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Background

The Navy's southwest marine resource management team consists of three highly trained biologists with diverse backgrounds and experience. Mr. Walt Wilson is the marine biologist for Navy Region Southwest (NRSW) and represents Commander, Navy Region Southwest (CNRSW). Ms. Christiana Boerger and Ms. Jessica Bredvik both work for Naval Facilities Engineering Command Southwest (NAVFAC SW) as marine biologists under the Environmental Business Line.

Position Description

As the marine resources management team, Mr. Wilson's, Ms. Boerger's, and Ms. Bredvik's (marine resource management team) primary responsibility is to manage the Navy's marine resources to support the Navy's mission. Within the southwest area of responsibility (AOR), the team implements management of marine resources through several Integrated Natural Resource Management Plans (INRMPs).

Most unique to the southwest AOR is the San Diego Bay INRMP. This document is the only INRMP throughout the Department of Defense that was created for the management of an entire body of water. San Diego Bay is home to one of the largest naval complexes in the world and is surrounded by California's second largest incorporated city. San Diego Bay receives waters and urban runoff from a watershed of 415 square miles (mi²) and is where 50 percent of the county's population lives and/or works. At the same time, it supports a many-tiered and complex food chain and is a thriving area for fish and wildlife populations. The proportion of bird migrants on the Pacific Flyway or marine species navigating ocean currents that enter the bay to breed, raise young, or rest is high considering the bay's relatively small size (10,532 acres of water and 4,419 acres of tidelands). Due to these functions, there is a great need to manage conflict, to understand ecosystem connections, and to make the most strategic investment possible in the bay's future. Today, more than 25 percent of the U.S. Naval fleet is homeported in San Diego. Maintaining readiness in this ecosystem without causing harm to the natural resources within can be challenging.

In conjunction with the INRMP, the southwest marine resource management team utilizes other tools to support the mission by ensuring compliance with environmental policies such as, the National Environmental Policy Act, Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, and Marine Mammal Protection Act (MMPA).

One such compliance management tool is a National Memorandum of Understanding (MOU) between the National Marine Fisheries Service (NMFS) and the Navy that establishes a framework whereby the Navy can assist NMFS with marine mammal stranding investigations. Additionally, CNRSW is tasked as the Navy's Southwest Region Stranding Coordinator and has implemented a region wide set of Regional Stranding Assistance Investigation Plans (RSAIPs) for each of its installations as directed by the Navy/NMFS National MOU. The MOU and resulting RSAIPs, while designed to provide guidance to installations in assisting NMFS stranding teams during Unusual Stranding Events (USE), have been fundamental in guiding responses to any stranding event, large or small.



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As good stewards of the marine environment, the Navy's southwest marine management team communicates across Navy commands and other agencies. Management of the southwest marine resources requires a large coordination effort with scientists within the Navy, other government agencies, international entities, academia, and industry to exchange information and research findings about marine resources.

Summary of Accomplishments

Although the southwest marine resource management team accomplished several important tasks over the reporting year, one single event demonstrated the team's outstanding program management, technical skills and experience, and relationships with federal and non-federal partners while supporting the Navy's mission.

On December 8, 2014 a fatal stranding of a rare young Bryde's whale in San Diego Bay near Naval Air Station North Island gave the Navy an opportunity to exercise to the fundamental tenants of the National MOU and RSAIP. The expedited response included Navy and NMFS coordination to facilitate a complex recovery of the 2,000 pound cetacean. This unusual opportunity enabled the Navy's marine resource management team to work closely with NMFS Southwest Regional Stranding Network and the San Diego Museum of Natural History (SDMNH) to preserve the only fully intact specimen of a rare Bryde's whale for future research. This specimen will not only contribute to the scientific and regulatory communities body of knowledge, but will also provide for public education, outreach, and training.



Bryde's whale carcass floating in San Diego Bay.

Program Management

Upon notification of the deceased whale, Mr. Wilson followed the guidance of the RSIAP. The local NMFS marine biologist at the Southwest Fisheries Science Center (SWFSC) and the Southern California Stranding Coordinator were immediately contacted. Mr. Wilson then went to the site of the stranding and immediately reported it to both the internal Navy stranding network and the remaining external NMFS stranding network in Long Beach, CA to begin the initial investigation. There was no indication what caused the whale's death, and the only apparent link to the Navy was its location near Naval Base Coronado (NBC). Because it was a cetacean, Walt recognized the carcass would garner a high level of interest from NMFS, and the media given the opportunity. The carcass was securely within the confines of the NBC facility offering security from outside observers and would remain so until NMFS could recover the animal.

Shortly after discovering the carcass, Walt met with SWFSC at NBC for an initial investigation. The specimen, floating upside down, appeared to be a minke whale—the most abundant rorqual whale in the world. The Navy and NMFS coordinators realized that the body, which was small and fully intact, would make an excellent museum carcass. However, both the Los Angeles and San Diego museums of natural history declined the stranding coordinators' initial offer, on the assumption that it was a common minke whale.



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This left NMFS with one requirement, salvage as much information as possible before discarding the carcass at a landfill. Given its location next to a naval facility, NMFS and SWFSC would need time and Navy support to conduct the investigation. The NRSW stranding coordinator engaged NBC Commanding Officer, Captain Christopher Sund, to explain the data collection process and requested 24 hours to maximize the data collected. Captain Sund supported the effort, enabling the team to collect all needed information.

Technical Merit and Stakeholder Interaction

Navy biologists, Walt, Christiana, and Jessica, together with their colleagues at NMFS and SWFSC began a whirlwind process of planning and coordination. By that afternoon, all three organizations had a plan in place to move the carcass the following morning. NRSW arranged via the NBC Commanding Officer for NBC Port Operations personnel to move the carcass to the nearby carrier piers where a gantry crane could reach it for lifting. Additionally, the Navy coordinated with Sea World to acquire the proper gear needed to lift the whale. NMFS West Coast Region Stranding Coordinators contracted a local trucking company to provide a truck that would allow SWFSC personnel to cut into the carcass and extract as much biological data as possible before transporting it to a local landfill.



NAVFAC Southwest public works employees coordinate with a private landholding civilian with the removal of the carcass and loading onto a truck.

On the morning of December 9, NBC Public Works personnel realized how difficult it was to move a carcass that weighed nearly 2,000 pounds. To solve this, they devised a makeshift metal ramp with a large wooden pallet that could be lowered into the water and positioned it under the carcass to lift it onto the pier. This solution averted the need to use various straps and slings gathered from Sea World and SWFSC and also ensured minimal damage to the carcass.

Once on the pier, the team rolled the carcass over, right side up, and were amazed to discover three ridges on its head—the markings of a rare Bryde's whale. Knowing that the retrieval of this exceptionally uncommon species would arouse research interest, the natural history museums were re-engaged in search of a possible home for the carcass. Within five minutes, SDMNH accepted the opportunity. The museum's Director of Paleontology, Tom Deméré, explained the recovery's importance as, "we were given a rare opportunity to study and sample a specimen of this uncommon species of rorqual." At the time there was only one specimen of a Bryde's whale on the west coast. The Los Angeles Natural History Museum has its skull and associated baleen, but not the whole skeleton. Specimen KX0258, as this find was designated, will be the only complete skeleton of a Bryde's whale on the west coast, and with the recovery of the full baleen array, will be one of the only preserved specimens with both the skeleton and baleen.



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The stranding team was further able to leverage an uncommon resource which would later prove critical to the months of follow-on work necessary to prepare the specimen for the museum. As it turns out, the truck driver happened to be a volunteer for the San Diego Zoo and one of NBC’s California Least Tern monitors. Having an understanding of natural history and an appreciation of the significance of this specimen, he offered to contact his employer who owns a large agricultural holding in San Diego County. The employer agreed to allow that the specimen could be stored and examined at their farm.

On December 10, two days after specimen KX0258’s discovery, Walt, Christiana, and Jessica together with their team of scientists from NMFS, SWFSC and SDNHM gathered at the farm to flense (strip the flesh from) the carcass and prepare it for museum collection. As with any Navy operation, safety was a primary concern. In the confined truck bed, the team used a variety of large knives and sharp blubber hooks to remove the flesh from the carcass. The safety brief also covered the procedures and precautions necessary to ensure proper preservation of the carcass both for its museum display and for a detailed investigation on the cause of death. As it turned out, flensing a whale is not a complete process with knives and flensing hooks and the bones remained coated in meat and blubber. The farmer further offered to bury the entire carcass in a mountain of mulch in which the remaining flesh would be eaten by bugs over the course of a few months. The stranding team and the museum were especially grateful for this offer and the specimen was buried.



Walt Wilson sharpening knives in preparation for flensing of the carcass.



Christiana Boerger and Jessica Bredvik begin the flensing.

Over the next four months Walt, Christiana, and Jessica would join their NMFS and SDMNH colleagues at the remote farm to investigate the stages of decomposition and recover the complete whale skeleton for the museums research collection.

During the flensing operation, time was taken to educate students at the farm and Marine Mammal information cards were distributed for them to take to school, and NMFS offered to provide educational outreach to the local elementary school.

Walt, Christiana, and Jessica complemented the expertise of a team of marine mammal experts from multiple agencies and organizations. Their expertise in marine biology provided outstanding background knowledge and familiarization with field and lab protocols to ensure a well-balanced and efficient team was assembled to complete the challenging tasks required to properly preserve this rare marine mammal specimen. The opportunity to work with their NMFS colleagues provided valuable cross training for both



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agencies throughout the evolution, strengthening the partnership and understanding of our similar yet varied duties within each other's respective agencies'.

Walt, Christiana and Jessica were able to work hand in hand with the Navy's primary marine mammal regulator, NMFS and its scientific investigatory affiliate the SWFSC, throughout this multi month event. In addition, the Navy and NMFS were given a rare opportunity to work with a community stakeholder not common to any Navy interactions by providing a resource to the scientific and community and the public via the San Diego Museum of Natural History. This rare opportunity to work with expert paleontologists offered the Navy and NMFS scientist's an immeasurable training opportunity to expand beyond their routine necropsy experiences and learn more about the intricate details of mammalian form and function. In addition and by chance, the evolution provided an interesting and rare outreach to school children in the small agricultural community which facilitated our urgent and unexpected need for a secure space to store and work up a large marine mammal.

The coordinated efforts of the entire team to recover this rare whale species were highly recognized. The NMFS stranding team Director provided a letter to the Commanding Officer at NBC thanking him for his understanding of the importance of the recovery operation, specifically thanking Walt for his coordination and Jessica and Christiana for their assistance in the complex and messy flensing operation. Most importantly the letter expressed their appreciation of the NBC public works department for their ingenuity in recovering the specimen from the bay.

CNRSW recognized Walt, Christiana and Jessica's performance for this unique event with Letters of Commendation that highlighted their dedication to duty in planning, organizing and executing the recovery, necropsy, and flensing of an exceptionally rare Bryde's whale specimen which was entered into the scientific collection at the San Diego Museum of Natural History. They were further recognized for their leadership and the significant role to the Navy and National Marine Fisheries Service for further strengthening the relationships of many organizations required to complete evolutions of this nature and ensure proper execution of future events. Additionally, CNRSW Admiral Lorge also recognized the entire NMFS and SWFSC stranding team with Letters of Commendation. The Letters of Commendation were presented to the NMFS/SWFSC stranding team members by the National Oceanic and Atmospheric Administration's Assistant Administrator of Fisheries at an awards ceremony.

Finally, the events of this stranding were documented and published in the Navy Energy and Environmental Magazine "Currents" Spring 2015 edition.

Orientation to Mission

Mr. Wilson led and coordinated with his counterparts at NMFS, SWFSC, Sea World, San Diego Museum of Natural History, NAVFAC SW, multiple departments at NBC, news media, and a private landowner to successfully remove the specimen from San Diego Bay. This allowed NMFS the opportunity to fully investigate the cause of death and both the Navy and NMFS to test the efficiency of the newly implemented MOU and RSAIP. In addition, this gave NRSW and



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NAVFAC SW the opportunity to proactively develop and strengthen the element of team work and flexibility in dealing with a complex stranding event, while having the additional benefit of adding a rare specimen to a museum research collection that will benefit all marine mammal research in the future.

The Navy's proactive approach to recovering and preserving this rare specimen is indicative to the monumental effort the Navy takes in meeting our resource management responsibilities.

Transferability

The stranding of this rare whale specimen enabled the Navy to efficiently exercise the RSIAP which pertains to all installations under the AOR of CNRSW. It also allowed our resource management partners the opportunity to participate in the stranding investigation process and to assess the function and efficiency of the RSIAP. This event illustrated the Navy's capabilities and level of response that could be expected in future stranding events. While strengthening the relationship between each agency, we were able to better manage expectations in terms of time and response rates to various requests and needs required to manage a complex task. The Navy's coordination efforts for this event are transferable to all coastal installations.

Impact/Outcomes

The Navy's response to this particular stranding event followed the RSIAP and allowed for a smooth, organized process. We were able to successfully leverage this whale's demise as an opportunity to strengthen the Navy network of resources and relationships with NMFS and SWFSC, and the paleontology community—contributing to the knowledge base of this species for years to come.

The removal of the whale also benefited the boating community as it was no longer a navigational hazard. If it had been removed from the bay by the Navy, it could have resulted in extreme costs to several city municipalities as most waterfront properties do not have the capabilities that were required to handle such a large object.

This cooperative and proactive approach to environmental stewardship reemphasized the Navy's dedication to transparency among regulators and the public.

Importance of Accomplishment

The most important aspect of this accomplishment was exercising the tenants of a new cooperative marine mammal stranding assistance plan with the primary agency it was designed to assist. The execution of this evolution demonstrated the Navy's proactive stance toward meeting our obligations to the requirements set forth by the MMPA.

The relationships that were strengthened between the Navy and NMFS during this exercise cannot go overlooked. The entire group worked well together as team and we were able to provide a valuable resource to the marine mammal research community and the public. Tom Demure from the Museum of Natural History summarized the entire operation as “extremely



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efficient and should serve as a good model on how to process future strandings.” Through this event, the Navy demonstrated our commitment to stewardship of our resources.