

**Project Title:** Large Whale Entanglement Response Enhancements

**Project Duration:** September 1, 2011 to August 31, 2012

**Applicant Name:** Provincetown Center for Coastal Studies

**Principal Investigator:** Scott Landry

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**Project Costs:** \$12,697

**Report period:** (03/01/2012 - 08/31/2012)

**Final Report:** The entanglement response team at the Provincetown Center for Coastal Studies (PCCS) greatly appreciated the support for enhancements to large whale disentanglement and gear recovery efforts, including dedicated aerial support for disentanglement operations outside of the PCCS right whale survey season and distribution of newly-designed pole-mounted skiff-hook adapters for the Atlantic Large Whale Disentanglement Network (ALWDN). Aerial support when searching for and responding to entangled whales has been proven to be highly effective throughout the history of entanglement response on the US east coast. Pole-mounted skiff-hooks are used widely within the ALWDN and an upgrade in design is meant to increase speed and efficiency when establishing control and telemetry lines to entangling gear.

During the grant period funding was used to conduct searches for three entangled whales (one right and two humpback whales) and for development, manufacture and distribution of the new skiff-hook design. Overall the grant was very successful, with a thorough effort to aid and document entangled whales that could not be helped at first sighting as well as creating a lasting contribution to the tool kits of entanglement responders. Late into the grant period PCCS found further sources of aerial support funding and therefore decreased spending of aerial support toward this grant in favor of further development of the new skiff-hook design which was more complex than originally hoped (see figure 3 below).

**Aerial Support for Entanglement Response:** Three dedicated flights were conducted by the PCCS aerial survey team to search for entangled whales (see figure 1 below). All told 11.6 flight hours were used during the grant period, as opposed to the 16 hours proposed. All takes were recorded and will be reported appropriately. Any and all right whale sightings were reported to the right whale Sightings Advisory System. The aerial survey complied with the NMFS Northeast Regional Office Commercial Aviation Services Requirements, and safety and operations procedures are detailed in a PCCS manual, available upon request.

One flight in search of an entangled right whale first seen on September 18, 2011 on Jeffreys Ledge was undertaken. The PCCS MAER team attempted to respond that day but had to turn back due to rough seas. PCCS chose to search for the whale at the next good weather window, on 9/21/2011, since there was some indication the whale may have been anchored and other right whales were in the area, indicating residency. A dedicated search by air (3.8 flight hours) and sea was conducted but the whale was not found at the last known location. With the help of the aerial survey crew, the response team was able to document 16 individual right whales, none of which matched the description of the entangled whale or exhibited raw entanglement wounds.

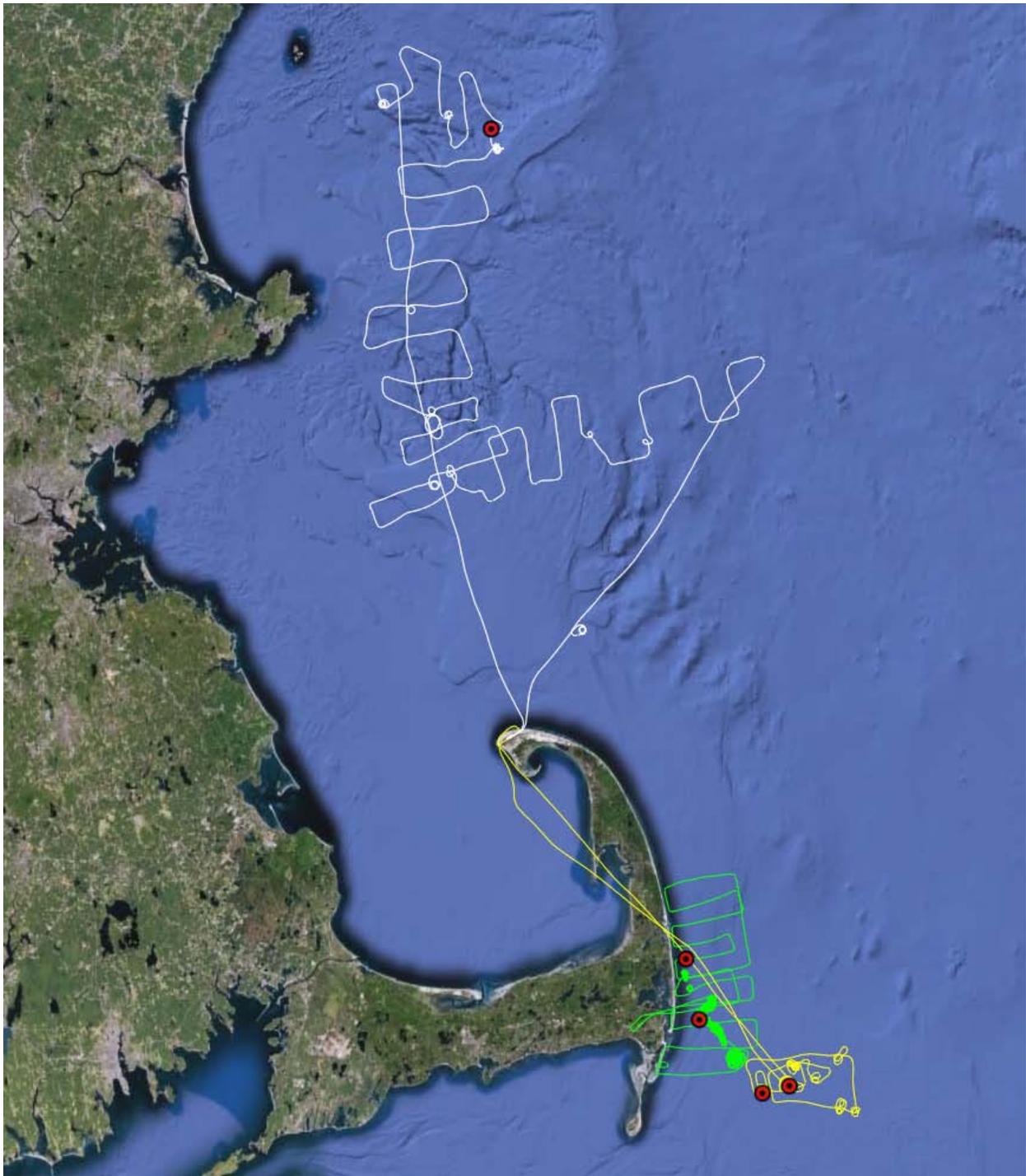
On April 29, 2012 the aerial team conducted a search for a humpback whale reported as entangled off Chatham, MA (WR-2012-09; tracks in yellow, sightings in red; 2.8 flight hours). The team found the whale about 2miles away from its original report location and gathered documentation to assess the entanglement of the whale. Sea conditions precluded an on-water response for the whale but the aerial

team gathered enough documentation to confirm the case which would have been difficult based on the original report alone (the original reporter was vague about details of the sighting and did not photograph the whale). The following day the response team conducted a search in the area but did not relocate the whale.

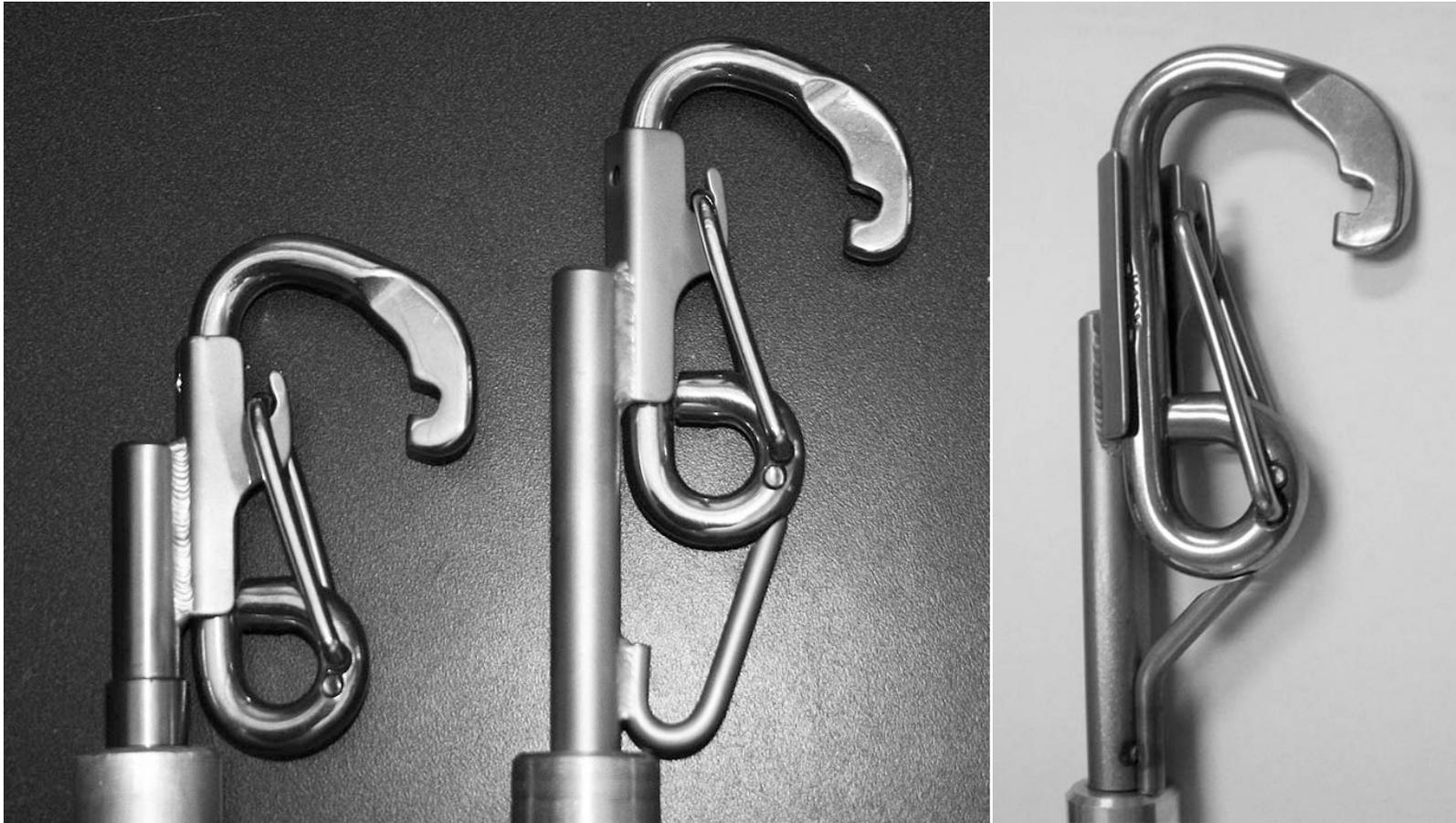
On July 9, 2012 the aerial survey team conducted a search of a badly entangled, free-swimming humpback east of Cape Cod (WR-2012-20; tracks in green, sightings in white; 5 flight hours). The PCCS response team had attempted disentanglement the day prior without success and was hoping for another attempt. The aerial team found the whale about 10miles southeast of its location the day prior, gathered good documentation of the entanglement and relayed that information to the response team on the water. Unfortunately the response team was unable to make much headway with the whale but the whale was later confirmed to have shed its entanglement.

**New Skiff-hook Adapter Design:** PCCS worked with its tool manufacturer to develop a new pole-mounted skiff-hook adapter. A first draft was made and selectively distributed during the spring/summer entanglement response season. Between PCCS in-house experience and feedback from the Hawaiian Islands response team PCCS worked with its tool manufacturer to create a second draft of the new skiff-hook (see figure 2 below for both drafts). Generally PCCS was not happy with the first draft which was a compromise between what was needed for entanglement response and what was considered feasible by the manufacturer. That draft considerably increased the reliability of the original design but still created a snagging point for very small diameter lines (not commonly encountered during entanglements but a distinct possibility).

In July and August PCCS worked with the manufacturer to come up with a prototype second draft that would significantly decreased the profile between the adapter and the pole. PCCS tested this design during trainings and during whale and sea turtle responses when needed. The prototype worked exceptionally well. At the end of August we ordered 24 of the new adapters and provided the manufacturer with the older prototype to be recycled into the new design to reduce cost (PCCS kept one of the original drafts as an archive). Distribution of the new, and final, skiff-hook design began in November 2012 with a manual transfer of the tools during the right whale consortium and the start of the Southeast region right whale season including 15 already in the hands of responders in the Bay of Fundy (NEAq, CWRT), Maine (MP), Gloucester, Virginia (VAq), Georgia (DNR) and Florida (FWC). The remaining nine in-house at PCCS will be distributed in coordination with the NMFS disentanglement coordinator as needed. Overall we are very pleased with the final skiff-hook design. At the next round of network orders the new design will be offered to network members at the expense of the original design.



**Figure 1. Aerial surveys conducted between 03/01/ - 08/31/2012:** September 21, 2011 aerial search tracks in white. April 29, 2012 aerial tracks in yellow and entangled whale sightings in red. July 9, 2012 aerial tracks in green and entangled whale sightings (July 8 and 9) in white.



**Figure 2. New skiff-hook adapter drafts:** Original skiff-hook adapter, far left; first draft of new skiff-hook adapter, middle; second and final draft of the new skiff-hook adapter, far right. The final design will now be made generally available and the old design phased out.

Original Budget		Enacted Budget
Personnel	0.00	0.00
Fringe Benefits	0.00	0.00
Travel	0.00	0.00
Equipment	2,400.00	3,855.00
Supplies and Postage	180.00	180.00
Contractual (aviation)	8,800.00	6,939.00
Other	0.00	0.00
Total Direct Charges	11,380.00	10,974.00
Indirect Charges (34%)	877.00	1,371.90
Indirect charges on subcontracts (5%)	440.00	346.95
<b>Totals</b>	<b>12,697.00</b>	<b>12,692.85</b>

**Figure 3. Original and enacted budget:** aerial support expenditures were reduced to favor equipment costs to develop and finalize the new skiff-hook adapter (indirect costs were shifted accordingly).