued in 2005. Spatial and temporal analyses of length and age data in combination with oceanographic data revealed that common dolphin stock boundaries may be fluid during significant environmental events. Specifically, northern or southern stock animals may move into the Costa Rica Dome area during El Niño events in search of more favorable habitat (Danil & Chivers, In Press).

Port Sampling and Observer Program to Monitor Small Purse Seine Vessels

The Agreement on the International Dolphin Conservation Program (AIDCP) requires observer coverage aboard 100 percent of the trips made by international large purse seine vessels (i.e., those in excess of 400 short tons carrying capacity) in the ETP. However, approximately one quarter of all the vessels in the ETP purse seine fishery are smaller than this threshold. While these vessels are prohibited from harvesting tuna by chasing and encircling dolphins, they are not required to carry observers. The absence of observer data to confirm the fishing practices of small purse seine vessels and data indicating that depleted dolphin stocks in the ETP are not recovering at the expected rate has led to concern among the AIDCP Parties that some small purse seine vessels may be harvesting tuna by chasing and encircling dolphins.

In order to learn more about the fishing practices of these vessels, the SWFSC awarded a contract to the IATTC to expand the at-sea observer and in-port sampling programs currently implemented in the ETP tuna purse seine fishery under the AIDCP. The contract provides for placement of observers on board 1,000 sea days of currently unobserved, international small purse seine vessels (approximately 20% of expected Class 5 sea days) and for species and size composition sampling of landed catch for all Class 4 and 5 vessels in the fleet.

As of March 1, 2006, 19 unloadings by Class 4 and 5 vessels in international ports have been sampled under this contract. No AIDCP Party with small purse seine vessels has agreed to the placement of at-sea observers at this time.

This contract has the potential to yield important data on the fishing practices and associated impacts of small purse seine vessels from which a limited amount of information is currently collected. An algorithm has been developed by the staff of the Inter-American Tropical Tuna Commission (IATTC) to predict set type (dolphin vs. floating object or school set) based on length-frequency data collected during unloading. The SWFSC plans to work with the IATTC staff to analyze length-frequency data collected under this contract with the aim of determining whether some small purse seine vessels are harvesting tuna by chasing and encircling dolphins. Data collected under this contract will be evaluated and analyzed further during 2006 to determine whether this work should continue and what, if any, new information can be gleaned about the activities of these vessels.

Additional Studies in Progress

Two additional studies are currently in progress. The first, by Bill Perrin, Kelly Robertson and Bill Walker, is an analysis of stomach contents of striped dolphin (*Stenella coeruleoalba*) in the ETP. The second, led by Bill Perrin, is a study of geographic variation of killer whale (*Orcinus orca*).

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