

The Creation and Management of Artificial Wrecks

MARIO SALIBA

Introduction

Artificial wrecks, which are simply man-made reefs, are nothing new. There are Japanese records dating back to 1700 of artificial reef construction to increase fish productivity. In modern times artificial wrecks or reefs are created intentionally by dumping structures – which range from abandoned boats, planes, trains, oil rigs, and steel bars to obsolete military craft – to the bottom of the sea and then allow the dumped structure to become part of the sea ecosystem. Marine life has been quick to adapt to artificial reefs. In fact, barracuda have been known to stake out their territory on an artificial reef moments after a vessel has been scuttled.

Environmental Impact

Many scientists view these new ecosystems with ambivalence. Based on the natural shipwrecks on the ocean floor which have become nuclei of marine life, artificial reefs in tropical sites are placed either directly on a damaged reef, in the hopes of helping it to regain its biomass, or on a seabed in proximity to a natural reef. The wreck's structural material (usually metal) becomes a substrate for coral larvae to settle on, and the



The MV Cominoland at ix-Xatt l-Ahmar in Gozo.
(Photo: Courtesy of Pete Bullen)

wreck eventually replicates a natural habitat, providing shelter, a source of food, and an area for mating and reproduction for a variety of creatures. Scientists fear that some of the materials used to create artificial reefs, such as discarded tyres and municipal solid waste ash from incinerators, may in fact decompose and contaminate the very reef community they are intended to support. More research is needed before these concerns can be supported or refuted (Viders, 1995: 150).

The dumping of objects into the sea is regulated by the Convention on the Protection of Marine Pollution by Dumping of Wastes and other Matter of which Malta, unfortunately, is not a contracting party among the forty-two states who signed the convention and protocol up to 28th May 2012 status, (International Marine Organisation, 1972). Through these conventions bans on the dumping of radioactive waste and industrial waste at sea have been implemented. So once the vessels to be scuttled are thoroughly cleaned from the remaining oil and made safe for divers by closing small portholes etc., they can be let down onto the seabed to serve as an artificial wreck.

The Benefits of Artificial Wrecks

The use of sunken vessels as artificial reefs has increased in popularity, especially with scuba divers. These types of artificial reefs are also called artificial wrecks. Any non-diver may be forgiven for wondering what all the fuss is all about. Indeed, the very idea of purchasing a vessel just to sink it for this purpose is always met with initial reaction of derision – and why not! The aim of an artificial reef programme is to attract thousands of divers to these sites, thus relieving human pressures on the natural reef ecosystem. This means that, many thousands of euro worth of scrap metal are purchased just to be sunk. Naturally many don't understand the reason for



Wreck diving off the MV Xlendi.
 (Photo by Peter Lemon. Source: <http://www.adi-associates.com> - accessed October 2013).

this and find it hard to justify such behaviour. But some governments of course have taken advice and have recognised the economical value and benefits of such projects.

Briefly these are twofold. As far as the underwater environment is concerned, coral cannot grow on sand because it needs something solid on which it can grip and then grow. Rock, dead coral, a ship or even an old car will provide such a base. Furthermore, it must be remembered that a given area of water can only support so many marine creatures and no creature can live in mid-water where there is neither shelter nor food. An artificial wreck, due to the number of large cavities and crevices, provides shelter and protection for a large variety of biota, including several fish and vertebrate species (Grech, 1996). There is also the all-important human interest. Today, throughout the world, the sale of underwater cameras far exceeds the sale of spear guns and these photographers want something to photograph. An accessible wreck is far better than chasing the ever-diminishing tail of some distant whale or dolphin. Even without a camera there is always the added excitement of exploring a man-made object in the way that one cannot explore a reef - and, unlike any other attraction, the

longer the wreck has been underwater the more interesting it becomes. Past, present and future study of these reefs may help to make the sea a more sustainable resource for marine animals and the ever-increasing demands of mankind.

Management of Present Wrecks

It has been a good fifteen years (November 1999) since the first artificial wreck was created by the scuttling, at ix-Xatt l-Ahmar in Gozo, of the ex-MV Xlendi of the Gozo Channel Company. Another eight years have passed since the scuttling of the ex-MV Karwela and ex-MV Cominoland also of the Gozo Channel at the same site in August 2006.



The scuttling of the MV Cominoland at ix-Xatt l-Ahmar, Gozo in August 2006.
 (Photo: Courtesy of Mario Saliba)



Wreck diving off the MV Karwela.
(Photo: Courtesy of Pete Bullen)

These artificial wrecks are proving to be an added attraction to divers in Gozo which is considered to be one of the prime diving locations in Europe. Apart from being popular with divers these wrecks attract an exiting number of fish and other marine creatures. Therefore these artificial reefs can also be used for scientific research.

Nearly all scientific studies documented indicate an increase in marine life populations at these sites, although little is known about the actual change in composition of ecosystems, and how the balance of the communities within the ecosystems shifts. Also it is still uncertain whether artificial reefs increase the overall population of marine species or merely provide the refuge for marine life in the area to increase.

Unfortunately so far the scientific potential of these artificial reefs has not been sufficiently exploited. When these wrecks were created it was assumed that a certain management plan for these reefs was to be implemented at a later stage. Are these reefs being scientifically monitored? They are now quite established and one would assume that if they were studied they could contribute to more conclusive studies and also to the convening of international meetings on this topic.

Since these reefs were co-financed by EU funds to boost dive tourism in Gozo, one hopes that whoever initiated the master plan for the diving industry has included a scientific study about these reefs and a general plan for their management. Sometimes there are conflicting interests relating to recreational diving, other underwater activities and marine conservation. Something needs to be done to reconcile these interests.



Sinking the MV Karwela at ix-Xatt l-Ahmar, Gozo in August 2006.
(Photo: Courtesy of Mario Saliba)

These special diving sites should be monitored scientifically to observe and record any change in marine communities and ecosystems at the sites, as well as sea water quality. The effect of these artificial reefs on the local flora and fauna can be effectively measured as a result of such continuous monitoring.

Monitoring can also provide information or can form part of the master plan for the coastal zone of Gozo which is also in the pipeline. The study can then form the basis for decisions to manage the coastal zone.

Conclusion

Since the diving industry started to build up about twenty-five years ago, the infrastructure has improved as a result of better roads, ladders and handrails on dive sites. Moreover, Gozo now has its own decompression chamber at the Gozo General Hospital – this adds to divers' safety. The scuttling of the artificial wrecks at ix-Xatt l-Aħmar gave a boost to this industry but we need to look after and study these wrecks for their ecological value. Also this jewel in the



Wreck diving near the scuttled MV Xlendi.

Mediterranean, our island, needs to be protected and this can be done by turning more areas of the Gozo coast into marine protected areas. Certain species like grouper and dentex, which used to thrive at Dwejra, have become scarcer due to over-fishing in this area. The need to protect this area is long overdue. Dwejra and other sites should be declared marine protected areas by law. The recent opening of an EU funded interpretation centre for marine protected areas as part of a European programme called Pancea is a small step in the right direction but proper legislation and enforcement is still lacking.

References

Grech, M. (1996). 'Creating an Artificial Reef', in *Environment Impact Statement*. Malta: MEPA.

International Marine Organisation, (1972). *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 and 1996 Protocol Thereto*.

Available online at: <http://www.imo.org/OurWork/Environment/SpecialProgrammesAndInitiatives/Pages/London-Convention-and-Protocol.aspx>. Accessed on August 31, 2013.

Viders, H. (1995). *Marine Conservation for the 21st Century*. Florida, USA: Best Publishing Company.



Wreck diving.
(Photo: Courtesy of Pete Bullen)

Mario Saliba studied at the Gozo Lyceum and the University of Malta graduating MD in 1982. In 1990 he underwent post graduate training in Hyperbaric Medicine and Diving Medicine at the National Hyperbaric Unit in Aberdeen, Scotland. In 2009 he finished a Masters in Family Medicine at the University of Malta. He is a clinical tutor and examiner in the department of Family Medicine at the University of Malta. He practices as a General Practitioner, and works as a Hyperbaric Physician at the Gozo General Hospital. He is a Member of the Malta College of Family Doctors and a Sport Diving Medical Referee.