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**National Marine Mammal Tissue Bank
2007-2008**

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NIST

National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

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Alaska Veterinary Pathology Services: Kathy Burek

DISCLAIMER

Certain commercial equipment or instruments are identified in this paper to specify adequately the experimental procedures. Such identification does not imply recommendations or endorsement by the National Institute of Standards and Technology nor does it imply that the equipment or instruments are the best available for the purpose.

NATIONAL MARINE MAMMAL TISSUE BANK 2007-2008

INTRODUCTION

BACKGROUND

The National Institute of Standards and Technology (NIST) provides for the cryogenic banking of marine mammal tissues in the National Marine Mammal Tissue Bank (NMMTB). The purpose of the NMMTB is to maintain quality controlled marine mammal tissues to permit retrospective analyses for the purpose of determining environmental trends and conducting analyses using new and innovative analytical techniques. The NMMTB was formally established in 1992 by the Marine Mammal Health and Stranding Response Act (Public Law 102-587), which gives lead responsibility to National Oceanic and Atmospheric Administration (NOAA) and designates the Department of the Interior (DOI) as cooperator in establishing and managing this specimen bank. Through an agreement with NOAA, NIST maintains the NMMTB at two locations: the National Biomonitoring Specimen Bank (NBSB) in Gaithersburg, Maryland, and the Marine Environmental Specimen Bank (Marine ESB) at the Hollings Marine Laboratory in Charleston, South Carolina. These facilities provide for the cryogenic long-term storage of well documented and preserved environmental specimens (Wise and Koster, 1995).

Collecting and banking marine mammal tissues in the NMMTB is conducted as a collaboration among NIST, NOAA's National Marine Fisheries Service (NMFS), and the U.S. Geological Survey Biological Resources Division (USGS/BRD) through two programs: the Alaska Marine Mammal Tissue Archival Project (AMMTAP) and the Marine Mammal Health and Stranding Response Program (MMHSRP). Detailed descriptions of these two programs have been published (Becker *et al.*, 1988; 1993; 1994).

The MMHSRP includes stranding networks, response to unusual mortality events, information management, and biomonitoring. The biomonitoring component consists of real-time measurement of tissue contaminants, the NMMTB, and quality assurance. In addition to the NMMTB, NIST administers and coordinates the quality assurance (QA) program for chemical analysis of marine mammal tissues for the MMHSRP. This analytical QA program, described by Becker *et al.* (1999), consists of (1) preparation, analysis, and distribution of marine mammal tissue control materials; (2) interlaboratory comparison exercises among laboratories involved in marine mammal tissue analyses; and (3) development of Standard Reference Materials (SRMs) for use in the analysis of marine mammal tissues.

GOAL OF THE NMMTB

The goal of the NMMTB is to establish and maintain a quality controlled resource of selected marine mammal tissues for the purposes of:

1. Providing samples for future retrospective analyses for new analytes of interest;
2. Providing samples for future analyses using improved analytical techniques; and
3. Providing a resource of samples that have been collected and stored in a systematic and well-documented manner for comparing results over time to identify whether environmental trends exist.

METHODS

COLLECTING AND BANKING SPECIMENS

Samples of blubber, fat, liver, and kidney were collected from marine mammals using standard AMMTAP and NMMTB protocols (Becker *et al.*, 1988; 1991; 1994; 1999). All specimens from Alaska were collected by AMMTAP from Alaska Native subsistence hunts or from stranded animals along Alaska coasts. All specimens from outside Alaska were collected from either stranded animals or animals caught incidentally during commercial fishing operations as a part of the MMHSRP. Samples were frozen in the field after processing, and transported to the NIST Marine ESB facility at the HML in Charleston, SC where they were assigned a Marine ESB storage number and permanently archived in liquid nitrogen (LN₂) vapor-phase freezers (-150 °C). Detailed descriptions on the protocols for archiving tissues at the Marine ESB have been described elsewhere (Pugh *et al.*, 2007).

Samples selected for analysis were divided into 5 to 6 g aliquots using a cryogenic grinding and homogenization procedure specifically designed to maintain cryogenic conditions during the operation (Zeisler *et al.*, 1983). This reduces the potential loss of volatile compounds and avoids degradation of the sample due to thawing and re-freezing. The cryogenic homogenization procedure is used to aliquot all individual NMMTB 'B' sub-samples and has been described in detail in Pugh *et al.*, 2007.

ANALYTICAL METHODS

Trace Elements

Methods for quantifying trace elements in complex matrices are rapidly evolving. Hyphenated technologies such as gas and liquid chromatography interfaced to inductively coupled mass spectrometry (ICP-MS) allow for the quantification of trace element species in addition to total element concentrations. New collision cell ICP-MS technologies help eliminate isobaric interferences caused by the sample matrix or operating gas that inhibit detection of certain trace elements at low levels. Many of these new methods of analysis can be applied to the analysis of samples archived in the NMMTB. For example, chemical species such as organotins (Point *et al.*, 2007a), and inorganic mercury and methylmercury (Point *et al.*, 2007b and Davis *et al.*, 2007) can now be tracked and quantified retrospectively using banked samples. In addition, methods are currently being developed for determining organoarsenic concentrations. NIST has applied some of these technologies to assess temporal species stability for arsenic compounds in ringed seal (*Phoca hispida*) liver samples (Davis *et al.*, unpublished), and have used organotin metabolites of tributyltin to demonstrate the uptake and accumulation of this antifouling compound in beluga whales (*Delphinapterus leucas*) and polar bears (*Ursus maritimus*) (Table 1) (Point *et al.*, 2007b). Typically, trace element concentrations are quantified using banked liver, kidney, and muscle samples (mostly liver). Over the last two years NIST has developed analytical methods for the determination of mercury and selenium in pygmy sperm whale (*Kogia breviceps*) liver samples and are currently studying the role these trace elements play in the occurrence of cardiomyopathy in pygmy sperm whales. Total mercury and total selenium have been measured in approximately 30 banked samples along with concentrations of methylmercury for a subset of these animals (Bryan *et al.*, unpublished). The pygmy sperm whale control material, QC03LH3, has also been utilized in developing methods for the identification and

detection of selenium containing proteins in liver samples using both LC-ICP-MS and LC-Electrospray MS methods, and these methods can be applied to analyze the banked samples. Banked unknown and control sample data are being evaluated in concert with data obtained from donated heart and liver samples to examine selenium and mercury chemistries as a function of cardiomyopathy disease progression through collaborating with the NOAA/Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) Laboratory, the Armed Forces Institute of Pathology (AFIP), and the Harbor Branch Oceanographic Institute (HBOI). In addition, a large amount of effort has more recently been devoted to developing sample collection and analytical methodologies for live capture and release operations being conducted as part of bottlenose dolphin (*Tursiops truncatus*) and sea turtle health assessments conducted through various federal agencies and research organizations. These methodologies rely on non-invasive sampling of blood, skin and keratin tissue types (Bryan *et al.*, 2007). Methylmercury has been measured in samples such as milk and blood from mom/calf pairs and preliminary results have shown that placental or lactation transfer of mercury to calves is possible, but that this exposure route is minor relative to fish-based exposure (Bryan *et al.*, unpublished). NIST also continues to provide the analytical support for mercury measurements for NOAA Bottlenose Dolphin Health Assessment (BDHA) projects. Approximately 98 bottlenose dolphin skin samples collected by either remote dart biopsy or during live capture health assessment events are currently being measured for Hg content (Table 2). Measurement of Hg isotope ratios is planned in the near future to determine if small changes in Hg isotope ratios represent changes in local contamination sources or if mercury inputs are reflected in dolphin skin samples, in the regions covered by the assessment program.

Table 1. Temporal and spatial distribution of mono-, di- and tri-butyltin (BT) compounds in beluga whale, *Delphinapterus leucas*, and polar bear, *Ursus maritimus*, liver samples collected in the Chukchi Sea, and Beaufort Sea, Alaska during 1989 and 1996 (Point *et al.*, 2007b)

Animal ID.	Location, date of collection	Sex	MBT		DBT			TBT	
ng/g as Sn \pm U ^a , Wet-Mass									
Beluga Whale (<i>Delphinapterus leucas</i>)									
		F							
MM3L069	Chukchi Sea		4.8	\pm 0.3	13.3	\pm 0.8	1.06	\pm 0.06	
MM3L077	(Point	M	2.2	\pm 0.1	15.8	\pm 0.9	1.02	\pm 0.06	
MM3L072	Hope) 1989	F	2.9	\pm 0.2	17.2	\pm 1.1	1.34	\pm 0.08	
Polar Bear (<i>Ursus maritimus</i>)									
MM11L533	Beaufort Sea	F	0.44	\pm 0.02	0.43	\pm 0.02	0.28	\pm 0.02	
MM11L530	(Barrow)	F	1.09	\pm 0.06	0.22	\pm 0.01	0.11	\pm 0.01	
MM11L536	1996	F	0.102	\pm 0.007	0.21	\pm 0.02	0.090	\pm 0.005	

^a Expanded uncertainty based on a 95 % confidence level (k=2).

Table 2 . Bottlenose dolphin (*Tursiops truncatus*) samples analyzed for Hg content from remote dart biopsy or live capture release health assessment events.

Collection Location	Year Sample Collected	Number of Samples Analyzed
St. Joe Bay, FL	2005	12
St. Joe Bay, FL	2006	12
Brunswick, GA	2006	14
Sapelo Island, GA	2007	14
Choctawhatchee, FL	2007	12
Brunswick, GA	2007	18
Sapelo Island, GA	2008	16
Total Analyzed		98

Organic Contaminants

The determination of organic contaminants in samples archived in the NMMTB has consisted of (1) analyzing blubber or other samples for organochlorine pesticides, polychlorinated biphenyl (PCB) congeners, and polybrominated diphenyl ethers (PBDEs) using existing methodology, (2) developing new methods for either new matrices or sets of compounds, and (3) assessing temporal trends of emerging pollutants in the environment. The marine mammal samples analyzed during CY2007 are given in Table 3. Approximately 165 samples from individual marine mammals were analyzed in 2007 and of those 108 were archived in the NMMTB. Data for these samples are available in the form of Reports of Analysis (ROA) and are listed in Appendix A of this report. The samples analyzed for the specimen bank were from BDHA activities, and from beluga whales collected as part of AMMTAP. For the dart biopsy samples the entire sample was used for analysis and any unused blood and milk samples from the BDHA were archived.

New methods of analysis were developed in 2007-2008 and applied to the analysis of samples archived in the NMMTB. For mammal blood, a new method utilizing open focused microwave extraction and large volume injection onto the gas chromatography/mass spectrometer was developed and compared to existing methods for blood analysis (Keller *et al.*, 2009). This method was found to be superior to other existing methods based on recovery of compounds and detection limit. The method was initially applied to human serum samples and will be used for all bottlenose dolphin plasma samples that require analysis. These samples are primarily those collected in collaboration with the Sarasota Dolphin Research Program. Other progress was made in the determination of individual toxaphene congeners in specimen bank samples. The NIST laboratory performed toxaphene analysis on marine mammal samples in the past but the analysis was limited to three congeners in addition to total toxaphene. The newly developed method allows for the quantification of approximately 25 congeners in addition to total toxaphene (Vander Pol *et al.*, in review). The addition of these congeners will allow for a better understanding of toxaphene bioaccumulation and will help to determine the source of toxaphene contamination. These methods are also being applied to the sample sets listed in Table 3 and

will be applied to future marine mammal samples. A method for the determination of a common current use flame retardant, hexabromocyclododecane (HBCD) was also developed (Peck *et al.*, 2008). This analytical method was applied to the determination of HBCD in beluga whales from Alaska to determine if a temporal increase is present in this sample set. A significant ($p < 0.05$) trend was observed between time of collection and concentration of HBCD in beluga whale blubber. Prior NMMTB work has also shown that this compound is increasing exponentially with time in California Sea lions (*Zalophus californianus*) but not in white-sided dolphins (*Lagenorhynchus acutus*) from the Northwest Atlantic Ocean (Stapleton, *et al.*, 2006 and Peck, *et al.*, 2008). In addition, a previously developed method for polychlorinated naphthalene congeners (PCNs) is currently being applied to the analysis of 24 beluga samples. PCNs and toxaphene are both named in the Persistent Organic Pollutant (POPs) Stockholm Treaty as compounds slated for global monitoring and phase-out.

Additional details on methods as well as data from trace element and organic contaminants analysis from samples banked as a part of the NMMTB can be found in the NIST ROAs. The reports produced in 2007 and 2008 are listed in Appendix A and are available upon request.

Table 3. Marine mammal samples analyzed during 2007-2008 for organic pollutants.

Sample Location	Tissue Type	Common Name	Year Sample Collected	Number of Animals Analyzed	Comments	Archived Samples
Alaska	Blubber	Beluga Whale	1990-2000	22	AMMTAP Samples	Yes
Brunswick, GA	Blubber dart biopsy	Bottlenose Dolphin	2006	27		No
Brunswick, GA	Blubber dart biopsy	Bottlenose Dolphin	2007	28		No
Sarasota, FL	Milk	Bottlenose Dolphin	2005	2	Collected by R. Wells and Dolphin Quest	No
Sarasota, FL	Blood	Bottlenose Dolphin	2002-2005	86	Collected by R. Wells and Dolphin Quest	Yes
Total Number Samples Analyzed				165		

RESULTS AND DISCUSSION

SPECIMENS ARCHIVED IN THE NMMTB

During the reporting period (January 1, 2007 to December 31, 2008), 299 specimens (154 in 2007; 145 in 2008) were collected from 105 animals (53 in 2007; 52 in 2008) (Table 4). Species sampled by region and growth of the collection since 1990 are shown in Fig. 1. The inventory of marine mammal specimens in the NMMTB (as of December 31, 2008) collected by both the AMMTAP and the MMHSRP includes 3,402 specimens collected from 1,210 animals representing 46 species (Table 4). Summary inventories of the MMHSRP and AMMTAP animals are provided in this volume (Tables 5 through 11). Additional details about the animal and samples collected for the NMMTB through 2008 are provided in the National Marine Mammal Tissue Bank Inventory, and are available through a public access website, <https://mmhsrp.nmfs.noaa.gov/tissbk/>, or are available upon request.

Of the 3,402 marine mammal tissue specimens archived in the NMMTB, 1,628 were collected

by the MMHSRP from 553 animals (33 species) outside of Alaska. These include tissue specimens from 441 individuals representing 27 species of cetaceans and 112 individuals representing six species of pinnipeds. Cetaceans include: harbor porpoise (*Phocoena phocoena*), pilot whale (*Globicephala melas* or *melaena*), short finned pilot whale (*Globicephala macrorhynchus*), pygmy sperm whale (*Kogia breviceps*), dwarf sperm whale (*Kogia simus*), North Atlantic right whale (*Eubalaena glacialis*), Blainville's beaked whale (*Mesoplodon densirostris*), Gervais' beaked whale (*Mesoplodon europaeus*), bottlenose dolphin (*Tursiops truncatus*), striped dolphin (*Stenella coeruleoalba*), an unidentified species of dolphin (*Stenella* spp.), Risso's dolphin (*Grampus griseus*), white-sided dolphin (*Lagenorhynchus acutus*), common dolphin (*Delphinus delphis*), rough-toothed dolphin (*Steno bredanensis*), fin whale (*Balaenoptera physalus*), Cuvier's beaked whale (*Ziphius cavirostris*), Atlantic spotted dolphin (*Stenella frontalis*), Eastern spinner dolphin (*Stenella longirostris orientalis*), Pantropical spotted dolphin (*Stenella attenuata*), Clymene dolphin (*Stenella clymene*), Minke whale (*Balaenoptera acutorostrata*), Melon-headed whale (*Peponocephala electra*), Bryde's Whale (*Balaenoptera edeni*), pygmy killer whale (*Feresa attenuate*), beluga whale (*Delphinapterus leucas*), and an unidentified species of dolphin (*Delphinid* spp.). Pinniped species include: California sea lion (*Zalophus californianus*), hooded seal (*Cystophora cristata*), harbor seal (*P. vitulina*), ringed seal (*Phoca hispida*), harp seal (*P. groenlandica*), and gray seal (*Halichoerus grypus*).

There are 1,734 marine mammal tissue specimens archived in the NMMTB collected by the AMMTAP from 657 animals (18 species) in Alaska. These include tissue specimens from 369 individuals representing nine species of pinnipeds, 169 individuals representing seven species of cetaceans and 119 individuals representing two species of fissipeds. Pinnipeds include: ringed seal (*Phoca hispida*), harbor seal (*Phoca vitulina*), spotted seal (*Phoca largha*), bearded seal (*Erignathus barbatus*), elephant seal (*Mirounga angustirostris*), stellar sea lion (*Eumetopias jubatus*), northern fur seal (*Callorhinus ursinus*), Pacific walrus (*Odobenus rosmarus divergens*), and ribbon seal (*Phoca fasciata*). Cetaceans include: beluga whale (*Delphinapterus leucas*), bowhead whale (*Balaena mysticetus*), harbor porpoise (*Phocoena phocoena*), gray whale (*Eschrichtius robustus*), Stejneger's beaked whale (*Mesoplodon stejnegeri*), humpback whale (*Megaptera novaengliae*), and Minke whale (*Balaenoptera acutorostrata*). Fissiped species include: polar bear (*Ursus maritimus*) and sea otter (*Enhydra lutris*).

Table 4. Marine mammals sampled in 2007 and 2008.

AMMTAP	1987-2006	2007	2008	Total
Ringed Seal (<i>Phoca hispida</i>)	115			115
Harbor Seal (<i>Phoca vitulina</i>)	18			18
Spotted Seal (<i>Phoca largha</i>)	24			24
Bearded Seal (<i>Erignathus barbatus</i>)	60			60
Elephant Seal (<i>Mirounga angustirostris</i>)	1			1
Stellar Sea Lion (<i>Eumetopias jubatus</i>)	14	1	1	16
Northern Fur Seal (<i>Callorhinus ursinus</i>)	52	10	11	73
Pacific Walrus (<i>Odobenus rosmarus divergens</i>)	47			47
Beluga Whale (<i>Delphinapterus leucas</i>)	79			79
Bowhead Whale (<i>Balaena mysticetus</i>)	80			80
Polar Bear (<i>Ursus maritimus</i>)	72	7		79
Sea Otter (<i>Enhydra lutris</i>)	37	2	1	40

Harbor Porpoise (<i>Phocoena phocoena</i>)	4			4
Gray Whale (<i>Eschrichtius robustus</i>)	1			1
Ribbon Seal (<i>Phoca fasciata</i>)	15			15

Table 4. Continued.

Stejneger's Beaked Whale (<i>Mesoplodon stejnegeri</i>)	3			3
Humpback Whale (<i>Megaptera novaeangliae</i>)		1		1
Minke Whale (<i>Balaenoptera acutorostrata</i>)			1	1
Total Animals	622	21	14	657

MMHSRP	1987-2006	2007	2008	Total
Harbor Porpoise (<i>Phocoena phocoena</i>)	37	2		39
Pilot Whale (<i>Globicephala melas</i>)	39			39
Short Finned Pilot Whale (<i>G. macrorhynchus</i>)	6			6
Pygmy Sperm Whale (<i>Kogia breviceps</i>)	26	5	1	32
Gervais' Beaked Whale (<i>Mesoplodon europaeus</i>)	1			1
Bottlenose Dolphin (<i>Tursiops truncatus</i>)	60	8	14	82
Striped Dolphin (<i>Stenella coeruleoalba</i>)	10			10
Dolphin (<i>Stenella</i> spp.)	1			1
Dolphin (<i>Delphinid</i> spp.)			1	1
Risso's Dolphin (<i>Grampus griseus</i>)	9		1	10
White Sided Dolphin (<i>Lagenorhynchus acutus</i>)	90	1	5	96
California Sea Lion (<i>Zalophus californianus</i>)	38	1		39
Common Dolphin (<i>Delphinus delphis</i>)	33	4	7	44
Hooded Seal (<i>Cystophora cristata</i>)	26	2		28
Harbor Seal (<i>Phoca vitulina</i>)	18	2		20
Ringed Seal (<i>Phoca hispida</i>)	1			1
Harp Seal (<i>Phoca groenlandica</i>)	16		2	18
Grey Seal (<i>Halichoerus grypus</i>)	4		2	6
Rough-Toothed Dolphin (<i>Steno bredanensis</i>)	45			45
Fin Whale (<i>Balaenoptera physalus</i>)	1			1
Dwarf Sperm Whale (<i>Kogia simus</i>)	7	3	2	12
Atlantic Spotted Dolphin (<i>Stenella frontalis</i>)	3			3
Cuvier's Beaked Whale (<i>Ziphius cavirostris</i>)	2			2
Eastern Spinner Dolphin (<i>Stenella l. orientalis</i>)	1			1
Pantropical Spotted Dolphin (<i>Stenella attenuata</i>)	2			2
Blainvilles Beaked Whale (<i>Mesoplodon densirostris</i>)	1	1		2
North Atlantic Right Whale (<i>Eubalaena glacialis</i>)	1			1
Minke Whale (<i>Balaenoptera acutorostrata</i>)	1			1
Clymene Dolphin (<i>Stenella clymene</i>)	1			1
Beluga Whale (<i>Delphinapterus leucas</i>)	1			1
Melon-headed Whale (<i>Peponocephala electra</i>)	1		3	4
Bryde's Whale (<i>Balaenoptera edeni</i>)	1			1
Pygmy Killer Whale (<i>Feresa attenuate</i>)		3		3
Total Animals	483	32	38	553

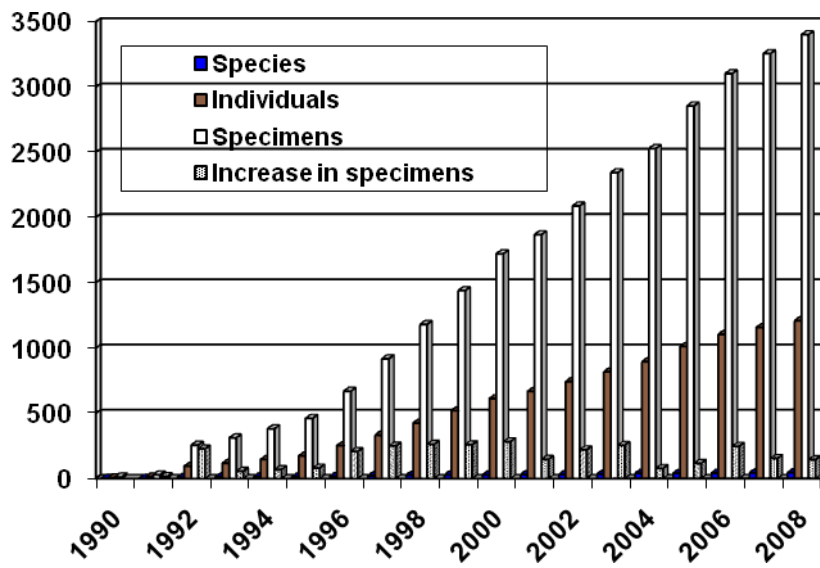


Figure 1. The National Marine Mammal Tissue Bank collection: regional sampling (upper map) and growth of collection (lower graph).

During the reporting period (January 1, 2007 to December 31, 2008), tissue specimens were collected and processed by individuals representing numerous agencies, academic institutions, and other organizations. These include the following:

National Marine Fisheries Service (NMFS)/Panama City Laboratory: Sabrina Bowen
National Ocean Service (NOS)/Center for Coastal Environmental Health and Biomolecular Research: Wayne McFee, Leslie Burdett, and James Powell
U.S. Geological Service, Biological Resources Division (USGS/BRD): Kristin Simac
U.S. Fish and Wildlife Service (USFWS): Tom Evans, Leslie Slater, M. Opheim, Dana Jensi
Belinda Rubenstein
The Marine Mammal Center (California): Frances Gulland, Denise Greig, Liz Wheeler
University of North Carolina at Wilmington: William McLellan and Ann Pabst
Alaska Sea Life Center: Pam Tuomi, Sonja Ollig, and Carrie Goertz
Hubbs Sea World Research Institute: Megan Stolen, Wendy Noke Durden, and Teresa Mazza
Alaska Veterinary Pathology Services: Kathy Burek

The summaries of the NMMTB inventory in Tables 5 through 11 provide information on the status of the banked specimens. Tables 6 through 8 indicate specimens collected by the MMHSRP for which sub-sample B is homogenized and ready for analysis. Tables 9 through 11 indicate specimens collected by the AMMTAP for which sub-sample B is homogenized and ready for analysis.

Table 5. Species, sampling region, location and number of individual animals sampled for marine mammal specimens archived in the NMMTB as of December 31, 2008.

Species	Region	Location	# of Individuals
Cetaceans:			
Bowhead whale (<i>Balaena mysticetus</i>)	Arctic	Alaska	80
Fin whale (<i>Balaenoptera physalus</i>)	North Atlantic	Massachusetts	1
Pilot whale (<i>Globicephala melas or melaena</i>)	North Atlantic	Massachusetts/VA	39
Short finned pilot whale (<i>G. Macrorhynchus</i>)	North Atlantic	North Carolina (NC)	6
Harbor porpoise (<i>Phocoena phocoena</i>)	North Atlantic	MA/ME/NH/Can/NC	38
	North Pacific	Washington	1
	Arctic	Alaska	1
	Gulf of Alaska	Cook Inlet/Alaska	3
White-sided dolphin (<i>Lagenorhynchus acutus</i>)	North Atlantic	Massachusetts/NC	96
Common dolphin (<i>Delphinus delphis</i>)	North Atlantic	MA/VA/NC	44
Rough-toothed dolphin (<i>Steno bredanensis</i>)	Gulf of Mexico	Florida	45
Beluga whale (<i>Delphinapterus leucas</i>)	Arctic	Alaska	40
	Bering Sea	Alaska	5
	Cook Inlet	Alaska	34
	North Atlantic	Maine	1
Pygmy sperm whale (<i>Kogia breviceps</i>)	North Atlantic	NC/SC/FL/MA	32
Dwarf sperm whale (<i>K. simus</i>)	North Atlantic	NC/SC/FL	12
Gervais' beaked whale (<i>Mesoplodon europaeus</i>)	North Atlantic	South Carolina	1
Striped dolphin (<i>Stenella coeruleoalba</i>)	North Atlantic	NC/MA/DE/VA	10
Risso's dolphin (<i>Grampus griseus</i>)	North Atlantic	VA/MA	1
Bottlenose dolphin (<i>Tursiops truncatus</i>)	North Atlantic	NC/SC/MA/VA/FL	82
Dolphin (<i>Stenella</i> spp.)	North Atlantic	NC	1
Dolphin (<i>Delphinid</i> spp.)	North Atlantic	NC	1
Atl. Spotted dolphin (<i>Stenella frontalis</i>)	North Atlantic	SC/MA	3
Cuvier's beaked whale (<i>Ziphius cavirostris</i>)	North Atlantic	NC/MA	2
Eastern Spinner dolphin (<i>Stenella l. orientalis</i>)	South Pacific		1
Pantropical Spotted dolphin (<i>Stenella attenuata</i>)	South Pacific		1
	North Atlantic	South Carolina	1
Gray whale (<i>Eschrichtius robustus</i>)	North Pacific	Alaska	1
Blainville's Beaked whale (<i>Mesoplodon densirostris</i>)	North Atlantic	North Carolina	2
North Atlantic Right whale (<i>Eubalaena glacialis</i>)	North Atlantic	Florida	1
Minke whale (<i>Balaenoptera acutorostrata</i>)	North Atlantic	Massachusetts	1
Clymene dolphin (<i>Stenella clymene</i>)	North Atlantic	North Carolina	1
Stejneger's beaked whale (<i>Mesoplodon stejnegeri</i>)	Gulf of Alaska	Alaska	1
	Bering Sea	Alaska	2
Melon-headed whale (<i>Peponocephala electra</i>)	North Atlantic	Florida	4
Bryde's whale (<i>Balaenoptera edeni</i>)	Gulf of Mexico	Florida	1
Pygmy killer whale (<i>Feresa attenuate</i>)	North Atlantic	SC	3
Humpback whale (<i>Megaptera novaeangliae</i>)	Gulf of Alaska	Alaska	1
Pinnipeds:			
Harbor seal (<i>Phoca vitulina</i>)	North Atlantic	Massachusetts	20
	North Pacific	Alaska	18
Ringed seal (<i>P. hispida</i>)	Arctic	Alaska	91
	Bering Sea	Alaska	24
	North Atlantic	Maine	1
Spotted seal (<i>P. largha</i>)	Bering Sea	Alaska	4
	Arctic	Alaska	20

Table 5. (continued)

Harp seal (<i>P. groenlandica</i>)	North Atlantic	Massachusetts	18
Grey seal (<i>Halichoerus grypus</i>)	North Atlantic	Massachusetts	6
Hooded seal (<i>Cystophora cristata</i>)	North Atlantic	Massachusetts	28
Bearded seal (<i>Erignathus barbatus</i>)	Arctic	Alaska	43
	Bering Sea	Alaska	17
Northern elephant seal (<i>Mirounga angustirostris</i>)	North Pacific	Alaska	1
Steller sea lion (<i>Eumetopias jubatus</i>)	North Pacific	Alaska	14
	Bering Sea	Alaska	2
Northern fur seal (<i>Callorhinus ursinus</i>)	N. Pacific/Bering Sea	Alaska	72
	Arctic	Alaska	1
California sea lion (<i>Zalophus californianus</i>)	North Pacific	California	39
Pacific walrus (<i>Odobenus rosmarus divergens</i>)	Bering Sea	Alaska	45
	Arctic	Alaska	2
Ribbon seal (<i>Phoca fasciata</i>)	Bering Sea	Alaska	15
<u>Fissipeds:</u>			
Polar bear (<i>Ursus maritimus</i>)	Arctic	Alaska	34
	Bering Sea	Alaska	44
	Beaufort Sea	Alaska	1
Sea otter (<i>Enhydra lutris</i>)	North Pacific	Alaska	11
	Gulf of Alaska	Alaska	29
<hr/> TOTAL NUMBER OF ANIMALS			1210

Table 6. Marine mammals sampled in the Atlantic Ocean for the MMHSRP (L - Liver; K - Kidney; B - Blubber; M - Muscle; R - Brain; a - samples archived; h - subsample B homogenized and divided into aliquots for analyses).

Species	Sex	Individual ID	Location	Date	L	K	B	M	R
Harbor Porpoise	M	MH-90-553Pp	NEA/Boston	10/90	h		h		
Harbor Porpoise	F	MH-91-424Pp	NEA/Boston	1/91	h		h		
Harbor Porpoise	F	MH-91-461Pp	NEA/Boston	3/91	h		h		
Harbor Porpoise	F	MH-91-505Pp	NEA/Boston	5/91	h		h		
Harbor Porpoise	M	MH-91-504Pp	NEA/Boston	5/91	h		h		
Harbor Porpoise	F	MH-92-477Pp	NEA/Boston	4/92	h		a		
Harbor Porpoise		MH-92-575Pp	NEA/Boston	10/92	h		h		
Harbor Porpoise	M	MH-92-597Pp	NEA/Boston	12/92	h		a		
Harbor Porpoise		MH-93-496Pp	NEA/Boston	5/93	a		a		
Harbor Porpoise	M	MH-97-462Pp	Winthrop,MA	3/97	a		h		
Harbor Porpoise	F	GM-97-19Pp	Grand Manan, NB,Canada	8/97	a	a	h		
Harbor Porpoise	F	GM-97-27Pp	Grand Manan, NB,Canada	8/97	a	a	h		
Harbor Porpoise	F	MH-99-437Pp	Great Island, MA	2/99	a	a	a		
Harbor Porpoise	F	MH-99-453Pp	Winthrop, MA	2/99	a	a	a		
Harbor Porpoise	M	MH-99-473Pp	Mayo Beach, MA	3/99	a	a	a		
Harbor Porpoise	F	MH-99-510Pp	Chelsea, MA	3/99	a	a	a		
Harbor Porpoise	M	MH-99-530Pp	Wellfleet, MA	3/99	a	a	a		
Harbor Porpoise	F	GM9920	Grand Manan, NB, Canada	8/99	a	a	a	a	
Harbor Porpoise	M	GM9921	Grand Manan NB, Canada	8/99	a	a	a	a	
Harbor Porpoise	F	MH-99-590Pp	Nantasket Beach, MA	3/99	a	a	a		
Harbor Porpoise	M	MH-99-505Pp	Wellfleet, MA	3/99	a	a	a		
Harbor Porpoise	M	KMS033	Outer Banks, NC	3/00	a	a	a	a	
Harbor Porpoise	M	GM-00-01	Grand Manan, NB, Canada	7/00	a	a	a	a	a
Harbor Porpoise	M	GM-01-96	Grand Manan, NB, Canada	8/01	a	a	a		
Harbor Porpoise	M	GM-01-136	Grand Manan NB, Canada	8/01	a	a	a		
Harbor Porpoise	F	MH-02-624Pp	Brewster, MA	4/02	a	a	a		
Harbor Porpoise	M	MH-02-584Pp	Wellfleet, MA	3/02	a	a	a		
Harbor Porpoise	M	MH-01-695Pp	Wellfleet, MA	4/01	a	a	a		
Harbor Porpoise	F	MH-02-470Pp	Dover, NH	7/02	a	a	a		
Harbor Porpoise	F	MLC 001	Corolla, NC	5/05	a	a	a		
Harbor Porpoise	M	DO 5243	MA	10/05	a	a	a		
Harbor Porpoise	M	DO 5640	MA	3/05	a	a	a		
Harbor Porpoise	M	DO 5654	MA	11/05	a	a	a		
Harbor Porpoise	F	DO 6742	Portland, ME	11/05	a	a	a		
Harbor Porpoise	M	DO 7926	MA	11/05	a	a	a		
Harbor Porpoise	M	DMB 001	Currituck, NC	1/03	a	a	a		
Harbor Porpoise	M	05-471-Pp	Duxbury, MA	3/05	a	a	a		
Harbor Porpoise	F	DO 8732 Pp	Cape Cod, MA	10/06	a	a	a		
Pilot Whale	F	MH-90-597Gm	Hyannis	12/90	h		h		
Pilot Whale	F	MH-90-599Gm	Hyannis	12/90	h		h		
Pilot Whale	F	MH-90-600Gm	Hyannis	12/90	h		h		
Pilot Whale	F	MH-90-617Gm	Hyannis	12/90	h		h		
Pilot Whale	F	MH-90-624Gm	Hyannis	12/90	h		h		
Pilot Whale	F	MH-91-602Gm	Wellfleet	9/91	h		h		

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Pilot Whale	F	MH-91-603Gm	Wellfleet	9/91	h		h	
Pilot Whale	M	MH-91-604Gm	Wellfleet	9/91	h		h	
Pilot Whale	M	MH-91-605Gm	Wellfleet	9/91	h		a	
Pilot Whale	F	NMFS 1609	George's Canyon	7/96	h	h	h	
Pilot Whale	F	NMFS 2090	George's Canyon	7/96	h	h	h	
Pilot Whale	M	MH99-705Gm	Long Island,ME	9/98	a	a	a	
Pilot Whale	M	MH-00-620Gm	Nantucket Island, ME	7/00	a		a	
Pilot Whale	M	MH-00-621Gm	Nantucket Island, ME	7/00	a	a	a	
Pilot Whale	M	MH-00-622Gm	Nantucket Island, ME	7/00	a	a	a	
Pilot Whale	M	MH-00-623Gm	Nantucket Island, ME	7/00	a	a	a	a
Pilot Whale	M	MH-00-624Gm	Nantucket Island, ME	7/00	a	a	a	
Pilot Whale	M	MH-00-625Gm	Nantucket Island, ME	7/00	a	a	a	
Pilot Whale	M	MH-00-626Gm	Nantucket Island, ME	7/00	a	a	a	a
Pilot Whale	M	CCSN-02-004-Gm	Kingston, MA	1/02	a	a	a	
Pilot Whale	M	COA010202	Belfast, ME	1/02	a	a	a	
Pilot Whale	M	CCSN-02-178	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-178Fetus	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-179	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	CCSN-02-180	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	CCSN-02-181	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	CCSN-02-182	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	CCSN-02-182Fetus	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-184	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-185	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	CCSN-02-186	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	CCSN-02-187	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-187Fetus	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-188	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	M	CCSN-02-235	Dennis Chapin, MA	7/02	a	a	a	
Pilot Whale	F	VMSM20031052	Wreck Island, VA	6/03	a	a	a	
Pilot Whale	F	MH-01-401Gm	Nantucket, MA	1/01	a	a	a	
Pilot Whale	M	DO 5140	Georges Bank, MA	12/04	a	a	a	
Pilot Whale	M	CCSN-279-Gm	Brewster, MA	12/05	a	a	a	
Short Finned Pilot Whale	F	WAM555	Southport, NC	7/00	a	a	a	
Short Finned Pilot Whale	M	RT blue 47	Oregon Inlet, NC	1/05	a	a	a	
Short Finned Pilot Whale	F	RT 49	Oregon Inlet, NC	1/05	a	a	a	
Short Finned Pilot Whale	F	RT 50	Oregon Inlet, NC	1/05	a	a	a	
Short Finned Pilot Whale	F	RT 105	Oregon Inlet, NC	1/05	a	a	a	
Short Finned Pilot Whale	F	RT 106	Oregon Inlet, NC	1/05	a			
Dwarf Sperm Whale	M	MMES 9889 SC	Isle of Palms,SC	7/98	a	a	a	a
Dwarf Sperm Whale	F	MH-99-696Ks	Long Sands Beach, York, ME	8/99	a	a	a	
Dwarf Sperm Whale	F	DAP032	Holden Beach, NC	4/00	a	a	a	a
Dwarf Sperm Whale	F	WAM 566	Cape Fear, NC	3/01	a	a	a	
Dwarf Sperm Whale	M	MMES2001131SC	Sullivans Island, SC	11/01	a	a	a	
Dwarf Sperm Whale	M	WAM609	Shallotte, NC	7/05	a	a	a	
Dwarf Sperm Whale	M	MML 0525	Siesta Key, FL	9/05	a	a	a	
Dwarf Sperm Whale	M	Hubbs-0725-Ks	Melbourne Beach, FL	3/07	a	a	a	
Dwarf Sperm Whale	F	WAM 637	Surf City, NC	8/07	a	a	a	
Dwarf Sperm Whale	M	CLP001	Sunset Beach, NC	11/07	a	a	a	
Dwarf Sperm Whale	F	Hubbs-0873-Ks	Cocoa Beach, FL	8/08	a	a	a	
Dwarf Sperm Whale	F	Hubbs-0874-Ks	Cocoa Beach, FL	8/08			a	
Pygmy Sperm Whale	M	WAM 531	Holden Beach,NC	2/98	h	h	h	a

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Pygmy Sperm Whale	F	MMES98111SC	Litchfield Beach,SC	8/98	h	h	h	a
Pygmy Sperm Whale	F	MMES98114SC	Debordieu Beach,SC	9/98	h	h	h	
Pygmy Sperm Whale	F	MMES98121SC	Sullivans Island,SC	10/98	h	h	h	
Pygmy Sperm Whale	M	MMES98122SC	Sullivans Island,SC	10/98	h	h	h	
Pygmy Sperm Whale	M	MMES2001013SC	Folly Beach, SC	2/01	h	h	h	
Pygmy Sperm Whale	M	MMES2001045SC	Dewee's Island, SC	6/01	h	h	h	
Pygmy Sperm Whale	F	MMES2001055SC	Charleston, SC	7/01	h	h	h	
Pygmy Sperm Whale	M	MMES2004006SC	Isle of Palms, SC	2/04	h	h	h	
Pygmy Sperm Whale	M	MMES2004086SC	Kiawah Island, SC	8/04	a	a	a	
Pygmy Sperm Whale	M	MMES2004087SC	Hilton Head Isl., SC	8/04	a	a	a	
Pygmy Sperm Whale	F	MMES2004088SC	Kiawah Island, SC	9/04	a	a		
Pygmy Sperm Whale	M	MMES2004089SC	Kiawah Island, SC	9/04	a	a		
Pygmy Sperm Whale	M	MMES2004090SC	Kiawah Island, SC	9/04	a	a		
Pygmy Sperm Whale	F	Hubbs-0477-Kb	Palm Coast, FL	9/04	a	a	a	
Pygmy Sperm Whale	M	MMES2004092SC	Edisto Island, SC	9/04	a	a	a	
Pygmy Sperm Whale	F	MMES2005039SC	Kiawah Island, SC	7/05	a	a	a	
Pygmy Sperm Whale	F	MMES2005022SC	Sand Island, SC	6/05	a	a		
Pygmy Sperm Whale	M	HUBBS-0530-KB	Melbourne Beach,FL	8/05	a	a	a	
Pygmy Sperm Whale	M	MMES2005070SC	Hilton Head Island,SC	10/05	a	a	a	
Pygmy Sperm Whale	M	MMES2005041SC	Kiawah Island, SC	7/05	a	a	a	
Pygmy Sperm Whale	M	MMES2005047SC	Pawley's Island, SC	8/05	a	a	a	
Pygmy Sperm Whale	M	MMES2005065SC	Sullivan's Island, SC	8/05	a	a	a	
Pygmy Sperm Whale	F	MML 0603	Longboat Key, FL	1/06	a	a	a	
Pygmy Sperm Whale	F	06-201-Kb	W Dennis Beach, MA	6/06	a	a	a	
Pygmy Sperm Whale	F	Hubbs-0635-Kb	Daytona Beach, FL	6/06	a	a		
Pygmy Sperm Whale	F	Hubbs-0721-Kb	Ormond Beach, FL	3/07	a	a	a	
Pygmy Sperm Whale	F	MMES2007018SC	Beaufort, SC	4/07	a	a	a	
Pygmy Sperm Whale	M	MMES2007016SC	Sullivan's Isl., SC	4/07	a	a	a	
Pygmy Sperm Whale	M	Hubbs-0736-Kb	Indian Harbor, FL	5/07	a	a	a	
Pygmy Sperm Whale	F	WAM634	Holden Beach, FL	7/07	a	a	a	
Pygmy Sperm Whale	M	MMES2008040SC	Folly Beach, SC	8/08	a	a	a	
Gervais Beaked Whale	F	MMES98119SC	Georgetown	9/98	a	a	a	
Cuvier's Beaked Whale	F	ASF043	Caswell Beach, NC	7/00		a	a	
Cuvier's Beaked Whale	M	06-437-Uk	Cohasset, MA	4/06	a	a	a	
Blainville's Beaked Whale	M	WAM593	Kure Beach, NC	1/04	a	a	a	
Blainville's Beaked Whale	F	MMES2007053SC	Sullivan's Island, SC	9/07	a	a	a	
Bottlenose Dolphin	F	ASF 021	Long Beach,NC	10/97	a	a	a	a
Bottlenose Dolphin	F	MMES 9885 SC	Kiawah Island,SC	7/98			a	a
Bottlenose Dolphin	F	MH-98-673Tt	Gloucester,MA	7/98	a	a	a	
Bottlenose Dolphin	F	H0F 007	NC	9/98	a	a	a	a
Bottlenose Dolphin	F	SDZ 001	Long Beach,NC	10/98	a	a	a	a
Bottlenose Dolphin	M	DAP 031	Long Beach,NC	10/98	a	a	a	a
Bottlenose Dolphin	M	NE Tag #03976	Atlantic Beach,NC	2/99	a		a	a
Bottlenose Dolphin	M	PTM047	NC	4/99	a	a	a	a
Bottlenose Dolphin	M	SDZ005	Topsail Island, NC	4/99	a	a	a	a
Bottlenose Dolphin	F	MMES2000002SC	Stono River, SC	1/00	a	a	a	
Bottlenose Dolphin	M	WAM553	NC	3/00	a	a	a	a
Bottlenose Dolphin	M	NEFC5451	NC	2/00	a	a	a	a
Bottlenose Dolphin	M	NEFSC03701	NC	2/00	a	a	a	a
Bottlenose Dolphin	M	WAM550	Figure 8 Island, NC	4/00	a	a	a	a a
Bottlenose Dolphin	F	MMES2000075SC	Wando River, SC	7/00	a	a	a	
Bottlenose Dolphin	M	VMSM20001049	Norfolk, VA	9/00	a	a	a	
Bottlenose Dolphin	F	NJ-00-111	Sandy Hook, NJ	11/00	a	a	a	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Bottlenose Dolphin	F	WAM559	Wrightsville Beach, NC	11/00	a	a	a	
Bottlenose Dolphin	M	NEFSC5332	Hatteras Inlet, NC	12/00	a	a	a	
Bottlenose Dolphin	M	WAM560	ICW off Lee, NC	11/00	a	a	a	
Bottlenose Dolphin	F	MMES2001001SC	James Isl. Creek, SC	1/01	a	a	a	
Bottlenose Dolphin	F	WJW 007	Avon, NC	3/01	a	a	a	
Bottlenose Dolphin	M	MMES2001042SC	Sullivan's Isl., SC	6/01	a	a	a	
Bottlenose Dolphin	F	WAM 569	Topsail Island, NC	5/01	a	a	a	
Bottlenose Dolphin	F	MMES2001108SC	Hunting Beach, SC	9/01	a	a	a	
Bottlenose Dolphin	M	MMES2002030SC	Charleston, SC	2/02	a	a	a	
Bottlenose Dolphin	F	MMES2002118SC	Kiawah Isl., SC	7/02	a	a	a	
Bottlenose Dolphin	F	MMES2002162SC	Charleston, SC	8/02	h	a	a	
Bottlenose Dolphin	M	REL 014	Beaufort, NC	3/02	a	a	a	
Bottlenose Dolphin	M	WAM 579	Brunswick Co., NC	10/02	a	a	a	
Bottlenose Dolphin	M	MMES2003042SC	Hilton Head Isl., SC	5/03	a	a	a	
Bottlenose Dolphin	M	WAM 591	Topsail Island, NC	8/03	a	a	a	
Bottlenose Dolphin	M	MMES2003089SC	Wallace Creek, SC	8/03	a	a	a	
Bottlenose Dolphin	F	MMES2003160SC	Goat Island, SC	11/03	a	a	a	
Bottlenose Dolphin	M	MMES2003161SC	Myrtle Beach, SC	11/03	a	a	a	
Bottlenose Dolphin	M	MMES2004001SC	Seabrook Island, SC	1/04	a	a	a	
Bottlenose Dolphin	F	MMES2004003SC	Kiawah Island, SC	1/04	a	a	a	
Bottlenose Dolphin	F	MMES2004038SC	Cape Romaine, SC	5/04	a	a	a	
Bottlenose Dolphin	F	MMES2004082SC	Folly Beach, SC	7/04	a	a	a	
Bottlenose Dolphin	F	VMISM20041079	Virginia Beach, VA	7/04	a	a	a	
Bottlenose Dolphin	F	MMES2004084SC	Charleston, SC	8/04	a	a	a	
Bottlenose Dolphin	M	WAM601	Surf City, NC	7/04	a	a	a	
Bottlenose Dolphin	F	MMES2004085SC	N. Myrtle Beach, SC	8/04	a	a	a	
Bottlenose Dolphin	M	WAM607	N. Topsail, NC	11/04	a	a	a	
Bottlenose Dolphin	M	AJW001	Carolina Beach, NC	3/05	a	a	a	
Bottlenose Dolphin	F	MMES2005019SC	Beaufort, SC	5/05	a	a	a	
Bottlenose Dolphin	F	MMES2005007SC	Hilton Head Isl., SC	3/05	a	a	a	
Bottlenose Dolphin	M	VAQS20051086	Virginia Beach, VA	7/05	a	a	a	
Bottlenose Dolphin	M	MMES2005075SC	Sullivan's Island, SC	12/05	a	a	a	
Bottlenose Dolphin	M	Hubs 0541-Tt	Satellite Beach, FL	1/06	a	a	a	
Bottlenose Dolphin	M	VAQS 2005 1118	Norfolk, VA	11/05	a	a	a	
Bottlenose Dolphin	F	Hubbs-0630-Tt	Scottsmoon, FL	5/06	a	a	a	
Bottlenose Dolphin	M	PCNMFS06-28	Panama City, FL	8/06	a	a	a	
Bottlenose Dolphin	M	MMES2006058SC	Beaufort, SC	10/06	a	a	a	
Bottlenose Dolphin	M	WAM627	Brunswick City, NC	10/06	a	a	a	
Bottlenose Dolphin	F	WAM631	Topsail Island, NC	3/07	a	a	a	
Bottlenose Dolphin	M	Hubbs-0717-Tt	Merritt Island, FL	2/07	a	a	a	
Bottlenose Dolphin	F	Hubbs-0720-Tt	New Smyrna, FL	2/07	a	a	a	
Bottlenose Dolphin	F	MMES2007004SC	Folly Beach, SC	3/07	a	a	a	
Bottlenose Dolphin	F	MMES2007038SC	Calibogue Sound	7/07	a	a	a	
Bottlenose Dolphin	M	MMES2007049SC	Folly Beach, SC	8/07	a	a	a	
Bottlenose Dolphin	F	MMES2007055SC	Daufuskie Isl, SC	11/07	a	a	a	
Bottlenose Dolphin	F	Hubbs-0805-Tt	Melbourne, FL	1/08	a	a	a	
Bottlenose Dolphin	M	Hubbs-0832-Tt	Cocoa, FL	5/08	a	a	a	
Bottlenose Dolphin	F	Hubbs-0838-Tt	Meritt Island, FL	6/08	a	a	a	
Bottlenose Dolphin	M	Hubbs-0844-Tt	Titusville IRL, FL	6/08	a	a	a	
Bottlenose Dolphin	M	MMES2008031SC	Debidue Beach, SC	7/08	a	a	a	
Bottlenose Dolphin	F	MMES2008041SC	Folly Beach, SC	8/08	a	a	a	
Bottlenose Dolphin	M	Hubbs-0875-Tt	Cocoa Beach, FL	8/08	a	a	a	
Bottlenose Dolphin	M	Hubbs-0879-Tt	New Smyrna, FL	9/08	a	a	a	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Bottlenose Dolphin	M	MMES2008043SC	Awendaw, SC	9/08	a	a	a	
Bottlenose Dolphin	F	MMES2008045SC	Fripp Island, SC	7/08	a	a	a	
Bottlenose Dolphin	F	MMES2008049SC	Hilton Head Isl., SC	12/08	a		a	
Bottlenose Dolphin	M	MMES2008052SC	Edisto Island, SC	12/08	a	a	a	
Striped Dolphin	M	ASF 020	Figure Eight Island	10/97	a	a	a	a
Striped Dolphin	M	WAM 524	Coquina Beach,NC	11/97	a	a	a	a
Striped Dolphin	M	MH-98-411Sc	Beverly,MA	1/98	a	a	a	
Striped Dolphin	M	MH-00-674Sc	Kalmus Beach, MA	8/00	a	a	a	
Striped Dolphin	F	VMSM20031005	VA State Park,VA	2/03	a	a	a	a
Striped Dolphin	M	SGB 126	Corova, NC	2/03	a	a	a	
Striped Dolphin	F	ST 471SC	Dewey, DE	2/03	a	a	a	
Striped Dolphin	M	ST 473SC	Dewey, DE	2/03	a	a	a	
Striped Dolphin	M	ST 475SC	Dewey, DE	2/03	a	a	a	
Striped Dolphin	M	ST 474SC	Dewey, DE	2/03	a	a	a	
Dolphin (<i>Stenella</i> spp.)	F	SGB114	Nags Head,NC	8/98	a	a	a	a a
Dolphin (<i>Delphinid</i> spp.)	M	07-014-Uk	Wellfleet, MA	1/07	a	a	a	
Risso's Dolphin	M	VMSM981045	Newport News,VA	8/98	a	a	a	a a
Risso's Dolphin	F	02-621-Gg	Nahant, MA	4/02	a	a	a	
Risso's Dolphin	M	CCSN03-165Gg	Provincetown, MA	11/03	a	a	a	
Risso's Dolphin	M	CCSN03-166Gg	Provincetown, MA	11/03	a	a	a	
Risso's Dolphin	M	CCSN03-167Gg	Provincetown, MA	11/03	a	a	a	
Risso's Dolphin	M	05-406-Gg	Plymouth, MA	1/05	a	a	a	
Risso's Dolphin	M	CCSN-05-192Gg	Hyannisport, MA	7/05	a	a	a	
Risso's Dolphin	M	CCSN-05-2566	Eastham, MA	11/05	a	a	a	
Risso's Dolphin	F	06-229-Gg	Westport, MA	7/06	a	a	a	
Risso's Dolphin	F	07-488-Gg	Manchester, MA	7/07	a	a	a	
Atlantic Spotted Dolphin	M	MMES99180SC	N. Litchfield Beach	9/99	a	a	a	
Atlantic Spotted Dolphin	M	CCSN-03-126Sf	Chatham, MA	6/03	a	a	a	
Atlantic Spotted Dolphin	F	MMES2006054SC	Myrtle Beach, SC	8/06	a	a	a	
Pantropical Spotted Dolphin	M	MMES2004123SC	Folly Beach, SC	9/04	a	a		
White Sided Dolphin		MH-93-445La	NEA/Boston	3/93	h		h	
White Sided Dolphin		MH-93-446La	NEA/Boston	3/93	h		h	
White-Sided Dolphin		MH-93-460La	NEA/Boston		h		h	
White-Sided Dolphin		MH-93-461La	NEA/Boston		h		h	
White-Sided Dolphin	M	MH-94-611La	NEA/Boston	12/94	a		h	
White-Sided Dolphin	M	MH-96-408La	NEA/Boston	1/96	h		h	
White-Sided Dolphin	M	MH-97-425La	Brewster,MA	2/97	h		h	
White-Sided Dolphin	M	MH-97-506La	Duxbury,MA	5/97	h		h	
White-Sided Dolphin	F	MH-97-507La	Duxbury,MA	5/97	a		h	
White-Sided Dolphin	F	MH-97-534La	Great Island,MA	8/97	a	a	h	
White-Sided Dolphin	F	MH-98-414La	Brewster,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-415La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-460La	Eastham,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-461La	Eastham,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-462La	Eastham,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-447La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-464La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-456La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-459La	Wellfleet,MA	1/98	h	a	h	
White-Sided Dolphin	F	MH-98-455La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-418La	Eastham,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-465La	Wellfleet,MA	1/98	h	a	h	
White-Sided Dolphin	F	MH-98-463La	Wellfleet,MA	1/98	a	a	h	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
White-Sided Dolphin	F	MH-98-436La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-434La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-448La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-440La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	F	MH-98-413La	Wellfleet,MA	1/98	a	a	h	
White-Sided Dolphin	M	MH-98-600La	Wellfleet,MA	4/98	a	a	h	
White-Sided Dolphin	M	MH98-800La	Chipmans Cove,MA	11/98	a	a	h	
White-Sided Dolphin	M	MH98-801La	Chipmans Cove,MA	11/98	a	a	h	
White-Sided Dolphin	M	MH98-803La	Great Island,MA	11/98	a	a	h	
White-Sided Dolphin	M	MH-99-538La	Wellfleet, MA	3/99	a	a	h	
White-Sided Dolphin	M	MH-99-540La	Wellfleet, MA	3/99	a	a	h	
White-Sided Dolphin	M	MH-99-539La	Wellfleet, MA	3/99	a	a	h	
White-Sided Dolphin	M	MH-99-531La	Wellfleet, MA	3/99	a	a	h	
White-Sided Dolphin	F	MH-99-486La	Chipmans Cove, MA	3/99	a	a	h	
White-Sided Dolphin	F	MH-99-471La	Chimpans Cove, MA	3/99	a	a	h	
White-Sided Dolphin	F	MH-99-487La	Chipmans Cove, MA	3/99	h	a	h	
White-Sided Dolphin	M	MH-99-743La	Popham Beach, Phippsburg, ME	11/99	h	a	h	
White-Sided Dolphin	M	MH-99-519La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	F	MH-99-537La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	M	MH-99-536La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	M	MH-99-520La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	M	MH-99-518La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	M	MH-00-724La	Wellfleet, MA	8/00	h	a	h	
White-Sided Dolphin	F	MH-00-725La	Wellfleet, MA	8/00	h	a	h	
White-Sided Dolphin	M	MH-00-726La	Wellfleet, MA	8/00	h	a	h	
White-Sided Dolphin	M	MH-00-727La	Wellfleet, MA	8/00	h	a	h	
White-Sided Dolphin	M	MH-00-531La	Wellfleet, MA	4/00	h	a	h	
White-Sided Dolphin	F	MH-00-532La	Wellfleet, MA	4/00	h	a	h	
White-Sided Dolphin	F	MH-99-521La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	F	MH-99-522La	Wellfleet, MA	3/99	h	a	h	
White-Sided Dolphin	M	MH-02-500La	Wellfleet, MA	3/02	a	a	h	
White-Sided Dolphin	M	MH-02-501La	Wellfleet, MA	3/02			h	
White-Sided Dolphin	M	MH-02-503La	Wellfleet, MA	3/02	h		h	
White-Sided Dolphin	F	MH-02-549La	Wellfleet, MA	3/02	a	a	a	
White-Sided Dolphin	M	MH-02-548La	Wellfleet, MA	3/02	h	a	a	
White-Sided Dolphin	F	MH-02-551La	Wellfleet, MA	3/02	a	a	a	
White-Sided Dolphin	F	MH-02-547La	Wellfleet, MA	3/02	a	a	a	
White-Sided Dolphin	F	MH-02-545La	Wellfleet, MA	3/02	h	a	a	
White-Sided Dolphin	F	MH-02-571La	Provincetown, MA	3/02	a	a	a	
White-Sided Dolphin	F	MH-01-662La	Wellfleet, MA	4/02	a	a	a	
White-Sided Dolphin	F	MH-01-663La	Wellfleet, MA	4/02	a	a	h	
White-Sided Dolphin	M	MH-01-664La	Wellfleet, MA	4/02	h	a	h	
White-Sided Dolphin	M	MH-01-665La	Wellfleet, MA	4/02	h	a	h	
White-Sided Dolphin	M	DMB008	south of NC state line	4/04	a	a	h	
White-Sided Dolphin	M	CCSN-03-064La	Wellfleet, MA	4/03	h	a	h	
White-Sided Dolphin	M	1054		4/03	h	a	h	
White-Sided Dolphin	M	CCSN-03-074La	Brewster, MA	4/03	h	a	h	
White-Sided Dolphin	F	MH-03-471La		5/03	a	a	a	
White-Sided Dolphin	F	MH-03-438La	Nahant, MA	4/03	a	a	a	
White-Sided Dolphin	F	NEA-03-456La	Wellfleet, MA	4/03	a	a	a	
White-sided Dolphin	F	05-037-La	Wellfleet, MA	2/05	a	a	a	
White-sided Dolphin	F	05-038-La	Wellfleet, MA	2/05	a	a	a	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
White-sided Dolphin	F	05-039-La	Wellfleet, MA	2/05	a	a	a	
White-sided Dolphin	F	05-232-La	Orleans, MA	10/05	a	a	a	
White-sided Dolphin	M	DO 5332	MA	3/05	h	a	a	
White-sided Dolphin	M	DO 5619	MA	3/05	h	a	a	
White-sided Dolphin	F	DO 6465	MA	3/05	a	a	a	
White-sided Dolphin	F	DO 6466	MA	3/05	a	a	a	
White-sided Dolphin	F	CCSN 05 254	Barnstable, MA	11/05	h	a	a	
White-sided Dolphin	F	DO 6762 La	Portland, ME	2/06	a	a	a	
White-sided Dolphin	F	CCSN-06-026La	Cape Cod Bay, MA	1/06	a	a	a	
White-sided Dolphin	M	06-019La	Brewster, MA	1/06	a	a	a	
White-sided Dolphin	M	06-022La	Wellfleet, MA	1/06	a	a	a	
White-sided Dolphin	M	06-031La	Wellfleet, MA	1/06	a	a	a	
White-sided Dolphin	M	06-037La	Wellfleet, MA	1/06	a	a	a	
White-sided Dolphin	M	DO6885	East George's Bank	3/05	a	a	a	
White-sided Dolphin	M	CCSN06-028La	Barnstable, MA	1/06	a	a	a	
White-sided Dolphin	F	05-454-La	Salem, MA	3/05	a	a	a	
White-sided Dolphin	F	08-005-La	Wellfleet, MA	1/08	a	a	a	
White-sided Dolphin	M	08-006-La	Wellfleet, MA	1/08	a	a	a	
White-sided Dolphin	M	08-014-La	Wellfleet, MA	1/08	a	a	a	
White-sided Dolphin	M	08-016-La	Wellfleet, MA	1/08	a	a	a	
White-sided Dolphin	M	MMES2008017SC	Myrtle Beach, SC	5/08	a	a	a	
Common Dolphin	F	NMFS 3960	George's Canyon	7/96	h	h	h	
Common Dolphin	M	NMFS 3694	George's Canyon	7/96	h	h	h	
Common Dolphin	M	NMFS 3069	George's Canyon	7/96	h	h	h	
Common Dolphin	F	MH-97-594Dd	North Falmouth,MA	11/97	a	a	h	
Common Dolphin	F	MH-97-596Dd	North Falmouth,MA	11/97	a	a	h	
Common Dolphin	F	MH-97-597Dd	North Falmouth,MA	11/97	a	a	h	
Common Dolphin	F	MH-97-598Dd	North Falmouth,MA	11/97	a	a	h	
Common Dolphin	F	MH-97-599Dd	North Falmouth,MA	11/97	a	a	h	
Common Dolphin	F	MH-97-600Dd	North Falmouth,MA	11/97	a	a	h	
Common Dolphin	M	MH-98-433Dd	Wellfleet,MA	1/98	a	a	a	
Common Dolphin	F	VMSM981025	Beaufort,NC	6/98	a	h	a	a
Common Dolphin	M	MH-99-742Dd	West Falmouth, MA		a	a	a	
Common Dolphin	M	VMSM20011030	False Cape, VA		a	a	a	
Common Dolphin	F	PTM 135	Cape Point, NC	2/01	a	a	a	
Common Dolphin	F	VMSM20031051	Virginia Beach, VA	6/03	a	a	a	
Common Dolphin	M	VMSM20031099	Gloucester, VA	1/04	a	a	a	
Common Dolphin	M	VMSM20041020	Northampton Cty, VA	4/04	a	a	a	
Common Dolphin	M	04-699-Dd	Nantucket, MA	11/04	a	a	a	
Common Dolphin	M	04-218-Dd	Leutenant's Isl., MA	12/04	a	a	a	
Common Dolphin	F	04-219-Dd	Wellfleet, MA	12/04	a	a	a	
Common Dolphin	M	VAQS20051007	Yorktown, VA	3/05	a	a	a	
Common Dolphin	F	CCSN-05-234Dd	Wellfleet, MA	10/05	a	a	a	
Common Dolphin	F	CCSN-05-235Dd	Wellfleet, MA	10/05	a	a	a	
Common Dolphin	M	DO 6187Dd	Atlantic, MA	2/06	a	a	a	
Common Dolphin	F	CCSN05-277Dd	Barnstable, MA	12/05	a	a	a	
Common Dolphin	M	06-013Dd	Orleans, MA	1/06	a	a	a	
Common Dolphin	M	CCSN06-011Dd	Orleans, MA	1/06	a	a	a	
Common Dolphin	F	CCSN05-268-Dd	Barnstable, MA	12/05	a	a	a	
Common Dolphin	M	06-096-Dd	Wellfleet, MA	2/06	a	a	a	
Common Dolphin	F	CCSN06-264Dd	Eastham, MA	12/06	a	a	a	
Common Dolphin	M	CCSN06-263Dd	Eastham, MA	12/06	a	a	a	
Common Dolphin	F	CCSN06-029Dd	Eastham, MA	1/06	a	a	a	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Common Dolphin	F	CCSN06-024Dd	Orleans, MA	1/06	a	a	a	
Common Dolphin	M	CCSN07-003-Dd	Eastham, MA	1/07	a	a	a	
Common Dolphin	M	05-236-Dd	Wellfleet, MA	10/05	a	a	a	
Common Dolphin	M	05-237-Dd	Wellfleet, MA	10/05	a	a	a	
Common Dolphin	M	05-239Dd	Dennis, MA	10/05	a	a	a	
Common Dolphin	M	07-015-Dd	Wellfleet, MA	1/07	a	a	a	
Common Dolphin	M	07-040-Dd	Quincy, MA	1/07	a	a	a	
Common Dolphin	M	07-412-Dd	Quincy, MA	1/07	a	a	a	
Common Dolphin	F	VAQS 2008 1009	Bank Bay, VA	3/08	a	a	a	
Common Dolphin	F	VAQS 2008 1012	Mill Point Creek, VA	3/08	a	a	a	
Common Dolphin	F	VAQS 2008 1013	Mill Point Creek, VA	3/08	a	a	a	
Common Dolphin	M	07-041-Dd	Quincy, MA	1/07	a	a	a	
Fin Whale	F	MH-97-531Bp	Eastham,MA	8/97				a
North Atlantic Right Whale	M	RKB1457	Amelia Island, FL	2/04	a	a	a	
Minke Whale	F	MH-03-489Ba	Marthas Vineyard, MA	5/03	a	a	a	
Clymene Dolphin	M	WAM602	Topsail Island, NC	8/04	a	a	a	
Beluga Whale	M	04-513-DI	Portland, ME	11/04	a	a		h
Melon Headed Whale	M	HBOI 0604Pe	Stuart, FL	3/06	a	a	a	
Melon Headed Whale	F	MMES2008001SC	Myrtle Beach, SC	1/08	a	a	a	
Melon Headed Whale	M	MMES2008002SC	Myrtle Beach, SC	1/08	a	a	a	
Melon Headed Whale	M	MMES2008003SC	N. Myrtle Beach, SC	1/08	a	a	a	
Pygmy Killer Whale	M	SC0735	N. Myrtle Beach, SC	8/07	a	a	a	
Pygmy Killer Whale	M	MMES2007045SC	N. Myrtle Beach, SC	8/07	a	a	a	
Pygmy Killer Whale	M	MMES2007046SC	N. Myrtle Beach, SC	8/07	a	a	a	
Harp Seal	M	MH-97-460Pg	Quincy,MA	3/97	a			h
Harp Seal	F	MH-97-469Pg	Beverly,MA	3/97	a			h
Harp Seal	M	MH-97-483Pg	Scituate,MA	4/97	a			h
Harp Seal	M	MH-97-629Pg	Revere,MA	12/97	a	a	a	
Harp Seal	F	MH-98-402Pg	Popham Beach,ME	1/98	a	a	a	
Harp Seal	M	MH-98-403Pg	Sandwich,MA	1/98	a	a	a	
Harp Seal	M	MH-98-545Pg	Buzzards Bay,MA	2/98	a	a	a	
Harp Seal	F	MH-99-448Pg	Plymouth, MA	2/99	a	a	a	
Harp Seal	F	MH-99-475Pg	Shore Drive, West Yarmouth, MA	3/99	a	a	a	
Harp Seal	F	MH-99-461Pg	Chipmans Cove, MA	2/99	a	a	a	
Harp Seal	F	MH-98-584Pg	Hyansport, MA	3/98	a	a	a	
Harp Seal	F	MH-99-433Pg	Craigville Beach, MA	2/99	a	a	a	
Harp Seal	F	MH-98-579Pg	Revere Beach, MA	3/98	a	a	a	
Harp Seal	F	MH-99-436Pg	Saulisbury, MA	2/99	a	a	a	
Harp Seal	M	MH-02-529Pg	Crescent Beach, MA	3/02	a	a	a	
Harp Seal	M	DO 8351Pg	Cape Cod Bay, MA	2/06	a	a	a	
Harp Seal	M	08-002-Pg	Ellisville, MA	1/08	a	a	a	
Harp Seal	F	08-003-Pg	Beverly, MA	1/08	a	a	a	
Hooded Seal	F	MH-97-428Cc	Hull,MA	2/97	a			h
Hooded Seal	M	MH-97-455Cc	Gloucester,MA	3/97	a			h
Hooded Seal	M	MH-97-461Cc	Plymouth,MA	3/97	a			h
Hooded Seal	M	MH-98-432Cc	Rockport,MA	2/98	a	a	a	
Hooded Seal	M	MH-98-536Cc	Swampscot,MA	2/98	a	a	a	
Hooded Seal	M	MH-98-542Cc	Moon Island,MA	2/98	a	a	a	
Hooded Seal	M	MH-98-625Cc	Deer Island,MA	4/98	a	a	a	
Hooded Seal	M	MH99-412Cc	Plum Island, MA	1/99	a	a	a	
Hooded Seal	M	MH99-411Cc	Rockport, MA	1/99	a	a	a	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Hooded Seal	M	MH99-428Cc	Sagamore, MA	1/99	a	a	a	
Hooded Seal	M	MH-99-509Cc	Good Harbor Beach, Gloucester, MA	3/99	a	a	a	
Hooded Seal	F	MH-98-588Cc	Pleasant Bay, S. Boston, MA	3/98	a	a	a	
Hooded Seal	M	MH-00-436Cc	Plum Island, New Berry Port, MA	2/00	a	a	a	
Hooded Seal	F	MH-00-431Cc	Gloucester, MA	2/00	a	a	a	
Hooded Seal	M	MH-99-435Cc	Saulisbury, MA	2/99	a	a	a	
Hooded Seal	M	MH-99-446Cc	Short Beach, Revere, MA	2/99	a	a	a	
Hooded Seal	F	MH-98-580Cc	Rivenore Beach, Scituate, MA	3/98	a	a	a	
Hooded Seal	F	MH-00-439Cc	Ipswich, MA	2/00	a	a	a	
Hooded Seal	F	MH-99-447Cc	Deer Island, Winthrop, MA	2/99	a	a	a	
Hooded Seal	M	MH-98-563Cc	Weymouth, MA	3/98	a	a	a	
Hooded Seal	M	MH-98-555Cc	Pompanesett Beach, MA	2/98	a	a	a	
Hooded Seal	M	MH-98-433Cc	Spruce Creek, MA	2/00	a	a	a	
Hooded Seal	F	MH-02-469Cc	Lynn, MA	2/02	a	a	a	
Hooded Seal	M	MH-01-457Cc	Gloucester, MA	2/01	a	a	a	
Hooded Seal	M	05-045-Cc	E. Sandwich, MA	2/05	a	a	a	
Hooded Seal	M	06-234-Cc	W. Yarmouth, MA	8/06	a	a	a	
Hooded Seal	F	06-419-Cc	Hingham, MA	2/06	a	a	a	
Hooded Seal	F	06-425-Cc	Plymouth, MA	2/06	a	a	a	
Harbor Seal	F	MH-97-430Pv	Nantucket,MA	2/97	a		h	
Harbor Seal	M	MH-97-503Pv	Rockport,MA	5/97	a		h	
Harbor Seal	M	MH-97-576Pv	Scituate,MA	11/97	a	a	a	
Harbor Seal	F	MH-98-663Pv	Yarnarth,ME	6/98	a	a	a	
Harbor Seal	F	MH-98-628Pv	Swampscot,MA	5/98	a	a	a	
Harbor Seal	F	MH-98-590Pv	Rockport,MA	3/98	a	a	a	
Harbor Seal	M	MH-98-601Pv	Barnstable,MA	4/98	a	a	a	
Harbor Seal	M	MH98-425Pv	Portland,ME	2/98	a	a	a	
Harbor Seal	F	MH-99-571Pv	Rockport, MA	3/99	a	a	a	
Harbor Seal	M	MH-02-691Pv	Nantasket Beach, MA	7/02	a	a	a	
Harbor Seal	M	MH-02-680Pv	Swampscott, MA	6/02	a	a	a	
Harbor Seal	M	MH-02-778Pv	Nantasket Beach, MA	11/02	a	a	a	
Harbor Seal	F	MH-03-476Pv	Long Beach, MA	5/03	a	a	a	
Harbor Seal	M	MH-03-594Pv	NE Region	9/03	a	a	a	
Harbor Seal	F	MH-00-819Pv	Sandwich, MA	12/00	a	a	a	
Harbor Seal	M	DO 8166 Pv	MA	11/05	a	a	a	
Harbor Seal	F	DO 8551 Pv	MA	12/05	a	a	a	
Harbor Seal	F	06-632-Pu	Plymouth, MA	9/06	a	a	a	
Harbor Seal	F	06-597-Pv	Essex, MA	9/06	a	a	a	
Harbor Seal	F	06-598-Pv	Rye, MA	9/06	a	a	a	
Ringed Seal	M	MH-97-431Ph	Corea,ME	2/97	h		h	
Grey Seal	M	MH-97-484Hg	Nantucket,MA	4/97	a		h	
Grey Seal	F	MH-97-491Hg	Nantucket,MA	5/97	a		h	
Grey Seal	M	MH-97-493Hg	Nantucket,MA	5/97	a		h	
Grey Seal	M	DO 8742 Hg	Atlantic, MA	2/06	a	a	a	
Grey Seal	M	07-487-Hg	Scituate, MA	7/07	a	a	a	
Grey Seal	M	07-486-Hg	Gloucester, MA	7/07	a	a	a	

Table 6. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Leatherback Turtle	F	MH-97-609Dc	Bourne,MA	11/97	a	a	a	

Table 7. Marine mammals sampled in the Pacific Ocean for the MMHSRP (L - Liver; K - Kidney; B - Blubber; M - Muscle; a - samples archived; h - subsample B homogenized and divided into aliquots for analyses).

Species	Sex	Individual ID	Location	Date	L	K	B	M
Harbor Porpoise	M	PTG-126	Seattle	4/93	a		a	
California Sea Lion	F	CSL 2203	Morro Bay	9/93	a	a	a	
California Sea Lion	M	CSL 2217	Casper Bay	10/93	a	a	a	
California Sea Lion	M	CSL 2881	Monterey	5/96	a	a	a	a
California Sea Lion	M	CSL 3067	Sausalito	8/96	a	a	a	
California Sea Lion	M	CSL 3101	Sausalito	10/96	a	a	h	
California Sea Lion	M	CSL 3096	Pebble Beach	10/96	a	a	h	a
California Sea Lion	M	CSL 3103	Monterey Dunes	11/96	a	a	h	
California Sea Lion	M	CSL 3105	Aquatic Park	11/96	a	a	h	
California Sea Lion	M	CSL 3110	Monterey County	12/96	a	a	h	
California Sea Lion	F	CSL 3127	Corcoran Lagoon	4/97	a	a	h	
California Sea Lion	M	CSL 3153	Sonoma County	5/97	a	a	h	
California Sea Lion	M	CSL 3264		8/97	a	a	h	
California Sea Lion	M	CSL 3306		9/97	a	a	h	
California Sea Lion	M	CSL 3314		11/97	a	a	a	
California Sea Lion	M	CSL 3321		11/97	a	a	a	
California Sea Lion	M	CSL 3377		11/97	a	a	a	
California Sea Lion	M	CSL 3449	Fanshell Beach	12/97	a	a	a	
California Sea Lion	F	CSL 3438	Santa Cruz County	11/97	a	a	a	
California Sea Lion	M	CSL 3609	San Francisco,CA	4/98	a	a	a	
California Sea Lion	M	CSL4328	Santa Cruz, CA	9/99	a	a	a	
California Sea Lion	F	CSL4331	Sanluis Obispo, CA	9/99	a	a	a	
California Sea Lion	M	CSL4357	San Francisco, CA	10/99	a	a	a	
California Sea Lion	F	CSL4592	Sanluis Obispo, CA	8/00	a	a	a	
California Sea Lion	F	CSL4570	Sanluis Obispo, CA	8/00	a	a	a	
California Sea Lion	F	CSL4649	Cayucos, CA	9/00	a	a	a	
California Sea Lion	M	CSL4736	Pacific Grove, CA	9/00	a	a	a	
California Sea Lion	M	CSL4595	San Francisco, CA	7/00	a	a	a	
California Sea Lion	F	CSL4573	Sanluis Obispo, CA	8/00	a	a	a	
California Sea Lion	M	CSL4669	Santa Cruz, CA	8/00	a	a	a	
California Sea Lion	F	CSL4670	Guadelupo, CA	8/00	a	a	a	
California Sea Lion	F	CSL4851	San Mateo Co., CA	11/00	a	a	a	
California Sea Lion	F	CSL4809	San Mateo Co., CA	10/00	a	a	a	
California Sea Lion	M	CSL5455	San Francisco, Pier 39,CA	1/03	a	a	a	
California Sea Lion	M	CSL5350	Santa Cruz County, CA	8/02	a	a	a	
California Sea Lion	M	CSL5335	Monterey County, CA	8/02	a	a	a	
California Sea Lion	M	CSL5490	Bodega Bay, CA	3/03	a	a	a	
California Sea Lion	M	CSL6540	Marine Mammal Center,CA	5/05	a	a	a	
California Sea Lion	M	CSL6555	Petaluma, CA	6/05	a	a	a	
California Sea Lion	M	CSL7232	Sausalito, CA	5/07	a	a	a	
Eastern Spinner Dolphin	F	SJC10E	Tropical Pacific	8/01	a	a	a	
Pantropical Spotted Dolphin	F	SJC11E	Tropical Pacific	9/01	a	a	a	

Table 8. Marine mammals sampled in the Gulf of Mexico for the MMHSRP (L - Liver; K - Kidney; B - Blubber; M - Muscle; a - samples archived; h - subsample B homogenized and divided into aliquots for analyses).

Species	Sex	Individual ID	Location	Date	L	K	B	M
Rough-Toothed Dolphin	M	RTDL-001	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	M	RTDL-002	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-003	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	M	RTDL-004	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	M	RTDL-005	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	M	RTDL-006	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-007	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-008	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-009	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-010	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-011	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	M	RTDL-012	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-013	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	M	RTDL-014	St Joseph's State Park	12/97	h	h	h	
Rough-Toothed Dolphin	F	RTDL-015	St Joseph's State Park	12/97	h	h	h	
Rough Toothed Dolphin	F	RTDL-016	Port St Joe	12/97	h	h		
Rough Toothed Dolphin	M	RTDL-017	Port St Joe	12/97	h	h		
Rough Toothed Dolphin	F	GW01006D	Port St Joe	2/01	a	a	a	
Rough Toothed Dolphin	F	GW01002D	Port St Joe	2/01	a	a	a	
Rough Toothed Dolphin	F	GW01007D	Port St Joe	2/01	a	a	a	
Rough Toothed Dolphin	F	GW01005D	Port St Joe	2/01	a	a	a	
Rough Toothed Dolphin	M	GW01004D	Port St Joe	2/01	h	a	a	
Rough Toothed Dolphin	M	GW01001D	Port St Joe	2/01	h	a	a	
Rough Toothed Dolphin	M	GW01003D	Port St Joe	2/01	h	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0433	Hutchinson Island, FL	8/04	a	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0438	Hutchinson Island, FL	8/04	a	a	a	
Rough Toothed Dolphin	M	HBOI-Sb-0439	Hutchinson Island, FL	8/04	h	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0411	Hutchinson Island, FL	8/04	a	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0429	Hutchinson Island, FL	8/04	a	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0435	Hutchinson Island, FL	8/04	a	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0436	Hutchinson Island, FL	8/04	a	a	a	
Rough Toothed Dolphin	M	HBOI-Sb-0437	Hutchinson Island, FL	8/04	h	a	a	
Rough Toothed Dolphin	F	HBOI-Sb-0428	Hutchinson Island, FL	8/04	a	a		
Rough Toothed Dolphin	F	HBOI-Sb-0434	Hutchinson Island, FL	8/04	a	a		
Rough Toothed Dolphin	F	GW04008A	Florida Panhandle	9/04	a	a	a	
Rough Toothed Dolphin	F	GW04009A	Florida Panhandle	9/04	a	a	a	
Rough Toothed Dolphin	F	RT 357 RED	Marathon Key, FL	3/05	a	a	a	
Rough Toothed Dolphin	F	RT 360 RED	Marathon Key, FL	3/05	a	a	a	
Rough Toothed Dolphin	F	RT 364 RED	Marathon Key, FL	3/05	a	a	a	
Rough Toothed Dolphin	F	RT 365 RED	Marathon Key, FL	3/05	a	a	a	
Rough Toothed Dolphin	M	RT 365 YELLOW	Marathon Key, FL	3/05	h	a	a	
Rough Toothed Dolphin	M	RT 370 YELLOW	Marathon Key, FL	3/05	h	a	a	
Rough Toothed Dolphin	F	RT 374 RED	Marathon Key, FL	3/05	a	a	a	
Rough Toothed Dolphin	M	RT 374 YELLOW	Marathon Key, FL	3/05	h	a	a	
Rough Toothed Dolphin	F	RT 900	Marathon Key, FL	3/05	a	a	a	
Bottlenose Dolphin	F	SJP0319-21	Florida Panhandle, FL	3/04	a	a	h	
Bottlenose Dolphin	M	SJP0319-22	Florida Panhandle, FL	3/04	a	a	h	
Bottlenose Dolphin	F	MIA0411	Mexico City, FL	3/04	a	a	h	
Bottlenose Dolphin	M	SJP0426	Florida Panhandle, FL	3/04	a	a	a	
Bottlenose Dolphin	M	NEMO-GW	Gulf World, FL	3/04	a	a	a	

Table 8. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Bottlenose Dolphin	M	FLCB120407-14	Destin, FL	12/07	a	a	a	
Bottlenose Dolphin	F	PCNMFS08-01	St. Marks, FL	2/08	a	a	a	
Bottlenose Dolphin	F	PCNMFS08-02	Destin, FL	2/08	a	a	a	
Bryde's Whale	F	FLGM110206-32	San Destin, FL	1/06	a	a	a	a

Table 9. Marine mammals sampled in the Arctic Ocean for the AMMTAP (L - Liver; K - Kidney; B - Blubber; M - Muscle; a - samples archived; h - subsample B homogenized and divided into aliquots for analyses).

Species	Sex	Individual ID	Location	Date	L	K	B	M
Ringed Seal	M	692-RGSL-001	Barrow	7/88	a	a	a	
Ringed Seal	F	692-RGSL-002	Barrow	7/88	h	a	a	
Ringed Seal	M	692-RGSL-003	Barrow	7/88	a	a	a	
Ringed Seal	M	692-RGSL-004	Barrow	7/88	h	h	h	
Ringed Seal	F	692-RGSL-005	Barrow	7/88	a	a	a	
Ringed Seal	F	692-RGSL-006	Barrow	7/88	a	a	a	
Ringed Seal	M	692-RGSL-007	Barrow	7/88	a	a	a	
Ringed Seal	M	692-RGSL-008	Barrow	7/88	h	h	h	
Ringed Seal	M	692-RGSL-009	Barrow	7/88	h	a	a	
Ringed Seal	F	692-RGSL-010	Barrow	7/88	h	a	a	
Ringed Seal	M	692-RGSL-019	Barrow	7/91	a	a	a	
Ringed Seal	M	692-RGSL-020	Barrow	7/91	h	a	a	
Ringed Seal	M	692-RGSL-021	Barrow	7/91	a	a	a	
Ringed Seal	M	692-RGSL-022	Barrow	7/91	a	a	a	
Ringed Seal	F	692-RGSL-023	Barrow	7/91	h	a	a	
Ringed Seal	M	692-RGSL-024	Barrow	7/91	a	a	a	
Ringed Seal	F	692-RGSL-025	Barrow	7/91	h	a	a	
Ringed Seal	M	692-RGSL-026	Barrow	7/91	a	a	a	
Ringed Seal	M	692-RGSL-027	Barrow	7/91	a	a	a	
Ringed Seal	F	692-RGSL-028	Barrow	7/91	h	a	a	
Ringed Seal	M	692-RGSL-037	Barrow	7/94	h	a	a	
Ringed Seal	M	692-RGSL-038	Barrow	7/94	h	a	a	
Ringed Seal	F	692-RGSL-039	Barrow	7/94	h	a	a	
Ringed Seal	M	692-RGSL-040	Barrow	7/94	h	a	a	
Ringed Seal	M	692-RGSL-041	Barrow	7/94	a	a	a	
Ringed Seal	M	692-RGSL-042	Barrow	7/94	a	a	a	
Ringed Seal	F	692-RGSL-043	Barrow	7/95	a	a	a	
Ringed Seal	M	692-RGSL-044	Barrow	7/95	a	a	a	
Ringed Seal	F	692-RGSL-045	Barrow	7/95	a	a	a	
Ringed Seal	M	692-RGSL-047	Barrow	7/96				h
Ringed Seal	F	692-RGSL-048	Barrow	7/96				h
Ringed Seal	M	692-RGSL-049	Barrow	7/96				h
Ringed Seal	M	692-RGSL-050	Barrow	7/96				h
Ringed Seal	M	692-RGSL-051	Barrow	7/96				h
Ringed Seal	M	692-RGSL-052	Barrow	7/96				h
Ringed Seal	M	692-RGSL-053	Barrow	7/96				h
Ringed Seal	F	692-RGSL-054	Barrow	7/96				h
Ringed Seal	F	692-RGSL-055	Barrow	7/96				h
Ringed Seal	M	692-RGSL-057	Barrow	7/96				a
Ringed Seal	M	692-RGSL-061	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-062	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-063	Barrow	7/99	h			h
Ringed Seal	F	692-RGSL-064	Barrow	7/99	h			h
Ringed Seal	F	692-RGSL-065	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-066	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-067	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-068	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-069	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-070	Barrow	7/99	h			h
Ringed Seal	M	692-RGSL-071	Barrow	7/00	a	a	a	
Ringed Seal	F	692-RGSL-072	Barrow	7/00	a		a	

Table 9. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Ringed Seal	M	692-RGSL-073	Barrow	7/00	a		a	
Ringed Seal	F	692-RGSL-074	Barrow	7/00	a	a	a	
Ringed Seal	F	692-RGSL-075	Barrow	7/00	a	a	a	
Ringed Seal	F	692-RGSL-076	Barrow	7/00	a		a	
Ringed Seal	M	692-RGSL-077	Barrow	7/00	a	a	a	
Ringed Seal	F	692-RGSL-078	Barrow	7/00	a	a	a	
Ringed Seal	M	692-RGSL-079	Barrow	7/00	a	a	a	
Ringed Seal	M	692-RGSL-080	Barrow	7/00	a	a	a	
Ringed Seal	M	692-RGSL-081	Barrow	7/00	a	a	a	
Ringed Seal	M	692-RGSL-082	Barrow	7/00	a		a	
Ringed Seal	M	692-RGSL-083	Barrow	7/00	a	a	a	
Ringed Seal	M	692-RGSL-084	Barrow	7/01	a		a	
Ringed Seal	F	692-RGSL-085	Barrow	7/01	a		a	
Ringed Seal	M	692-RGSL-086	Barrow	7/01	a		a	
Ringed Seal		692-RGSL-087	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	F	692-RGSL-088	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	F	692-RGSL-089	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-090	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-091	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-092	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-093	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-094	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-095	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-096	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	F	692-RGSL-097	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	M	692-RGSL-098	Kotzebue Sound	3/02	a	a	a	
Ringed Seal	F	692-RGSL-099	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-101	Barrow	7/02	a		a	
Ringed Seal	F	692-RGSL-102	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-103	Barrow	7/02	a		a	
Ringed Seal	F	692-RGSL-104	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-105	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-106	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-108	Barrow	7/02	a		a	
Ringed Seal	F	692-RGSL-110	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-100	Barrow	6/02	a		a	
Ringed Seal	F	692-RGSL-107	Barrow	7/02	a		a	
Ringed Seal	M	692-RGSL-109	Barrow	7/02	a		a	
Ringed Seal	F	692-RGSL-111	Prudhoe Bay	6/03	a	a	a	
Ringed Seal	M	692-RGSL-112	Barrow	7/03	a		a	
Bearded Seal	M	692-BDSL-002	Barrow	7/89	a	a	a	
Bearded Seal	M	692-BDSL-003	Barrow	7/89	a		a	
Bearded Seal	M	692-BDSL-056	Barrow	7/96				h
Bearded Seal	M	692-BDSL-010	Barrow	7/99	a	a		
Bearded Seal	F	692-BDSL-016	Barrow	7/00	a	a	a	
Bearded Seal	M	692-BDSL-017	Barrow	7/00	a	a	a	
Bearded Seal	F	692-BDSL-018	Barrow	7/00	a	a	a	
Bearded Seal	F	692-BDSL-019	Barrow	7/00	a	a	a	
Bearded Seal	M	692-BDSL-020	Barrow	7/00	a	a	a	
Bearded Seal	F	692-BDSL-021	Barrow	7/00	a	a	a	
Bearded Seal	F	692-BDSL-022	Barrow	7/00	a	a	a	
Bearded Seal	M	692-BDSL-023	Barrow	7/00	a	a	a	
Bearded Seal	F	692-BDSL-024	Barrow	7/00	a	a	a	

Table 9. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Bearded Seal	M	692-BDSL-025	Barrow	7/00	a	a	a	
Bearded Seal	M	692-BDSL-026	Barrow	7/00	a	a	a	
Bearded Seal	M	692-BDSL-014	Barrow	7/00	a	a	h	
Bearded Seal	F	692-BDSL-015	Barrow	7/00	a	a	a	
Bearded Seal	M	692-BDSL-027	Barrow	7/01	a		a	
Bearded Seal	F	692-BDSL-028	Barrow	7/01	a	a	a	
Bearded Seal	F	Ebs-02-01	Flaxman Island	3/02	a	a	a	
Bearded Seal	M	692-BDSL-030	Kotzebue Sound	9/02	a	a	a	
Bearded Seal	M	692-BDSL-031	Kotzebue Sound	9/02	a	a	a	
Bearded Seal	F	692-BDSL-032	Kotzebue Sound	9/02	a	a	a	
Bearded Seal	M	692-BDSL-033	Kotzebue Sound	9/02	a	a	a	
Bearded Seal	F	692-BDSL-034	Barrow	7/02	a		a	
Bearded Seal	M	692-BDSL-035	Barrow	7/02	a		a	
Bearded Seal	F	692-BDSL-036	Barrow	7/02	a		a	
Bearded Seal	F	692-BDSL-037	Barrow	7/02	a		a	
Bearded Seal	F	692-BDSL-038	Barrow	7/02	a		a	
Bearded Seal	F	692-BDSL-039	Barrow	7/02	a		a	
Bearded Seal	F	692-BDSL-040	Barrow	7/02	a		a	
Bearded Seal	F	692-BDSL-041	Barrow	7/03	a		a	
Bearded Seal	F	692-BDSL-042	Barrow	7/03	a	a	a	
Bearded Seal	F	692-BDSL-043	Barrow	7/03	a	a	a	
Bearded Seal	F	692-BDSL-044	Barrow	7/03	a	a	a	
Bearded Seal	F	692-BDSL-045	Barrow	7/03	a		a	
Bearded Seal	M	692-BDSL-052	Point Hope	6/06	a		a	
Bearded Seal	F	692-BDSL-053	Point Hope	6/06	a	a	a	
Bearded Seal	F	692-BDSL-054	Point Hope	6/06	a		a	
Bearded Seal	M	692-BDSL-055	Point Hope	6/06	a	a	a	
Bearded Seal	F	692-BDSL-056	Point Hope	6/06	a	a	a	
Bearded Seal	F	692-BDSL-057	Point Hope	6/06	a	a	a	
Bearded Seal	M	692-BDSL-058	Point Hope	6/06	a	a	a	
Beluga Whale	F	692-BLKA-001	Point Hope	5/89	h	a	h	
Beluga Whale	F	692-BLKA-002	Point Hope	5/89	h	a	h	
Beluga Whale	F	692-BLKA-003	Point Hope	5/89	h	a		
Beluga Whale	M	692-BLKA-004	Point Hope	5/89	h			
Beluga Whale	F	692-BLKA-005	Point Lay	7/90	h	a	h	
Beluga Whale	M	692-BLKA-006	Point Lay	7/90	h	a	h	
Beluga Whale	F	692-BLKA-007	Point Lay	7/90	h	h	h	
Beluga Whale	M	692-BLKA-008	Point Lay	7/90	h	a	h	
Beluga Whale	M	692-BLKA-009	Point Lay	7/90	h	a	h	
Beluga Whale	M	692-BLKA-010	Point Lay	7/90	h	a	h	
Beluga Whale	M	692-BLKA-011	Point Lay	7/90	h	h	h	
Beluga Whale	F	692-BLKA-012	Point Lay	7/90	h	a	h	
Beluga Whale	M	692-BLKA-013	Point Lay	7/90	h	h	h	
Beluga Whale	F	692-BLKA-014	Point Lay	7/90	h	a	h	
Beluga Whale	M	692-BLKA-040	Point Lay	7/96	h	a	h	h
Beluga Whale	F	692-BLKA-041	Point Lay	7/96	h	a	h	a
Beluga Whale	F	692-BLKA-042	Point Lay	7/96	h	a	h	a
Beluga Whale	M	692-BLKA-043	Point Lay	7/96	h	a	h	h
Beluga Whale	M	692-BLKA-044	Point Lay	7/96	h	a	h	h
Beluga Whale	M	692-BLKA-045	Point Lay	7/96	h	a	h	h
Beluga Whale	M	692-BLKA-046	Point Lay	7/96	h	a	h	h
Beluga Whale	F	692-BLKA-047	Point Lay	7/96	h	a	h	a
Beluga Whale	F	692-BLKA-048	Point Lay	7/96	h	a	h	a

Table 9. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Beluga Whale	F	692-BLKA-049	Point Lay	7/96	h	a	h	a
Beluga Whale	F	692-BLKA-053	Point Hope	5/97	h	a		
Beluga Whale	M	692-BLKA-054	Barrow	7/97	h		h	
Beluga Whale	M	692-BLKA-055	Barrow	7/97	h	a	h	
Beluga Whale	M	692-BLKA-056	Barrow	7/97	h	a	h	
Beluga Whale	M	692-BLKA-057	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-058	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-059	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-060	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-061	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-062	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-063	Point Lay	6/99	h	a	h	
Beluga Whale	F	692-BLKA-064	Point Lay	6/99	h	a	h	
Beluga Whale	M	692-BLKA-065	Point Lay	6/99	h	a	h	
Beluga Whale	F	692-BLKA-066	Point Lay	6/99	a	a	h	
Beluga Whale	M	692-BLKA-067	Wainwright	7/99	h		h	
Beluga Whale	F	692-BLKA-068	Wainwright	7/99	a		h	
Bowhead Whale	F	692-BWHD-001	Barrow	5/92	h	a	a	
Bowhead Whale	F	692-BWHD-002	Barrow	5/92		a	a	
Bowhead Whale	F	692-BWHD-003	Barrow	9/92	a		a	
Bowhead Whale	M	692-BWHD-004	Barrow	9/92	a		a	
Bowhead Whale	F	692-BWHD-005	Barrow	9/92	h		a	
Bowhead Whale	F	692-BWHD-006	Barrow	9/92	h		a	
Bowhead Whale	M	692-BWHD-007	Barrow	9/92	h		h	
Bowhead Whale	M	692-BWHD-008	Barrow	9/92	h		a	
Bowhead Whale	M	692-BWHD-009	Barrow	9/92	a		a	
Bowhead Whale	F	692-BWHD-010	Barrow	10/92	a		a	
Bowhead Whale	M	692-BWHD-011	Barrow	10/92	h		a	
Bowhead Whale	F	692-BWHD-012	Barrow	4/93	a		a	
Bowhead Whale	F	692-BWHD-013	Barrow	5/93	h		a	
Bowhead Whale	F	692-BWHD-014	Barrow	5/93	h		a	
Bowhead Whale	F	692-BWHD-015	Barrow	5/93	a		a	
Bowhead Whale	F	692-BWHD-016	Barrow	5/93	a		a	
Bowhead Whale	F	692-BWHD-017	Barrow	5/93	a		a	
Bowhead Whale	M	692-BWHD-020	Barrow	10/93	h		a	
Bowhead Whale	M	692-BWHD-021	Barrow	10/93	a		a	
Bowhead Whale	M	692-BWHD-022	Barrow	10/93			a	
Bowhead Whale	M	692-BWHD-024	Barrow	5/94	a		a	
Bowhead Whale	M	692-BWHD-025	Barrow	5/94	a		a	
Bowhead Whale	M	692-BWHD-026	Barrow	5/94			a	
Bowhead Whale	M	692-BWHD-027	Barrow	5/94	a		a	
Bowhead Whale	M	692-BWHD-028	Barrow	5/94	a		a	
Bowhead Whale	M	692-BWHD-029	Barrow	5/94			a	
Bowhead Whale		692-BWHD-030	Barrow	/96	a		a	
Bowhead Whale		692-BWHD-031	Barrow	/96	a		a	
Bowhead Whale		692-BWHD-032	Barrow	/96	a		a	
Bowhead Whale		692-BWHD-033	Barrow	/96	a		a	
Bowhead Whale		692-BWHD-034	Barrow	/96	a		a	
Bowhead Whale	F	692-BWHD-035	Barrow	9/96			a	
Bowhead Whale	M	692-BWHD-036	Barrow	9/96	a		a	
Bowhead Whale	M	692-BWHD-037	Barrow	9/96	a		a	
Bowhead Whale	M	692-BWHD-038	Barrow	9/96	a		a	
Bowhead Whale	F	692-BWHD-039	Barrow	9/96	a		a	

Table 9. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Bowhead Whale	M	692-BWHD-040	Barrow	9/96	a		a	
Bowhead Whale	F	692-BWHD-041	Barrow	9/96	a		a	
Bowhead Whale	F	692-BWHD-042	Barrow	9/96	a		a	
Bowhead Whale	F	692-BWHD-043	Barrow	9/96	a		a	
Bowhead Whale	F	692-BWHD-044	Barrow	9/96	a		a	
Bowhead Whale	M	692-BWHD-045	Barrow	9/96	a			h
Bowhead Whale	M	692-BWHD-046	Barrow	9/96	a			h
Bowhead Whale	M	692-BWHD-048	Barrow	5/97	a			a
Bowhead Whale	F	692-BWHD-049	Barrow	5/97	a	a		a
Bowhead Whale	F	692-BWHD-050	Barrow	5/97	a	a		a
Bowhead Whale	F	692-BWHD-051	Barrow	5/97	a	a		h
Bowhead Whale	F	692-BWHD-052	Barrow	5/97	a	a		h
Bowhead Whale	F	692-BWHD-053	Barrow	6/97	a	a		a
Bowhead Whale	M	692-BWHD-054	Barrow	5/99	a	a		a
Bowhead Whale	F	692-BWHD-055	Barrow	5/99	a	a		h
Bowhead Whale	F	692-BWHD-056	Barrow	5/99	a	a		a
Bowhead Whale	M	692-BWHD-057	Barrow	5/99	a	a		a
Bowhead Whale	M	692-BWHD-058	Barrow	5/99	a	a		a
Bowhead Whale	F	692-BWHD-059	Barrow	5/99	a	a		a
Bowhead Whale	M	692-BWHD-060	Barrow	4/00	a	a		a
Bowhead Whale	M	692-BWHD-060	Barrow	9/00				a
Bowhead Whale	M	692-BWHD-061	Barrow	9/00		a		a
Bowhead Whale	M	692-BWHD-062	Barrow	10/00	a	a		a
Bowhead Whale	M	692-BWHD-063	Barrow	10/00	a	a		
Bowhead Whale	M	692-BWHD-064	Barrow	5/03	a			a
Bowhead Whale	F	692-BWHD-065	Barrow	5/03	a			a
Bowhead Whale	M	692-BWHD-066	Barrow	5/03	a	a		a
Bowhead Whale	F	692-BWHD-067	Barrow	10/03	a	a		a
Bowhead Whale	F	692-BWHD-068	Barrow	10/03	a	a		a
Bowhead Whale	M	692-BWHD-069	Barrow	10/03	a	a		a
Bowhead Whale	M	692-BWHD-070	Barrow	10/03	a			a
Bowhead Whale	M	692-BWHD-071	Barrow	11/05		a	a	a
Bowhead Whale	F	692-BWHD-072	Barrow	11/05		a	a	a
Bowhead Whale	M	692-BWHD-073	Barrow	11/05	a	a		a
Bowhead Whale	M	692-BWHD-074	Barrow	10/05	a	a		a
Bowhead Whale	M	692-BWHD-075	Barrow	11/05	a	a		a
Bowhead Whale	F	692-BWHD-076	Barrow	11/05	a	a		a
Bowhead Whale	M	692-BWHD-077	Barrow	11/05	a	a		a
Bowhead Whale	F	692-BWHD-078	Barrow	10/05	a	a		a
Bowhead Whale	F	692-BWHD-079	Barrow	10/05	a	a		a
Bowhead Whale	M	692-BWHD-080	Barrow	10/05	a	a		a
Bowhead Whale	M	692-BWHD-081	Barrow	11/05	a			a
Bowhead Whale	F	692-BWHD-082	Barrow	10/05	a	a		a
Bowhead Whale	F	692-BWHD-083	Barrow	11/05	a	a		a
Polar Bear	M	692-PLBR-001	Barrow	3/96	h	h		h
Polar Bear	M	692-PLBR-002	Barrow	3/96	h	h		h
Polar Bear		692-PLBR-003	Barrow	3/96	a	a		
Polar Bear	M	692-PLBR-004	Barrow	5/96	a	a		
Polar Bear		692-PLBR-005	Barrow	9/96	h	a		
Polar Bear		692-PLBR-006	Barrow	10/96	h	a		h
Polar Bear		692-PLBR-007	Barrow	10/96	h	a		h
Polar Bear	F	692-PLBR-008	Barrow	10/96	h	a		h
Polar Bear		692-PLBR-009	Barrow	10/96	a	a		h

Table 9. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Polar Bear	F	692-PLBR-010	Barrow	10/96	h	a	h	
Polar Bear	M	692-PLBR-011	Barrow	12/96	a	a	h	
Polar Bear	F	692-PLBR-012	Barrow	10/96	a	a	h	
Polar Bear	M	692-PLBR-013	Barrow	10/96	a	a	h	
Polar Bear		692-PLBR-014	Barrow	12/96	a	a	h	
Polar Bear	F	692-PLBR-015	Barrow	10/96	h	a	h	
Polar Bear	M	692-PLBR-016	Barrow	12/96	h	h	h	
Polar Bear	M	692-PLBR-017	Barrow	12/96	h	h	h	
Polar Bear		692-PLBR-018	Barrow		a			
Polar Bear		692-PLBR-019	Barrow	5/97	a	a	h	
Polar Bear	M	692-PLBR-022	Point Lay	2/97	h	a		
Polar Bear	M	692-PLBR-025	Point Lay	12/96	a	a		
Polar Bear	M	692-PLBR-026	Barrow	3/97	a	a		
Polar Bear	F	692-PLBR-027	Barrow	3/97	a	a		
Polar Bear	M	692-PLBR-028	Barrow	5/97	h	h		
Polar Bear	M	692-PLBR-031	Nuigsut	9/97	a	a		
Polar Bear	M	692-PLBR-032	Barrow	12/97	a	a	a	
Polar Bear	M	692-PLBR-033	Barrow	12/97	a	a	a	
Polar Bear	M	692-PLBR-034	Point Lay	2/98	a	a		
Polar Bear	M	692-PLBR-037	Barrow	5/99	a	a		
Polar Bear	F	692-PLBR-047	Prudhoe Bay	10/99	h	a	h	
Polar Bear	M	692-PLBR-048	Barrow	5/00	a	a	a	
Polar Bear	F	692-PLBR-050	Barrow	11/99	a	a	a	
Polar Bear	M	692-PLBR-054	Kaktovik	9/01			a	
Polar Bear	F	692-PLBR-060	Cape Lisburne	3/04	a	a	a	
Polar Bear	M	692-PLBR-063	Cape Lisburne	2/05	a		h	
Polar Bear	F	692-PLBR-067	Beaufort Sea	9/05	a		a	
Polar Bear	F	692-PLBR-073	Point Lay	7/06	a	a	a	
Harbor Porpoise	F	HP-BRW-97-1	Barrow	8/97	a		a	
Pacific Walrus	F	692-WLRS-022	Barrow	6/97		a	a	
Pacific Walrus	F	692-WLRS-034	Barrow	7/99		a	a	
Pacific Walrus	M	692-WLRS-035	Barrow	7/03	a		a	
Pacific Walrus	F	692-WLRS-037	Chukchi Sea	7/04	a	a	a	
Northern Fur Seal	M	692-FRSL-037	Barrow	7/03	a		a	
Spotted Seal	F	692-SPSL-005	Barrow	7/03	a		a	
Spotted Seal	M	692-SPSL-006	Barrow	7/03	a	a	a	
Spotted Seal	F	692-SPSL-007	Kotzebue Sound	9/03	a	a	a	
Spotted Seal	M	692-SPSL-008	Kotzebue Sound	10/03	a	a	a	
Spotted Seal	M	692-SPSL-009	Kotzebue Sound	10/03	a	a	a	
Spotted Seal	F	692-SPSL-010	Kotzebue Sound	10/03	a	a	a	
Spotted Seal	F	692-SPSL-011	Kotzebue Sound	9/03	a	a	a	
Spotted Seal	M	692-SPSL-012	Kotzebue Sound	10/03	a	a	a	
Spotted Seal	F	692-SPSL-013	Kotzebue Sound	10/03	a	a	a	
Spotted Seal	M	692-SPSL-015	Kotzebue Sound	10/04	a		a	
Spotted Seal	M	692-SPSL-017	Kotzebue Sound	10/04	a		a	
Spotted Seal	F	692-SPSL-016	Kotzebue Sound	10/04	a		a	
Spotted Seal	M	692-SPSL-018	Kotzebue Sound	10/04	a		a	
Spotted Seal	M	692-SPSL-019	Kotzebue Sound	10/04	a		a	
Spotted Seal	F	692-SPSL-020	Kotzebue Sound	10/05	a		a	
Spotted Seal	M	692-SPSL-021	Kotzebue Sound	10/05	a		a	
Spotted Seal	F	692-SPSL-022	Kotzebue Sound	10/05	a		a	
Spotted Seal	F	692-SPSL-023	Kotzebue Sound	10/05	a		a	
Spotted Seal	F	692-SPSL-024	Kotzebue Sound	10/05	a		a	

Table 9. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Spotted Seal	M	692-SPSL-025	Kotzebue Sound	10/05	a		a	

Table 10. Marine mammals sampled in the Gulf of Alaska for the AMMTAP (L - Liver; K - Kidney; B - Blubber; M - Muscle; S - Serum; a - samples archived; h - subsample B homogenized and divided into aliquots for analyses).

Species	Sex	Individual ID	Location	Date	L	K	B	M	S
Harbor Seal	M	692-HBSL-001	Prince William Sound	3/90	a	a	a		
Harbor Seal	F	692-HBSL-002	Prince William Sound	4/90	a	a	a		
Harbor Seal	M	692-HBSL-003	Prince William Sound	4/90	a	a	a		
Harbor Seal	F	692-HBSL-004	Anchorage	6/94	a	a	a		
Harbor Seal	F	692-HBSL-009	Cook Inlet	3/97	a	a	h		
Harbor Seal	M	692-HBSL-010	Cook Inlet	3/97	a	a	h		
Harbor Seal		692-HBSL-011	Cook Inlet	5/98		a			
Harbor Seal	M	692-HBSL-011	Seward	12/00	a	a	a		
Harbor Seal	M	692-HBSL-012	Carter Bay	8/01	a	a	a		
Harbor Seal	F	PV-75-008-98C	Seward	8/2	a	a	a		
Harbor Seal	F	692-HBSL-014	Homer	6/03	a	a	a		
Harbor Seal	F	692-HBSL-016	Sitka	3/06	a	a	a		
Harbor Seal	M	692-HBSL-015	Seward	6/04	a	a	a		
Harbor Seal	M	692-HBSL-017	Haines	6/06	a	a	a		
Stellar Sea Lion	F	692-STSL-001	Cook Inlet	3/90	a	a	a		
Stellar Sea Lion	M	692-STSL-002	Amelia Pass	2/97	a	a	h		
Stellar Sea Lion	F	692-STSL-003	Atka Korovin Bay	2/97	a	a	h		
Stellar Sea Lion	M	692-STSL-005	Seward	7/03	a	a	a		
Stellar Sea Lion	M	692-STSL-006	Hazy-Grassy	6/03	a	a	a		
Stellar Sea Lion	F	692-STSL-007	Hazy-Grassy	6/03	a	a	a		
Stellar Sea Lion	F	692-STSL-008	Hazy-Grassy	6/03	a	a	a		
Stellar Sea Lion	F	692-STSL-009	Cape Resurrection	3/04	a	a	a		
Stellar Sea Lion	M	692-STSL-010	North Rocks	6/04	a	a			
Stellar Sea Lion	F	692-STSL-011	Cape Resurrection	3/05	a	a			
Stellar Sea Lion	M	692-STSL-012	Gulf of Alaska	7/05	a	a	a		
Stellar Sea Lion	F	692-STSL-013	Gulf of Alaska	7/05	a	a	a		
Stellar Sea Lion	F	692-STSL-014	Cape Resurrection	3/05	a	a			
Stellar Sea Lion	F	EJ0901	Petersburg, AK	11/08	a	a	a		
Beluga Whale	M	692-BLKA-015	Cook Inlet	10/92	h	h	h		
Beluga Whale	M	692-BLKA-016	Cook Inlet	7/94			h		
Beluga Whale	F	692-BLKA-017	Cook Inlet	7/94			h		
Beluga Whale	M	692-BLKA-018	Cook Inlet	7/94			h		
Beluga Whale	F	692-BLKA-020	Cook Inlet	5/95	h		h		
Beluga Whale	M	692-BLKA-021	Cook Inlet	6/95	h	h	h		
Beluga Whale	F	692-BLKA-022	Cook Inlet	5/95	h	h	h		
Beluga Whale	F	692-BLKA-023	Cook Inlet	6/95	h	h	h		
Beluga Whale	F	692-BLKA-024	Cook Inlet	6/95	h	h	h		
Beluga Whale	F	692-BLKA-025	Cook Inlet	6/95	h	h	h		
Beluga Whale	M	692-BLKA-026	Cook Inlet	6/95	h	h	h		
Beluga Whale	M	692-BLKA-027	Cook Inlet	6/95	h	h	h		
Beluga Whale	M	692-BLKA-028	Cook Inlet	6/95	h	h	h		
Beluga Whale	M	692-BLKA-029	Cook Inlet	8/95	h	h	h		
Beluga Whale	F	692-BLKA-031	Cook Inlet	6/96	h	h	h	a	
Beluga Whale	F	692-BLKA-032	Cook Inlet	7/96	h	h	h	a	
Beluga Whale	F	692-BLKA-033	Cook Inlet	7/96	h	h	h	a	
Beluga Whale	F	692-BLKA-034	Cook Inlet	8/96	h	h	h	a	
Beluga Whale	M	692-BLKA-035	Cook Inlet	10/96	h	h	h	a	
Beluga Whale	M	692-BLKA-036	Cook Inlet	10/96		a	a	a	
Beluga Whale	M	692-BLKA-037	Cook Inlet	10/96	h	h	h	a	
Beluga Whale	F	692-BLKA-038	Cook Inlet	4/98	a	a	h	a	

Table10. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Beluga Whale	F	692-BLKA-039	Cook Inlet	4/98	a	a	h	a
Beluga Whale	F	692-BLKA-050	Cook Inlet	5/98	h	a	h	
Beluga Whale	M	692-BLKA-051	Cook Inlet	5/98	h	a	h	
Beluga Whale	M	692-BLKA-052	Cook Inlet	5/98	h	a	h	a
Beluga Whale	F	692-BLKA-073	Cook Inlet	7/01	h	a	h	
Beluga Whale	F	692-BLKA-074	Cook Inlet	10/01	h	a	h	
Beluga Whale	M	692-BLKA-076	Cook Inlet	7/02	h	a	h	
Beluga Whale	F	692-BLKA-077	Cook Inlet	4/03	h	a	h	
Beluga Whale	F	692-BLKA-078	Cook Inlet	4/03		a	h	
Beluga Whale	F	692-BLKA-079	Cook Inlet	8/03	h	a		
Beluga Whale	M	692-BLKA-080	Cook Inlet	7/05	h	a	h	
Beluga Whale	F	692-BLKA-081	Bird Creek	10/06	h	a	a	
Sea Otter	M	692-SEOT-001	Sitka	9/97	a	a		a
Sea Otter	M	692-SEOT-002	Sitka	9/97	a	a		
Sea Otter	F	692-SEOT-003	Sitka	9/97	a	a		a
Sea Otter	M	692-SEOT-004	Seward	2/00	a	a		
Sea Otter	M	692-SEOT-005	Homer	7/01	a	a		
Sea Otter	M	Els-02-01	Seward	7/02	a	a	a	
Sea Otter	M	Els-02-02	Seward	7/02	a	a	a	
Sea Otter	M	Els-02-03	Seward	7/02	a	a	a	
Sea Otter	M	692-SEOT-009	Homer Spit	12/02	a	a		
Sea Otter	M	692-SEOT-010	Seward	12/02	a	a		
Sea Otter	F	692-SEOT-011	Seward	3/03	a	a	a	
Sea Otter	F	692-SEOT-012	Kachemak Bay	1/04	a	a	a	
Sea Otter	M	692-SEOT-013	Seward	8/03	a	a	a	
Sea Otter	M	692-SEOT-014	Homer	5/04	a	a		
Sea Otter	M	692-SEOT-015	Kachemak Bay	2/05	a	a		
Sea Otter	M	692-SEOT-016	Homer	3/05	a	a		
Sea Otter	M	692-SEOT-017	Homer Spit	2/05	a	a		
Sea Otter	F	692-SEOT-018	Kodiak Island	3/05	a	a		
Sea Otter	F	692-SEOT-020	Homer	4/05	a	a	a	
Sea Otter	F	692-SEOT-021	Seldovia	10/05	a	a		
Sea Otter	F	692-SEOT-022	Homer	11/05	a	a	a	
Sea Otter		692-SEOT-023	Homer	9/05	a	a	a	
Sea Otter	M	692-SEOT-024	Homer	11/05	a	a		
Sea Otter	M	692-SEOT-025	Homer	1/06	a	a		
Sea Otter	M	692-SEOT-026	Homer	1/06	a	a		
Sea Otter	F	692-SEOT-027	Homer	2/06	a	a	a	
Sea Otter	F	692-SEOT-028	Seldovia	3/06	a	a		
Sea Otter	M	692-SEOT-029	Homer	6/06	a	a		
Sea Otter	M	692-SEOT-030	Homer	9/06	a	a	a	
Sea Otter	M	692-SEOT-031	Homer	10/06	a	a	a	
Sea Otter	F	692-SEOT-032	Anchor Point	8/06	a	a		
Sea Otter	F	692-SEOT-033	Kodiak	7/06	a	a	a	
Sea Otter	M	692-SEOT-034	Glacier Bay	8/06	a	a		
Sea Otter	M	692-SEOT-035	Glacier Bay	8/06	a	a		
Sea Otter	M	692-SEOT-037	Glacier Bay	6/06	a	a		
Sea Otter	M	692-SEOT-036	Homer	5/06	a	a	a	
Sea Otter	F	692-SEOT-038	Homer	12/07	a	a		
Sea Otter	M	692-SEOT-039	Homer	12/07	a	a		
Sea Otter	M	EL0703	Homer	11/08	a	a	a	
Gray Whale	F	692-GRAY-001	Seward	5/03	a	a	a	
Harbor Porpoise	F	692-HBPP-002	Homer	7/05	a	a	a	

Table 10. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M
Harbor Porpoise	F	692-HBPP-003	Homer	7/05	a	a	a	
Harbor Porpoise	F	692-HBPP-004	Homer	8/06	a	a	a	
Stejneger's Beaked Whale	F	692-SBKW-003	Whittier	9/05	a	a	a	
Humpback Whale	M	692-HPBK-001	Admiralty Isl.	7/07			a	
Minke Whale	M	UW0701	Cook Inlet	11/08	a		a	

Table 11. Marine mammals sampled in the Bering Sea for the AMMTAP (L - Liver; K - Kidney; B - Blubber; M - Muscle; S - Serum; a - samples archived; h - subsample B homogenized and divided into aliquots for analyses).

Species	Sex	Individual ID	Location	Date	L	K	B	M	S
Ringed Seal	M	692-RGSL-011	Nome	5/89	h	a	h		
Ringed Seal	F	692-RGSL-012	Nome	5/89	h	a	h		
Ringed Seal	M	692-RGSL-013	Nome	5/89	h	a	h		
Ringed Seal	M	692-RGSL-014	Nome	5/89	h	a	h		
Ringed Seal	F	692-RGSL-015	Nome	5/89	h	a	a		
Ringed Seal	M	692-RGSL-016	Nome	5/91	h	a	h		
Ringed Seal	F	692-RGSL-017	Nome	5/91	h	a	h		
Ringed Seal	F	692-RGSL-018	Nome	5/91	h	a	h		
Ringed Seal	M	692-RGSL-029	Nome	5/93	h	a	h		
Ringed Seal	M	692-RGSL-030	Nome	5/93	h	a	a		
Ringed Seal	M	692-RGSL-031	Nome	5/93	h	a	h		
Ringed Seal	M	692-RGSL-032	Nome	6/93	h	a	h		
Ringed Seal	M	692-RGSL-033	Nome	5/94	a	a	a		
Ringed Seal	M	692-RGSL-034	Nome	5/94	a	a	h		
Ringed Seal	F	692-RGSL-035	Nome	5/94	h	a	a		
Ringed Seal	F	692-RGSL-036	Nome	5/94	h	a	a		
Ringed Seal	M	692-RGSL-046	Nome	5/96	a	a	a		
Ringed Seal	F	692-RGSL-056	Nome	1/97	h	a	h		
Ringed Seal	F	692-RGSL-048	Nome	5/97	a	a	h		
Ringed Seal	F	692-RGSL-058	Nome	5/98	a	a	a		
Ringed Seal	M	692-RGSL-059	Cape Wooly	5/98	a	a	a		
Ringed Seal	F	692-RGSL-060	Teller	6/98	a	a	a		
Ringed Seal	M	692-RGSL-061	Gambell	5/99	a	a	h		
Ringed Seal		692-RGSL-060	Norton Sound	6/99	a	a	h		
Spotted Seal	F	692-SPSL-001	Nome	5/91	h	a	a		
Spotted Seal	M	692-SPSL-002	Nome	5/96	a	a	a		
Spotted Seal	M	692-SPSL-004	Nome	9/97	a	a	a		
Spotted Seal		692-SPSL-014	Nome	5/04	a	a	a		
Bearded Seal	M	692-BDSL-001	Nome	5/89	h	a	a		
Bearded Seal	M	692-BDSL-004	Nome	5/93	h	a	a		
Bearded Seal	M	692-BDSL-005	Nome	6/93	h	a	h		
Bearded Seal	M	692-BDSL-006	Nome	5/94	a	a	h		
Bearded Seal	M	692-BDSL-007	Nome	5/94	a	a	h		
Bearded Seal	M	692-BDSL-008	Nome	5/94	a	a	h		
Bearded Seal	F	692-BDSL-009	Nome	5/94	a	a	h		
Bearded Seal	F	692-BDSL-011	Norton Sound	6/99	a	a	h		
Bearded Seal	M	692-BDSL-012	Norton Sound	6/99	a	a	h		
Bearded Seal	F	692-BDSL-012	Norton Sound	9/99	a	a	a		
Bearded Seal		692-BDSL-013	Norton Sound	9/99	a	a	h		
Bearded Seal		692-BDSL-048	Nome	3/04	a	a	a		
Bearded Seal	M	692-BDSL-046	Nome	5/04	a	a	a		
Bearded Seal		692-BDSL-047	Nome	5/04	a	a	a		
Bearded Seal	M	692-BDSL-049	Unalakleet	4/05	a	a	a		
Bearded Seal	M	692-BDSL-050	Unalakleet	5/05	a	a	a		
Bearded Seal	M	692-BDSL-051	Unalakleet	4/05	a		a		
Northern Fur Seal	M	692-FRSL-001	St. Paul	7/87	a	a	a	a	
Northern Fur Seal	M	692-FRSL-002	St. Paul	7/87	a	a	a	a	
Northern Fur Seal	M	692-FRSL-003	St. Paul	7/87	a	a	a	a	
Northern Fur Seal	M	692-FRSL-004	St. Paul	7/87	h	h	h	h	

Table 11. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M	S
Northern Fur Seal	M	692-FRSL-005	St. Paul	7/87	h	h	h	h	
Northern Fur Seal	M	692-FRSL-006	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-007	St. Paul	7/90	h	a	a		
Northern Fur Seal	M	692-FRSL-008	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-009	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-010	St. Paul	7/90	h	a	a		
Northern Fur Seal	M	692-FRSL-011	St. Paul	7/90	h	a	a		
Northern Fur Seal	M	692-FRSL-012	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-013	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-014	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-015	St. Paul	7/90	a	a	a		
Northern Fur Seal	M	692-FRSL-016	St. Paul	8/97	a	a	a		a
Northern Fur Seal	M	692-FRSL-017	St. Paul	8/97	a	a	a		a
Northern Fur Seal	M	692-FRSL-018	St. Paul	8/97	a	a	a		a
Northern Fur Seal	M	692-FRSL-019	St. Paul	8/97	a	a	a		a
Northern Fur Seal	M	692-FRSL-020	St. Paul	8/97	a	a	a		a
Northern Fur Seal	M	692-FRSL-021	St. Paul	8/97	a	a	a		a
Northern Fur Seal	M	692-FRSL-022	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-023	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-024	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-025	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-026	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-027	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-028	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-029	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-030	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-031	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-032	St. Paul	7/00		a	h		
Northern Fur Seal	M	692-FRSL-033	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-034	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-035	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-036	St. Paul	7/00	a	a	h		
Northern Fur Seal	M	692-FRSL-037	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-038	St. Paul	7/06	a		a		
Northern Fur Seal	M	692-FRSL-039	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-040	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-041	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-042	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-043	St. Paul	7/06	a	a			
Northern Fur Seal	M	692-FRSL-044	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-045	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-046	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-047	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-048	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-049	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-050	St. Paul	7/06	a	a	a		
Northern Fur Seal	F	692-FRSL-051	St. Paul	7/06	a	a	a		
Northern Fur Seal	M	692-FRSL-052	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-053	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-054	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-055	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-056	St. Paul	8/07	a	a	a		

Table 11. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M	S
Northern Fur Seal	M	692-FRSL-057	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-058	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-059	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-060	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-061	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-062	St. Paul	8/07	a	a			
Northern Fur Seal	M	692-FRSL-063	St. Paul	8/07	a	a	a		
Northern Fur Seal	F	692-FRSL-064	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-065	St. Paul	8/07	a	a			
Northern Fur Seal	M	692-FRSL-066	St. Paul	8/07	a	a			
Northern Fur Seal	M	692-FRSL-067	St. Paul	8/07	a	a			
Northern Fur Seal	M	692-FRSL-068	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-069	St. Paul	8/07	a	a			
Northern Fur Seal	F	692-FRSL-070	St. Paul	8/07	a	a	a		
Northern Fur Seal	M	692-FRSL-071	St. Paul	8/07	a	a			
Northern Fur Seal	F	692-FRSL-072	St. Paul	8/07	a	a	a		
Elephant Seal	M	692-ELSL-001	Izembek NWR	5/96	a	a	a		
Pacific Walrus	M	692-WLRS-001	Nome	6/93	a	a	h		
Pacific Walrus		692-WLRS-021	Nome	5/98	a				
Pacific Walrus	M	692-WLRS-002	Nome	6/93	a	a	a		
Pacific Walrus	M	692-WLRS-003	Nome	5/94	a	a	h		
Pacific Walrus	M	692-WLRS-004	Nome	5/94	a	a	h		
Pacific Walrus	M	692-WLRS-005	Nome	5/94	a	a	h		
Pacific Walrus	F	692-WLRS-006	Gambell	5/95	a	a	a		
Pacific Walrus	F	692-WLRS-007	Gambell	5/95	a	a	a		
Pacific Walrus	F	692-WLRS-008	Gambell	5/95	a	a	a		
Pacific Walrus	M	692-WLRS-009	Gambell	5/95	a	a			
Pacific Walrus	F	692-WLRS-010	Gambell	5/95	a	a	a		
Pacific Walrus	M	692-WLRS-011	Gambell	5/95	a	a	a		
Pacific Walrus	F	692-WLRS-012	Gambell	5/95	a	a	a		
Pacific Walrus	F	692-WLRS-013	Gambell	5/96	a	a	h		
Pacific Walrus	F	692-WLRS-014	St Lawrence Island	5/96	a	a	h		
Pacific Walrus	M	692-WLRS-015	Round Island	10/96	a	a			
Pacific Walrus	M	692-WLRS-016	Round Island	10/96	a	a	h		
Pacific Walrus	M	692-WLRS-017	Round Island	10/96	a	a	h		
Pacific Walrus	M	692-WLRS-018	Round Island	10/96	a	a	h		
Pacific Walrus	M	692-WLRS-019	Round Island	10/96	a	a			
Pacific Walrus		692-WLRS-020	Round Island	10/96	a	a	h		
Pacific Walrus	M	692-WLRS-022	Round Island,AK	10/98	a	a			
Pacific Walrus	M	692-WLRS-023	Round Island,AK	10/98	a	a			
Pacific Walrus	M	692-WLRS-024	Round Island,AK	10/98	a	a			
Pacific Walrus	M	692-WLRS-026	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-027	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-028	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-029	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-030	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-031	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-032	Gambell	5/99	a	a	h		
Pacific Walrus	M	692-WLRS-033	Gambell	5/99	a	a			
Pacific Walrus	F	692-WLRS-036	Savoonga	5/02	a	a	a		
Pacific Walrus	M	692-WLRS-038	Gambell	7/06			a		
Pacific Walrus	F	692-WLRS-039	Gambell	7/06			a		

Table 11. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M	S
Pacific Walrus	M	692-WLRS-046	Gambell	7/06			a		
Pacific Walrus	F	692-WLRS-041	Gambell	7/06			a		
Pacific Walrus	F	692-WLRS-042	Gambell	7/06			a		
Pacific Walrus	F	692-WLRS-043	Gambell	7/06			a		
Pacific Walrus	M	692-WLRS-044	Gambell	7/06			a		
Pacific Walrus	M	692-WLRS-045	Gambell	7/06			a		
Pacific Walrus	F	692-WLRS-040	Gambell	7/06			a		
Pacific Walrus	F	692-WLRS-047	Gambell	7/06			a		
Stellar Sea Lion	M	692-STSL-004	St George Island	3/97		a	h		
Stellar Sea Lion	F	692-STSL-015	Aleutian Islands	7/07	a	a	a		
Polar Bear	M	692-PLBR-020	Gambell	3/97	a	a	h		
Polar Bear	M	692-PLBR-021	Gambell	3/97	a	a	h		
Polar Bear	M	692-PLBR-023	Gambell	3/97	a	a			
Polar Bear	M	692-PLBR-024	Savoonga	3/97		a	h		
Polar Bear	M	692-PLBR-029	Savoonga	2/98		h	h		
Polar Bear	M	692-PLBR-030	Savoonga	3/98			h		
Polar Bear	M	692-PLBR-035	Little Diomedede	4/98	a	a	a		
Polar Bear	F	692-PLBR-036	Gambell	5/99	a	a	h		
Polar Bear	M	692-PLBR-038	Savoonga	5/99	a	a	h		
Polar Bear	M	692-PLBR-039	Gambell	4/99	a	a	h		
Polar Bear	M	692-PLBR-040	Gambell	5/99	a	a	h		
Polar Bear	M	692-PLBR-041	Gambell	5/99	a	a	h		
Polar Bear	M	692-PLBR-042	Savoonga	5/99	a	a			
Polar Bear	M	692-PLBR-043	Gambell	6/99	a	a	h		
Polar Bear	M	692-PLBR-044	Savoonga	2/99		a			
Polar Bear	F	692-PLBR-045	Savoonga	5/99	h	a			
Polar Bear	M	692-PLBR-046	Little Diomedede	5/99	a	a			
Polar Bear	M	692-PLBR-049	Little Diomedede	1/00	a	a			
Polar Bear	M	692-PLBR-051	Little Diomedede	4/00	a	a			
Polar Bear	M	692-PLBR-052	Kivalina	4/01			a		
Polar Bear	F	692-PLBR-053	Little Diomedede	6/01	h	a			
Polar Bear	M	692-PLBR-055	Gambell	3/02	a	a			
Polar Bear	M	692-PLBR-056	Gambell	3/02	h	a	h		
Polar Bear	M	692-PLBR-057	Gambell	1/02	a	a	a		
Polar Bear	M	692-PLBR-058	Savoonga	4/02	a	a	a		
Polar Bear	M	692-PLBR-059	Little Diomedede	3/04	a	a	a		
Polar Bear	F	692-PLBR-061	Little Diomedede	11/04	a	a	a		
Polar Bear	M	692-PLBR-062	Little Diomedede	2/05	a	a	h		
Polar Bear	M	692-PLBR-064	Little Diomedede	4/05	a	a	h		
Polar Bear	M	692-PLBR-065	Little Diomedede	4/05	a	a	h		
Polar Bear	M	692-PLBR-066	Little Diomedede	4/05	a	a	h		
Polar Bear	F	692-PLBR-068	St. Lawrence Island	1/06	a		a		
Polar Bear	F	692-PLBR-069	Little Diomedede	6/06	a	a	a		
Polar Bear	M	692-PLBR-070	Little Diomedede	6/06	a	a	a		
Polar Bear	M	692-PLBR-071	Little Diomedede	5/06	a	a	a		
Polar Bear	M	692-PLBR-072	Little Diomedede	5/06	a	a	h		
Polar Bear	M	692-PLBR-074	St. Lawrence Island	5/07	a	a	a		
Polar Bear	F	692-PLBR-075	St. Lawrence Island	5/07	a	a	h		
Polar Bear	F	692-PLBR-076	Little Diomedede	6/07	a	a	a		
Polar Bear	M	692-PLBR-077	Cape Lisbourne	6/07	a		a		
Polar Bear	M	692-PLBR-078	Little Diomedede	6/07	a	a	h		
Polar Bear	M	692-PLBR-079	Little Diomedede	6/07	a	a	h		

Table 11. (continued)

Species	Sex	Individual ID	Location	Date	L	K	B	M	S
Polar Bear	M	692-PLBR-080	Gambell, AK	4/07	a	a	a		
Beluga Whale	M	692-BLKA-069	Norton Sound	10/00	h	a	a		
Beluga Whale	F	692-BLKA-070	Norton Sound	10/00	h	a			
Beluga Whale	F	692-BLKA-071	Norton Sound	10/00	h	a	a		
Beluga Whale	M	692-BLKA-072	Norton Sound	10/00	h	a	a	a	
Beluga Whale	M	692-BLKA-075	Bristol Bay	5/02	a	a	a		
Ribbon Seal	F	692-RBSL-001	Diomedes Island	6/03	a				
Ribbon Seal	M	692-RBSL-002	Diomedes Island	6/03	a				
Ribbon Seal	M	692-RBSL-003	Diomedes Island	6/03	a				
Ribbon Seal		692-RBSL-004	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-005	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-006	Diomedes Island	6/03	a				
Ribbon Seal	M	692-RBSL-007	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-008	Diomedes Island	6/03	a				
Ribbon Seal	M	692-RBSL-009	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-010	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-011	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-012	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-013	Diomedes Island	6/03	a				
Ribbon Seal	F	692-RBSL-014	Diomedes Island	6/03	a				
Ribbon Seal	M	692-RBSL-015	Diomedes Island	6/03	a				
Sea Otter	F	692-SEOT-019	Chignik	3/05	a	a	a		
Harbor Seal	F	692-HBSL-005	Amelia Island	1/97		a			
Harbor Seal	M	692-HBSL-006	Amelia Island	1/97	a	a		a	
Harbor Seal	F	692-HBSL-007	Akun Island	2/97	a		h		
Harbor Seal	F	692-HBSL-008	Green Island	2/97	a	a	h		
Stejneger's Beaked Whale	F	692-SBKW-001	Shemya Island	9/05			a		
Stejneger's Beaked Whale	F	692-SBKW-002	Shemya Island	9/05			a		

HOMOGENIZATION/SHIPMENT OF SAMPLES

Sixty-nine specimens were cryogenically homogenized in 2007 and 30 specimens were homogenized in 2008, including ringed seal liver specimens, beluga whale liver and blubber specimens, pygmy sperm whale liver specimens, rough-toothed dolphin liver specimens, and one California sea lion blubber specimen.

In 2007, 88 aliquots from the MMHSRP and AMMTAP were transferred out of the NMMTB to researchers for various scientific analyses and 73 aliquots were transferred out in 2008. Details on the specimens that have been cryogenically homogenized as well as information about the NMMTB sub-samples that were transferred out of the Marine ESB are provided in the ROA's, 839.00-008-003 (2007) and 839.00-09-009 (2008). The ROA's are listed in Appendix A of this report and are available upon request.

QUALITY ASSURANCE INTERCOMPARISON EXERCISE MATERIAL

The NMMTB provides "unknown" samples, control materials, and Standard Reference Materials (SRMs) to laboratories involved in marine mammal tissue analysis and participating in the interlaboratory comparison exercises administered and coordinated by NIST for the MMHSRP. Samples for the 2007 Organic and Trace Element Intercomparison Exercises were shipped during the reporting period. For the Organic Intercomparison Exercise, marine mammal blubber and serum samples, and SRM 1958, a human serum sample, were shipped to 17 participants that included 11 national and 7 international laboratories (see Table 12). Twenty-one data sets from 14 laboratories were submitted for this exercise. For the Trace Element Intercomparison Exercise, marine mammal liver and whole blood samples, and SRM 1598a, a bovine serum sample, were shipped to 26 participants that included 13 national and 12 international laboratories (see Table 13). Results of each exercise will be reported in a future publication.

Table 12. Participants in the 2007 Organic Interlaboratory Comparison Exercise for marine mammal tissue analysis.

Participant	QCOO-WB4¹	SRM 1945²	MMCM-1 Serum-4³	SRM 1958⁴	DATE SHIPPED
NATIONAL					
Dr. Christina Lusk Mississippi State University Mississippi State Chemical Lab Hand Lab, room 1145 Morrill Road Mississippi State, MS 39762 662-325-3251	62	X	x3	X	6/27/2007
Dr. Terry L. Wade Deputy Director-Envrionmental Science Geochemical and Environmental Research Group Texas A&M University 833 Graham Road College Station, TX 77845 979-862-2323, x134	63	X	x3	X	6/27/2007
Dana L. Wetzel Aquatic Toxicology Mote Marine Laboratory 1600 Ken Thompson Parkway Sarasota, Florida 34236 941-388-4441	57	X			6/27/2007
Keith A. Maruya Southern California Coastal Water Research Project 3535 Harbor Blvd., Suite 110 Costa Messa, CA 92626-1437 714-755-3214	74	X			7/17/2007
Gloria Seaborn NOS/CCEHBR 219 Ft. Johnson Rd. Charleston, SC 29412 843-762-8522	78	X	x3	X	10/17/2007
Greg Mitchum NOAA/NOS Hollings Marine Laboratory 331 Ft. Johnson Rd. Charleston, SC 29412	67	X	x3	X	9/13/2007
Dr. Michele Schantz NIST 100 Bureau Dr. Bldg. 227, Room A 143 Gaithersburg, MD 20899-8392 301-975-3106	65	X	x3	X	6/27/2007

Table 12. (continued)

Participant	QCOO-WB4 ¹	SRM	MMCM-1	SRM	DATE
		1945 ²	Serum-4 ³	1958 ⁴	SHIPPED
Gina Ylitalo NOAA Fisheries/Environmental Conservation Division 2725 Montlake Boulevard East Seattle, WA 98112 206-860-3325	70	X	x3	X	6/27/2007
Margaret Johnson Diagnostic Center of Population and Animal Health 4125 Beaumont Rd. Lansing, MI 48910-8104 517-353-4773 (p) 517-355-2152 (f)	68	X			6/27/2007
Ashok Despande NOAA/NMFS Sandy Hook Marine Lab 74 Magruder Rd. Highlands, NJ 07732 732-872-3043	71	X	x3	X	6/27/2007
Rich Gossett CRG Marine Laboratories, Inc. 2020 Del Amo Blvd., Suite 200 Torrance, CA 90501 310-533-5190	77	X	x3	X	9/19/2007
INTERNATIONAL					
Adrian Covaci Toxicological Center University of Antwerp (UA) Building S, 6th floor Universiteitsplein, 1 2610 Wilrijk Belgium +32 3 820 2704	76	X	x3	X	7/9/2007
Collin Allchin CEFAS Burnham Laboratory Remembrance Avenue Burnham on Crouch Essex CM0 8HA, UK +44 (0) 1621 787267	73	X	x3	X	7/2/2007
Rosalyn McNeil Specimen Bank Biologist NWRC, Wildlife Toxicology Environment Canada 1125 Colonel By Drive Carleton University (Raven Road) Ottawa, Ontario K1S 5B6 CANADA 1-613-998-6691	54/56	x2	x6	x2	6/26/07

Table 12. (continued)

		SRM	MMCM-1	SRM	DATE
Participant	QCOO-WB4¹	1945²	Serum-4³	1958⁴	SHIPPED
Gregg Tomy Department of Fisheries and Oceans Freshwater Institute 501 University Crescent Wpg. MB R3T 2N6 204-983-5167 (p) 204-984-2403 (f)	59	X	x3	X	6/26/07
Michael Ikonomou/Cory Dubetz Marine Env. Quality, Institute of Ocean Sciences Qualite de l'environnement marin, Institut des sciences de la mer 9860 West Saanich Rd., Fisheries and Oceans Canada 9860 Rue W. Saanich, Peches et Oceans Canada Sidney, B.C., V8L 4B2 CANADA 250-363-6517	58	X	x3	X	6/26/07
Helene Budzinski DR CNRS - ISM-UMR 5255 Groupe LPTC Universite Bordeaux 1 351 crs de la Liberation 33405 Talence FRANCE 33 (0)5 40 00 69 98	75	X	x3	X	7/24/2007

¹QCOO-WB4 - Unknown Pilot Whale Blubber Material

²SRM 1945 - Organics in Whale Blubber

³MMCM-1 Serum-4 - Unknown California Sea Lion Serum Material

⁴SRM 1958 - Organic Contaminants in Human Serum

Table 13. Participants in the 2007 Trace Element Interlaboratory Comparison Exercise for marine mammal tissue analysis.

Participant	QC06WLBD1 ¹	QC03LH3 ²	SRM1598a ³	DATE SHIPPED
NATIONAL				
Chris Perkins Center for Environmental Sciences and Engineering University of Connecticut Building #4 Annex 3107 Horsebarn Hill Rd; U-4210 Storrs, CT 06269-4210 Ph: (860) 486-2668 Fx: (860) 486-5488	10	121	X	6/27/2007
Neal Julien Midwest Research Institute Florida Division 1470 Treeland Blvd SE Palm Bay, FL 32909 tel) 321-723-4547 x502	12	114	X	6/27/2007
Bryan L. Brattin Trace Element Research Lab Texas A&M University TAMUS 4458 VMA BLDG, ROOM 107 COLLEGE STATION, TX 77843-4458 979-845-1568 Fax: 979-847-8981	11	113	X	6/27/2007
Amir Liba, Ph.D. Elemental Analysis and Speciation Molecular Instrumentation Center (MIC) UCLA Department of Chemistry and Biochemistry Box 951569 (Post) 607 Charles E. Young Dr. (Courier) Los Angeles, CA 90095 Phone: 310-825-7571	13	112	X	6/27/2007
Richard Steven Pappas, Ph.D. Emergency Response & Air Toxicants Branch Centers for Disease Control & Prevention 4770 Buford Hwy. NE, M.S. F-44 Atlanta, GA 30341-3717 Phone 770-488-4661 RPappas@cdc.gov	14	111	X	6/27/2007

Table 13. (continued)

Participant	QC06WLBD1¹	QC03LH3²	SRM1598a³	DATE SHIPPED
Carol Buckley University of Pennsylvania School of Veterinary Medicine New Bolton Center 382 West Street Road Kennett Square, Pa 19348 (p) 610-925-6233	15	110	X	6/27/2007
Larry Melton CAHFS Toxicology Thurman Lab West Health Sciences Drive University of California Davis, CA 95616 Phone: 530-754-5605 Fax: 530-752-3361 E-mail: lmelton@ucdavis.edu <mailto:lmelton@ucdavis.edu>	18	108	X	6/27/2007
Patrick R. Gorski, Ph.D. Chemist Supervisor, Trace Element Clean Lab WI State Laboratory of Hygiene 2601 Agriculture Drive Madison, WI 53718 phone: 608-224-6294 fax: 608-224-6213 mailto:gorskipr@slh.wisc.edu	16	115	X	6/27/2007
Gwyneth Gordon Laboratory Manager W.M. Keck Foundation Laboratory for Environmental Biogeochemistry School of Earth & Space Exploration Arizona State University Tempe, AZ 85287-1404 gwyneth.gordon@asu.edu PS-F 082 727-8837 office; 993-6600 cell	19	118	X	6/27/2007
NIST-Gaithersburg	21	122	X	7/7/2007
Patrick J. Parsons, Ph.D., Director Lead Poisoning/Trace Elements Laboratory Wadsworth Center, New York State Dept. of Health Albany, NY 12201-0509 518-474-5475 (voice) 518-473-7586 (fax) e-mail: patrick.parsons@wadsworth.org http://www.wadsworth.org/testing/lead/index.htm	17	32	X	6/27/2007 7/2/07

Table 13. (continued)

Participant	QC06WLBD1¹	QC03LH3²	SRM1598a³	DATE SHIPPED
Panjai Prapaipong School of Earth and Space Exploration Arizona State University Room PSF 686 Tempe, AZ 85287-1404 Office (480) 965-9142 Fax (480) 965-8102	20	119	X	6/27/2007
Hakan Gurleyuk, Ph.D. Senior Scientist Applied Speciation and Consulting, LLC 953 Industry Dr. Tukwila, WA 98188 206 219 3779 206 388 3485 (FAX)	22	120	X	6/27/2007
INTERNATIONAL				
M. ROBERT (Carine Churlaud) Université de La Rochelle Centre Commun d'Analyses 5 allées de l'Océan 17071 La Rochelle Cedex 9 FRANCE (p) 33 05 46 45 87 49	3	100	X	5/21/2007
Fabienne Seby Ultra-Traces Analyses Aquitaine (UT2A) Hélioparc Pau-Pyrénées 2, avenue du Président Angot 64000 PAU - France tel: 33 5 59 80 68 82 fax: 33 5 59 80 68 91	4	101	X	5/21/2007
Prof. Dr hab. Henryk Matusiewicz POLITECHNIKA POZNANSKA DEPARTMENT OF ANALYTICAL CHEMISTRY Piotrowo 3 60-965 POZNAN POLAND tel. +48 (0)61-665 2312 fax: +48 (0)61-665 2571	5	102	X	5/21/2007
Paul Adorno Inorganics & Food Composition Manager National Measurement Institute-South Melbourne 51-65 Clarke St South Melbourne VIC 3205 el: (03) 9685 1746 Fax: (03) 9685 1788	8	107	X	6/25/2007

Table 13. (continued)

Participant	QC06WLBD1¹	QC03LH3²	SRM1598a³	DATE SHIPPED
Honway Louie /Michael Wu National Measurement Institute 1 Suakin Street, Pymble. NSW. 2073 Tel: 61 2 9449 0127 Fax: 61 2 9449 1653	24	126	X	7/14/2007
Henri Wong ANSTO - PMB1, Menai, NSW 2234, AUSTRALIA Phone # 61-2-9717 3539. Fax # : 61-2-9717 9286	6	106	X	6/12/2007
Collin Allchin CEFAS Burnham Laboratory Remembrance Avenue Burnham on Crouch Essex CM0 8HA, UK +44 (0) 1621 787267	25	123	X	7/2/2007
Andreas Rudolph Kinectrics Inc. 800 Kipling Avenue Toronto, Ontario M8Z 6C4 CANADA 416.207.6000	7	105	X	6/12/2007
Prof. Dr. Andreas Prange Dept. for Marine Bioanalytical Chemistry Institute for Coastal Research, GKSS Research Center Max-Planck-Strasse, D-21502 Geesthacht, Germany Phone: +49 (0)4152 87 1858; Fax: +49 (0)4152 87 1875 e-mail: andreas.prange@gkss.de	27 26	131 127	X X	10/1/07 7/24/2007
Ao. Univ.-Prof. Mag. Dr. Walter Goessler Institute of Chemistry - Analytical Chemistry University Graz Universitaetsplatz 1 8010 Graz, Austria Tel.: +43 316 380 5302 Fax: +43 316 380 9845 http://www.uni-graz.at/achwww/	23 9 ?	124 109 128	X X X	8/28/07 6/25/2007 8/6/07

Table 13. (continued)

Participant	QC06WLBD1¹	QC03LH3²	SRM1598a³	DATE SHIPPED
Gae Ho Lee, professor Department of Chemistry Basic Science Bilding 2-214 Chungnam National University Dae Jeon, 305-764 South Korea Tel)42-821-6553 Fax)42-823-7243	2	99	No	5/21/2007
Ritchie Eanes Assistant Professor Izmir Yuksek Teknoloji Enstitusu Fen Fak. Kimya Bol. Gulbahcekoyu, Urla 35430, Izmir Turkey (p) 90-232-750-7609 (f) 90-232-750-7509	1	98	X	5/21/2007

¹ QC06WLBD1 - Unknown California Sea Lion Whole Blood Material 1

² QC03LH3 - QA Pygmy Sperm Whale Liver Homogenate III

³ SRM 1598a - Inorganic Constituents in Animal Serum

REPORTS AND PUBLICATIONS

Two publications describing the 2005 NIST/NOAA Interlaboratory Comparison Exercise for marine mammal tissue analysis were finalized during the reporting period and are listed below. In addition, a list of previous reports and publications with reference to protocols or research activities involving samples from the NMMTB can be found in Appendix B of this report and are available upon request.

1. Christopher, S.J., Pugh, R.S., Ellisor, M.B., Mackey, E.A., Spatz, R.O., Porter, B.J., Bealer, K.J., Kucklick, J.R., Rowles, T.K., Becker, P.R., 2007. Description and Results of the NIST/NOAA 2005 Interlaboratory Comparison Exercise for Trace Elements in Marine Mammals. *Accred. Qual. Assur.*, 12, 175-187.
2. Kucklick, J. R., Pugh, R. S., Becker, P. R., Schantz, M. M., Wise, S. A., and Rowles, T. K.. 2007. Description and Results of the 2005 NIST/NOAA Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues. **NISTIR 7410**, National Institute of Standards and Technology, Gaithersburg, MD, 22 p.

CONCLUSIONS

During the reporting period (January 1, 2007 to December 31, 2008), 299 specimens were collected from 105 animals. The inventory of the NMMTB now includes 3,402 tissue specimens from 46 species of cetaceans, pinnipeds, and fissipeds.

Ninety-nine specimens banked as a part of the NMMTB were homogenized and over 160 aliquots were provided to researchers for various analyses. In addition, samples and SRMs were shipped to 17 participants for the Organic Intercomparison Exercise and to 26 participants for the Trace Element Intercomparison Exercise for marine mammal tissue analysis.

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Bryan C.E., Christopher S.J., Balmer, B.C., and Wells, R.S. 2007. Establishing baseline levels of trace elements in blood and skin of bottlenose dolphins in Sarasota Bay, Florida: implications for non-invasive monitoring. *Sci. Total Environ.* 388(1-3):325-42.

Davis, W.C., Christopher, S.J., Pugh, R.S., Donard, O.F.X., Krupp, E.A., Point, D., Horvat, M., Gibicar, D., Kljakovic-Gaspic, Z., Porter, B.J., and Schantz, M.M. 2007. Certification of methylmercury content in two fresh-frozen reference materials: SRM 1947 Lake Michigan fish tissue and SRM 1974b organics in mussel tissue (*Mytilus edulis*). *Anal. Bioanal. Chem.* 387:2335-2341.

Keller, J.M., Swarthout, R.F., Carlson, B.K., Yordy, J., Guichard, A., Schantz, M.M., and Kucklick, J.R. 2009. Comparison of five extraction methods for measuring PCBs, PBDEs, organochlorine pesticides, and lipid content in serum. *Anal Bioanal Chem* 393: 747-760.

Peck, A.M., Pugh, R.S., Moors, A., Ellisor, M.B., Porter, B.J., Becker, P.R., and Kucklick, J.R. 2008. Hexabromocyclododecane in white-sided dolphins: temporal trend and stereoisomer distribution in tissues. *Environ Sci Technol* 42: 2650-2655.

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VanderPol, S.S., Kucklick, J.R., Schantz, M.M., and Wise, S.A. Separation of 25 toxaphene congeners and measurement in air particulate matter SRMs compared to technical toxaphene SRM 3067. *Anal. Bioanal. Chem.* (In Review)

Wise, S.A. and Koster, B.J. 1995. Considerations in the design of an environmental specimen bank: Experiences of the National Biomonitoring Specimen Bank Program. *Environ. Health Perspect.* 103 (Suppl. 3): 61-67.

Zeisler, R., Langland, J.K., and Harrison, S.H. 1983. Cryogenic homogenization of biological tissues. *Anal. Chem.* 55: 2431-2434.

APPENDIX A

REPORT OF ANALYSIS

839.00-08-003, Marine Environmental Specimen Bank (Marine ESB) and National Biomonitoring Specimen Bank (NBSB) CY 2007 Projects Including Cryogenic Homogenization and Distribution of Tissues for the NMMTB, STAMP, APFP

839.00-09-009, Marine Environmental Specimen Bank (Marine ESB) and National Biomonitoring Specimen Bank (NBSB) CY 2008 Projects Including Cryogenic Homogenization and Distribution of Tissues for the NMMTB, STAMP, APFP

839.01-05-202, Quantification of Arsenic Species in Marine Tissue Samples by Ion Chromatography Collision Cell Inductively Coupled Plasma Mass Spectrometry

839.02-07-301, Determination of Total Lipid Content in Human Serum and Dolphin Plasma by Sulfo-Phospho-Vanillin Reaction

839.02-07-302, Determination of Polybrominated Diphenyl Ethers (PBDEs), Polychlorinated Biphenyls (PCBs), Organochlorine Pesticides in Bottlenose Dolphin Blubber Biopsy Samples from Mississippi Sound Batch 2

839.02-07-303, The Determination of Chlorinated Pesticides, PCBs and PBDEs in Bottlenose Dolphin Blubber and Internal Tissues

839.02-07-304, The Determination of Chlorinated Pesticides, PCBs and PBDEs in Bottlenose Dolphin Plasma and Remaining Cellular Material Analyzed for the Sarasota Dolphin Project

839.02-07-306, Determination of Chlorinated Pesticides, PCBs and PBDEs in Bottlenose Dolphin Blubber Layers from Incidentally Killed Animals along the Coast of North Carolina and Virginia

839.02-07-307, Determination of Polybrominated Diphenyl Ethers (PBDEs), Polychlorinated Biphenyls (PCBs), and Organochlorine Pesticides in Bottlenose Dolphin Blubber Biopsy Samples from Beaufort, North Carolina

839.02-07-325, Determination of Chlorinated Pesticides, PCBs, and PBDEs in Bottlenose Dolphin Blubber Samples Collected from a Single Individual at Various Body Locations and Depths

839.02-07-333, The Determination of Chlorinated Pesticides, PCBs and PBDEs in Four Common Prey Species of Bottlenose Dolphins from Sarasota Bay, FL

839.02-07-339, The Determination of Chlorinated Pesticides, PCBs and PBDEs in Bottlenose Dolphin Blubber and Internal Tissues, Second Batch

839.02-07-340, The Determination of Chlorinated Pesticides, PCBs and PBDEs in Bottlenose Dolphin Milk, Second Batch

839.02-08-050, Determination of Polychlorinated Biphenyl (PCB) Congeners, Chlorinated Pesticides, and Polybrominated Diphenyl Ethers (PBDE) Congeners in Marine Mammal Blubber Unknown Material IV Measured for the 2007 Intercomparison Exercise Program for Organics in Marine Mammal Tissues

839.02-08-301, PCBs, pesticides, PBDEs, and HBCDs in adult male beluga whale blubber from the National Marine Mammal Tissue Bank and a subset of debilitated loggerhead turtle fat samples

839.02-08-306Amended, Determination of Polybrominated Diphenyl Ethers (PBDEs), Polychlorinated Biphenyls (PCBs) and Organochlorine Pesticides in Bottlenose Dolphin Blubber Biopsy samples from Brunswick, Georgia Batch1.

839.02-08-307, Determination of Polybrominated Diphenyl Ethers (PBDEs), Polychlorinated Biphenyls (PCBs), and Organochlorine Pesticides for the 2007 NIST Interlaboratory Comparison Exercise Program for Organic Contaminants in Marine Mammal Tissues

839.02-08-314, Organohalogen compounds determined in MMCM-1 Serum and SRM 1958 as Part of the Marine Mammal Interlaboratory comparison Exercise

839.02-08-315, Determination of Polybrominated Diphenyl. Ethers (PBDEs), Polychlorinated Biphenyls (PCBs) and Organochlorine Pesticides in Bottlenose Dolphin Blubber Biopsy samples from Sapelo Island National Estuarine Research Reserve (SINERR), Georgia Batch2

839.02-08-320, Determination of Polybrominated Diphenyl Ethers (PBDEs), Polychlorinated Biphenyls (PCBs) and Organochlorine Pesticides in Bottlenose Dolphin Blubber Biopsy samples from Brunswick, Georgia Batch3.

APPENDIX B

NMMTB BIBLIOGRAPHY

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