

**APPENDIX E**  
**Estimated Marine Mammals and Sea Turtle Impacts from**  
**Exposure to Acoustic and Explosive Stressors Under Navy**  
**Training and Testing Activities**

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**Draft**  
**Environmental Impact Statement/Overseas Environmental Impact Statement**  
**Atlantic Fleet Training and Testing**

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## **APPENDIX E ESTIMATED MARINE MAMMALS AND SEA TURTLE IMPACTS FROM EXPOSURE TO ACOUSTIC AND EXPLOSIVE STRESSORS UNDER NAVY TRAINING AND TESTING ACTIVITIES**

Navy training and testing activities would result in the incidental takes of marine mammals and sea turtles within the Study Area. The following appendix provides the estimated number of marine mammal and sea turtle impacts. Specifically, estimated impacts are derived from the quantitative analysis for activities under Alternatives 1 and 2 that involve the use of acoustic or explosive stressors. The quantitative analysis takes into account Navy activities, marine species density layers, acoustic modeling and other environmental parameters. A detailed explanation of the quantitative analysis is provided in the technical report *Quantitative Analysis for Estimating Acoustic and Explosive Impacts to Marine Mammals and Sea Turtles* (U.S. Department of the Navy, 2017c). It is important to note that *impacts*, as discussed in this appendix, represent the estimated instances of take of marine mammals or sea turtles, not necessarily the number of individuals impacted (i.e., some marine mammals or sea turtles could be impacted several times, while others would not experience any impact).

### **E.1 ESTIMATED MARINE MAMMALS IMPACTS FROM SONAR AND OTHER TRANSDUCERS UNDER NAVY TRAINING ACTIVITIES**

Table E.1-1 provides a summary of the estimated number of marine mammal impacts from exposure to sonar and other transducers used during Navy training activities under Alternatives 1 and 2 over the course of a year.

**Table E.1-1: Estimated Marine Mammal Impacts per Year from Sonar Training Activities**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Suborder Mysticeti (baleen whales)</b>										
<b>Family Balaenidae (right whales)</b>										
North Atlantic right whale*	Western North Atlantic	64	108	0	79	117	0	81	122	0
<b>Family Balaenopteridae (roquals)</b>										
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	8	15	0	8	18	0	10	22	0
Bryde's whale	Northern Gulf of Mexico	49	132	0	53	151	0	67	208	0
Minke whale	Canadian East Coast	453	1,670	0	482	1,930	0	571	2,448	1
Fin whale*	Western North Atlantic	517	884	0	532	933	0	680	1,242	0
Humpback whale	Gulf of Maine	63	138	0	67	151	0	75	180	0
Sei whale*	Nova Scotia	84	185	0	87	202	0	111	268	0
<b>Suborder Odontoceti (toothed whales)</b>										
<b>Family Physeteridae (sperm whale)</b>										
Sperm whale*	Gulf of Mexico Oceanic	24	0	0	24	0	0	1,691	40	0
	North Atlantic	13,240	306	0	13,747	326	0	16,724	395	0
<b>Family Kogiidae (sperm whales)</b>										
Dwarf sperm whale	Gulf of Mexico Oceanic	4	9	0	4	9	0	303	732	2
	Western North Atlantic	2,653	4,942	6	2,789	5,714	7	3,400	7,354	9

**Table E.1-1: Estimated Marine Mammal Impacts per Year from Sonar Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
Pygmy sperm whale	Northern Gulf of Mexico	4	9	0	4	9	0	303	732	2
	Western North Atlantic	2,653	4,942	6	2,789	5,714	7	3,400	7,354	9
<b>Family Ziphiidae (beaked whales)</b>										
Blainville's beaked whale	Northern Gulf of Mexico	35	0	0	35	0	0	1,324	18	0
	Western North Atlantic	11,908	91	0	12,414	102	0	15,333	121	0
Cuvier's beaked whale	Northern Gulf of Mexico	34	0	0	34	0	0	1,316	18	0
	Western North Atlantic	44,095	336	0	45,964	375	0	56,742	445	0
Gervais' beaked whale	Northern Gulf of Mexico	35	0	0	35	0	0	1,324	18	0
	Western North Atlantic	11,908	91	0	12,414	102	0	15,333	121	0
Northern bottlenose whale	Western North Atlantic	1,068	1	0	1,071	1	0	1,164	1	0
Sowerby's beaked whale	Western North Atlantic	11,908	91	0	12,414	102	0	15,333	121	0
True's beaked whale	Western North Atlantic	11,908	91	0	12,414	102	0	15,333	121	0
<b>Family Delphinidae (dolphins)</b>										
Atlantic spotted dolphin	Northern Gulf of Mexico	910	10	0	934	11	0	4,482	265	0
	Western North Atlantic	104,567	7,214	0	109,625	7,703	0	128,934	9,171	0
Atlantic white-sided dolphin	Western North Atlantic	13,170	828	0	13,583	900	0	17,039	1,146	0

**Table E.1-1: Estimated Marine Mammal Impacts per Year from Sonar Training Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>			<i>Alternative 1 – Maximum</i>			<i>Alternative 2</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
Bottlenose dolphin	Choctawatchee Bay	7	0	0	7	0	0	7	0	0
	Gulf of Mexico Eastern Coastal	0	0	0	42	0	0	42	0	0
	Gulf of Mexico Northern Coastal	218	2	0	218	2	0	1,418	68	0
	Gulf of Mexico Western Coastal	0	0	0	3,558	528	0	3,558	528	0
	Indian River Lagoon Estuarine System	185	20	0	185	20	0	185	20	0
	Jacksonville Estuarine System	41	9	0	41	9	0	41	9	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0	0	0	0
	Northern Gulf of Mexico Continental Shelf	1,582	12	0	1,582	12	0	10,304	495	0
	Northern Gulf of Mexico Oceanic	179	1	0	179	1	0	1,160	56	0
	Northern North Carolina Estuarine System	802	96	0	2,595	456	0	2,595	456	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	757	37	0	828	41	0	1,013	50	0

**Table E.1-1: Estimated Marine Mammal Impacts per Year from Sonar Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
	Western North Atlantic Central Florida Coastal	3,585	142	0	3,971	169	0	4,894	211	0
	Western North Atlantic Northern Migratory Coastal	21,734	1,930	1	21,967	1,951	1	24,358	2,106	1
	Western North Atlantic South Carolina/Georgia Coastal	3,758	163	0	4,130	189	0	5,206	243	0
	Western North Atlantic Southern Migratory Coastal	9,544	455	1	11,184	639	1	13,470	757	1
	Western North Atlantic Offshore	243,161	19,831	9	267,131	22,762	9	300,759	24,687	9
Clymene dolphin	Northern Gulf of Mexico	96	3	0	96	3	0	5,262	414	0
	Western North Atlantic	59,423	3,652	0	65,198	4,228	0	76,179	4,855	0
False killer whale	Northern Gulf of Mexico	40	1	0	40	1	0	1,797	126	0
	Western North Atlantic	7,076	394	0	7,781	462	0	9,422	550	0
Fraser's dolphin	Northern Gulf of Mexico	59	0	0	59	0	0	965	51	0
	Western North Atlantic	3,417	174	0	3,735	194	0	4,505	261	0
Killer whale	Northern Gulf of Mexico	1	0	0	1	0	0	79	4	0
	Western North Atlantic	68	3	0	74	3	0	85	4	0

**Table E.1-1: Estimated Marine Mammal Impacts per Year from Sonar Training Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>			<i>Alternative 1 – Maximum</i>			<i>Alternative 2</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
Long-finned pilot whale	Western North Atlantic	15,535	769	0	16,176	845	0	19,640	1,023	0
Melon-headed whale	Northern Gulf of Mexico	68	2	0	68	2	0	5,675	413	0
	Western North Atlantic	31,757	1,762	0	34,984	2,039	0	41,959	2,427	0
Pantropical spotted dolphin	Northern Gulf of Mexico	549	16	0	549	16	0	54,726	4,152	0
	Western North Atlantic	124,721	7,402	0	136,693	8,382	0	163,778	10,174	0
Pygmy killer whale	Northern Gulf of Mexico	16	0	0	16	0	0	1,247	92	0
	Western North Atlantic	5,589	289	0	6,136	338	0	7,306	408	0
Risso's dolphin	Northern Gulf of Mexico	38	1	0	38	1	0	1,931	140	0
	Western North Atlantic	18,305	996	0	19,868	1,150	0	24,988	1,440	0
Rough-toothed dolphin	Northern Gulf of Mexico	70	1	0	92	5	0	2,426	204	0
	Western North Atlantic	16,509	1,145	0	18,187	1,321	0	22,068	1,612	0
Short-beaked common dolphin	Western North Atlantic	188,356	14,716	0	200,620	17,303	0	253,333	21,444	0
Short-finned pilot whale	Northern Gulf of Mexico	27,828	1,362	0	29,853	1,528	0	37,290	1,854	0
Spinner dolphin	Northern Gulf of Mexico	221	7	0	221	7	0	26,750	2,122	0
	Western North Atlantic	62,459	3,929	0	68,930	4,541	0	82,628	5,487	0

**Table E.1-1: Estimated Marine Mammal Impacts per Year from Sonar Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
Striped dolphin	Northern Gulf of Mexico	65	2	0	65	2	0	4,972	390	0
	Western North Atlantic	84,521	5,045	0	85,721	5,242	0	102,815	6,427	0
White-beaked dolphin	Western North Atlantic	36	1	0	38	2	0	38	2	0
<b>Family Phocoenidae (porpoises)</b>										
Harbor porpoise	Gulf of Maine/Bay of Fundy	21,438	6,957	12	22,032	7,147	11	25,353	8,433	14
<b>Suborder Pinnipedia</b>										
<b>Family Phocidae (true seals)</b>										
Gray seal	Western North Atlantic	416	1,005	0	437	1,007	0	437	1,011	0
Harbor seal	Western North Atlantic	674	1,630	0	708	1,633	0	708	1,639	0
Harp seal	Western North Atlantic	2,678	5,750	1	2,692	5,752	1	2,692	5,753	1
Hooded seal	Western North Atlantic	39	85	0	42	85	0	43	89	0
<b>Order Sirenia</b>										
<b>Family Trichechidae (manatees)</b>										
West Indian manatee*	Florida, Antillean	9	17	0	11	17	0	11	17	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.2 ESTIMATED MARINE MAMMAL IMPACTS PER FIVE YEAR PERIOD FROM SONAR AND OTHER TRANSDUCERS UNDER NAVY TRAINING ACTIVITIES

Table E.2-1 provides a summary of the estimated number of marine mammal impacts from exposure to sonar and other transducers used during Navy training activities under Alternatives 1 and 2 over the course of five years.

**Table E.2-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Training Activities**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Suborder Mysticeti (baleen whales)</b>							
<b>Family Balaenidae (right whales)</b>							
North Atlantic right whale*	Western North Atlantic	365	562	0	403	611	0
<b>Family Balaenopteridae (roquals)</b>							
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	39	81	0	48	111	0
Bryde's whale	Northern Gulf of Mexico	254	700	0	334	1,040	0
Minke whale	Canadian East Coast	2,325	8,871	0	2,854	12,238	3
Fin whale*	Western North Atlantic	2,617	4,518	0	3,402	6,211	0
Humpback whale	Gulf of Maine	326	717	0	376	901	0
Sei whale*	Nova Scotia	428	960	0	553	1,342	0
<b>Suborder Odontoceti (toothed whales)</b>							
<b>Family Physeteridae (sperm whale)</b>							
Sperm whale*	Gulf of Mexico Oceanic	118	1	0	8,456	202	0
	North Atlantic	67,213	1,570	0	83,622	1,974	0
<b>Family Kogiidae (sperm whales)</b>							
Dwarf sperm whale	Gulf of Mexico Oceanic	22	46	0	1,515	3,660	8
	Western North Atlantic	13,537	26,253	33	16,998	36,770	43
Pygmy sperm whale	Northern Gulf of Mexico	22	46	0	1,515	3,660	8
	Western North Atlantic	13,537	26,253	33	16,998	36,770	43

**Table E.2-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Family Ziphiidae (beaked whales)</b>							
Blainville's beaked whale	Northern Gulf of Mexico	173	0	0	6,621	92	0
	Western North Atlantic	60,552	477	0	76,666	603	0
Cuvier's beaked whale	Northern Gulf of Mexico	172	0	0	6,581	92	0
	Western North Atlantic	224,216	1,759	0	283,712	2,226	0
Gervais' beaked whale	Northern Gulf of Mexico	173	0	0	6,621	92	0
	Western North Atlantic	60,552	477	0	76,666	603	0
Northern bottlenose whale	Western North Atlantic	5,346	7	0	5,820	7	0
Sowerby's beaked whale	Western North Atlantic	60,552	477	0	76,666	603	0
True's beaked whale	Western North Atlantic	60,552	477	0	76,666	603	0
<b>Family Delphinidae (dolphins)</b>							
Atlantic spotted dolphin	Northern Gulf of Mexico	4,623	53	0	22,411	1,323	0
	Western North Atlantic	533,227	37,062	0	644,672	45,856	0
Atlantic white-sided dolphin	Western North Atlantic	66,715	4,287	0	85,197	5,730	0
Bottlenose dolphin	Choctawatchee Bay	33	0	0	33	0	0
	Gulf of Mexico Eastern Coastal	125	0	0	208	0	0
	Gulf of Mexico Northern Coastal	1,092	8	0	7,088	340	0
	Gulf of Mexico Western Coastal	10,675	1,585	0	17,791	2,641	0
	Indian River Lagoon Estuarine System	925	98	0	925	98	0
	Jacksonville Estuarine System	203	44	0	203	44	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0

**Table E.2-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
	Northern Gulf of Mexico Continental Shelf	7,909	62	0	51,518	2,476	0
	Northern Gulf of Mexico Oceanic	893	7	0	5,799	279	0
	Northern North Carolina Estuarine System	9,389	1,561	0	12,975	2,282	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	3,945	196	0	5,063	248	0
	Western North Atlantic Central Florida Coastal	18,813	779	0	24,471	1,054	0
	Western North Atlantic Northern Migratory Coastal	109,326	9,707	3	121,789	10,532	3
	Western North Atlantic South Carolina/Georgia Coastal	19,638	879	0	26,028	1,216	0
	Western North Atlantic Southern Migratory Coastal	52,116	2,799	3	67,350	3,786	3
	Western North Atlantic Offshore	1,274,819	106,520	44	1,503,796	123,436	44
	Clymene dolphin	Northern Gulf of Mexico	480	15	0	26,310	2,068
Western North Atlantic		308,859	19,433	0	380,894	24,276	0
False killer whale	Northern Gulf of Mexico	202	6	0	8,985	632	0
	Western North Atlantic	36,806	2,108	0	47,108	2,750	0
Fraser's dolphin	Northern Gulf of Mexico	296	2	0	4,825	254	0
	Western North Atlantic	17,721	911	0	22,526	1,307	0
Killer whale	Northern Gulf of Mexico	4	0	0	394	22	0

**Table E.2-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Training Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>			<i>Alternative 2 – 5-Year</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
	Western North Atlantic	352	16	0	423	21	0
Long-finned pilot whale	Western North Atlantic	78,957	3,999	0	98,198	5,114	0
Melon-headed whale	Northern Gulf of Mexico	342	10	0	28,375	2,063	0
	Western North Atlantic	165,323	9,376	0	209,793	12,136	0
Pantropical spotted dolphin	Northern Gulf of Mexico	2,745	79	0	273,629	20,760	1
	Western North Atlantic	647,553	38,972	0	818,890	50,869	0
Pygmy killer whale	Northern Gulf of Mexico	82	2	0	6,236	461	0
	Western North Atlantic	29,051	1,544	0	36,531	2,041	0
Risso's dolphin	Northern Gulf of Mexico	192	5	0	9,657	698	0
	Western North Atlantic	94,653	5,289	0	124,942	7,202	0
Rough-toothed dolphin	Northern Gulf of Mexico	418	16	0	12,131	1,018	0
	Western North Atlantic	85,936	6,080	0	110,339	8,059	0
Short-beaked common dolphin	Western North Atlantic	966,328	78,755	0	1,266,663	107,219	0
Short-finned pilot whale	Northern Gulf of Mexico	143,190	7,142	0	186,450	9,269	0
Spinner dolphin	Northern Gulf of Mexico	1,103	33	0	133,750	10,609	0
	Western North Atlantic	325,367	20,885	0	413,141	27,437	0
Striped dolphin	Northern Gulf of Mexico	326	10	0	24,859	1,948	0
	Western North Atlantic	425,004	25,620	0	514,074	32,134	0
White-beaked dolphin	Western North Atlantic	184	8	0	189	8	0
<b>Family Phocoenidae (porpoises)</b>							
Harbor porpoise	Gulf of Maine/Bay of Fundy	108,906	35,338	58	126,765	42,163	69

**Table E.2-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Suborder Pinnipedia</b>							
<b>Family Phocidae (true seals)</b>							
Gray seal	Western North Atlantic	2,142	5,030	1	2,184	5,054	1
Harbor seal	Western North Atlantic	3,473	8,158	2	3,542	8,196	2
Harp seal	Western North Atlantic	13,431	28,757	4	13,459	28,764	4
Hooded seal	Western North Atlantic	204	427	0	214	447	0
<b>Order Sirenia</b>							
<b>Family Trichechidae (manatees)</b>							
West Indian manatee*	Florida, Antillean	51	86	0	55	86	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designation

PTS: permanent threshold shift; TTS: temporary threshold shift

### **E.3 ESTIMATED MARINE MAMMAL IMPACTS FROM SONAR AND OTHER TRANSDUCERS UNDER NAVY TESTING ACTIVITIES**

Table E.3-1 provides a summary of the estimated number of marine mammal impacts from exposure to sonar and other transducers used during Navy testing activities under Alternatives 1 and 2 over the course of a year.

**Table E.3-1: Estimated Marine Mammal Impacts per Year from Sonar Testing Activities**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Suborder Mysticeti (baleen whales)</b>										
<b>Family Balaenidae (right whales)</b>										
North Atlantic right whale*	Western North Atlantic	125	241	0	140	244	0	140	244	0
<b>Family Balaenopteridae (roquals)</b>										
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	4	16	0	5	16	0	5	16	0
Bryde's whale	Northern Gulf of Mexico	51	126	0	54	126	0	54	126	0
Minke whale	Canadian East Coast	354	1,273	1	381	1,278	1	383	1,279	1
Fin whale*	Western North Atlantic	1,146	2,352	2	1,277	2,378	2	1,282	2,379	2
Humpback whale	Gulf of Maine	210	293	0	225	295	0	225	296	0
Sei whale*	Nova Scotia	150	309	0	167	312	0	168	312	0
<b>Suborder Odontoceti (toothed whales)</b>										
<b>Family Physeteridae (sperm whale)</b>										
Sperm whale*	Gulf of Mexico Oceanic	1,297	24	0	1,343	24	0	1,343	24	0
	North Atlantic	10,748	330	0	12,013	331	0	12,054	331	0
<b>Family Kogiidae (sperm whales)</b>										
Dwarf sperm whale	Gulf of Mexico Oceanic	326	472	1	343	473	1	343	473	1
	Western North Atlantic	1,190	3,424	7	1,324	3,456	7	1,334	3,457	7
Pygmy sperm whale	Northern Gulf of Mexico	326	472	1	343	473	1	343	473	1
	Western North Atlantic	1,190	3,424	7	1,324	3,456	7	1,334	3,457	7

**Table E.3-1: Estimated Marine Mammal Impacts per Year from Sonar Testing Activities (continued)**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Family Ziphiidae (beaked whales)</b>										
Blainville's beaked whale	Northern Gulf of Mexico	1,495	7	0	1,550	7	0	1,550	7	0
	Western North Atlantic	9,356	93	0	10,323	93	0	10,374	93	0
Cuvier's beaked whale	Northern Gulf of Mexico	1,486	7	0	1,541	7	0	1,541	7	0
	Western North Atlantic	34,366	345	0	37,914	345	0	38,102	345	0
Gervais' beaked whale	Northern Gulf of Mexico	1,550	7	0	1,495	7	0	1,550	7	0
	Western North Atlantic	9,356	93	0	10,323	93	0	10,374	93	0
Northern bottlenose whale	Western North Atlantic	882	3	0	784	3	0	889	3	0
Sowerby's beaked whale	Western North Atlantic	9,356	93	0	10,323	93	0	10,374	93	0
True's beaked whale	Western North Atlantic	9,356	93	0	10,323	93	0	10,374	93	0
<b>Family Delphinidae (dolphins)</b>										
Atlantic spotted dolphin	Northern Gulf of Mexico	69,099	3,616	0	68,880	3,616	0	69,099	3,616	0
	Western North Atlantic	105,993	11,709	0	94,826	11,707	0	104,696	11,709	0
Atlantic white-sided dolphin	Western North Atlantic	33,413	1,375	0	30,507	1,374	0	33,540	1,375	0
Bottlenose dolphin	Choctawatchee Bay	933	31	0	932	31	0	933	31	0
	Gulf of Mexico Eastern Coastal	0	0	0	0	0	0	0	0	0

**Table E.3-1: Estimated Marine Mammal Impacts per Year from Sonar Testing Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>			<i>Alternative 1 – Maximum</i>			<i>Alternative 2</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
	Gulf of Mexico Northern Coastal	16,034	824	0	15,983	824	0	16,034	824	0
	Gulf of Mexico Western Coastal	2,150	86	0	2,150	86	0	2,150	86	0
	Indian River Lagoon Estuarine System	0	0	0	0	0	0	0	0	0
	Jacksonville Estuarine System	0	3	0	0	3	0	0	3	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	1	0	0	1	0	0	1	0	0
	Northern Gulf of Mexico Continental Shelf	121,782	6,212	0	122,153	6,212	0	122,153	6,212	0
	Northern Gulf of Mexico Oceanic	13,391	677	0	13,481	677	0	13,481	677	0
	Northern North Carolina Estuarine System	80	26	0	80	26	0	80	26	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	311	47	0	327	47	0	320	47	0
	Western North Atlantic Central Florida Coastal	2,289	232	0	2,366	232	0	2,332	232	0

**Table E.3-1: Estimated Marine Mammal Impacts per Year from Sonar Testing Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>			<i>Alternative 1 – Maximum</i>			<i>Alternative 2</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
	Western North Atlantic Northern Migratory Coastal	10,400	1,119	1	11,205	1,119	1	11,236	1,119	1
	Western North Atlantic South Carolina/Georgia Coastal	1,556	222	0	1,633	222	0	1,599	222	0
	Western North Atlantic Southern Migratory Coastal	3,897	612	0	4,040	612	0	3,987	612	0
	Western North Atlantic Offshore	108,837	11,415	5	116,088	11,416	5	115,756	11,416	5
Clymene dolphin	Northern Gulf of Mexico	4,828	96	0	4,965	96	0	4,965	96	0
	Western North Atlantic	33,102	3,585	0	35,438	3,585	0	35,195	3,585	0
False killer whale	Northern Gulf of Mexico	1,997	73	0	2,039	73	0	2,039	73	0
	Western North Atlantic	3,603	399	0	3,850	400	0	3,826	400	0
Fraser's dolphin	Northern Gulf of Mexico	1,149	58	0	1,170	58	0	1,170	58	0
	Western North Atlantic	1,282	97	0	1,367	97	0	1,373	97	0
Killer whale	Northern Gulf of Mexico	35	1	0	36	1	0	36	1	0
	Western North Atlantic	39	3	0	45	3	0	44	3	0
Long-finned pilot whale	Western North Atlantic	18,117	823	0	20,015	824	0	20,101	824	0

**Table E.3-1: Estimated Marine Mammal Impacts per Year from Sonar Testing Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>			<i>Alternative 1 – Maximum</i>			<i>Alternative 2</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
Melon-headed whale	Northern Gulf of Mexico	3,547	65	0	3,659	65	0	3,659	65	0
	Western North Atlantic	15,695	1,745	0	16,777	1,746	0	16,638	1,746	0
Pantropical spotted dolphin	Northern Gulf of Mexico	27,407	596	0	28,197	596	0	28,197	596	0
	Western North Atlantic	72,069	6,968	0	79,730	6,971	0	80,083	6,971	0
Pygmy killer whale	Northern Gulf of Mexico	825	17	0	850	17	0	850	17	0
	Western North Atlantic	2,686	293	0	2,884	293	0	2,867	293	0
Risso's dolphin	Northern Gulf of Mexico	1,738	44	0	1,789	44	0	1,789	44	0
	Western North Atlantic	17,494	1,079	0	18,770	1,080	0	18,779	1,080	0
Rough-toothed dolphin	Northern Gulf of Mexico	3,935	173	0	3,994	173	0	3,994	173	0
	Western North Atlantic	8,185	1,159	0	8,696	1,159	0	8,644	1,159	0
Short-beaked common dolphin	Western North Atlantic	299,511	13,446	0	325,626	13,452	0	326,828	13,452	0
Short-finned pilot whale	Northern Gulf of Mexico	17,713	1,140	0	18,911	1,141	0	18,932	1,141	0
Spinner dolphin	Northern Gulf of Mexico	9,517	251	0	9,869	251	0	9,869	251	0
	Western North Atlantic	31,344	3,850	0	33,527	3,851	0	33,278	3,851	0
Striped dolphin	Northern Gulf of Mexico	2,886	68	0	2,978	68	0	2,978	68	0

**Table E.3-1: Estimated Marine Mammal Impacts per Year from Sonar Testing Activities (continued)**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
	Western North Atlantic	88,085	6,876	0	99,536	6,879	0	100,045	6,879	0
White-beaked dolphin	Western North Atlantic	49	2	0	52	2	0	52	2	0
<b>Family Phocoenidae (porpoises)</b>										
Harbor porpoise	Gulf of Maine/Bay of Fundy	101,734	22,202	51	115,355	22,784	51	116,238	22,785	51
<b>Suborder Pinnipedia</b>										
<b>Family Phocidae (true seals)</b>										
Gray seal	Western North Atlantic	472	532	2	503	535	2	504	535	2
Harbor seal	Western North Atlantic	765	863	3	816	868	3	817	868	3
Harp seal	Western North Atlantic	5,968	4,359	0	6,391	4,406	0	6,404	4,406	0
Hooded seal	Western North Atlantic	603	393	0	671	399	0	674	399	0
<b>Order Sirenia</b>										
<b>Family Trichechidae (manatees)</b>										
West Indian manatee*	Florida, Antillean	1	6	0	1	6	0	1	6	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.4 ESTIMATED MARINE MAMMAL IMPACTS PER FIVE YEAR PERIOD FROM SONAR AND OTHER TRANSDUCERS UNDER NAVY TESTING ACTIVITIES

Table E.4-1 provides a summary of the estimated number of marine mammal impacts from exposure to sonar and other transducers used during Navy testing activities under Alternatives 1 and 2 over the course of five years.

**Table E.4-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Testing Activities**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Suborder Mysticeti (baleen whales)</b>							
<b>Family Balaenidae (right whales)</b>							
North Atlantic right whale*	Western North Atlantic	655	1,213	0	703	1,222	0
<b>Family Balaenopteridae (roquais)</b>							
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	22	82	0	23	82	0
Bryde's whale	Northern Gulf of Mexico	260	630	0	269	632	0
Minke whale	Canadian East Coast	1,822	6,375	3	1,915	6,394	3
Fin whale*	Western North Atlantic	5,989	11,812	9	6,413	11,897	9
Humpback whale	Gulf of Maine	1,078	1,469	0	1,127	1,478	0
Sei whale*	Nova Scotia	782	1,549	0	838	1,559	0
<b>Suborder Odontoceti (toothed whales)</b>							
<b>Family Physeteridae (sperm whale)</b>							
Sperm whale*	Gulf of Mexico Oceanic	6,574	120	0	6,716	120	0
	North Atlantic	56,147	1,652	0	60,260	1,655	0
<b>Family Kogiidae (sperm whales)</b>							
Dwarf sperm whale	Gulf of Mexico Oceanic	1,653	2,358	6	1,705	2,360	6
	Western North Atlantic	6,160	17,155	35	6,668	17,268	35
Pygmy sperm whale	Northern Gulf of Mexico	1,653	2,358	6	1,705	2,360	6
	Western North Atlantic	6,160	17,155	35	6,668	17,268	35

**Table E.4-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Testing Activities (continued)**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Family Ziphiidae (beaked whales)</b>							
Blainville's beaked whale	Northern Gulf of Mexico	7,581	36	0	7,749	36	0
	Western North Atlantic	48,669	467	0	51,870	467	0
Cuvier's beaked whale	Northern Gulf of Mexico	7,535	36	0	7,703	36	0
	Western North Atlantic	178,761	1,723	0	190,502	1,724	0
Gervais' beaked whale	Northern Gulf of Mexico	7,581	36	0	7,749	36	0
	Western North Atlantic	48,669	467	0	51,870	467	0
Northern bottlenose whale	Western North Atlantic	4,115	14	0	4,447	14	0
Sowerby's beaked whale	Western North Atlantic	48,669	467	0	51,870	467	0
True's beaked whale	Western North Atlantic	48,669	467	0	51,870	467	0
<b>Family Delphinidae (dolphins)</b>							
Atlantic spotted dolphin	Northern Gulf of Mexico	321,032	18,080	0	321,824	18,080	0
	Western North Atlantic	494,587	58,539	0	525,496	58,547	0
Atlantic white-sided dolphin	Western North Atlantic	158,304	6,871	0	167,698	6,873	0
Bottlenose dolphin	Choctawatchee Bay	4,255	155	0	4,259	155	0
	Gulf of Mexico Eastern Coastal	0	0	0	0	0	0
	Gulf of Mexico Northern Coastal	75,528	4,118	0	75,703	4,118	0
	Gulf of Mexico Western Coastal	10,751	429	0	10,751	429	0
	Indian River Lagoon Estuarine System	1	2	0	1	2	0
	Jacksonville Estuarine System	1	13	0	1	13	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	3	1	0	3	1	0

**Table E.4-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Testing Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>			<i>Alternative 2 – 5-Year</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
	Northern Gulf of Mexico Continental Shelf	577,426	31,061	0	578,691	31,061	0
	Northern Gulf of Mexico Oceanic	63,424	3,387	0	63,751	3,387	0
	Northern North Carolina Estuarine System	402	131	0	402	131	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	1,579	234	0	1,611	234	0
	Western North Atlantic Central Florida Coastal	11,302	1,160	0	11,462	1,160	0
	Western North Atlantic Northern Migratory Coastal	53,565	5,595	3	56,180	5,595	3
	Western North Atlantic South Carolina/Georgia Coastal	7,894	1,110	0	8,054	1,110	0
	Western North Atlantic Southern Migratory Coastal	19,699	3,061	0	20,039	3,061	0
	Western North Atlantic Offshore	553,160	57,074	27	575,669	57,078	27
Clymene dolphin	Northern Gulf of Mexico	24,400	481	0	24,824	481	0
	Western North Atlantic	168,921	17,924	0	175,739	17,925	0
False killer whale	Northern Gulf of Mexico	9,840	367	0	9,972	367	0
	Western North Atlantic	18,282	1,997	0	19,045	1,998	0
Fraser's dolphin	Northern Gulf of Mexico	5,673	290	0	5,740	290	0
	Western North Atlantic	6,511	484	0	6,829	485	0
Killer whale	Northern Gulf of Mexico	177	3	0	180	3	0

**Table E.4-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Testing Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>			<i>Alternative 2 – 5-Year</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
	Western North Atlantic	204	16	0	222	16	0
Long-finned pilot whale	Western North Atlantic	94,304	4,117	0	100,497	4,120	0
Melon-headed whale	Northern Gulf of Mexico	17,946	325	0	18,290	325	0
	Western North Atlantic	79,631	8,725	0	82,797	8,728	0
Pantropical spotted dolphin	Northern Gulf of Mexico	138,367	2,978	0	140,803	2,978	0
	Western North Atlantic	372,667	34,844	0	400,025	34,854	0
Pygmy killer whale	Northern Gulf of Mexico	4,172	84	0	4,247	84	0
	Western North Atlantic	13,728	1,466	0	14,341	1,466	0
Risso's dolphin	Northern Gulf of Mexico	8,744	222	0	8,902	222	0
	Western North Atlantic	88,913	5,397	0	93,051	5,399	0
Rough-toothed dolphin	Northern Gulf of Mexico	19,122	864	0	19,308	864	0
	Western North Atlantic	41,461	5,795	0	43,038	5,795	0
Short-beaked common dolphin	Western North Atlantic	1,548,800	67,242	0	1,634,172	67,261	0
Short-finned pilot whale	Northern Gulf of Mexico	90,595	5,702	0	94,530	5,705	0
Spinner dolphin	Northern Gulf of Mexico	48,197	1,256	0	49,281	1,256	0
	Western North Atlantic	159,442	19,252	0	166,126	19,254	0
Striped dolphin	Northern Gulf of Mexico	14,598	342	0	14,879	342	0
	Western North Atlantic	462,934	34,385	0	500,229	34,395	0
White-beaked dolphin	Western North Atlantic	251	12	0	261	12	0
<b><i>Family Phocoenidae (porpoises)</i></b>							
Harbor porpoise	Gulf of Maine/Bay of Fundy	535,838	112,188	254	581,190	113,927	254

**Table E.4-1: Estimated Marine Mammal Impacts per 5-Year Period from Sonar Testing Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>			<i>Alternative 2 – 5-Year</i>		
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>
<b><i>Suborder Pinnipedia</i></b>							
<b><i>Family Phocidae (true seals)</i></b>							
Gray seal	Western North Atlantic	2,419	2,666	9	2,519	2,675	9
Harbor seal	Western North Atlantic	3,923	4,323	14	4,084	4,338	14
Harp seal	Western North Atlantic	30,691	21,892	0	32,018	22,029	0
Hooded seal	Western North Atlantic	3,149	1,978	0	3,372	1,995	0
<b><i>Order Sirenia</i></b>							
<b><i>Family Trichechidae (manatees)</i></b>							
West Indian manatee*	Florida, Antillean	4	32	0	4	32	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

PTS: permanent threshold shift; TTS: temporary threshold shift

## **E.5 ESTIMATED MARINE MAMMAL IMPACTS FROM AIR GUNS UNDER NAVY TRAINING ACTIVITIES**

There are no air gun activities under training, therefore there are no anticipated takes.

## **E.6 ESTIMATED MARINE MAMMAL IMPACTS FROM AIR GUNS UNDER NAVY TESTING ACTIVITIES**

Table E.6-1 provides a summary of the estimated number of marine mammal impacts from exposure to air guns used during Navy testing activities under Alternatives 1 and 2 over the course of a year. Most species and stocks in the Study Area either do not occur in areas where air gun activities take place, or did not result in any estimated impact based on the quantitative analysis.

**Table E.6-1: Estimated Marine Mammal Impacts per Year for Air Gun Activities**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Family Delphinidae (dolphins)</b>													
Bottlenose dolphin	Western North Atlantic Offshore	0	0	0	0	1	0	0	0	1	0	0	0
Clymene dolphin	Western North Atlantic	0	0	0	0	1	0	0	0	1	0	0	0
<b>Suborder Pinnipedia</b>													
<b>Family Phocidae (true seals)</b>													
Gray seal	Western North Atlantic	0	0	0	0	1	0	0	0	1	0	0	0
Harbor seal	Western North Atlantic	0	0	0	0	2	0	0	0	2	0	0	0

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.7 ESTIMATED MARINE MAMMAL IMPACTS PER FIVE YEAR PERIOD FROM AIR GUNS UNDER NAVY TESTING ACTIVITIES

Table E.7-1 provides a summary of the estimated number of marine mammal impacts from exposure to air guns used during Navy testing activities under Alternatives 1 and 2 over the course of five years. Most species or stock in the Study Area either do not occur in areas where air gun activities take place, or did not result in any estimated impact based on quantitative analysis.

**Table E.7-1: Estimated Marine Mammal Impacts per 5-Year Period for Air Guns**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
Bottlenose dolphin	Western North Atlantic Offshore	5	0	0	0	5	0	0	0
Clymene dolphin	Western North Atlantic	5	0	0	0	5	0	0	0
<b>Suborder Pinnipedia</b>									
<b>Family Phocidae (true seals)</b>									
Gray seal	Western North Atlantic	5	0	0	0	5	0	0	0
Harbor seal	Western North Atlantic	10	0	0	0	10	0	0	0

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.8 ESTIMATED MARINE MAMMAL IMPACTS FROM PILE DRIVING UNDER NAVY TRAINING ACTIVITIES

Table E.8-1 provides a summary of the estimated number of marine mammal impacts from exposure to pile driving used during Navy training activities under Alternatives 1 and 2 over the course of a year. Pile driving only occurs in the Atlantic regions of the Study Area, therefore species or stocks that occur in the Gulf of Mexico would not be impacted. Most species or stocks in the Study Area either do not occur in areas where pile driving activities take place, or did not result in any estimated impact based on quantitative analysis.

**Table E.8-1: Estimated Marine Mammal Impacts per Year from Pile Driving Activities**

Species	Stock	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<b>Family Delphinidae (dolphins)</b>										
Atlantic spotted dolphin	Western North Atlantic	16	0	0	16	0	0	16	0	0
Bottlenose dolphin	Northern North Carolina Estuarine System	2	0	0	2	0	0	2	0	0
	Western North Atlantic Northern Migratory Coastal	14	0	0	14	0	0	14	0	0
	Western North Atlantic Southern Migratory Coastal	86	0	0	86	0	0	86	0	0
	Western North Atlantic Offshore	790	0	0	790	0	0	790	0	0

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.9 ESTIMATED MARINE MAMMAL IMPACTS PER FIVE YEAR PERIOD FROM PILE DRIVING UNDER NAVY TRAINING ACTIVITIES

Table E.9-1 provides a summary of the estimated number of marine mammal impacts from exposure to pile driving used during Navy training activities under Alternatives 1 and 2 over the course of five years. Pile driving only occurs in the Atlantic regions of the Study Area, therefore species or stocks that occur in the Gulf of Mexico would not be impacted. Most species or stocks in the Study Area either do not occur in areas where pile driving activities take place, or did not result in any estimated impact based on quantitative analysis.

**Table E.9-1: Estimated Marine Mammal Impacts per 5-Year Period for Pile Driving Activities**

Species	Stock	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
		Behavioral Response	TTS	PTS	Behavioral Response	TTS	PTS
<i>Family Delphinidae (dolphins)</i>							
Atlantic spotted dolphin	Western North Atlantic	80	0	0	80	0	0
Bottlenose dolphin	Northern North Carolina Estuarine System	10	0	0	10	0	0
	Western North Atlantic Northern Migratory Coastal	70	0	0	70	0	0
	Western North Atlantic Southern Migratory Coastal	430	0	0	430	0	0
	Western North Atlantic Offshore	3,950	0	0	3,950	0	0

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.10 ESTIMATED MARINE MAMMAL IMPACTS FROM PILE DRIVING UNDER NAVY TESTING ACTIVITIES

There are no pile driving activities under testing, therefore there are no anticipated takes.

## E.11 ESTIMATED MARINE MAMMAL IMPACTS FROM EXPLOSIVES UNDER NAVY TRAINING ACTIVITIES

Table E.11-1 provides a summary of the estimated number of marine mammal impacts from exposure to explosives used during Navy training activities under Alternatives 1 and 2 over the course of a year.

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Suborder Mysticeti (baleen whales)</b>													
<b>Family Balaenidae (right whales)</b>													
North Atlantic right whale*	Western North Atlantic	0	8	0	0	0	8	0	0	0	8	0	0
<b>Family Balaenopteridae (roquals)</b>													
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	0	0	0	0	0	0	0	0	0	0	0	0
Bryde's whale	Northern Gulf of Mexico	0	2	0	0	0	2	0	0	0	2	0	0
Minke whale	Canadian East Coast	0	14	0	0	0	14	0	0	0	14	0	0
Fin whale*	Western North Atlantic	0	32	3	0	0	32	3	0	0	32	3	0
Humpback whale	Gulf of Maine	0	14	1	0	0	14	1	0	0	14	1	0
Sei whale*	Nova Scotia	0	2	0	0	0	2	0	0	0	2	0	0
<b>Suborder Odontoceti (toothed whales)</b>													
<b>Family Physeteridae (sperm whale)</b>													
Sperm whale*	Gulf of Mexico Oceanic	0	0	0	0	0	0	0	0	0	0	0	0
	North Atlantic	2	3	0	0	2	3	0	0	2	3	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Family Kogiidae (sperm whales)</b>													
Dwarf sperm whale	Gulf of Mexico Oceanic	1	0	0	0	1	0	0	0	1	0	0	0
	Western North Atlantic	10	16	3	0	10	16	3	0	10	16	3	0
Pygmy sperm whale	Northern Gulf of Mexico	1	0	0	0	1	0	0	0	1	0	0	0
	Western North Atlantic	10	16	3	0	10	16	3	0	10	16	3	0
<b>Family Ziphiidae (beaked whales)</b>													
Blainville's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
Cuvier's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	2	3	0	0	2	3	0	0	2	3	0	0
Gervais' beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
Northern bottlenose whale	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Sowerby's beaked whale	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
True's beaked whale	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
<b>Family Delphinidae (dolphins)</b>													
Atlantic spotted dolphin	Northern Gulf of Mexico	1	5	0	0	1	5	0	0	1	5	0	0
	Western North Atlantic	32	82	8	1	32	82	8	1	32	82	8	1
Atlantic white-sided dolphin	Western North Atlantic	3	7	1	0	3	7	1	0	3	7	1	0
Bottlenose dolphin	Choctawatchee Bay	0	0	0	0	0	0	0	0	0	0	0	0
	Gulf of Mexico Eastern Coastal	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Gulf of Mexico Northern Coastal	1	3	0	0	1	3	0	0	1	3	0	0
	Gulf of Mexico Western Coastal	0	0	0	0	0	0	0	0	0	0	0	0
	Indian River Lagoon Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Jacksonville Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0	0	0	0	0	0	0
	Northern Gulf of Mexico Continental Shelf	6	24	2	0	6	25	2	0	6	25	2	0
	Northern Gulf of Mexico Oceanic	1	4	0	0	1	4	0	0	1	4	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>				<i>Alternative 1 – Maximum</i>				<i>Alternative 2</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
	Northern North Carolina Estuarine System	1	0	0	0	1	0	0	0	1	0	0	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	1	1	0	0	1	1	0	0	1	1	0	0
	Western North Atlantic Central Florida Coastal	3	5	0	0	3	6	0	0	3	6	0	0
	Western North Atlantic Northern Migratory Coastal	13	47	3	0	13	47	3	0	13	47	3	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic South Carolina/Georgia Coastal	3	5	0	0	3	6	0	0	3	6	0	0
	Western North Atlantic Southern Migratory Coastal	11	19	2	0	11	19	2	0	11	19	2	0
	Western North Atlantic Offshore	93	383	28	3	93	384	28	3	93	384	28	3
Clymene dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	7	20	2	0	7	20	2	0	7	20	2	0
False killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	1	2	0	0	1	2	0	0	1	2	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
Fraser's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Long-finned pilot whale	Western North Atlantic	3	4	0	0	3	4	0	0	3	4	0	0
Melon-headed whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	3	12	1	0	3	12	1	0	3	12	1	0
Pantropical spotted dolphin	Northern Gulf of Mexico	0	1	0	0	0	1	0	0	0	1	0	0
	Western North Atlantic	5	12	2	0	5	12	2	0	5	12	2	0
Pygmy killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
Risso's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	2	5	0	0	2	5	0	0	2	5	0	0
Rough-toothed dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	1	5	0	0	1	5	0	0	1	5	0	0
Short-beaked common dolphin	Western North Atlantic	42	86	13	1	42	86	13	1	42	86	13	1
Short-finned pilot whale	Northern Gulf of Mexico	3	5	0	0	3	5	0	0	3	5	0	0
Spinner dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	4	15	1	0	4	15	1	0	4	15	1	0
Striped dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic	7	15	3	1	7	15	3	1	7	15	3	1
White-beaked dolphin	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
<b>Family Phocoenidae (porpoises)</b>													
Harbor porpoise	Gulf of Maine/Bay of Fundy	114	510	153	0	114	510	153	0	114	510	153	0
<b>Suborder Pinnipedia</b>													
<b>Family Phocidae (true seals)</b>													
Gray seal	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Harbor seal	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Harp seal	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Hooded seal	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.11-1: Estimated Marine Mammal Impacts per year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Order Sirenia</b>													
<b>Family Trichechidae (manatees)</b>													
West Indian manatee*	Florida, Antillean	0	0	0	0	0	0	0	0	0	0	0	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designated

PTS: permanent threshold shift; TTS: temporary threshold shift

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## **E.12 ESTIMATED MARINE MAMMAL IMPACTS PER FIVE YEAR PERIOD FROM EXPLOSIVES UNDER NAVY TRAINING ACTIVITIES**

Table E.12-1 provides a summary of the estimated number of marine mammal impacts from exposure to explosives used during Navy training activities under Alternatives 1 and 2 over the course of five years.

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Suborder Mysticeti (baleen whales)</b>									
<b>Family Balaenidae (right whales)</b>									
North Atlantic right whale*	Western North Atlantic	0	41	0	0	0	42	0	0
<b>Family Balaenopteridae (roquals)</b>									
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	0	0	0	0	0	0	0	0
Bryde's whale	Northern Gulf of Mexico	0	10	0	0	0	10	0	0
Minke whale	Canadian East Coast	0	69	0	0	0	69	0	0
Fin whale*	Western North Atlantic	0	161	14	0	0	161	14	0
Humpback whale	Gulf of Maine	0	69	3	0	0	69	3	0
Sei whale*	Nova Scotia	0	11	0	0	0	11	0	0
<b>Suborder Odontoceti (toothed whales)</b>									
<b>Family Physeteridae (sperm whale)</b>									
Sperm whale*	Gulf of Mexico Oceanic	0	0	0	0	0	0	0	0
	North Atlantic	10	17	0	1	10	17	0	1
<b>Family Kogiidae (sperm whales)</b>									
Dwarf sperm whale	Gulf of Mexico Oceanic	3	2	0	0	3	2	0	0
	Western North Atlantic	51	82	17	0	51	82	17	0

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
Pygmy sperm whale	Northern Gulf of Mexico	3	2	0	0	3	2	0	0
	Western North Atlantic	51	82	17	0	51	82	17	0
<b>Family Ziphiidae (beaked whales)</b>									
Blainville's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	3	4	0	0	3	4	0	0
Cuvier's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	10	14	0	0	10	14	0	0
Gervais' beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	3	4	0	0	3	4	0	0
Northern bottlenose whale	Western North Atlantic	0	0	0	0	0	0	0	0
Sowerby's beaked whale	Western North Atlantic	3	4	0	0	3	4	0	0
True's beaked whale	Western North Atlantic	3	4	0	0	3	4	0	0
<b>Family Delphinidae (dolphins)</b>									
Atlantic spotted dolphin	Northern Gulf of Mexico	7	27	0	0	7	27	0	0
	Western North Atlantic	160	411	42	3	160	411	42	3

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Atlantic white-sided dolphin	Western North Atlantic	15	33	3	0	15	33	3	0
Bottlenose dolphin	Choctawatchee Bay	0	0	0	0	0	0	0	0
	Gulf of Mexico Eastern Coastal	0	0	0	0	0	0	0	0
	Gulf of Mexico Northern Coastal	4	17	0	0	4	17	0	0
	Gulf of Mexico Western Coastal	0	0	0	0	0	0	0	0
	Indian River Lagoon Estuarine System	0	0	0	0	0	0	0	0
	Jacksonville Estuarine System	0	0	0	0	0	0	0	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0	0	0
	Northern Gulf of Mexico Continental Shelf	28	122	9	0	29	124	10	0
	Northern Gulf of Mexico Oceanic	5	18	0	0	5	18	0	0
	Northern North Carolina Estuarine System	3	2	0	0	3	2	0	0

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	3	6	0	0	3	6	0	0
	Western North Atlantic Central Florida Coastal	13	28	0	0	13	28	0	0
	Western North Atlantic Northern Migratory Coastal	63	234	17	2	63	234	17	2
	Western North Atlantic South Carolina/Georgia Coastal	13	28	0	0	13	28	0	0
	Western North Atlantic Southern Migratory Coastal	55	93	8	0	55	93	8	0
	Western North Atlantic Offshore	464	1,919	140	15	464	1,921	140	15
Clymene dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	37	101	12	0	37	101	12	0
False killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	3	8	0	0	3	8	0	0

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
Fraser's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	0	1	0	0	0	1	0	0
Killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	0	0	0	0	0	0	0	0
Long-finned pilot whale	Western North Atlantic	13	22	0	0	13	22	0	0
Melon-headed whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	16	59	3	0	16	59	3	0
Pantropical spotted dolphin	Northern Gulf of Mexico	1	3	0	0	1	3	0	0
	Western North Atlantic	26	60	10	1	26	60	10	1
Pygmy killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	4	6	0	0	4	6	0	0
Risso's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	8	23	0	0	8	23	0	0
Rough-toothed dolphin	Northern Gulf of Mexico	0	2	0	0	0	2	0	0

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities (continued)**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic	7	24	1	0	7	24	0	0
Short-beaked common dolphin	Western North Atlantic	211	431	66	3	211	431	66	3
Short-finned pilot whale	Northern Gulf of Mexico	14	24	2	0	14	24	2	0
Spinner dolphin	Northern Gulf of Mexico	1	1	0	0	1	1	0	0
	Western North Atlantic	22	76	6	0	22	76	6	0
Striped dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	34	75	16	3	34	75	16	3
White-beaked dolphin	Western North Atlantic	0	0	0	0	0	0	0	0
<b>Family Phocoenidae (porpoises)</b>									
Harbor porpoise	Gulf of Maine/Bay of Fundy	572	2,551	764	0	572	2,551	764	0
<b>Suborder Pinnipedia</b>									
<b>Family Phocidae (true seals)</b>									
Gray seal	Western North Atlantic	0	1	0	0	0	1	0	0
Harbor seal	Western North Atlantic	0	1	0	0	0	1	0	0
Harp seal	Western North Atlantic	1	2	0	0	1	2	0	0
Hooded seal	Western North Atlantic	0	0	0	0	0	0	0	0

**Table E.12-1: Estimated Marine Mammal Impacts per Year for Explosive Training Activities (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
<i>Order Sirenia</i>									
<i>Family Trichechidae (manatees)</i>									
West Indian manatee*	Florida, Antillean	0	0	0	0	0	0	0	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designation

PTS: permanent threshold shift; TTS: temporary threshold shift

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## **E.13 ESTIMATED MARINE MAMMAL IMPACTS FROM EXPLOSIVES UNDER NAVY TESTING ACTIVITIES (EXCLUDING SHIP SHOCK TRIALS)**

Table E.13-1 provides a summary of the estimated number of marine mammal impacts from exposure to explosives used during Navy testing activities (excluding ship shock trials) under Alternatives 1 and 2 over the course of a year.

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Suborder Mysticeti (baleen whales)</b>													
<b>Family Balaenidae (right whales)</b>													
North Atlantic right whale*	Western North Atlantic	0	9	0	0	0	10	0	0	0	10	0	0
<b>Family Balaenopteridae (roquals)</b>													
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	0	0	0	0	0	0	0	0	0	0	0	0
Bryde's whale	Northern Gulf of Mexico	0	2	0	0	0	2	0	0	0	3	0	0
Minke whale	Canadian East Coast	0	12	0	0	0	13	1	0	0	16	1	0
Fin whale*	Western North Atlantic	0	31	1	0	0	35	1	0	0	42	2	0
Humpback whale	Gulf of Maine	0	10	0	0	0	11	0	0	0	12	1	0
Sei whale*	Nova Scotia	0	4	0	0	0	4	0	0	0	4	0	0
<b>Suborder Odontoceti (toothed whales)</b>													
<b>Family Physeteridae (sperm whale)</b>													
Sperm whale*	Gulf of Mexico Oceanic	0	0	0	0	0	0	0	0	0	0	0	0
	North Atlantic	1	2	0	0	2	2	0	0	2	3	1	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Family Kogiidae (sperm whales)</b>													
Dwarf sperm whale	Gulf of Mexico Oceanic	2	7	3	0	2	8	4	0	3	10	5	0
	Western North Atlantic	17	19	6	0	20	23	7	0	20	24	8	0
Pygmy sperm whale	Northern Gulf of Mexico	2	7	3	0	2	8	4	0	3	10	5	0
	Western North Atlantic	17	19	6	0	20	23	7	0	20	24	8	0
<b>Family Ziphiidae (beaked whales)</b>													
Blainville's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
Cuvier's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	2	2	0	0	2	3	0	0	2	3	0	0
Gervais' beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
Northern bottlenose whale	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Sowerby's beaked whale	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
True's beaked whale	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
<b>Family Delphinidae (dolphins)</b>													
Atlantic spotted dolphin	Northern Gulf of Mexico	24	27	2	0	24	28	2	0	29	33	3	0
	Western North Atlantic	47	56	6	0	60	77	8	1	62	79	9	1
Atlantic white-sided dolphin	Western North Atlantic	12	11	1	0	14	12	1	0	14	13	1	0
Bottlenose dolphin	Choctawatchee Bay	1	1	0	0	1	1	0	0	1	1	0	0
	Gulf of Mexico Eastern Coastal	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Gulf of Mexico Northern Coastal	12	15	1	0	12	15	1	0	13	16	1	0
	Gulf of Mexico Western Coastal	0	0	0	0	0	0	0	0	0	0	0	0
	Indian River Lagoon Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Jacksonville Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0	0	0	0	0	0	0
	Northern Gulf of Mexico Continental Shelf	90	110	8	0	90	111	8	0	95	116	9	0
	Northern Gulf of Mexico Oceanic	10	13	1	0	10	13	1	0	11	13	1	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Northern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic Northern Florida Coastal	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic Central Florida Coastal	1	1	0	0	1	1	0	0	1	1	0	0
	Western North Atlantic Northern Migratory Coastal	6	14	2	0	7	15	2	0	7	15	2	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic South Carolina/Georgia Coastal	1	1	0	0	1	1	0	0	1	1	0	0
	Western North Atlantic Southern Migratory Coastal	2	2	0	0	2	3	0	0	2	3	0	0
	Western North Atlantic Offshore	61	111	16	1	68	121	17	1	69	123	18	1
Clymene dolphin	Northern Gulf of Mexico	0	0	0	0	0	1	0	0	1	1	0	0
	Western North Atlantic	11	15	1	0	13	19	2	0	14	20	2	0
False killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	1	2	0	0	1	2	0	0	1	2	0	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>				<i>Alternative 1 – Maximum</i>				<i>Alternative 2</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Fraser's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	0	0	0	0	0	1	0	0	0	1	0	0
Killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
Long-finned pilot whale	Western North Atlantic	3	4	1	0	3	5	1	0	4	5	1	0
Melon-headed whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	4	6	1	0	5	7	1	0	6	8	1	0
Pantropical spotted dolphin	Northern Gulf of Mexico	2	3	0	0	2	3	0	0	3	3	1	0
	Western North Atlantic	18	18	3	0	21	22	4	0	22	23	4	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – Minimum</i>				<i>Alternative 1 – Maximum</i>				<i>Alternative 2</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Pygmy killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	1	1	0	0	1	1	0	0	1	1	0	0
Risso's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	2	4	1	0	3	6	1	0	3	6	1	0
Rough-toothed dolphin	Northern Gulf of Mexico	2	3	0	0	2	3	0	0	2	3	0	0
	Western North Atlantic	3	3	0	0	4	4	0	0	4	4	1	0
Short-beaked common dolphin	Western North Atlantic	70	88	9	1	83	114	13	1	87	119	14	1
Short-finned pilot whale	Northern Gulf of Mexico	2	4	1	0	3	5	1	0	3	5	1	0
Spinner dolphin	Northern Gulf of Mexico	1	2	0	0	1	2	0	0	2	4	1	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
	Western North Atlantic	11	14	1	0	13	19	2	0	13	19	2	0
Striped dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0	0	0	0	0
	Western North Atlantic	16	16	3	0	19	21	4	0	20	21	4	0
White-beaked dolphin	Western North Atlantic	0	0	0	0	0	0	0	0	0	0	0	0
<b>Family Phocoenidae (porpoises)</b>													
Harbor porpoise	Gulf of Maine/Bay of Fundy	358	577	150	0	411	664	170	0	412	688	195	0
<b>Suborder Pinnipedia</b>													
<b>Family Phocidae (true seals)</b>													
Gray seal	Western North Atlantic	5	5	0	0	6	5	0	0	6	5	0	0
Harbor seal	Western North Atlantic	9	7	1	0	10	8	1	0	10	8	1	0
Harp seal	Western North Atlantic	34	30	2	0	38	32	2	0	38	32	2	0

**Table E.13-1: Estimated Marine Mammal Impacts per Year from Explosive Testing Activities (Excluding Ship Shock Trials)  
 (continued)**

Species	Stock	Alternative 1 – Minimum				Alternative 1 – Maximum				Alternative 2			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
Hooded seal	Western North Atlantic	3	2	0	0	3	2	0	0	3	2	0	0
<b>Order Sirenia</b>													
<b>Family Trichechidae (manatees)</b>													
West Indian manatee*	Florida, Antillean	0	0	0	0	0	0	0	0	0	0	0	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designation

PTS: permanent threshold shift; TTS: temporary threshold shift

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## **E.14 ESTIMATED MARINE MAMMAL IMPACTS PER FIVE YEAR PERIOD FROM EXPLOSIVES UNDER NAVY TESTING ACTIVITIES (EXCLUDING SHIP SHOCK TRIALS)**

Table E.14-1 provides a summary of the estimated number of marine mammal impacts from exposure to explosives used during Navy testing activities (excluding ship shock trials) under Alternatives 1 and 2 over the course of five years.

**Table E.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials)**

Species	Stock	Alternative 1 – 5-Year				Alternative 2 – 5-Year			
		Behavioral Response	TTS	PTS	Injury	Behavioral Response	TTS	PTS	Injury
<b>Suborder Mysticeti (baleen whales)</b>									
<b>Family Balaenidae (right whales)</b>									
North Atlantic right whale*	Western North Atlantic	0	49	0	0	0	50	0	0
<b>Family Balaenopteridae (roquals)</b>									
Blue whale*	Western North Atlantic (Gulf of St. Lawrence)	0	0	0	0	0	0	0	0
Bryde's whale	Northern Gulf of Mexico	0	8	0	0	0	13	0	0
Minke whale	Canadian East Coast	0	63	2	0	0	78	3	0
Fin whale*	Western North Atlantic	0	164	7	0	0	211	9	0
Humpback whale	Gulf of Maine	0	54	0	0	0	60	3	0
Sei whale*	Nova Scotia	0	19	0	0	0	22	0	0
<b>Suborder Odontoceti (toothed whales)</b>									
<b>Family Physeteridae (sperm whale)</b>									
Sperm whale*	Gulf of Mexico Oceanic	0	1	0	0	1	2	0	0
	North Atlantic	8	10	0	0	9	13	3	0
<b>Family Kogiidae (sperm whales)</b>									
Dwarf sperm whale	Gulf of Mexico Oceanic	12	38	17	0	13	50	25	0
	Western North Atlantic	92	108	34	0	100	122	39	0

**TableE.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials) (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Pygmy sperm whale	Northern Gulf of Mexico	12	38	17	0	13	50	25	0
	Western North Atlantic	92	108	34	0	100	122	39	0
<b><i>Family Ziphiidae (beaked whales)</i></b>									
Blainville's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	3	3	0	0	3	4	0	0
Cuvier's beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	11	13	0	0	12	15	0	0
Gervais' beaked whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	3	3	0	0	3	4	0	0
Northern bottlenose whale	Western North Atlantic	0	0	0	0	0	0	0	0
Sowerby's beaked whale	Western North Atlantic	3	3	0	0	3	4	0	0
True's beaked whale	Western North Atlantic	3	3	0	0	3	4	0	0
<b><i>Family Delphinidae (dolphins)</i></b>									
Atlantic spotted dolphin	Northern Gulf of Mexico	121	136	10	1	147	164	15	1
	Western North Atlantic	273	340	36	3	308	395	44	4

**TableE.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials) (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Atlantic white-sided dolphin	Western North Atlantic	64	58	4	0	69	65	5	0
Bottlenose dolphin	Choctawatchee Bay	5	6	0	0	5	6	0	0
	Gulf of Mexico Eastern Coastal	0	0	0	0	0	0	0	0
	Gulf of Mexico Northern Coastal	62	76	5	0	66	80	6	0
	Gulf of Mexico Western Coastal	1	1	0	0	1	1	0	0
	Indian River Lagoon Estuarine System	0	0	0	0	0	0	0	0
	Jacksonville Estuarine System	0	0	0	0	0	0	0	0
	Mississippi Sound, Lake Borgne, Bay Boudreau	0	0	0	0	0	0	0	0
	Northern Gulf of Mexico Continental Shelf	449	551	38	1	476	580	45	2
	Northern Gulf of Mexico Oceanic	52	64	5	0	55	67	5	0
	Northern North Carolina Estuarine System	0	0	0	0	0	0	0	0
	Southern North Carolina Estuarine System	0	0	0	0	0	0	0	0

**TableE.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials) (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
	Western North Atlantic Northern Florida Coastal	1	1	0	0	1	1	0	0
	Western North Atlantic Central Florida Coastal	6	6	0	0	6	6	0	0
	Western North Atlantic Northern Migratory Coastal	33	70	11	1	35	74	12	1
	Western North Atlantic South Carolina/Georgia Coastal	6	6	0	0	6	6	0	0
	Western North Atlantic Southern Migratory Coastal	11	11	0	0	12	13	0	0
	Western North Atlantic Offshore	324	582	83	5	344	614	88	5
	Clymene dolphin	Northern Gulf of Mexico	2	2	0	0	3	3	0
Western North Atlantic		62	87	7	1	69	98	9	1
False killer whale	Northern Gulf of Mexico	0	1	0	0	1	1	0	0
	Western North Atlantic	5	10	0	0	6	12	0	0
Fraser's dolphin	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	1	3	0	0	1	4	0	0

**TableE.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials) (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	0	0	0	0	0	0	0	0
Long-finned pilot whale	Western North Atlantic	16	21	6	1	19	25	7	1
Melon-headed whale	Northern Gulf of Mexico	1	2	0	0	2	2	0	0
	Western North Atlantic	25	32	4	0	28	38	4	0
Pantropical spotted dolphin	Northern Gulf of Mexico	10	13	0	0	14	16	0	1
	Western North Atlantic	99	102	19	1	108	114	21	2
Pygmy killer whale	Northern Gulf of Mexico	0	0	0	0	0	0	0	0
	Western North Atlantic	4	6	0	0	4	6	0	0
Risso's dolphin	Northern Gulf of Mexico	1	2	0	0	1	2	0	0
	Western North Atlantic	12	26	3	0	14	30	4	1
Rough-toothed dolphin	Northern Gulf of Mexico	10	13	0	0	11	14	0	0
	Western North Atlantic	16	19	0	0	18	21	3	0
Short-beaked common dolphin	Western North Atlantic	385	503	53	3	433	595	71	5
Short-finned pilot whale	Northern Gulf of Mexico	12	22	6	1	15	26	7	1

**TableE.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials) (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
Spinner dolphin	Northern Gulf of Mexico	4	11	0	0	10	18	3	0
	Western North Atlantic	60	85	7	0	67	96	8	0
Striped dolphin	Northern Gulf of Mexico	1	1	0	0	2	2	0	0
	Western North Atlantic	86	91	18	1	100	107	22	2
White-beaked dolphin	Western North Atlantic	0	0	0	0	0	0	0	0
<b><i>Family Phocoenidae (porpoises)</i></b>									
Harbor porpoise	Gulf of Maine/Bay of Fundy	1,912	3,067	791	0	2,060	3,438	977	0
<b><i>Suborder Pinnipedia</i></b>									
<b><i>Family Phocidae (true seals)</i></b>									
Gray seal	Western North Atlantic	28	23	0	0	30	24	0	0
Harbor seal	Western North Atlantic	46	38	3	0	49	39	3	0
Harp seal	Western North Atlantic	177	154	11	0	189	161	12	0
Hooded seal	Western North Atlantic	13	11	0	0	15	12	0	0

**TableE.14-1: Estimated Marine Mammal Impacts per 5-Year Period for Explosive Testing Activities (Excluding Ship Shock Trials) (continued)**

<i>Species</i>	<i>Stock</i>	<i>Alternative 1 – 5-Year</i>				<i>Alternative 2 – 5-Year</i>			
		<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Behavioral Response</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>
<i>Order Sirenia</i>									
<i>Family Trichechidae (manatees)</i>									
West Indian manatee*	Florida, Antillean	0	0	0	0	0	0	0	0

\* ESA-listed species (all stocks) within the AFTT Study Area

†NSD: No stock designation

PTS: permanent threshold shift; TTS: temporary threshold shift

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## **E.15 ESTIMATED MARINE MAMMAL IMPACTS FROM SHIP SHOCK TRIALS UNDER NAVY TESTING ACTIVITIES**

Table E.15-1 provides a summary of the estimated number of marine mammal impacts from exposure to Navy ship shock trials (an explosive testing activity) under Alternatives 1 and 2 from small and large shock trials, and over the course of five years. The small ship shock trial could take place up to 3 times over a five-year period and the large ship shock trial could take place once. Takes per species below are the maximum for any proposed location and season. Stock designations are not provided since they are highly dependent on the actual location chosen for each shock trial. See Chapter 2 for details on locations and seasons for ship shock trials.

**Table E.15-1: Estimated Marine Mammal Impacts from Small and Large Ship Shock Trials (Explosive Testing Activity) and per 5-Year Period**

Species	Small Ship Shock				Large Ship Shock				5-Year Total			
	TTS	PTS	Injury	Mortality	TTS	PTS	Injury	Mortality	TTS	PTS	Injury	Mortality
<b>Suborder Mysticeti (baleen whales)</b>												
<b>Family Balaenidae (right whales)</b>												
North Atlantic right whale*	1	0	0	0	2	0	0	0	5	0	0	0
<b>Family Balaenopteridae (rorquals)</b>												
Blue whale*	1	0	0	0	1	0	0	0	4	0	0	0
Bryde's whale	3	0	0	0	6	1	0	0	15	1	0	0
Minke whale	19	1	0	0	39	3	0	0	96	6	0	0
Fin whale*	131	3	0	0	234	27	0	0	627	36	0	0
Humpback whale	8	0	0	0	20	2	0	0	44	2	0	0
Sei whale*	12	1	0	0	27	4	0	0	63	7	0	0
<b>Suborder Odontoceti (toothed whales)</b>												
<b>Family Physeteridae (sperm whale)</b>												
Sperm whale*	1	1	0	0	3	3	1	0	6	6	1	0
<b>Family Kogiidae (sperm whales)</b>												
Dwarf sperm whale	46	28	0	0	91	70	0	0	229	154	0	0
Pygmy sperm whale	46	28	0	0	91	70	0	0	229	154	0	0
<b>Family Ziphiidae (beaked whales)</b>												
Blainville's beaked whale	1	0	0	0	1	1	0	0	4	1	0	0
Cuvier's beaked whale	2	1	0	0	2	3	0	0	8	6	0	0
Gervais' beaked whale	1	0	0	0	1	1	0	0	4	1	0	0
Northern bottlenose whale	0	0	0	0	0	0	0	0	0	0	0	0
Sowersby's beaked whale	1	0	0	0	1	1	0	0	4	1	0	0
True's beaked whale	1	0	0	0	1	1	0	0	4	1	0	0

**Table E.15-1: Estimated Marine Mammal Impacts from Small and Large Ship Shock Trials (Explosive Testing Activity) and per 5-Year Period (continued)**

<i>Species</i>	<i>Small Ship Shock</i>				<i>Large Ship Shock</i>				<i>5-Year Total</i>			
	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>
<b><i>Family Delphinidae (dolphins)</i></b>												
Atlantic spotted dolphin	6	3	1	0	8	8	4	0	26	17	7	0
Atlantic white-sided dolphin	1	1	0	0	3	6	3	1	6	9	3	1
Bottlenose dolphin	13	8	2	0	16	19	5	0	55	43	11	0
Clymene dolphin	2	4	1	0	9	5	3	0	15	17	6	0
False killer whale	0	0	0	0	2	1	0	0	2	1	0	0
Fraser's dolphin	0	0	0	0	2	2	1	0	2	2	1	0
Killer whale	0	0	0	0	0	0	0	0	0	0	0	0
Long-finned pilot whale	2	2	0	0	5	5	1	0	11	11	1	0
Melon-headed whale	1	1	0	0	5	3	1	0	8	6	1	0
Pantropical spotted dolphin	2	2	1	0	25	14	6	1	31	20	9	1
Pygmy killer whale	0	0	0	0	1	1	0	0	1	1	0	0
Risso's dolphin	1	1	0	0	3	1	0	0	6	4	0	0
Rough-toothed dolphin	1	0	0	0	3	1	1	0	6	1	1	0
Short-beaked common dolphin	40	40	11	1	67	73	34	3	187	193	67	6
Short-finned pilot whale	2	2	0	0	4	4	1	0	10	10	1	0
Spinner dolphin	3	1	0	0	37	31	14	1	46	34	14	1
Striped dolphin	4	6	2	0	10	8	4	0	22	26	10	0
White-beaked dolphin	0	0	0	0	0	0	0	0	0	0	0	0
<b><i>Family Phocoenidae (porpoises)</i></b>												
Harbor porpoise	43	41	0	0	120	81	0	0	249	204	0	0
<b><i>Suborder Pinnipedia</i></b>												
<b><i>Family Phocidae (true seals)</i></b>												
Gray seal	0	0	0	0	0	0	0	0	0	0	0	0
Harbor seal	0	0	0	0	0	0	0	0	0	0	0	0

**Table E.15-1: Estimated Marine Mammal Impacts from Small and Large Ship Shock Trials (Explosive Testing Activity) and per 5-Year Period (continued)**

<i>Species</i>	<i>Small Ship Shock</i>				<i>Large Ship Shock</i>				<i>5-Year Total</i>			
	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>
Harp seal	0	0	0	0	0	0	0	0	0	0	0	0
Hooded seal	0	0	0	0	0	0	0	0	0	0	0	0
<b><i>Order Sirenia</i></b>												
<b><i>Family Trichechidae (manatees)</i></b>												
West Indian manatee*	0	0	0	0	0	0	0	0	0	0	0	0

\* ESA-listed species (all stocks) within the AFTT Study Area

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.16 ESTIMATED SEA TURTLE IMPACTS FROM SONAR AND OTHER TRANSDUCERS UNDER NAVY TRAINING AND TESTING ACTIVITIES

Table E.16-1 provides a summary of the estimated number of sea turtle impacts from exposure to sonar and other transducers used during Navy training and testing activities under Alternatives 1 and 2 over the course of a year.

**Table E.16-1: Estimated Sea Turtle Impacts per Year from Sonar Training and Testing Activities**

<i>Species</i>	<i>Alternative 1 – Minimum</i>		<i>Alternative 1 – Maximum</i>		<i>Alternative 2</i>	
	<i>TTS</i>	<i>PTS</i>	<i>TTS</i>	<i>PTS</i>	<i>TTS</i>	<i>PTS</i>
<b><i>Sonar Training Activities</i></b>						
<b><i>Family Cheloniidae (hardshell turtles)</i></b>						
Green turtle*	0	0	0	0	0	0
Hawksbill turtle*	0	0	0	0	0	0
Kemp's ridley turtle*	0	0	0	0	0	0
Loggerhead turtle*	0	0	0	0	0	0
<b><i>Family Dermochelyidae (scuteless turtles)</i></b>						
Leatherback turtle*	0	0	0	0	0	0
<b><i>Sonar Testing Activities</i></b>						
<b><i>Family Cheloniidae (hardshell turtles)</i></b>						
Green turtle*	0	0	0	0	0	0
Hawksbill turtle*	0	0	0	0	0	0
Kemp's ridley turtle*	1	0	1	0	1	0
Loggerhead turtle*	6	0	6	0	6	0
<b><i>Family Dermochelyidae (scuteless turtles)</i></b>						
Leatherback turtle*	1	0	1	0	1	0

\* ESA-listed species within the AFTT Study Area

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.17 ESTIMATED SEA TURTLE IMPACTS PER FIVE YEAR PERIOD FROM SONAR AND OTHER TRANSDUCERS UNDER NAVY TRAINING AND TESTING ACTIVITIES

Table E.17-1 provides a summary of the estimated number of sea turtle impacts from exposure to sonar and other transducers used during Navy training and testing activities under Alternatives 1 and 2 over the course of five years.

**Table E.17-1: Estimated Sea Turtle Impacts per 5-Year Period from Sonar and Other Transducers Training and Testing Activities**

<i>Species</i>	<i>Alternative 1 – 5-Year</i>		<i>Alternative 2 – 5-Year</i>	
	<i>TTS</i>	<i>PTS</i>	<i>TTS</i>	<i>PTS</i>
<b>Sonar Training Activities</b>				
<b>Family Cheloniidae (hardshell turtles)</b>				
Green turtle*	0	0	0	0
Hawksbill turtle*	0	0	0	0
Kemp's ridley turtle*	0	0	0	0
Loggerhead turtle*	0	0	0	0
<b>Family Dermochelyidae (scuteless turtles)</b>				
Leatherback turtle*	1	0	1	0
<b>Sonar Testing Activities</b>				
<b>Family Cheloniidae (hardshell turtles)</b>				
Green turtle*	0	0	0	0
Hawksbill turtle*	0	0	0	0
Kemp's ridley turtle*	3	0	3	0
Loggerhead turtle*	32	0	32	0
<b>Family Dermochelyidae (scuteless turtles)</b>				
Leatherback turtle*	3	0	3	0

\* ESA-listed species within the AFTT Study Area

PTS: permanent threshold shift; TTS: temporary threshold shift

### **E.18 ESTIMATED SEA TURTLE IMPACTS FROM AIR GUNS UNDER NAVY TRAINING AND TESTING ACTIVITIES**

There are no air gun activities under training, therefore there are no anticipated takes. No sea turtle impacts are anticipated from exposure to air guns used during Navy testing activities under Alternatives 1 and 2 over the course of a year and over the course of five years.

### **E.19 ESTIMATED SEA TURTLE IMPACTS FROM PILE DRIVING UNDER NAVY TRAINING AND TESTING ACTIVITIES**

No sea turtle impacts are anticipated from exposure to pile driving used during Navy testing activities under Alternatives 1 and 2 over the course of a year and over the course of five years. There are no pile driving activities under testing, therefore there are no anticipated takes.

### **E.20 ESTIMATED SEA TURTLE IMPACTS FROM EXPLOSIVES UNDER NAVY TRAINING AND TESTING ACTIVITIES**

Table E.20-1 provides a summary of the estimated number of sea turtle impacts from exposure to explosives used during Navy training and testing activities, excluding ship shock trials, under Alternatives 1 and 2 over the course of a year.

**Table E.20-1: Estimated Sea Turtle Impacts per Year from Explosive Training and Testing Activities**

Species	Alternative 1 – Minimum			Alternative 1 – Maximum			Alternative 2		
	TTS	PTS	Injury	TTS	PTS	Injury	TTS	PTS	Injury
<b>Explosive Training Activities</b>									
<b>Family Cheloniidae (hardshell turtles)</b>									
Green turtle*	2	1	0	2	1	0	2	1	0
Hawksbill turtle*	0	0	0	0	0	0	0	0	0
Kemp's ridley turtle*	4	3	0	4	3	0	4	3	0
Loggerhead turtle*	58	27	4	58	27	4	58	27	4
<b>Family Dermochelyidae (scuteless turtles)</b>									
Leatherback turtle*	5	2	0	5	2	0	5	2	0
<b>Explosive Testing Activities (Excluding Ship Shock Trials)</b>									
<b>Family Cheloniidae (hardshell turtles)</b>									
Green turtle*	2	1	0	2	2	0	3	2	0
Hawksbill turtle*	0	0	0	0	0	0	0	0	0
Kemp's ridley turtle*	2	1	0	3	1	0	4	2	0
Loggerhead turtle*	24	12	3	28	15	3	33	16	4
<b>Family Dermochelyidae (scuteless turtles)</b>									
Leatherback turtle*	3	1	0	3	1	0	4	1	0

\* ESA-listed species within the AFTT Study Area

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.21 ESTIMATED SEA TURTLE IMPACTS PER FIVE YEAR PERIOD FROM EXPLOSIVES UNDER NAVY TRAINING AND TESTING ACTIVITIES

Table E.21-1 provides a summary of the estimated number of sea turtle impacts from exposure to explosives used during Navy training and testing activities, excluding ship shock trials, under Alternatives 1 and 2 per five year period.

**Table E.21-1: Estimated Sea Turtle Impacts per 5-Year Period from Explosive Training and Testing Activities (Excluding Ship Shock Trials)**

Species	Alternative 1 – 5-Year			Alternative 2 – 5-Year		
	TTS	PTS	Injury	TTS	PTS	Injury
<b>Explosive Training Activities</b>						
<b>Family Cheloniidae (hardshell turtles)</b>						
Green turtle*	12	5	1	12	5	1
Hawksbill turtle*	1	0	0	1	0	0
Kemp's ridley turtle*	18	13	1	18	13	1
Loggerhead turtle*	289	134	21	290	134	21
<b>Family Dermochelyidae (scuteless turtles)</b>						
Leatherback turtle*	25	10	0	25	10	0
<b>Explosive Testing Activities (Excluding Ship Shock Trials)</b>						
<b>Family Cheloniidae (hardshell turtles)</b>						
Green turtle*	12	8	1	13	8	1
Hawksbill turtle*	1	0	0	1	0	0
Kemp's ridley turtle*	13	6	1	19	8	1
Loggerhead turtle*	128	67	15	163	82	18
<b>Family Dermochelyidae (scuteless turtles)</b>						
Leatherback turtle*	15	4	0	18	6	1

\* ESA-listed species within the AFTT Study Area

PTS: permanent threshold shift; TTS: temporary threshold shift

## E.22 ESTIMATED SEA TURTLE IMPACTS FROM SHIP SHOCK TRIALS UNDER NAVY TESTING ACTIVITIES

Table E.22-1 provides a summary of the estimated number of sea turtle impacts from exposure to Navy ship shock trials (an explosive testing activity) under Alternatives 1 and 2 from small and large shock trials, and over the course of five years. The small ship shock trial could take place up to 3 times over a five-year period and the large ship shock trial could take place once. Takes per species below are the maximum for any proposed location and season. See Chapter 2 for details on locations and seasons for ship shock trials.

**Table E.22-1: Estimated Sea Turtle Impacts from Small and Large Ship Shock Trials (Explosive Testing Activity) and per 5-Year Period**

<i>Species</i>	<i>Small Ship Shock</i>				<i>Large Ship Shock</i>				<i>5-Year Total</i>			
	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>	<i>TTS</i>	<i>PTS</i>	<i>Injury</i>	<i>Mortality</i>
<b><i>Family Cheloniidae (hardshell turtles)</i></b>												
Green turtle*	18	1	0	0	18	1	0	0	72	4	0	0
Hawksbill turtle*	2	0	0	0	2	0	0	0	8	0	0	0
Kemp's ridley turtle*	12	1	0	0	15	1	1	0	51	4	1	0
Loggerhead turtle*	339	19	5	1	283	13	4	1	1,300	70	19	4
<b><i>Family Dermochelyidae (scuteless turtles)</i></b>												
Leatherback turtle*	169	7	1	0	215	7	2	0	722	28	5	0

\* ESA-listed species within the AFTT Study Area

PTS: permanent threshold shift; TTS: temporary threshold shift

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