

DEVELOPING INFORMATION AND SUPPORT NECESSARY TO PRIORITIZE & SUPPORT REMOVAL OF ABANDONED VESSELS IMPACTING CORAL RESOURCES¹

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INTRODUCTION

Grounded and abandoned vessels are a problem in many coastal areas, and are a significant threat for coral reef habitats. In addition to the physical crushing and smothering of habitats, grounded vessels may release oil and other pollutants, impede navigation and block public and private uses of coastal habitats. They become illegal oil and hazardous material dumps, visual eyesores, as well as wildlife entrapment and public health hazards.

The National Oceanic and Atmospheric Administration (NOAA) has a long and diverse interest in grounded and abandoned vessels, but action to address this problem has been limited and focused on specific threats. NOAA cartographers locate wrecks on nautical charts to facilitate safe navigation. NOAA Office of Response and Restoration addresses pollution threats from vessels. NOAA Fisheries works on entanglement hazards and debris removal from vessels. However, with the exception of vessels grounded in the National Marine Sanctuaries, action is not usually taken to address the vessel itself, or restoration of the grounding site. This is because existing federal laws and regulations provide less than optimal authority to promptly remove grounded or abandoned vessels that harm natural resources but which are not otherwise obstructing or threatening to obstruct navigation, or threatening a pollution discharge.

In 1999, the US Coast Guard, NOAA, the Department of Interior and the government of American Samoa began a collaborative effort to address nine abandoned fishing vessels on a reef in Pago Pago, American Samoa. These vessels were a public nuisance and posed an array of threats, including pollution, public health, and physical crushing of coral habitats. Using the combined authorities of the agencies, the vessels were cleaned, cut apart, and removed from the reef, which was also restored. This experience, combined with increasing agency concerns about the decline of coral habitats from a variety of causes, led NOAA and others to question whether abandoned vessels may be causing significant harm to coral habitats elsewhere. At the same time, the US Coral Reef Task Force (CRTF) published their National Action Plan, and identified groundings as a significant factor in the loss of reef habitat.

In response to the National Action Plan, NOAA began investigating the problem of abandoned and derelict vessels that affect U.S. coral reef habitats and developed the

¹ This article expresses the views of the authors and does not necessarily reflect the views of NOAA

Abandoned Vessel Program. The program has two short range goals: to increase both understanding (in terms of both extent and relative impacts) and awareness of the issue. To accomplish these goals the AVP has been engaged in three initiatives: 1) Development of a data management system for abandoned vessels; 2) Review of existing legal authorities; and 3) Field efforts including: vessel surveys, stakeholder workshops, and facilitation of vessel removals. The database and legal review efforts are on-going. NOAA has also begun vessel surveys and work with local governments to identify candidate vessels for removal.

CASE STUDIES

The following case studies provide an opportunity to grasp the complex nature of issues surrounding abandoned vessels. While they do not address all the possible problems, the potential for improved management is easily recognized.

Grounding of the Fishing Vessel *Swordman I*

On June 5, 2000, the longline fishing vessel *Swordman I*, struck Pearl and Hermes Reef in the Northwestern Hawaiian Islands (Figure 1). The 77-foot fishing vessel had 70 miles of longline, 500 pounds of fishhooks, and 10,000 gallons of diesel fuel onboard. In addition to physical and oil related impacts to coral habitats, there was concern that resident birds, turtles, and monk seals would be tangled in loose gear.

The United States Coast Guard (USCG) rescued the crew, stabilized the vessel, and addressed the pollution threat. As they removed 7,500 gallons of fuel and oil-contaminated water the vessel became lighter and was pushed higher up the reef. The response team was then accessed lower compartments, where they found an additional 2,500 gallons of diesel fuel. The initial plan was only to remove contaminants and floatable debris from the wreck, but the USCG in consultation with the Natural Resource Trustees, determined that the remaining fuels and oil could not be removed safely and effectively. They concluded that removing the vessel was warranted. The *Swordman I* was refloated, towed to an authorized scuttling site and sunk in 6,000 feet of water.

Since the purpose of the wreck removal was to address the residual pollution threat from the vessel, the USCG could open the Oil Spill Liability Trust Fund. The fund covered the costs of the response and vessel removal, which totaled over \$1.5 million.

The *Swordman I* incident illustrates the benefits of prompt vessel removal. Although it was expensive, this course action eliminated the threat of entanglement, residual releases of oil and the inevitable collateral reef injury cause by a vessel left on a reef. As a result, no further



Figure 2. Pieces of *Karma*'s hull lying on a seagrass bed in shallow water of Puerto Rico.



Figure 1. The *Swordman I* grounded on a reef at Pearl and Hermes Atoll.

site cleanup or restoration is anticipated. The initial plan to remove the fuel and leave the vessel would have resulted in long-term impacts to the reef ecosystem and left the Trustees with few options. Without a pollution or navigation threat federal trust funds would not have been available for further removal or damage assessment and restoration actions.

Scuttling of the Sailing Vessel *Karma*

In 2000, the *S/V Karma* was stripped down and scuttled by its owner to make an artificial reef in an ill-conceived ecotourism venture in seagrass beds offshore of Luis Peña Key, Puerto Rico (Figure 2). The vessel rests in 20-25 feet of water, less than 15 feet from a coral reef. The seagrasses in this area are designated as critical habitat for endangered Green Sea Turtles. The physical presence and the motion of the *Karma* are causing physical injury to the seagrass and the nearby reef is in danger of direct impact.

The vessel owner refused to remove the vessel. In an effort to prevent further injury, the Puerto Rico Department of Natural and Environmental Resources (PRDNER) temporarily stabilized the boat with four anchors. This slowed injury to the seagrass and reduced the risk to the coral reef. Facing winter storms that could multiply the impact of the vessel and an uncooperative vessel owner, the PRDNER requested Federal assistance with the removal. The Environmental Protection Agency (EPA) considered fines and enforcement actions which produced little response from the owner. They also determined that the penalties and enforcement authorities of the Clean Water Act and the Marine Dumping Act did not apply. The Army Corps of Engineers could not use their authority under the Rivers and Harbors Act because there was no navigation threat. The USCG found no oil pollution potential because the owner had removed all fuels and fluids from the vessel and concluded that they had no removal authority. The U.S. Navy was contacted, but the removal project was too small for a Navy training exercise. NOAA identified a funding source but concluded that they lacked clear removal authority since the vessel was still private property. NOAA took initial steps to determine whether the law enforcement office of NOAA Fisheries could use their Endangered Species Act authority to remove the vessel. Agents began an investigation but were stalled when they couldn't establish clear title to the vessel. Follow-up surveys have shown that *Karma* is rapidly disintegrating. Seagrasses around the vessel show signs of scouring and vessel debris is spreading into the adjacent reef areas.

Efforts to remove the *S/V Karma* highlight the unclear nature of federal authority to remove certain abandoned vessels that threaten sensitive marine environments.

DATA COLLECTION, MANAGEMENT & DISTRIBUTION

The project's first effort was to mine numerous databases that contain abandoned vessel information. Sources included the USCG, NOAA and the State of Florida. After these data were reviewed and incorporated, additional internet and paper research was performed. Data was further refined through field surveys of vessels in PR and the USVI in the summer of 2002 (with Research Planning, Inc.) Critical points were learned in the field. Many vessels remain on paper that can no longer be found in the field. Conversely, many more were found that had no record in the database. These observations emphasize the need for rigorous,

centralized data collection, thorough field surveys, input from as many public and private sources as possible and support further development of the Abandoned Vessel Inventory.

The inventory is housed in a Microsoft Access 2000 database which allows for flexible data entry, association of different types of survey information and easy execution of a variety of query, filter, and reporting operations. The database also manages and exports information to the project website and for electronic distribution. This database currently contains 63 vessels in the U.S. Pacific Island territories, over 160 vessels around the U.S. Caribbean Islands, and approximately 550 vessels in the Florida Keys.

Additionally, the AVP has set up a Geographic Information System (GIS) application linked directly to the database. This tool spatially represents vessel information and can relate it to other relevant data including aerial photography, nautical charts, and habitat maps. The GIS facilitates simultaneous spatial analysis of vessel data and NOAA's best environmental and ecosystem data.

CHALLENGES

The case study review and the data management discussion begin to reveal the spectrum of challenges that face the Abandoned Vessel Program. The full suite of challenges includes:

- Developing accurate vessel data, including vessel ownership information
- Building a better understanding of the fate and effects of vessel groundings, including case-histories of prior grounding and wreck removal efforts
- Prioritizing vessels and securing funds for removal
- Evaluating legal issues and strategies to facilitate vessel removal
- Developing cost effective and environmentally sound removal and disposal strategies
- Supporting local governments with technical and legal aspects of vessel removals
- Improving monitoring and restoration tools

To overcome these hurdles the AVP will have to broaden its range of activities and address its long range goals: 1) to provide technical assistance for vessel removals and prevention activities, 2) to facilitate vessel removals and 3) to expand the scope of the program to all US waters. Initiatives designed to meet these goals, in addition to continued database development, a well developed vessel survey regiment and a thorough legal and political analysis of the issue will move us a long way towards meeting these challenges. Developing a new array of partnerships with many government and private entities will also be essential.

BROADENING CONCERN

Although coral reefs are particularly sensitive, abandoned vessels are a problem across a much broader range of habitats. Concern is also increasing over the fate of thousands of sunken vessels throughout the entire US coastal zone. Many of these wrecks pose environmental threats, either because of the hazardous nature of their cargoes, the presence of munitions, or because of bunker fuel oils left onboard. As these wrecks corrode and decay, they may release oil or hazardous materials.

CONCLUSIONS

Coral reefs are among the most biologically productive and diverse ecosystems in the world. They are home to over 25% of all marine life and support approximately 4,000 fish species. This diversity sustains thriving tourism and fishing industries, which provides billions of dollars in economic activity. Unfortunately, reefs are declining at an alarming rate. One of the factors in the decline is the cumulative impact of vessel groundings. Coral habitats, which take hundreds of years to develop, can be reduced to rubble in moments.

Responders generally focus on the pollution threats posed by fuels on board grounded vessels, but often lack the authority or funding to remove the vessel itself. Even though the pollution risk may be abated, these vessels continue to damage ecosystems. As they are moved and broken up by storms they batter reefs and other habitats, scattering them with debris and leaving behind significant sources of iron associated with harmful algal blooms. Focus on the oil pollution alone may miss the larger goal of environmental protection after a spill. Responders must ensure that they consider the overall impacts of an incident and work to minimize both the pollution and vessel impacts during a grounding event.

The preliminary, coral focused, data collection and issue development efforts reported here can serve as first steps in improving the state, territorial, commonwealth, and Federal response to grounded and abandoned vessels. Further effort is clearly needed both in terms of the depth and scope of response. Finally, it is clear that concern for and effort in coral habitats is only a good beginning. The environmental impacts from abandoned vessels and shipwrecks in other marine habitats must also be evaluated.

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