Mitigating Vessel Grounding Damage Claims for Injuries to Coral Habitats: Listing of an additional 20 species as threatened raises exposure

By Greg Challenger and Gary Mauseth, Polaris Applied Sciences Coral reefs are typically viewed by the public as tropical destinations with abundant marine life, well-known locations identified on charts with recreational SCUBA diving.

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For the purposes of regulatory protection, authorities in tropical maritime regions typically view coral reefs as any hard bottom location where coral organisms may occur, regardless of coral abundance or the presence of traditionally defined coral reefs. Compensation for injuries to coral may include costs of removing the vessel, regulatory response and assessment efforts, repair or reinstatement of the coral reef, as well as compensation for lost future use, and third party claims for losses to fisheries and other commercial resources. On 27 August 2014, the US National Marine Fisheries Service announced they will consider 20 additional coral species as "threatened" affording protection for a total of 22 species in US waters, seven in the Caribbean and Western Atlantic and 15 in the Indo-Pacific.

Regulatory compensation formulas and other means of estimating damage from vessel groundings or anchor damage in coral often do not discriminate between the wide ranges of ecological services available for vastly different coral environments. Not all coral habitats are ecologically or economically equal. Most claimants assume that the quantum of damages for injured coral habitat in any location will be equivalent to that for high value coral habitat damage. A recent claim presented to one of our clients for close to USD 1 million for a relatively small injury from a vessel anchor near Fort Lauderdale, Florida, USA on a degraded coral reef warrants consideration of sound practice for avoidance of further coral injury and mitigation of damage once occurred.

Not all coral habitats are equal

Locations where reef-building corals occur are dictated by warm equatorial currents and their interaction with continental land masses. While corals occur near the Equator, the Caribbean Sea, Eastern South America, Indian Ocean, Central and South Pacific Ocean have large tropical and subtropical zones created from ocean currents. Western Africa and the Americas generally have fewer corals due to the cooler temperatures flowing from high latitudes, although deep-water corals have been increasingly found at all latitudes around the globe and have become a regulatory concern in a number of vessel casualty incidents in deep water.

While vessel groundings comprise an extremely small percentage of adverse effects to coral reefs overall; they are often the focus of substantial media and regulatory attention such as the 2013 vessel grounding by the US Navy in the Philippines. Highly publicized settlements for coral damage in Egypt, the US and other regions continue to provide models of settlement approaches for affected regulatory authorities contemplating development of compensation programs. Damage claims for coral injuries are now commonplace in every major coral reef region in the world, whether under specific regional legislation or common law principles.

Managing risks during response to vessel grounding incidents Managing exposure to damages claims from vessel injuries in coral habitats can be grouped into the following broad categories: minimising injuries following the stranding and during the subsequent response actions, playing an active role in the assessment and repair of coral injury as necessary under law and as practical to reduce damages and participating in defining or defending the quantum of a potential settlement to compensate for unrestored injuries.

During an emergency, human life and safety is the first priority. If human life is not at risk, an important consideration in environmental damage claims, in addition to pollution control, is to minimise the footprint of the vessel on the bottom habitat, even if there is uncertainty as to whether coral is present. Response actions can extend injury through sedimentation, hull movement and negatively buoyant tow lines. In analysis of coral damage cases worldwide, we find that restoration costs are related to three actions in approximately equal proportions: navigational error; action of the crew in an attempt to power off the reef; and the actions of the salvor.

Use of the ship's engines while aground can result in scouring around the propeller and deposition of very large quantities of sand associated with natural coral reef communities. Even small tugs and support vessels can displace sand and rubble can smother live corals and associated plants and animals. Physical contact with the reef by salvage vessels, tow wires, chains, and anchors can cause substantial injury and result in large damages claims. The use of positively buoyant towlines has proved to be very effective in minimising injury to reef communities.

Regulatory authorities often afford equal protection to all areas where corals occur, even if the habitat may appear sparsely populated. A common issue in many grounding incidents is the false assumption that the vessel has not grounded on coral. It is safe to assume coral may occur on any hard bottom (including rubble) within any of the major coral regions of the world.

We have first-hand knowledge of cases in which the actions of the stranded vessel's crew and the salvor have resulted in settlements in excess of the value of the vessel. The bulk of the coral injury could have been avoided by prudent actions of the crew and salvor without jeopardising the safety of the crew and vessel. It is rare to find a salvage contract holding the salvor liable for unnecessary injury to the reef, therefore leaving a substantial and expensive restoration project for vessel interests. Vessel owners and operators may mitigate their potential liability for coral reef damage by making sure to bring to the attention of those involved in the incident response, including any salvors or other outside contractors, the potential consequences of aggravating coral damage and so taking that into account in any response/salvage plan. Provided safety of the crew is assured, effective strategies, plans and actions may be established by an informed response team and implemented in a coordinated manner to minimise the potential injury to the reef and subsequent restoration actions. Avoidance and minimisation of additional collateral environmental injuries should be an integral consideration of any salvage plan along with the risk of oil pollution, human life and safety, time constraints, weather and vessel integrity.

Response actions can expand injury from sedimentation, hull movement and negatively buoyant tow lines and rigging.

Following proper notification procedures, there are actions that can be taken by the vessel and those who initially arrive on scene that may become important to the defence of damage claims. The vessel heading and position should be recorded frequently to document possible vessel movement while aground. If handheld GPS is available, positions of fixed locations on the bow and stern should be recorded frequently. GPS used in tracking function can create an image of the vessel perimeter by conducting a walking survey round the main deck. There is often considerable coral degradation near large ports where incidents may occur and the ability to document what has been caused by the ship and what is pre-existing often becomes important in defence of injury claims.

An underwater survey of hull integrity should also include some video footage of surrounding habitats at risk and to identify a safe extraction route of the vessel if it can be lightered. This information can be very useful to resource managers and contractors seeking to avoid further injuries and need only take a short time in a few locations around the vessel. Coral experts may also conduct a survey to identify or verify planned vessel extraction routes and assess adjacent habitat health prior to vessel movement. Hydrographic surveys may be undertaken by salvors as a tool to evaluate egress options including potential environmental options.

Reef repair (reinstatement) Local authorities may or may not demand repair or reinstatement of the damaged reef. In many cases certain actions can mitigate damages. Claims of protracted recovery or long term loss of service can often be mitigated with effective reinstatement strategies. Active restoration or reinstatement strategies may be developed cooperatively by the vessel interests and regional authorities. Vessel interests may have a choice to carry out the program or to fund restoration actions through the local regulatory authorities. While it is often less expensive for vessel interests to conduct the restoration, it may take several years and will be subject to review and revision by the regulatory authorities. Scientists are generally in agreement with the importance of rapid salvage of live corals or other site stabilisation actions immediately following a grounding incident on a coral reef to prevent continuing injury and promote natural recovery. Emergency restoration actions have included relocation of live coral fragments to positions where they are more likely to survive, and relocation or removal of unstable rubble to promote natural larvae settlement and new colony growth. It is difficult to judge the success of these programs as documentation is often limited, and there is little understanding of overall changes in ecological services as a result of many of these programs.

Hull injuries including creation of fine rubble, large broken coral colonies, flattening and depopulating of diverse habitats.

In areas subject to natural ongoing processes of degradation, an elaborate restoration scheme may have little value. Vessels that run aground, often do so in high traffic areas in the entrances to ports or in shipping channels which are not popular tourist destinations or rich fishing grounds. These areas are often degraded from a variety of pre-existing human disturbances. Corals that are chronically degraded may not be effectively restored at any cost, therefore the quantum of damages from vessel groundings should be comparatively lower.

Assessment of compensation for grounding damage Once the ship is refloated or removed, a survey of the habitat condition by experienced coral damage biologists is typically necessary even if reef repair actions will not be undertaken. An understanding of how damages will be assessed within the legal framework of the region is necessary to develop a practical data collection plan. Assessment should be focused on what is necessary under local laws and may include information necessary to promote recovery or reinstatement of losses and information necessary to determine a compensation estimate.

There are many guidelines for assessment of coral reef conditions worldwide, each with a specific objective. Determining the size of the injured area and documenting lost organisms may be accomplished by a variety of accepted methods. The GPS data from the vessel while aground can be very important to establish the boundaries of possible injury. Modern tools such as SONAR mapping and computer software to extract and analyse video frames for coral cover often make assessment rapid and less expensive, although a vessel grounding incident in coral is sometimes used as a rationale for extensive and time-consuming studies to be funded by the responsible party.

Injury duration or recovery time can play a major role in the loss and resultant damage claim in both regulatory formulas and the technical exercise of scaling a project to lost uses. For example, Egypt has a formula for damages using an anticipated recovery time multiplied by the estimated tourism value per unit area of high value Red Sea reef and the size of the affected coral area. A number of other regions have used this formula because it tends to generate high value claims by drawing in inferences from a high-use tourist area and applying them every year to the injured area without consideration of partial return to service over time.

Advances in rapid restoration using coral farming techniques with the Caribbean staghorn coral.

Recent developments in coral reef protection and vessel grounding claims Oil pollution or loss of hazardous cargo is often considered the primary environmental threat from a grounded vessel, but damage from the hull itself can generate a substantial portion of the claim. In the US, the Oil Pollution Act of 1990 (OPA 90) addresses injuries resulting from the removal of grounded vessels, even if the vessel does not release fuel or other hazardous cargo and represents only a threat of oil pollution. Together with the National Marine Sanctuaries Act and the National Park Act, these laws provide the US federal framework meant to compensate or “make whole” for injures that are considered equivalent to the costs to repair, replace or restore the injured resources, including losses that accrue until the affected resource fully recovers (compensation). Many regions have adopted the US approach to equate damages with the costs of restoration for the sole purpose of generating claims, whether or not the funds will be used for restoration. Other regions as far away as Taiwan have invoked the Egyptian formula because it recommends high use values from the Red Sea multiplied by long recovery times, which can result in substantial claims.

Other new or proposed laws relevant to vessel operators include the proposed US Coral Reef Conservation Act.[1] The Act would create a Coral Reef Conservation Fund to be used to address emergency response actions in US waters, among other things, and could allow vessel forfeiture under certain circumstances. This Act is unlikely to pass this year but continues to be submitted in various forms to Congress.

The US State of Florida, Department of Environmental Protection (DEP) oversees the Florida Coral Reef Protection Act 2009.[2] The law authorises compensation for the cost of replacing, restoring or acquiring equivalent resources, the value of lost use pending restoration or replacement, the cost of damage assessments, the reasonable costs of monitoring the recovery, and the cost of enforcement actions undertaken - including attorney's fees and expert witness fees. In addition to compensation similar to other US federal laws, the Florida law allows for the imposition of a civil penalty of USD 1,000 per square meter of damaged coral when the total damaged area is more than 10 square meters.

The US National Marine Fisheries Service (NMFS) has recently reported "substantial scientific or commercial information" that up to 66 additional Caribbean and Indo-Pacific corals may be threatened or endangered as a result of findings promulgated by a number of petitions to list up to 82 corals under the US Endangered Species Act (ESA).[3] Various petitions dating back to 2005 assert a number of commonly known adverse coral influences such as synergistic threats of ocean warming, ocean acidification and other impacts affect these species, more recently focusing on a desire for immediate action to reduce greenhouse gas concentrations to levels that do not jeopardize these species. There is also evidence that the species are being affected by dredging, coastal development, coastal point source pollution, agricultural and land use practices, disease, predation, reef fishing, aquarium trade, physical damage from boats and anchors, marine debris, and aquatic invasive species. Elkhorn and staghorn corals have been listed as threatened in the Caribbean since 2006.

Following public comment, on 27 August 2014, NMFS announced they will consider 20 of the species as “threatened” affording them additional protection for a total of 22 listed species in US waters, seven in the Caribbean and Western Atlantic and 15 in the Indo-Pacific.[4] We do not expect the petition and listing process will change over the coming decades, with additional marine species being afforded additional protection over time.

The ESA currently makes it unlawful to "take" a listed species. “Take" is a catch-all phrase that includes killing, harming, wounding, harassing etc. In its interpretation, the US Fish and Wildlife Service (USFWS) held that it was possible to “take" or harm an endangered species not only by physically injuring it, but also through habitat modifications, which may impair a species’ ability to breed, feed or find shelter. In a series of legal challenges, the US Supreme Court upheld the federal regulation prohibiting "habitat modification" that actually kills or injures an endangered species.[5] Regulatory authorities would have to demonstrate that a habitat modification such as a coral grounding would result in a “take” if the grounding occurred in critical habitat designation even if there were no listed species or evidence of listed species present, which would be very difficult. For a known “take”, fines up to USD 50,000 in criminal cases and civil penalties of up to USD 25,000 per violation are possible.[6] The definition of a single violation has not been clearly defined for coral species and vessel grounding could conceivably possibly involve numerous violations.

Designation of critical habitat is defined in the ESA as: (1) the specific areas within the geographical area occupied by the species, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination that such areas are essential for the conservation of the species. Once critical habitat is designated, the ESA requires Federal agencies to ensure that they do not fund, authorize or carry out any actions that are likely to destroy or adversely modify that habitat. Theelkhorn and staghornhave associated critical habitat designation which includes the Caribbean Sea and Western Atlantic near shore. We expect most tropical locations within US waters will be designated as critical habitat to these newly listed species as well as most of the Caribbean that was likewise designated critical for Acroporid species.

Deep-sea corals, also referred to as cold water corals, occur in deeper or colder oceanic waters and are of increasing interest to regulatory authorities. Unlike shallow water tropical corals, these corals inhabit continental shelves, slopes, canyons, and seamounts in waters ranging from 50 metres to over 2,000 metres. Deep-sea corals are also often extremely long living, slow growing animals, characteristics that make them particularly vulnerable to physical disturbance. We believe these corals may likely become part of claims in salvage or vessel disposal cases.

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Section 408)[7] specifically calls for NOAA to establish and implement a *Deep Sea Coral Research and Technology Program* that would work in coordination with other federal agencies and educational institutions to gain a more thorough understanding of deep-sea coral ecosystems and their associated threats. The Act provides for designation of zones in areas where deep-sea corals are identified and to protect deep sea corals from physical damage from fishing gear or to prevent loss or damage to equipment from interactions with deep sea corals. There have been several recent environmental claims in sanctuaries for injuries to deep-sea organisms from containers or sunken vessels.[8] This program may result in expansion of claims to other deep sea organisms in areas outside of US marine sanctuaries.

Discussion Vessel interests require reasonable certainty of a technically appropriate and reasonable settlement for coral injuries. As discussed, there are certain actions that vessel interests can initiate to reduce potential claims. This equates to substantial savings in injury and resultant settlements.

A cooperative approach to assessment and restoration planning can also avoid duplicative studies and protracted debate. While the cooperative approach is more commonly employed during the assessment phase, it is often neglected by regulatory authorities during the restoration-planning phase. Natural resource trustees charged with protecting the public interest in the resource have become increasingly interested in developing legislation to provide guidelines for conducting

coral reef injury assessment and restoration planning as a means to recover damages. The US program has been successful in its ability to recover damages from vessel groundings. These settlements have resulted from a relatively small number of cases that addressed restoration of localised injured areas. While there is an understandable desire to receive adequate compensation to reinstate injuries to the environment, questions remain about the practicality and efficacy of extensive and elaborate restoration programs for relatively small areas of impact, and their potential application to other areas. More importantly, there is a question whether or not their application in other areas is intended to reinstate the environment at all. New legislation in many regions should recognise technically sound yet practical site specific approaches to assessment and restoration and consider alternative strategies when on-site restoration may not be successful.

While management programs and other alternative strategies are of benefit to the resource and can provide compensation for an injury, consideration of how these projects can be scaled to the injury is lacking. New methods of scaling the injury to a restoration or compensation project that provides equivalent services when primary reinstatement of the injury is not likely to be effective are also needed. Innovative ways to determine the relative value of programs such as education, navigation aids, reef management, salvage protocols could provide reinstatement or protection of equivalent resources avoiding elaborate and costly reef reconstruction programs. Unfortunately, it may be up to vessel interests to promote technically defensible proposals to counter large settlements that inspire local authorities to develop damage claims.

Questions or comments concerning this Gard Insight article can be e-mailed to the Gard Editorial Team.

Footnotes

1 H.R.71 - Coral Reef Conservation Act Reauthorization and Enhancement Amendments of 2013 (113th Congress (2013-2014)). https://www.congress.gov/bill/113th-congress/house-bill/71

2 Florida Coral Reef Protection Act of 2009. Florida Statutes TITLE XXIX. Chapter 403.93345 http://www.leg.state.fl.us/statutes/index.cfm?mode=View%20Statutes&SubMenu=1&App_mode=Display_Statute&Search_String=coral+reef+protection+act%27&URL=0400-0499/0403/Sections/0403.93345.html

3 Federal Register, 77 FR 73220, 2012 http://www.fpir.noaa.gov/Library/PRD/Coral/77%20FR%2073220.pdf

4 NOAA Press Release, 27 August 2014. http://www.fpir.noaa.gov/Library/PAO/Press_releases/CoralsListingPressRelease2014-2.pdf

5 Steven J Davison, The Aftermath of Sweet Home Chapter: Modification of Wildlife Habitat as a Prohibited Taking in Violation of the Endangered Species Act, 27 Wm. & Mary Envtl. L. & Pol'y Rev. 541 (2003) http://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1166&context=wmelpr

6 Endangered Species Act, Public Law, 93-205-DEC. 28, 1973 Section 11, Penalties and Enforcement http://www.gpo.gov/fdsys/pkg/STATUTE-87/pdf/STATUTE-87-Pg884.pdf

7 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Section 408) page 161, http://www.nmfs.noaa.gov/msa2007/docs/act_draft.pdf

8 http://sanctuaries.noaa.gov/protect/damage/welcome.html