



Ripping up shipwrecks

How can we protect shipwrecks from deep-sea fishing?
Sean Kingsley looks at marine archaeology's greatest threat.

In the early 19th century, Lord Byron warned a spellbound audience that 'Man marks the earth with ruin – his control / Stops with the shore' (*Childe Harold's Pilgrimage*, 1818). Within half a century, the scales had fallen from society's eyes. The world's first enquiry into fishing sustainability, the Sea Fisheries Commission of 1863, saw shipwrecks as a menace. Fishermen trawling out of South-west England complained that nets getting stuck on sunken wrecks known since 'the remembrance of man' caused thousands of pounds' worth of damage. The enquiry advised blowing them up. Man's rampage into the deep had begun.

Today the threat of bottom fishing – beam trawlers and scallop dredges dragging heavy bottom gear over delicate underwater cultural heritage – is a low priority in marine science's food chain. Ongoing neglect belies the untold wealth of knowledge strewn beneath our seas: the greatest museum in the world.

The seas around Britain have been heavily blitzed for over a century. All manner of finds, from Palaeolithic axe heads to WWII submarines, have been netted across Europe. The north Adriatic has been devastated. Sicily and southern Turkey remain hotspots. The intensively trawled Black Sea is an acute concern. Trawlers have transformed wrecks off Greece into the marine equivalent of a bulldozer-flattened asphalt highway. Major porcelain cargoes off Malaysia, Indonesia, and Thailand have been obliterated and their wooden hulls ripped apart. The colonial trade vessels that made 17th- to 19th-century Spain rich have been churned over off Florida, Louisiana, Texas, and in the Gulf of Mexico.

To many politicians this threat is yet another inconvenient barrier to feeding the planet. An out-of-sight and out-of-mind mentality no longer washes in a soul-searching age committed to sustainable heritage, prodded by the UNESCO Convention on the Protection of the Underwater Cultural Heritage. What creative tools can save the sunken past from being ripped up?

Technological hope

Changes in technology offer some hope. One possible saviour could be electric-pulse trawling, introduced by the Dutch to reduce fuel costs and improve catch sizes by towing lighter gear. Traditional trawl heads and tickler chains are replaced by electrodes, which send an electrical pulse around the net to shock fish off the seabed and prod them into open nets. Early trials reduced bottom contact by 75%. If a sustainable balance can be found – British fishermen complain the technology wastefully kills fish outside a trawler's path – expansion of this technology would be good news for underwater heritage.

Hard-nosed governments ultimately gauge value in economic rather than cultural terms. Whereas monuments on land can be readily spot-checked by the proverbial grey-suited man from the ministry wielding a clipboard, his underwater equivalent has to dodge bad weather and churning sediment. Keeping up with fisher-men – who typically guard with great secrecy the positions of net hangs associated with lucrative fishing grounds – is even harder.

A Portable Antiquities Scheme underwater could drive up low-level fishermen's reports, but there is no political will to kick-start it. Reactive reporting and public outreach can be comparatively

PHOTO: Stephen Hull, Provincial Archaeology Office, Government of Newfoundland and Labrador



FAR LEFT *Statue of the Victorious Youth*, 300-100 BC, caught by a trawler in the northern Adriatic Sea in 1964. The statue is 151.5cm tall.
 LEFT Late 18th-century bottom-fishing methods, from *L'Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers* (1772).
 ABOVE A crate of Enfield muskets, made in the 1850s or 1860s, trawled up 320km off Newfoundland.
 RIGHT INSET Chinese porcelain, smashed by trawl nets, on the Wanli shipwreck of c.1625 off Malaysia.



PHOTO: Sten Sjostrand

low-cost/high-yield options. A line in the sand could be drawn, imposing a Wreck Amnesty for Fishermen to declare, without legal recourse, inadvertently snagged artefacts. Israel's model of promoting the declaration of underwater finds through posters and national stamps is smart proactive thinking. A nil-cost option would be to barter the coordinates of insignificant wrecks, where fishermen can work, for information about historically valuable sites.

Geofencing, exclusion zones, and marine reserves are increasingly seen as the optimum road to redemption for conserving unique habitats and saving collapsing fish stocks. Prof. Callum Roberts from York University has called for 30% of the world's oceans to be blanketed with marine reserves (annual cost: £7-£8.2bn a year; initial set-up costs: about five times this amount).

A tough sell

Justifying how ancient wrecks might fit into a marine reserve model is a tough sell. Today just three-fifths of 1% of the world's seas are protected. Unlike supporting the fishing industry, preserving wrecks cannot be argued to make sound economic sense. Who would pay for the perpetual monitoring of endangered sites is hard to imagine.

Because of financial and logistical headaches, combating fishing impacts is likely to follow a path of avoidance geared towards in situ preservation. Croatia favours locking well-preserved Roman amphora wrecks in iron cages – underwater zoo-museums – at a cost of up to €94,000 per site, to protect against professional looters and allow divers safe enjoyment.

Sicily's Soprintendenza del Mare has pioneered video monitoring on the Cala Gadir Punic wreck and the Cala Minnola Roman ship. An ultrasound pulse-system recognises infringements, records the precise location and source of the

intrusion photographically, and automatically sends an image of the site's condition to the police. Set-up costs for a wreck in 30m are around €150,000 for equipment plus €40 per metre for cable from shore to site and some €15,000 for yearly maintenance.

In situ preservation has to be implemented for the right practical reasons, and without enforcement can become benign neglect. Scholars working in the Black Sea and south-west Turkey favour in situ mitigation because 'the creation of protected areas and regions where bottom trawling is prohibited increases the chances that cultural sites will be preserved to the point that they can be found and properly documented'.

The team's deductions are hard to square with its own survey results. Eight of 12 wrecks recorded at depths of 101m-114m off Sinop and Ereğli in the Black Sea have been trawled through. Monitoring between 2000 and 2011 found that, during the intervening years, the breakage of amphoras on Hellenistic and Byzantine wrecks had more than doubled by up to 68% of all jars. Worse still, human bones seen in 2011 on the late 4th-century BC Ereğli E site had been ripped out and lost to trawls by the time of the following year's surveys.

Under circumstances of rapid site destruction, leaving wrecks in situ without selective sampling or excavation seems at best a Utopian heritage ideal, and at worst cultural suicide. Sicily's Soprintendenza del Mare plans a more pragmatic compromise by placing huge concrete blocks around major wrecks to impede illegal trawler-net dragging: a potent low-cost option that could be extended to other waters.

Flawed model

A flaw of the in situ model is its limited contribution to human knowledge. Surveying a site's surface in an ever-decreasing state of preservation minimises chances to reconstruct domestic ▶



ABOVE The Jacksonville 'Blue China' shipwreck of c.1854, found in 370m of water, 110km off southern Florida. The cargo is mostly trawled out and destroyed. Only a pile of Staffordshire pottery survives in the bows (on the right).
 RIGHT INSET Swedish iron cannon and gun carriage, dated 1696, trawled up off Holland.



PHOTO: Odyssey Marine Exploration

PHOTO: Nico Brinck

assemblages, ship and crew origins, cargo size, ship-construction methods, and daily life at sea. Lest we forget, excavation is the cornerstone of archaeological research for scientific and public benefits alike.

Where preservation in situ is a Disneyesque fantasy, excavation – removing heritage at risk from harm's way – will be the only sustainable form of protecting what I call the Marine Archaeological Critical Resource (MACR). Promoting a Red List of the most precious wrecks endangered, for which mitigation is a crucial priority, would be a strong first step in global awareness.

Today, around 40% of the world's trawling grounds lie in waters deeper than 200m. These high seas cover 45% of the planet and are highly susceptible to illegal fishing, a crisis that annually turns over 10-26 million tonnes of fish, worth up to \$23.5bn a year.

A trend towards trawling greater distances offshore and deeper means that formerly untouched wrecks will suffer the same damage that menaces the shallows. Making sure that society learns from past damaging patterns is vital. A crate of new Enfield muskets shipped from the Tower of London to Canada in the 1850s or 1860s, and fished up in 2011 some 320km off Newfoundland, warns that well-preserved deep-sea wrecks are no longer immune.

Social, economic, political, and cultural customs differ so widely from country to country that inflexible cherry-picked solutions are a fool's paradise. No magic bullet can mitigate the effects of bottom fishing. As long as the issue remains a low political priority, practical mitigation will have no alternative but to be approached regionally, reactively, and on a site-by-site basis. If we allow the seas to be turned into a series of dead zones, we will have failed as custodians of the public trust by consciously erasing the hard drives of history. In this nightmare legacy, we will have nobody to blame but ourselves. ■

Dr Sean Kingsley is the Director of Wreck Watch International, and author of Fishing & Shipwreck Heritage: Marine Archaeology's Greatest Threat?, published by Bloomsbury.

TOP 5 TRAWLER-IMPACTED SITES

1. First Punic War battle site, Egadi Islands, Sicily (featured in CWA 65). Fought in 241 BC, between Rome and Carthage. Bronze warship rams, a war helmet, and amphora fragments have been snagged.
2. Mongol fleet of Kublai Khan. Destroyed by a hurricane off Takashima Island, Japan, in 1281. The warships were found by trawlers snagging Chinese weapons, pottery, a Mongolian court seal, and a bronze Kanzeon Bosatsu Buddha statue.
3. Submerged Mesolithic Doggerland. A 260km × 95km landmass inundated c.6000 BC. Hundreds of thousands of stone tools and bones trawled up since 1874.
4. Portuguese Wanli shipwreck, c.1625, eastern Malaysia. Of 37,300 pieces of Chinese porcelain cargo, 80% have been crushed.
5. *Eendracht*, 73-gun Dutch warship, 1665. Sunk during the Battle of Lowestoft in the North Sea. Over 20 cannon have been trawled up.

FURTHER INFORMATION

The Ripping Up Shipwrecks campaign 'Statement on Bottom Fishing, Underwater Cultural Heritage & Sustainable Practice', signed by leading archaeologists and marine conservators, calls on the world's governments to protect the Marine Archaeological Critical Resource from bottom fishing to safeguard irreplaceable underwater heritage: www.rippingupwrecks.com