

Humpback and Fin Whaling in the Gulf of Maine from 1800 to 1918

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Introduction

The Gulf of Maine is an oceanic body of water stretching from the coasts of New England and southern New

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ABSTRACT—*The history of whaling in the Gulf of Maine was reviewed primarily to estimate removals of humpback whales, Megaptera novaeangliae, especially during the 19th century. In the decades from 1800 to 1860, whaling effort consisted of a few localized, small-scale, shore-based enterprises on the coast of Maine and Cape Cod, Mass. Provincetown and Nantucket schooners occasionally conducted short cruises for humpback whales in New England waters. With the development of bomb-lance technology at mid century, the ease of killing humpback whales and fin whales, Balaenoptera physalus, increased. As a result, by the 1870's there was considerable local interest in hunting rorquals (baleen whales in the family Balaenopteridae, which include the humpback and fin whales) in the Gulf of Maine. A few schooners were specially outfitted to take rorquals in the late 1870's and 1880's although their combined annual take was probably no more than a few tens of whales. Also in about 1880, fishing steamers began to be used to hunt whales in the Gulf of Maine. This steamer fishery grew to include about five vessels regularly engaged in whaling by the mid 1880's but dwindled to only one vessel by the end of the decade. Fin whales constituted at least half of the catch, which exceeded 100 animals in some years. In the late 1880's and thereafter, few whales were taken by whaling vessels in the Gulf of Maine.*

Brunswick in the west to Nova Scotia in the east (Fig. 1). A series of shoals and submerged banks along its southern and eastern margins serve to separate the Gulf from the North Atlantic Ocean. Thus, while the cold, south-flowing Labrador Current is free to enter the Gulf from the north, warm waters of the Gulf Stream are deflected easterly around its southern margin. The circulation of predominantly cold, nutrient-rich water around the complex bathymetric features of the Gulf of Maine enhances its biological productivity (Yentsch et al., 1995). As a result, the region supports a wide range of marine animals, many of which are considered important resources, and large, migratory whales are among them.

Several baleen whale species occur seasonally in the Gulf of Maine, including fin whales, *Balaenoptera physalus*; common minke whales, *B. acutorostrata*; humpback whales, *Megaptera novaeangliae*; sei whales, *B. borealis*; and North Atlantic right whales, *Eubalaena glacialis* (Katona et al., 1983; Kenney and Winn, 1986; CETAP¹). Exceptionally, blue whales, *B. musculus*, also occur in the Gulf during the summer (Wenzel et al., 1988).

In spite of a few published references to Indian whaling before contact, there is no definitive evidence of it (Little, 1981). There is, however, much evidence that the Indians used the products of whales that stranded or were found floating dead in nearshore waters (e.g. Allen, 1916:145). In fact, it has been suggested that “drift

whaling” was an organized pursuit, and that Indians made an organized effort to locate, salvage, and utilize the carcasses of such “drift” whales (Little and Andrews, 1982). Moreover, Indians were extensively involved as crew on colonial whaleboats, and their whaling skills contributed significantly to the development of American shore whaling (Macy, 1835; Little, 1981, 1988).

From the 17th century onward, New Englanders were known as skilled whalers who traveled extensively throughout the North Atlantic (and indeed the world) to hunt whales. It is reasonable to assume that they would have pursued right whales and humpback whales locally to the extent that doing so was feasible and economically rewarding. The most desirable species in the Gulf of Maine would have been the North Atlantic right whale, but it had been reduced to very low numbers there by 1800 (Reeves et al., 1999). The next most likely targets would have been humpback and fin whales, due to their large body size and predictable seasonal availability. Individuals of both species are known to exhibit strong, maternally directed fidelity to the Gulf of Maine (Clapham and Mayo, 1987; Clapham and Seipt, 1991).

While historical data are sparse, today humpback whales occur regularly in the Gulf of Maine from April through October (Clapham and Mayo, 1987; Baraff and Weinrich, 1993; Clapham et al., 1993; CETAP¹), and feeding aggregations have been observed as late as December in some years (Geraci et al., 1989; Robbins, personal observ.). They are rarely observed between January and March, the peak mating and calving season in the West Indies (Katona and Beard, 1990; Clapham et al., 1993; CETAP¹). Winter humpback whaling was, in fact, extensive and intensive in

¹CETAP. 1982. A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf. Final report of the Cetacean and Turtle Assessment Program, University of Rhode Island, Kingston, R.I., to the U.S. Department of the Interior, Bureau of Land Management, Washington, D.C. Contract AA551-CT8-48, 450 p.

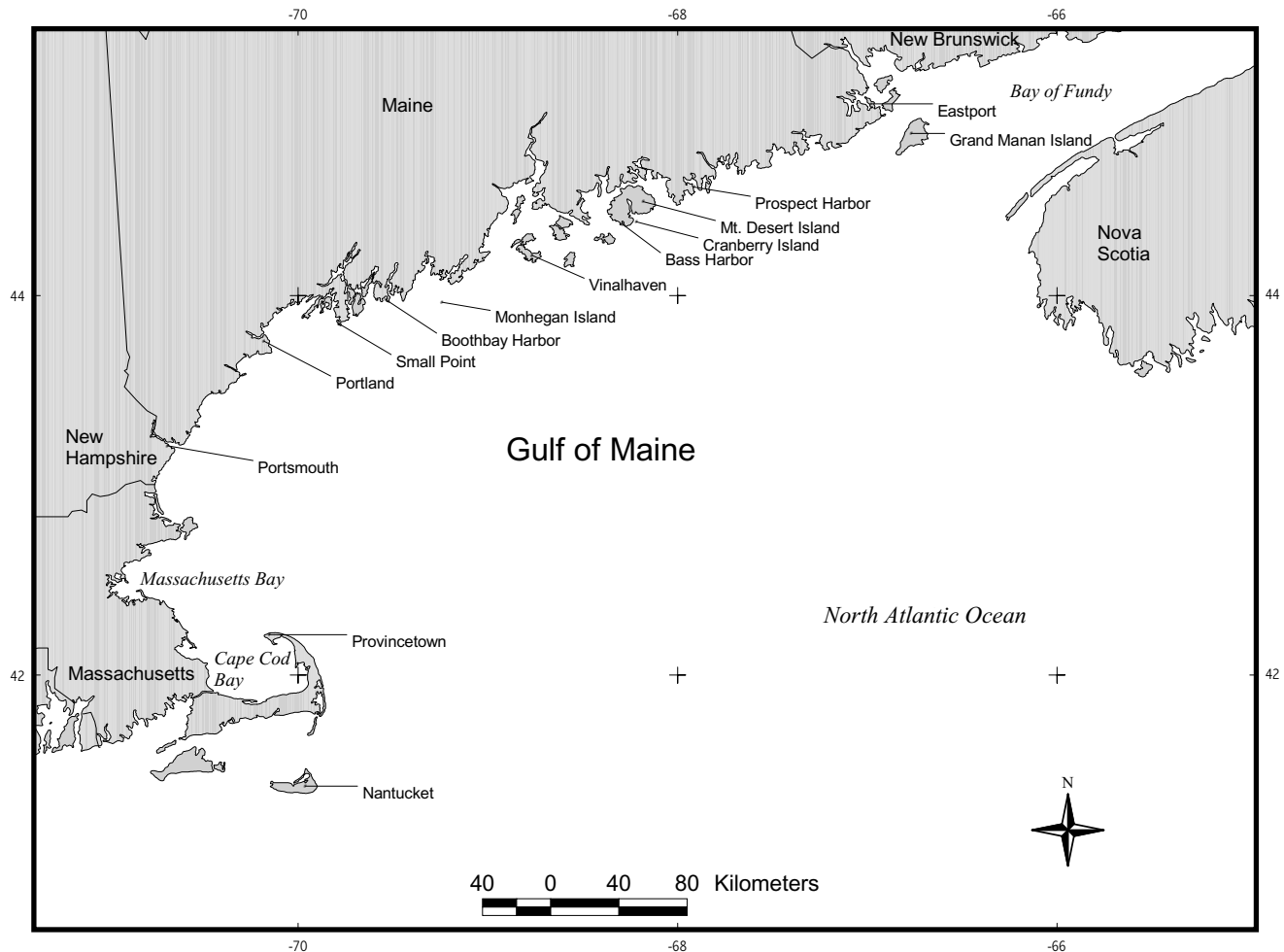


Figure 1.—Map of the Gulf of Maine showing some of the places mentioned in the text.

the eastern and southern West Indies from the 1860's to 1880's (Reeves et al., 2001; Reeves and Smith, 2002), so many Gulf of Maine migrants likely would have been killed at the southern end of their range during the 19th century.

Fin whales are also present in the Gulf of Maine from spring to late fall but are largely absent in the winter (Seipt et al., 1990; Hain et al., 1992; CETAP¹). Unlike humpback whales, they are not known to follow a strict, long-distance migratory schedule, and their winter distribution appears more diffuse. Also in contrast to humpbacks, the faster-swimming fin whales were generally not hunted before the advent of modern whaling methods, specifically the use of powered catcher boats and explosive projectiles

(Tønnessen and Johnsen, 1982). They only became regular prey of whalers in the last third of the 19th century.

Within the Gulf of Maine, humpback and fin whales exhibit habitat-use patterns that would have made them predictably available to be hunted. Their distribution is driven by the habitat preferences of their prey, presently sandlance, *Ammodytes* spp., and Atlantic herring, *Clupea harengus*, although menhaden, *Brevoortia* spp., also may have been important historically (Clark, 1887a; Webb, 2001). As a result, they tend to congregate near discrete bathymetric features, some of which are located close to shore (Hain et al., 1992; Hamazaki, 2002; CETAP¹). However, the abundance of fin and humpback whales in any one area varies

considerably within and between years in response to prey variability, and there is evidence that the two species do not respond to such variability in the same way (Payne et al., 1990). Thus, while the two whale species are roughly sympatric and have consistent habitat preferences, they would not necessarily have been equally available in all areas of the Gulf of Maine.

The Scientific Committee of the International Whaling Commission initiated an assessment of North Atlantic humpback whales in 2001 and completed this assessment in 2002 (IWC, 2002, 2003). The Committee used estimates of present-day abundance, estimates of life history parameters from modern fieldwork, and historical catch series to model popu-

Table 1.—Sources in Maine examined by RLW for whaling data.

Institution	Documents	Period	Comments
Boothbay Region Historical Society, Boothbay Harbor	Boothbay <i>Register</i> newspaper	Complete run available 1876-late 1880's	Interview with Barbara Skinner Rumsey, Director, who provided newspaper extracts which were then verified by direct examination
Maine State Archives, Augusta Maine State Library, Augusta	Federal census records for State of Maine	1850, 1860	No relevant holdings identified
Frenchboro Historical Society, Frenchboro			Interview with Vivian Lunt, Historian
Mount Desert Historical Society, Mount Desert			Interview with Jaylene B. Roths, Director and President
Penobscot Marine Museum, Searsport			Interview with Jon Arrison, Librarian
Tremont Historical Society, Tremont			Interview with Arlene Bartlett, President
www.rootsweb.com/~meccranb/census/	Census records for town of Mount Desert	1800, 1810, 1820, 1830	
Maine Maritime Museum, Bath	<i>Daily Times</i> newspaper	Complete run available; checked late 1870's–1880's	Newspaper extracts prepared by Nathan Lipfert, Library Director, in 1975

Table 2.—Sources in Provincetown, Mass., Public Library examined by JR for whaling data.

Documents	Issues/Time Period	Comments
Provincetown Advocate newspaper	2/2/1869, 3/3/69, 4/7/69, 5/5/69, 6/2/69, Dec. 1869; 1/5/1870; Jan. 1871, 3/1/71; Jan. 1872; Jan. and Dec. 1873 and 1874; Jan., Feb., and Dec. 1875; Jan. only for 1876-80, 1889, 1905-09	1881–98 and April 1899–1904 issues were unavailable for review; in early years, Jan. issues summarize previous year's whale and fish oil production for Barnstable Co.
Provincetown Banner & News newspaper	July 1856; 1/19/1857, 4/23/57, 4/30/57, 9/10/57, 12/10/57; 2/18/1858, 6/10/58, 6/17/58; 1/13/1859, 10/20/59, 11/24/59, 12/8/59; 6/14/1860, 6/21/60, 11/29/60; 1/3/1861, 5/9/61	All available issues were checked
Provincetown Beacon newspaper	8/2/1890, 9/6/90, 10/25/90	All available issues through 1900 were checked
Provincetown News newspaper	1/7/1871	Only issue available
Books in historic books section	Late 1800's/early 1900's	A few items found to be relevant

lation trajectories and estimate historical abundance (Smith and Reeves, 2002, 2003). Initial results (IWC, 2002) gave improbably low estimates of early abundance for the Gulf of Maine. This paper strives to improve understanding of the catch history of humpback whales in that part of their range. Historical literature was reviewed with the goals of describing the general nature of humpback and fin whaling in the Gulf of Maine from the early 19th century to the early 20th century and obtaining quantitative data on removals over that period. An earlier draft of this paper was used by the IWC Scientific Committee to complete its assessment of North Atlantic humpback whales in 2002 (IWC, 2003).

Materials and Methods

In addition to reviewing the standard period literature, one of us (RLW) conducted a search of archives and libraries in Maine for published and unpublished data on shore whaling in the Gulf of Maine. The sources examined in that search are summarized in Table 1. In addition, individuals with local knowledge

were interviewed in Tremont and Day's Ferry, Maine. Of special interest was whaling based at Provincetown, Mass., beginning in the late 1870's. To investigate it, one of us (JR) examined local newspaper archives and other materials at the Provincetown Public Library (Table 2). An earlier search of New Brunswick, Can., sources had revealed meager evidence of shore-based whaling in the lower Bay of Fundy (Reeves and Barto, 1985). An extensive search of libraries, museums, and archives for data on right whale catches along the northeastern coast of the United States had found considerable evidence of shore whaling activities in Massachusetts from the late 17th to mid 18th centuries but little thereafter (Reeves et al., 1999).

Results

Pre-Civil War (1860) Era Whaling

Hostilities associated with the War of Independence (1776–83) forced Nantucket whaling vessels, in particular, to redirect much of their whaling effort away from long-distance voyages and

toward shorter, safer cruises in local waters. Since, by the mid 18th century, right whales were relatively scarce, the less desirable but nonetheless catchable humpbacks became frequent targets. For example, Allen (1916:312) cited Macy (1835) to the effect that between the War of Independence and the War of 1812, “the New England whalers continued to take Humpbacks on the shoals to the eastward of Nantucket.” Starbuck (1878: 94–95) reported that until 1813 when an English privateer raised havoc with the Nantucket fleet, the people “had fished unmolested both for cod-fish and for humpback whales on the shoals at the eastward of the island, and by this means eked out a livelihood. . . .” Indeed, in 1813 ten small Nantucket vessels, and “several” in 1814, were reportedly whaling for humpbacks on the shoals (Starbuck, 1924:422). The sloops *Rover* and *Success* took two humpback whales during a brief cruise in the last week of September 1815 (Starbuck, 1924:424–5).

Very little is known about whaling in the Gulf of Maine between the War of 1812 and the American Civil War of

1860–65. General statements in Allen (1916), Goode (1884), and the *Whalemen's Shipping List* (1843–1914), however, confirm that humpback whales were taken at least occasionally in local waters by whalers out of Nantucket, Provincetown, and several Maine ports. The data from Clark (1887a), Allen (1916), and Mitchell and Reeves (1983) were reviewed by Reeves and Smith (2002), and specific records from those and other sources are presented in Table 3.

There is some evidence of a small-scale whaling operation on Cranberry Island, Maine. Thomas Spurling's will included a whaleboat and other whaling implements, and a whaleboat oar is preserved on the island (Liebow²). Tryworks once stood on Tryhouse Point at the head of Bass Harbor, Maine, in the modern village of Barnard, formerly West Bass Harbor (Kelley³).

Mitchell and Reeves (1983) cited the transition in whaling technology from the use of traditional hand-thrown harpoons and oar-powered boats to the use of bomb lances and steam power as an important development in the history of humpback whaling in New England. From the 1860's onward, both fin whales and humpback whales could be taken with relative ease. Together, these species provided a sufficient resource base to support a resurgence in small-scale shore whaling enterprises along portions of the Gulf of Maine. A descendant of the whalers who operated out of Bass Harbor reported that they used a shoulder gun (3 in. diameter barrel, 1 in. bore, brass stock) to kill whales (Kelley³). This implies that the shore whalers from Maine participated during the latter part of their fishery (which ended about 1860—see Table 3) in the transition from hand-thrown, nonexplosive harpoons to explosive projectiles generally associated with the mechanical whaling era.

New England's Rorqual Fishery, 1870's–1890's

Two types of vessels—schooners and steamers—were used in the New Eng-

²Liebow, Charles. February 2002. Southwest Harbor, Maine. Personal commun. via R. L. Webb.

³Kelley, Harvey. February 2002. Tremont, Maine. Personal commun. via R. L. Webb.

land rorqual fishery that began in the late 1870's. Again, data from Clark (1887a) and Allen (1916) were reviewed in some detail by Reeves and Smith (2002) and are summarized in Table 3.

Schooner Whaling

Schooners that whaled in the Gulf of Maine were generally 50–75 tons. A 75-ton vessel would normally have a crew of 18 with two whaleboats carrying 6 men each (*American*, 1895). Two vessels that are repeatedly mentioned in the literature are the *Brilliant* and *Bloomer*, both of Provincetown (Mitchell and Reeves, 1983; Reeves and Barto, 1985; Webb, 2001; Reeves and Smith, 2002).

Hegarty's (1959) list of Provincetown voyages in 1879 did not include the *Brilliant*, although this vessel is known to have taken at least four humpback whales in the Gulf of Maine that year. Nor do the sailing dates, return dates, and reported oil landings of the 14 voyages in Hegarty's list suggest that any of them were centered in the Gulf of Maine. Six of the voyages lasted for more than a year. Of the remaining eight, the two voyages by the *Rising Sun* are known to have included whaling for humpback whales in the West Indies or for right whales off Georgia during the winter season (Reeves et al., 2001). The other six voyages all began in winter (January–March) and ended in August or September with at least some sperm oil on board, suggesting an offshore, distant-water North Atlantic itinerary. According to the *Daily Times* (1879), the *Brilliant* was an old pinky schooner that carried only one whaleboat and tried out the oil on shore (Webb, 2001).

The schooner mentioned by Reeves and Smith (2002) as having hunted humpbacks along the Maine coast in 1880 and 1881 was likely the *Bloomer*, noted in the *Whalemen's Shipping List* (1843–1914) to have been “fitted for humpback whaling on the Coast of Maine” but to have taken mainly fin whales in 1880. It was also on the coast of Maine on 12 August 1881 with 75 barrels (bbl) of whale oil on board, then at Southwest Harbor, Maine, with two humpback whales alongside (expected to make 50 bbl of oil) on 29 August 1881 (Reeves

and Barto, 1985). Hegarty (1959) listed the *Bloomer* as a 74-ton schooner that sailed from Provincetown on 24 January 1881 and returned 25 September 1881, with no sperm oil and 120 bbl of whale oil. Considering what is known about this voyage's departure date and duration, it is possible that the 75 bbl of whale oil obtained before 12 August came from elsewhere in the North Atlantic (e.g. right whales off the southeastern United States or humpback whales in the Cape Verde Islands or West Indies during the months of January–May).

In 1882 the *Bloomer* was reported at Grand Manan, New Brunswick, Can., on 1 July with 30 bbl of whale oil on board, having taken one humpback whale; it had secured 120 bbl of whale oil for the season by that date (Reeves and Barto, 1985). Hegarty (1959) listed the *Bloomer's* catch for 1882 as 110 bbl of whale oil and its sailing and arrival dates as 1 June and 5 October, respectively. This schedule, in contrast to that of 1881, would be quite consistent with a Gulf of Maine focus for the 1882 voyage. Two voyages were listed for the *Bloomer* in 1883, one from 13 March–20 August (obtaining 60 bbl of sperm oil and 100 bbl of whale oil) and the other from 17 December 1883–24 August 1884 (obtaining 50 bbl of sperm oil and 15 bbl of whale oil; Hegarty, 1959). The latter voyage included a period in the West Indies, where the *Bloomer* was seen hunting humpback whales in April and May (*Franklin*⁴). Although the *Bloomer* continued whaling for two more years after 1884, its reported production consisted only of sperm oil (Hegarty, 1959).

Menhaden Steamer Whaling

The rorqual fishery by steamers in the Gulf of Maine was intertwined with the menhaden fishery. Indeed, menhaden oil was interchangeable with whale oil (Goode, 1887; Webb, 2001). A series of oil processing factories had been established from the 1840's to the 1860's, producing fish oil for use in tanning and

⁴Logbook of the schooner *Franklin* of New Bedford, James F. Avery, Master. 9 October 1883–24 August 1885. Kendall Institute, New Bedford Whaling Museum, New Bedford, Mass.

Table 3.—Gulf of Maine whaling records post-1799. References from Mitchell and Reeves (1983) and Reeves et al. (1999) are designated as * and **, respectively. RW=right whale, FW=fin whale, HB=humpback whale, MW=minke whale, UN=unidentified whale, s/l=struck but lost.

Date ¹	Whales taken ²	Vessels	Comments	Sources
Apr. 1800	3 RW		At Nantucket; 31, 16, and 30 bbl oil	Allen, 1916:134**
ca. 1805–10		4, with 14-man crews	Wellfleet, Mass., said to hunt humpbacks in Gulf of Maine	Clark, 1887b:235*; Allen, 1916:312
1810–34	<6–7/yr		Shore station, Prospect Harbor, Maine	Clark, 1887a:41
1813		10 small	From Nantucket, humpbacking on Nantucket Shoals	Starbuck, 1924:422*
1814		"Several" small	From Nantucket, humpbacking on Nantucket Shoals	Starbuck, 1924:422*
27–29 Sept. 1815	2 HB	<i>Rover</i> and <i>Success</i>		Starbuck, 1924:424–425*
Early May 1822	1 RW	Cape Cod vessel	s/l in Boston harbor; species identification uncertain	Allen, 1916:134–135; <i>Nantucket Inquirer</i> **
Early Aug. 1827	2 HB	Sloop <i>Rapid</i> of Nantucket	On the shoals about 20 mi E of Nantucket in 18 fathoms; 50 bbl of oil was expected from the blubber; Capt. Myrick	Allen, 1916:312
5 July 1834	1 FW	Small local boat	Gloucester harbor; s/l; species identification uncertain	Allen, 1916:208
11 Apr. 1835	1 RW	Schooner <i>Columbia</i> of Provincetown	75–80 bbl oil expected	<i>New-Bedford Mercury</i> **
1835–40	6–7/yr UN		Shore station, Prospect Harbor, ME; up to 10 some years.	Clark, 1887a:41
20 May 1836	1 HB or FW	2 Portsmouth boats	35 ft; harpooned off Portsmouth by Nantucket whaleman	Allen, 1916:208
1841–60	<6–7/yr		Shore station, Prospect Harbor, Maine, active	Clark, 1887a:41
1840–60	3 or more/yr UN		Shore station near Tremont, Maine	Clark, 1887a:40
11 May 1843	1 RW	Schooner <i>Cordelia</i> of Provincetown	Great South Channel; 125 bbl oil, 300 lb of 14-ft baleen saved; whalers estimated potential yield as 300 bbl and 1500 lb; possibly a bowhead according to Allen	Allen, 1916:135**
July 1844	1 HB		Found dead off Petit Manan Lighthouse, Maine; "perhaps . . . killed by the shore whalers."	Allen, 1916:313
1845	7 HB, 1 FW	Schooner <i>Huzza</i> from Maine	Capt. J. Bickford	Clark, 1887a:41
10 Dec. 1846	1 FW		50 ft; in Provincetown harbor	Allen, 1916:208
Oct. 1846	1 HB		Capt Justice W. Bickford; taken into Prospect Harbor; > 100 bbl oil, worth \$1500	<i>American</i> , 1895
Mid Apr. 1848		5 vessels from Plymouth	Several right whales chased	Allen, 1916:136**
Late Jan.–early Feb. 1850	2 RW		Large (1 of them 50 bbl); in Provincetown harbor	Allen, 1916:136**
1 Nov. 1850	1 RW	3 local boats	60 bbl oil; Provincetown harbor	Allen, 1916:136; Clark, 1887a:41; Goode, 1884:24**
1850		<i>Vesta</i> of Provincetown	80 bbl HB oil	Starbuck, 1878:473*
1850	1 HB	<i>Council</i> of Provincetown		<i>Whalemen's Shipping List</i> *
1852	6 HB	<i>Hamilton</i> of Nantucket	130 bbl oil; also s/l 5 HB	Allen, 1916:307, 309, 314*
1852		<i>Hamilton</i> of Nantucket	60 bbl HB oil	Allen, 1916:314*
1852	1 HB	Provincetown schooner	40 bbl oil	Allen, 1916:314*
Early Oct. 1852	2 UN	Schooner <i>Union</i> of Provincetown	In Massachusetts Bay; Allen (p. 314) suspected they were humpbacks based on time of year, but also suggested they were probably right whales (p. 136)	Allen, 1916:136, 314*
Mid May 1852	1 RW	Provincetown vessel	In Massachusetts Bay; 75 bbl oil, 8 ft baleen	Allen, 1916:136**
Oct. 1852	1 UN		Off Cape Elizabeth, Maine; 30 ft; reported as a fin whale, but Allen suspected minke whale	Allen, 1916:275
1853	4 HB		"Shoals whaling"	<i>Whalemen's Shipping List</i> *
Apr. 1853	2 UN	3–4 Provincetown vessels	Possibly a third s/l; Provincetown harbor; Allen suggested these may have been right whales	Allen, 1916:136–137**
6 July 1854	1 FW		Outside Nantucket harbor; large	Allen, 1916:208
11 Dec. 1854	1 RW	Provincetown vessel (probably)	Drifted ashore at Sandwich bearing harpoon probably affixed in Provincetown harbor; 48 ft, 30–60 bbl oil	Allen, 1916:137; <i>Nantucket Inquirer</i> ; <i>Whalemen's Shipping List</i> **
17 Nov. 1855	1 FW	Local boat	s/l off Provincetown	Allen, 1916:208
20 Aug. 1856	1 UN		Small whale killed near Lubec, Maine, after becoming trapped in a herring weir; possibly a minke whale	Allen, 1916:275
1857	1 HB	<i>Rienzi</i> of New Bedford		<i>Whalemen's Shipping List</i> *
15 Apr. 1857	2 FW		s/l off Provincetown	Allen, 1916:209
1858	1 MW		Provincetown, reported as "Grampus Whale"	Allen, 1916:276
Late Nov. 1858			Right whale fired at with harpoon guns in Provincetown harbor	Allen, 1916:137**
1859			180 bbl HB oil	<i>Whalemen's Shipping List</i> *
17–24 Mar. 1860	1?		Provincetown harbor	<i>Whalemen's Shipping List</i> **
25 July–early Nov. 1861	5 HB	<i>Samuel Chase</i> of Nantucket	125 bbl HB oil	Clark, 1887a:41; Starbuck, 1924:481*

Continued

Table 3.—Continued.

Date ¹	Whales taken ²	Vessels	Comments	Sources
1861			349 bbl HB oil from "shore and shoals whaling from Prov'town and Nant'et" (probably includes <i>Samuel Chase's</i> production)	<i>Whalemens Shipping List*</i>
Aug. 1863		Local boats	"Efforts have been made" to catch a whale seen in Penobscot Bay	Belfast <i>Republican Journal</i> , August 1863 (<i>vide</i> John Arrison, personal commun. to RLW)
Apr. 1864	1 RW		Off Plymouth, towed to Provincetown; 48 ft, 80 bbl oil, 1,000 lb baleen	Allen, 1916:118, 137, 171; Allen, 1908:322**
1866	1 HB		Portland, Maine, harbor	<i>Whalemens Shipping List*</i>
1867–84	2–3 RW		Provincetown	Goode, 1884:24**
1867	1 RW		Cape Cod Bay; 4 8ft, 84 bbl oil, 1,000 lb baleen	Goode, 1884:24**
25 Oct. 1868		Local boat	4 fin whales chased off Nantucket	Allen, 1916:209
Autumn 1868	1 FW	Blackfish [pilot whale] boats	Off Cape Cod; > 60 ft, 20 bbl oil	Allen, 1916:209
1870	1 FW	Vessel from Prospect Harbor, Maine	Capt. J. Bickford	Clark, 1887a:41
1 Mar. 1870	2 RW		Cow/calf; cow lanced but not secured; Provincetown harbor	Allen, 1916:137**
20 Oct. 1870	1 FW		Off Gloucester; 45 ft	Clark, 1887a:41; Allen, 1916:209
Oct. 1871	1 FW		Off Gloucester	Allen, 1916:209
10 Dec. 1872	1 FW	Local boat	S/l in Provincetown harbor	Allen, 1916:210
23 Oct. 1874	4 FW		Shot, killed, but sank in Vineyard Sound, MA (Allen, p. 256, reported that one may have been a blue whale)	Allen, 1916:210
1875	1 HB	Schooner <i>Starlight</i>	Cape Cod Bay	Allen, 1916:314*
1878	1 HB		Cape Cod	Allen, 1916:308; True, 1904:232*
1878	1 HB		"Found adrift and towed into Portland Harbor"; "a harpoon embedded in its back, and . . . otherwise lacerated"	Norton, 1930:94–95*
Spring 1879	2 HB		Killed with bomb lances; another stranded; all at Provincetown	Allen, 1916:308, 314; Goode, 1884:27; True, 1904:232*
By 1 Oct. 1879	4 HB	Schooner <i>Brilliant</i> of Provincetown	155 bbl oil	Goode, 1884:27*; Clark, 1887a:22; Allen, 1916:314; Webb, 2001
Spring 1880	1 HB		Bass Harbor, Maine; 1,200 gal oil "but no bone of value."	Clark, 1887a:40; Allen, 1916:308, 313*
May 1880	1 UN		Drifted ashore at Small Point near mouth of Kennebec River, Maine, "presumably shot by 'whalers'"	Webb, 2001; <i>Daily Times</i> , 1880
1880	(3 HB)		Killed with bomb lances at Provincetown	Clark, 1887a:42*
Spring 1880	6 FW	Provincetown whalers	Found floating in Massachusetts Bay and towed to Gloucester but only 3 were processed and the others discarded (Clark); 4 towed to Gloucester (longest 65 ft) before 13 May (True); one (55 ft) drifted ashore near Gloucester before 23 July (True)	Clark, 1887a:41; True, 1904:63–64
Mar.–mid May 1880	40 mainly FW	Provincetown whalers	38 processed at Jonathan Cook's oil works on Long Point; 2 sold for exhibition (NY and Boston)	Clark, 1887a:41–42
10–15 June 1880	10 mainly FW	Provincetown whalers	Processed at Cook's oil works; at least 10 more were killed but not secured	Clark, 1887a:42
1881	2 HB	Schooner <i>Bloomer</i> of Provincetown	<i>Bloomer</i> took 5 whales in one summer in early 1880's (<i>vide</i> Ralph Stanley, pers. comm. to RLW)	<i>Whalemens Shipping List*</i>
1881	(Several HB)		All but 1 killed/sank at Provincetown before 11 April	<i>Whalemens Shipping List*</i>
1881	20 HB		Shot with bomb lances at Provincetown; "doubtless others were killed at this time."	Goode, 1884:27; Allen, 1916:308, 314; see <i>Whalemens Shipping List</i> for a different account*
1883	9 mainly FW	Steamer <i>Fanny Sprague</i> of Boothbay	Capt. Albert Murray	Webb, 2001; <i>Daily Times</i> , 1884
Early Mar.–April 1884	Many mainly FW	4 steamers from Cape Cod and Maine		Allen, 1916:212–213
Before 22 July 1884	19 mainly FW	Steamer <i>Fanny Sprague</i> of Boothbay	64 ft largest; a 64 ft specimen was expected to yield 25–30 bbl oil; 18 of the 19 were taken into Provincetown, only one into Linekin; Capt. Albert Murray	Webb, 2001; <i>Daily Times</i> , 1884; <i>Register</i> , 1884a, 1884b, 1884c
Ca. 10 Feb.–13 Mar. 1885	(7–15 UN)	Steamer <i>Fannie Sprague</i> of Boothbay	One towed into Gallup's Factory (Linekin) ca. 26 Feb. (72 ft) (<i>Times</i>); 6 shot first week of March, of which 2 were towed to Linekin and 4 that sank were buoyed (True); 3 others plus 2 "buoyed outside" on ca. 13 March, plus 2–3 others sank (<i>Register</i>); Capt. Albert Murray	<i>Daily Times</i> , 1885a; <i>Register</i> , 1885a, 1885b, 1885c; True, 1904:64
13 Mar.–28 Apr. 1885	(21 mainly FW)	Steamer <i>Fanny Sprague</i> of Boothbay	Steam whaling a "regularly organized business" in Gulf of Maine; 8th whale of season delivered to Richardson's (= Gallup's) Factory on ca. 1–2 Apr. (70 ft), shot near Pemaquid; Capt. Albert Murray	Webb, 2001; <i>Register</i> , 1885d; <i>Daily Times</i> , 1885b
Mar.–Apr. 1885	(Ca. 40 UN all told through April)	4 steamers: <i>Fannie Sprague</i> , <i>Mabel Bird</i> , <i>Hurricane</i> , and <i>Josephine</i>		True, 1904:64
Late Apr. 1885	(4 FW)	<i>Fanny Sprague</i> (towed to Portland by steam tug <i>William H. Clark</i>)	Taken in one day off Provincetown	<i>Daily Times</i> , 1885b; <i>Register</i> , 1885e
May 1885	(1 UN)	Steamer <i>Mabel Bird</i> of Boothbay	Whale carcass exhibited in Portland	Webb, 2001; <i>Register</i> , 1885f

Continued

Table 3.—Continued.

Date ¹	Whales taken ²	Vessels	Comments	Sources
June 1885			<i>Fanny Sprague</i> 'has taken twenty-six or more finbacks off the Maine coast since February.'	<i>Register</i> , 1885g
Ca. mid June 1885	(1 UN)		Shot and towed to Portland for exhibition; probably a fin whale	<i>Register</i> , 1885h
Before 7 July 1885	(37 mainly FW)	Joshua Nickerson		Allen, 1916:229; Webb, 2001
20 May 1885			Whaling suspended at Boothbay because of stench	<i>Daily Times</i> , 1885c
Mid to late May 1885	(1 UN)	Steamer <i>Valora</i> , Capt. Haskell	For Boothbay oil plant, or to exhibit in Portland; probably a fin whale	<i>Daily Times</i> , 1885d
3 July 1885	1 FW		Stranded at Mt Desert Light Station, probably had been shot by a whaling steamer	Allen, 1916:229
7 July 1885	(1 FW)	Joshua Nickerson	In Massachusetts Bay	Allen, 1916:213, 229
Early–mid July 1885	(3–4 UN)		For Richardson's Factory, flensed on Heron Island	<i>Register</i> , 1885i
1885			Total catch by all 5 steamers operating: about 75, mainly FW	Allen, 1916:229; True, 1904:65
By 30 Sept. 1885	Ca. 100 FW and HB		Season finished on Maine coast (steamer whaling)—season's catch ca. 100; humpback described as main target, yielding 20–30 bbl	<i>Daily Times</i> , 1885e
1885			Whaling station established on Greene's Island, Maine, by Gen. Davis Tilson and Maj. W. S. White of Rockland	Calderwood, 1972:89–94
20 Feb. 1886		New steamer, prob. <i>Angelia B. Nickerson</i> , Boothbay	Began whaling season	<i>Daily Times</i> , 1886a; Webb, 2001
Mid March 1886		Steamer <i>Ressing</i>	Left to cruise for whales in Bay of Fundy; Capt. Murray	<i>Register</i> , 1886a
By 10 Apr. 1886	(3 UN)	Steamer <i>Ressing</i>	Towed to Richardson's Factory; Capt. Murray	<i>Register</i> , 1886b
Mid May 1886			Whales said to be "scarce" between Nantucket and Monhegan	<i>Register</i> , 1886c
Ca. 27 May 1886	(2 UN)	<i>Ressing</i>	Capt. Murray	<i>Register</i> , 1886d
Late May/early June 1886	(4 UN)	<i>Ressing</i> , <i>Murray</i>	Towed to Linekin (Gallup's Factory under Horace R. Tewksbury)	<i>Daily Times</i> , 1886b; <i>Register</i> , 1886e
June 1886	(Some UN mainly FW)	3 steamers, including <i>Herman Reessing</i>	Cruising between Eastport and Cape Cod; "many that are shot and sink in deep water are not recovered" (True)	Allen, 1916:213–214; Webb, 2001; <i>Register</i> , 1886f; True, 1904:64
Before 30 June 1886	(1 UN)	Fishing steamer <i>Nellie B. Rawson</i>	For exhibit in Bangor, ME; Luther Maddocks	Webb, 2001; <i>Daily Times</i> , 1886c
Before 10 July 1886	90 UN mainly FW	Steamer <i>Herman Reessing</i>	"... the sharks have fed on most of them."	<i>Register</i> , 1886g
1886	4 RW		125 bbl oil; 1,500–2,000 lb baleen; at Nantucket and Tuckernuck	Allen, 1916:126–128, 138, 171; <i>Whalemens' Shipping List</i> ; Stackpole, 1982**
10 July 1887	1 UN	Local boat	Near Wauwinet, Mass.; probably a minke	Allen, 1916:276–277
1887	1 RW		Provincetown; male; 47 ft, 70 bbl oil	Allen, 1916:138**
1887	52 UN	Steamer <i>A.B. Nickerson</i>	Delivered to Provincetown oil works; probably FW and HB	Allen, 1916:230
1887	ca. 50 UN	Vessels other than <i>A.B. Nickerson</i>	Delivered to Provincetown oil works; probably FW and HB	Allen, 1916:230
20 Apr. 1888			UN (possibly FW) chased by Nantucket whalers	Allen, 1916:214
20 May 1888	2 RW		Massachusetts Bay, combined 170 bbl oil	Allen, 1916:138–139; <i>Whalemens' Shipping List</i> **
May 1888	1 RW	Steamer <i>A.B. Nickerson</i> (probably)	Provincetown; whale found dead on Georges Bank; 50 ft	Allen, 1916:139; <i>Whalemens' Shipping List</i> **
1 June 1888	2 RW	Steamer <i>A.B. Nickerson</i>	Cow–calf pair bomb-lanced near Provincetown; cow 55–60 ft, 100 bbl oil, 1,500 lb baleen; calf sank	Allen, 1916:130–131, 139, 143, 171; <i>Whalemens' Shipping List</i> **
5 June 1888	1 FW	Steamer <i>A.B. Nickerson</i>	Large; sank	Allen, 1916:214, 229–230
1 May 1890	1 FW	Provincetown vessel	Found floating and towed to Lynn, Mass.	Allen, 1916:214, 230
12 Sept. 1894	1 FW		Off the 'Gully'; Capt E.W. Smith of Provincetown	Allen, 1916:214, 230
Late Sept. 1894	1–2 FW	Provincetown vessels		Allen, 1916:214
Late Mar. 1895	1 RW		Initially escaped towing gear; off Nahant; found dead at sea N of Provincetown; 42 ft, 50–60 bbl oil, 5.5 ft baleen	Allen, 1916:120, 139; True, 1904:268**
12 Apr. 1895	1 FW		Massachusetts Bay; Capt E.W. Smith of Provincetown	Allen, 1916:214, 230
12 Apr.–16 May 1895	5 FW, 3 UN	<i>A.B. Nickerson</i> of Provincetown	Delivered to oil factory at Herring Cove, Provincetown (Joshua G. Nickerson, owner)	Allen, 1916:214, 230; Webb, 2001 (from <i>Nantucket Journal</i>)
1895	1 FW	Steamer <i>Vigilant</i>	Capt. Fuller; embalmed and exhibited (in Boston?); species identification uncertain	Allen, 1916:230; Webb, 2001
Early May 1895	2–3 FW	Vessels other than <i>A.B. Nickerson</i>		Allen, 1916:214
1895	1 HB		Capt E.W. Smith of Provincetown; struck/lost at Provincetown	Allen, 1916:308, 315*
Before 23 Apr. 1896	2 HB, 2 UN	Steamer <i>A.B. Nickerson</i> of Provincetown		Allen, 1916:230; Webb, 2001
23 Apr. 1896	2 FW	Provincetown vessels	Off Cape Cod	Allen, 1916:215
Late Sept. 1896	1 FW		Stranded at Nantasket Beach, Mass.; thought to have been shot by whalers	Allen, 1916:230
15 Jan. 1909	1 RW		11-m female entangled in fish-trap, killed with bomb lance	Allen, 1916:119, 140**

¹ "By" a certain date indicates authors' judgment that the information refers to what transpired in this season to the given date.

² Parentheses indicate authors' judgment that this record is subsumed within another.

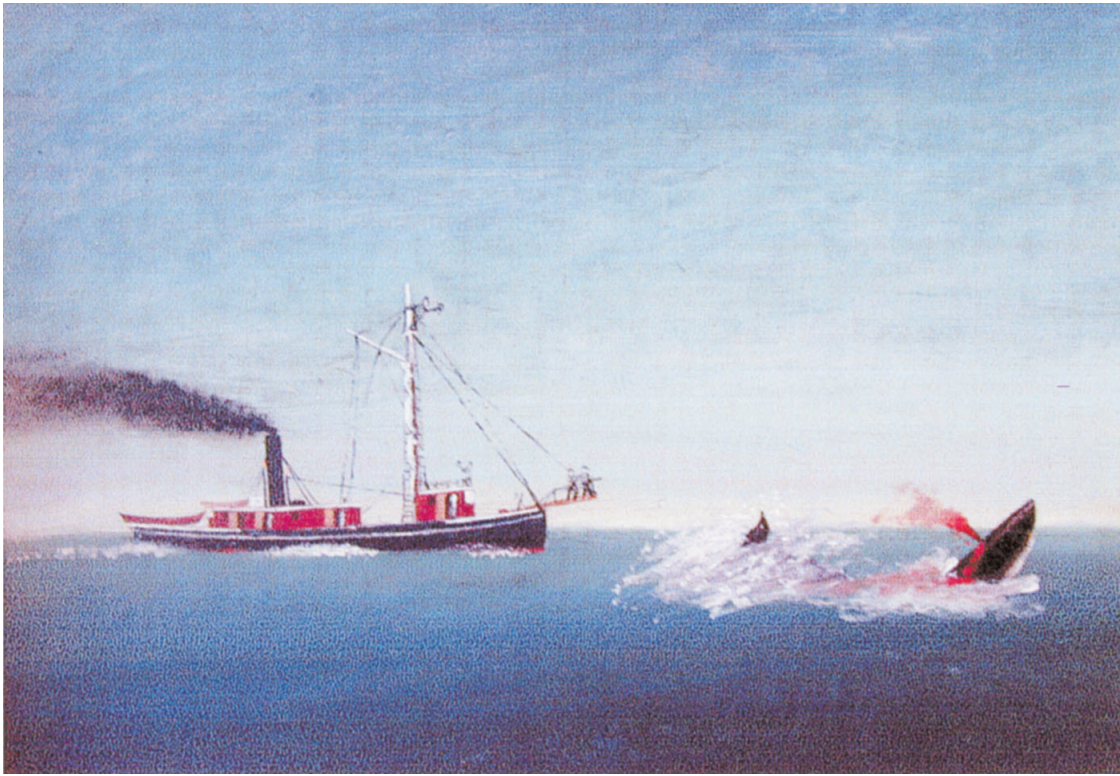


Figure 2.—The menhaden steamer *Angelia B. Nickerson* closing on a rorqual that has been shot and is spouting blood, somewhere in the Gulf of Maine. Courtesy of the Fall River Marine Museum.

curing leathers. When the availability of menhaden declined sharply in the Gulf during the late 1870's, some fishermen turned to whaling.

The steamer *Mabel Bird* was converted from menhaden fishing to whaling in 1880. It hunted humpback whales off Monhegan Island, Maine, and the carcasses were towed to an oil processing plant at the head of Linekin Bay in Boothbay Harbor (Maddocks, 1926; Webb, 2001). This was probably one of the earliest, if not the earliest, steam whaler to operate in the Gulf of Maine. Within a few years, at least five oil factories in Boothbay Harbor were processing whales. One was owned by Luther Maddocks (at least during 1880–85); the others were the Maine Oil Company and Cumberland Bone Company on Spruce Point; Suffolk Oil Works on the opposite side of the head of the bay; Richardson Fish Oil Works to the south of there; and a nearby plant operated by Alonzo R. Nickerson and his brothers (Greene,

1906; Webb, 2001). Another Boothbay steamer, the *Fanny Sprague* (Captain Albert Murray), was heavily involved in whaling during the mid 1880's, but most of the whales taken were towed into Provincetown for processing (Webb, 2001). It cannot be assumed that the whaling steamers engaged in whaling fulltime during the whaling season. In fact, in 1885 the *Fanny Sprague* caught 245 bbl of mackerel one week and took a large fin whale the next week. The previous year the *Sprague* had taken nine whales while “intermittently” seining fish, amounting to a total of 6,000 lb of menhaden (Webb, 2001).

The largest number of steamers actively whaling in any one year seems to have been about five. Four (Wilcox, 1885) or five (True, 1904:65) were engaged in 1885 and three in 1886 (Wilcox, 1886; True, 1904:65). The vessels involved in 1885 included the *Mabel Bird* registered in Portland, Maine; the *Hurricane* registered in Rockland, Maine; the *Fannie*

Sprague registered in New London, Conn.; and the *Josephine* registered in Norwalk, Conn. (Webb, 2001). A fifth vessel, the *A.B. Nickerson* (= *Angelia B. Nickerson*), was registered in Providence, R.I. (Webb, 2001; Fig. 2). In 1886 the *Herman Reessing* (variously spelled) of Eastport was added to the whaling fleet operating out of Boothbay (Reeves and Barto, 1985; Webb, 2001). Several additional steamers are known to have taken whales at least occasionally, including the *Valora* in 1885, the *Nellie B. Rawson* in 1886, and the *Vigilant* in 1895 (Table 3).

The Maine component of the fishery in 1885 produced 36,000 gal of whale oil, 2,000 lb of baleen, and “other products” both liquid and solid, with the total value listed as \$23,066 (*Register*, 1885). This report was dated 30 September 1885 but it is impossible to ascertain whether the production was for the year to date, or only for the month of September. The former seems more plausible given that

36,000 gal represents about 1,143 bbl, equivalent to 57 rorquals at 20 bbl/whale or 38 at 30 bbl/whale. Given other information on the returns in 1885 (Table 3), it seems plausible that 40–60 whales would have been delivered to the Maine stations between February and September that year. Some of the carcasses from whales killed in this fishery were boiled and made into “scrap,” which was sold dry for \$22/ton, “the only objection to it being the large percentage of oil which it contains” (True, 1904:65).

With the return of menhaden to the Gulf of Maine in 1886, steamer whaling lost its appeal and most of the steamers returned to fulltime fishing. As Webb (2001:286) concluded, whaling “merely served as a stopgap while awaiting the fish, and was quickly abandoned when they returned.” In September 1887, one of the Boothbay oil factories that had processed many of the whales taken by the steamers changed hands (*Register*, 1887), and the evidence overall suggests that there was a sharp decline in the numbers of rorquals taken after 1886 (Table 3). Although some Provincetown, Mass., whalers, including the steamer *A. B. Nickerson*, were still engaged in whaling in local waters as late as 1896, it is clear that this activity had essentially ended within a few years thereafter (Allen, 1916). When several fin whales entered Provincetown Harbor on 1 March 1899, and two more came in a fortnight later, the many fishermen present “made no attempt to capture them” (Allen, 1916). Similarly, whales observed near Provincetown and Nantucket in 1901 were not molested (Allen, 1916).

A whaling station was established on Greene Island near Vinalhaven, Maine, in 1885 and another at Carver’s Harbor, also on Vinalhaven, sometime after 1900, apparently at about the time of World War I (Calderwood, 1972; Webb, 2001). Nothing is known about catches at these sites, but a contemporary photographic postcard depicts a humpback whale, dead and bloated, at the Carver’s Harbor station (Webb, personal observ.). That station employed Portuguese flensers, and its catcher vessel was the *Palm*, a 51-ft gas-powered yacht (Calderwood, 1972; Webb, 2001). The kill of a stranded fin

whale by Indians near Eastport, Maine, in January 1912 (Allen, 1916) appears to have been exceptional.

Whaling Grounds

Whales were killed in many parts of the Gulf, but a few specific areas were mentioned as especially productive. The whalers based at Prospect Harbor, Maine, found fin and humpback whales on Jones’ Grounds and Schoodic Ridge and along the coast to Monhegan Island (*American*, 1895). The Linekin Bay whalers apparently found an area about three miles west of Monhegan Island to be highly productive. In addition to the 1880 report regarding the *Mabel Bird* (above), the *Fanny Sprague* killed one of about seven or eight fin whales encountered at this site in mid July 1884 (*Daily Times*, 1884). A very large humpback was taken in October 1846 between Monhegan and George’s Islands (*American*, 1895). The same whaler took a 45-bbl, 45-ft whale (species not indicated) on German Bank (off the southwestern shore of Nova Scotia, centered at about lat. 66°30’N, long. 43°20’W) and a 20-bbl, 96-ft fin whale between the Schoodic Ridges (near Mount Desert Rock, Maine) and German Bank. He was knocked out of his boat by a whale on the outer ridge, some 50 miles off Mount Desert, Maine. Both German Bank and the Schoodic Ridges remain good areas for observing fin and humpback whales (Clapham, personal observ.). Shore whalers in Maine hunted fin whales to the south of Seal (“Sial”) Island and off Mount Desert Rock during the early 20th century (Calderwood, 1972).

There was a great advantage to whaling in shallow water because the deeper the water, the poorer were the chances of retrieving whales that sank (see below). It was claimed in 1885 that the whales were responding to whaling pressure by moving into deeper water, and there was concern that this would make the fishery unfeasible. “After being killed, they usually sink, and it is doubtful if the business, as at present conducted, will last if the whales are driven off from near shore, it being difficult to recover them in over 40 fathoms of water” (True, 1904:64).

Seasonality

Whaling was conducted in the Gulf of Maine in all months, at least on an opportunistic basis. In most years, steamer whaling began in February or March and continued into November (Table 3). There is a suggestion in the data that fin whales, at least, were available in sufficient numbers throughout the spring and summer months to sustain the fishery. Too few of the records, however, had both date of capture and species identification, so no rigorous comparative analysis of seasonal trends in the proportions of fin and humpback whales in the catches was possible.

Hunting Loss

Bomb lances were associated with high loss rates in both schooner and steamer whaling (Reeves and Smith, 2002). Therefore, any estimates of landings need to be adjusted to account for hunting loss (i.e. whales that were struck but not secured). In some respects this was a shoot-and-salvage fishery. In fact, in the summer of 1886 a reward was being offered by one of the oil factories at Linekin, Maine, “for news leading to recovery of drift whales” (*Register*, 1886f). Although the American open-boat whalers had developed special techniques and devices for “raising” humpback and fin whales that sank (Brown, 1887: 270–271), no evidence was found to suggest that these were used in the Gulf of Maine. In attempting to estimate the total kill, it is important to avoid “double counting,” which would result if one were to register individual whales that were reported as salvaged without somehow deducting them from the estimated or inferred struck/lost component.

Discussion

Species Composition of Catches

There was a clear historical progression in the Gulf of Maine, as elsewhere in the world, from an early preference for right whales, to more frequent catching of humpback whales as right whales became scarce, and finally to taking other rorquals as well (mainly fin whales) once the technology for doing so had become

available. An important consideration is that although the rorqual fishery in the Gulf of Maine during the second half of the 19th century probably took few right whales, the whalers certainly would have attempted to take any they encountered.

Therefore, the lack of reports of right whales reinforces the conclusion that very few of them remained in the Gulf of Maine by the 1880's (Reeves, 2001). During the entire 19th century, humpback and fin whales appear to have been the principal species taken in the Gulf (*American*, 1895).

More than half of the kill throughout the 1880's probably consisted of fin whales, and humpbacks may have constituted less than about a quarter of the total whale kill during that decade. The Provincetown catch of about 100 whales in 1880, for example, included only 3 humpbacks and the rest were fin whales (Clark, 1887a). This ratio, however, may not have applied to the Maine whalers. One authority with first-hand experience in steamer whaling reported that he took primarily humpbacks (Maddocks, 1926; Webb, 2001), and, according to another source, a humpback was "much more valuable than a finback, yielding twice as much of oil for the same size of creature" (Clark, 1887a:45). Although newspaper accounts are not particularly reliable on such matters, they tended to regard the humpback as the principal target species in Maine (*Daily Times*, 1885e).

It is uncertain whether, or to what degree, the rorqual whalers selected one species over the other. Although humpbacks (1) would have been easier to approach than fin whales, (2) would have produced more oil per unit of length, and (3) may have sunk less often after being killed, there is no clear evidence that the steam whalers hunted them preferentially. It is possible that the catch composition was affected by the relative seasonal availability of the two species. Fin whales could have been present during the entire whaling season from late winter to late autumn, while humpbacks would not have been available until they arrived from their southern wintering areas in late spring. Indeed, the 40 whales taken by steamers early in the

1885 season (March–April) averaged 60 ft long and 25 tons in weight, yielding 20 bbl of oil, 2 bbl of meat, 5 tons of "dry chum," and 2 tons of bone (baleen), for an average value of \$400/whale (Wilcox, 1885; True, 1904:64). Based on this description, these likely were all or mostly fin whales.

An alternative explanation of the predominance of fin whales in late 19th century catches might be found in the different catch histories of the two species. Humpbacks had been exploited relatively intensively over much of their North Atlantic range prior to the introduction of steam power and explosive projectiles (Reeves and Smith, 2002), whereas fin whales only began to be killed in significant numbers in the late 1860's and 1870's as modern whaling methods became increasingly available (Tønnessen and Johnsen, 1982). It is therefore possible that humpbacks had simply become less available in the Gulf of Maine by the 1870's and 1880's because of their longer history of exploitation.

Opportunistic vs. Dedicated Whaling

Some of the records of "whaling" listed in Table 3 refer to instances in which whalers or fishermen, who were either idle or engaged in nonwhaling activities, chased and attempted to kill whales that they encountered opportunistically. Interpretation of the historical record must therefore attempt to discriminate evidence of purposeful whaling activity directed at particular target species ("dedicated whaling"), from evidence that indicates the less deliberate search for and pursuit of such species ("opportunistic whaling").

There is also some ambiguity associated with incidents involving entanglement or entrapment in fishing gear. For example, in cases where minke whales were reported as being "captured" (Allen, 1916), it is probably more likely that they were "by-caught" in fishing gear than harpooned while freely swimming. In fact, of the 25 minke whale records mentioned by Allen (1916) from 1849 to 1913, no fewer than 9 explicitly involved capture in fishing weirs.

Removals of Humpback Whales by Whaling in the Gulf of Maine

No good time-series of catch data exists for the Gulf of Maine. The available data are often equivocal concerning numbers and species taken. Nevertheless, there is sufficient anecdotal information on whaling activity to conclude that humpback whales were hunted at least on a small scale throughout the 19th century. Small-scale, shore-based whaling enterprises existed along the coasts of Maine and Massachusetts from the early 1800's to the 1860's, but their combined annual catches of humpback whales may not have exceeded 10–20 animals. Whale ships, as opposed to whaleboats, from Provincetown and Nantucket are known to have conducted short cruises on Nantucket Shoals and elsewhere in the Gulf of Maine from time to time, but the evidence for such whaling is sporadic and essentially anecdotal. Again, catch levels for these vessels appear to have been in the single digits or low tens, at the most, in any single year.

The introduction of bomb-lance technology in the 1850's and 1860's made it easier to kill both humpback whales and fin whales, and by the 1870's the scale of removals of fin whales would have increased greatly. The same may also be true of humpback whales, but there is no conclusive evidence one way or the other. Schooners were outfitted to hunt rorquals in the late 1870's and 1880's, and they probably took a few tens of humpback whales in some years.

In about 1880, fishing steamers began to hunt whales in the Gulf of Maine. This steamer fishery grew to include about five vessels by the mid 1880's but quickly dwindled to only one vessel after menhaden returned to the Gulf in large numbers in 1886. Fin whales constituted at least half of the catch by the steamers, and the total number of humpback whales taken in any year (including secured and shot/lost whales, combined) was probably fewer than 100. Inferences about changes in whaling effort and catch could be confounded by the fact that newspapers and other printed sources were themselves

expanding with time, perhaps thereby increasing the likelihood that whaling activities would be recorded. As noted in Table 2, few Provincetown newspapers published between 1880 and 1904 were available for review. If those materials could be found and examined, it might provide better documentation of catches during that period. Otherwise, however, there is no obvious approach to improving our current fragmentary state of knowledge.

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Literature Cited

- Allen, G. M. 1916. The whalebone whales of New England. Mem. Boston Soc. Nat. Hist. 8(2):105–322.
- Allen, J. A. 1908. The North Atlantic right whale and its near allies. Bull. Am. Mus. Nat. Hist. 24(18):277–329.
- American*. 1895. Ellsworth, Maine, 17 October.
- Baraff, L. S., and M. T. Weinrich. 1993. Separation of humpback whale mothers and calves on a feeding ground in early autumn. Mar. Mammal Sci. 9:431–434.
- Brown, J. T. 1887. The whalemen, vessels and boats, apparatus, and methods of the whale fishery. In G. B. Goode (Editor), The Fisheries and Fishery Industries of the United States. Sect. V, Vol. II, pt. XV, p. 218–293. Gov. Print. Off., Wash.
- Calderwood, I. E. 1972. Sequel . . . days of Uncle Dave's fish house. Courier-Gazette Inc., Rockland, Maine.
- Clapham, P. J., L. S. Baraff, C. A. Carlson, M. A. Christian, D. K. Mattila, C. A. Mayo, M. A. Murphy, and S. Pittman. 1993. Seasonal occurrence and annual return of humpback whales, *Megaptera novaeangliae*, in the southern Gulf of Maine. Can. J. Zool. 71: 440–443.
- _____ and C. A. Mayo. 1987. Reproduction and recruitment of individually identified humpback whales, *Megaptera novaeangliae*, observed in Massachusetts Bay, 1979–1985. Can. J. Zool. 65:2853–2863.
- _____ and I. E. Seipt. 1991. Resightings of independent fin whales, *Balaenoptera physalus*, on maternal summer ranges. J. Mammal. 72:788–790.
- Clark, A. H. 1887a. History and present condition of the [whale] fishery. In G. B. Goode (Editor), The fisheries and fishery industries of the United States. Sect. V, History and methods of the fisheries, Vol. II, pt. XV, p. 3–218. Gov. Print. Off., Wash.
- _____. 1887b. Part III. The fisheries of Massachusetts. In G. B. Goode (Editor), The fisheries and fishery industries of the United States. Sect. II, A geographical review of the fisheries industries and fishing communities for the year 1880, p. 113–280. Gov. Print. Off., Wash.
- Daily Times*. 1879. Bath, Maine, 27 August.
- _____. 1880. Bath, Maine, 17 May.
- _____. 1884. The whale; our special interviews the captain of the steamer which captured him; and inspects the monster. Bath, Maine, 22 July.
- _____. 1885a. Bath, Maine, 17 March.
- _____. 1885b. Bath, Maine, 30 April.
- _____. 1885c. Bath, Maine, 21 May.
- _____. 1885d. Bath, Maine, 25 May.
- _____. 1885e. Bath, Maine, 12 November.
- _____. 1886a. Bath, Maine, 26 February.
- _____. 1886b. Bath, Maine, 3 June.
- _____. 1886c. Bath, Maine, 30 June.
- Geraci, J. R., D. M. Anderson, R. J. Timperi, D. J. St. Aubin, G. A. Early, J. H. Prescott, and C. A. Mayo. 1989. Humpback whales *Megaptera novaeangliae* fatally poisoned by dinoflagellate toxin. Can. J. Fish. Aquat. Sci. 46:1895–1898.
- Goode, G. B. 1884. The whales and porpoises. In G. B. Goode (Editor), The fisheries and fishery industries of the United States. Sec. I., pt. 1, p. 7–32. Gov. Print. Office, Wash.
- _____. 1887. Natural history. In G. B. Goode, J. W. Collins, R. E. Earl, and A. H. Clark, Materials for a history of the mackerel fishery, App. B, pt. IV, Comm. Fish Fish., pt. IX, Rep. Comm. for 1881. Gov. Print. Office, Wash.
- Greene, F. B. 1906. History of Boothbay, Southport, and Boothbay Harbor, Maine, 1623–1905. Loring, Short & Harmon, Portland, Maine.
- Hain, J. H. W., M. J. Ratnaswamy, R. D. Kenney, and H. E. Winn. 1992. The fin whale, *Balaenoptera physalus*, in waters of the northeastern United States continental shelf. Rep. Int. Whal. Comm. 42:653–669.
- Hamazaki, T. 2002. Spatiotemporal prediction models of cetacean habitats in the mid-western North Atlantic Ocean (from Cape Hatteras, North Carolina, USA to Nova Scotia, Canada). Mar. Mamm. Sci. 18:920–939.
- Hegarty, R. H. 1959. Returns of whaling vessels sailing from American ports. A continuation of Alexander Starbuck's "history of the American whale fishery" 1876–1928. Old Dartmouth Hist. Soc., and Whaling Mus., New Bedford, Mass., 58 p.
- IWC. 2002. Report of the Sub-committee on the Comprehensive Assessment of North Atlantic Humpback Whales. J. Cetacean Res. Manage. 4(Suppl.):230–260.
- _____. 2003. Report of the Sub-committee on the Comprehensive Assessment of Humpback Whales. J. Cetacean Res. Manage. 5(Suppl.):293–323.
- Katona, S. K., and J. A. Beard. 1990. Population size, migrations and feeding aggregations of the humpback whale (*Megaptera novaeangliae*) in the western North Atlantic Ocean. Rep. Int. Whal. Comm., Spec. Iss. 12: 295–305.
- _____, V. Rough, and D. T. Richardson. 1983. A field guide to the whales, porpoises and seals of the Gulf of Maine and eastern Canada: Cape Cod to Newfoundland. Charles Scribner's Sons, N. Y., 3rd ed., 253 p.
- Kenney, R. D., and H. E. Winn. 1986. Cetacean high-use habitats of the northeast United States continental shelf. Fish. Bull. 84: 345–357.
- Little, E. A. 1981. The Indian contribution to along-shore whaling at Nantucket. Nantucket Hist. Assoc. Nantucket Algonquian Stud. 8: 1–85.
- _____. 1988. Nantucket whaling in the early 18th century. In W. Cowan (Editor), Pap. 19th Algonquian Conf., p. 111–131. Carleton Univ., Ottawa.
- _____ and J. C. Andrews. 1982. Drift whales at Nantucket: The kindness of Moshup. Man in the Northeast 23:17–38.
- Macy, O. 1835. The history of Nantucket. Hilliard, Gray, and Co., Boston, 300 p.
- Maddocks, L. 1926. Looking backward: memories from the life of Luther Maddocks. Privately publ.
- Mitchell, E., and R. R. Reeves. 1983. Catch history, abundance, and present status of north-west Atlantic humpback whales. Rep. Int. Whal. Comm., Spec. Iss. 5:153–212.
- Norton, A. H. 1930. The mammals of Portland, Maine, and vicinity. Proc. Portland Soc. Nat. Hist. 4(1):1–199.
- Payne, P. M., D. N. Wiley, S. B. Young, S. Pittman, P. J. Clapham, and J. W. Jossi. 1990. Recent fluctuations in the abundance of baleen whales in the southern Gulf of Maine in relation to changes in selected prey. Fish. Bull. 88:687–696.
- Reeves, R. R. 2001. Overview of catch history, historic abundance and distribution of right whales in the western North Atlantic and in Cintra Bay, West Africa. J. Cetacean Res. Manage., Spec. Iss. 2:187–192.
- _____ and M. F. Barto. 1985. Whaling in the Bay of Fundy. Whalewatcher 19(4):14–18.
- _____, J. M. Breiwick, and E. D. Mitchell. 1999. History of whaling and estimated kill of right whales, *Balaena glacialis*, in the northeastern United States, 1620–1924. Mar. Fish. Rev. 61(3):1–36.
- _____ and T. D. Smith. 2002. Historical catches of humpback whales in the North Atlantic Ocean: an overview of sources. J. Cetacean Res. Manage. 4:219–234.
- _____, S. L. Swartz, S. E. Wetmore, and P. J. Clapham. 2001. Historical occurrence and distribution of humpback whales in the eastern and southern Caribbean Sea, based on data from American whaling logbooks. J. Cetacean Res. Manage. 3:117–129.
- Register*. 1884a. Boothbay, Maine, 12 July.
- _____. 1884b. Boothbay, Maine, 26 July.
- _____. 1884c. Boothbay, Maine, 11 October.
- _____. 1885a. Boothbay, Maine, 28 February.
- _____. 1885b. Boothbay, Maine, 7 March.
- _____. 1885c. Boothbay, Maine, 14 March.
- _____. 1885d. Boothbay, Maine, 4 April.
- _____. 1885e. Boothbay, Maine, 2 May.
- _____. 1885f. Boothbay, Maine, 16 May.
- _____. 1885g. Boothbay, Maine, 13 June.
- _____. 1885h. Boothbay, Maine, 20 June.
- _____. 1885i. Boothbay, Maine, 18 July.
- _____. 1885j. Boothbay, Maine, 14 November.
- _____. 1886a. Boothbay, Maine, 20 March.
- _____. 1886b. Boothbay, Maine, 10 April.
- _____. 1886c. Boothbay, Maine, 15 May.
- _____. 1886d. Boothbay, Maine, 29 May.
- _____. 1886e. Boothbay, Maine, 5 June.
- _____. 1886f. Boothbay, Maine, 3 July.
- _____. 1886g. Boothbay, Maine, 10 July.
- _____. 1887. Boothbay, Maine, 10 September.
- Seipt, I., P. J. Clapham, C. A. Mayo, and M. P. Hawvermale. 1990. Population characteristics of individually identified fin whales, *Balaenoptera physalus*, in Massachusetts Bay. Fish. Bull. 88:271–278.

- Smith, T. D., and R. R. Reeves. 2002. Estimating historical humpback whale removals from the North Atlantic. *J. Cetacean Res. Manage.* 4(Suppl.):242–255.
- _____ and _____. 2003. Estimating historic humpback whale removals from the North Atlantic: update. *J. Cetacean Res. Manage.* 5(Suppl.):301–312.
- Stackpole, E. A. 1982. The last whale-chase off Nantucket. *Hist. Nantucket* 29(3):12–16.
- Starbuck, A. 1878. History of the American whale fishery from its earliest inception to the year 1876. *In Rep. U.S. Comm. Fish Fish.* 1875–76, App. A, 768 p.
- _____. 1924. The history of Nantucket County, Island and town including genealogies of first settlers. C. E. Goodspeed & Co., Boston, 871 p.
- Tønnessen, J. N., and A. O. Johnsen. 1982. The history of modern whaling. Univ. Calif. Press, Berkeley.
- True, F. W. 1904. The whalebone whales of the western North Atlantic compared with those occurring in European waters with some observations on the species of the North Pacific. *Smithson. Inst. Press, Wash., D.C.* (1983 repr.), 332 p.
- Webb, R. L. 2001. Menhaden whalemens: nineteenth-century origins of American steam whaling. *Am. Neptune* 60:277–288.
- Wenzel, F. W., D. K. Mattila, and P. J. Clapham. 1988. *Balaenoptera musculus* in the Gulf of Maine. *Mar. Mammal Sci.* 4:172–175.
- _____. 1843–1914. *Whalemens's Shipping List, and Merchants' Transcript*, New Bedford, Mass. Vol. 1, no. 1 (17 March 1843) to Vol. 72, no. 51 (29 December 1914).
- Wilcox, W. A. 1885. New England fisheries in April, 1885. *Bull. U.S. Fish. Comm.* 5. [Not seen; cited from True (1904:64).]
- _____. 1886. New England fisheries in June, 1886. *Bull. U.S. Fish. Comm.* 6. [Not seen; cited from True (1904:64).]
- Yentsch, C. S., J. W. Campbell, and S. Apollonio. 1995. The garden in the sea: biological oceanography. *In* P.W. Conkling (Editor), *From Cape Cod to the Bay of Fundy: an environmental atlas of the Gulf of Maine*, p. 61–74. MIT Press, Cambridge, Mass.