



Press release: 3 March 2017 <Time> <Time zone>

Fifty years after the wreck of the *Torrey Canyon*: lessons learned from an unfortunate response to an environmental disaster

The *Torrey Canyon* disaster in 1967 was the first involving a new generation of super-tankers and the first major oil spill in British and European waters. In addition to the enormous damage to marine life and the livelihoods of local people, it turned parts of the Cornish coast into a laboratory for a long-term study which revealed how rocky shores treated with toxic dispersants took 13-15 years to recover: around 5 times longer than those where the oil was dispersed naturally by wind and waves.

The *Torrey Canyon* was wrecked 15 miles from Land's End on the 18th March 1967, spilling over 100,000 tonnes of oil into the waters off Cornwall. At the time, scientists at the Marine Biological Association (MBA) in Plymouth investigated the impacts of the oil and excessive application of dispersants during clean up. Since then the recovery from the oil spill and natural fluctuations on rocky shores have been recorded for 50 years.

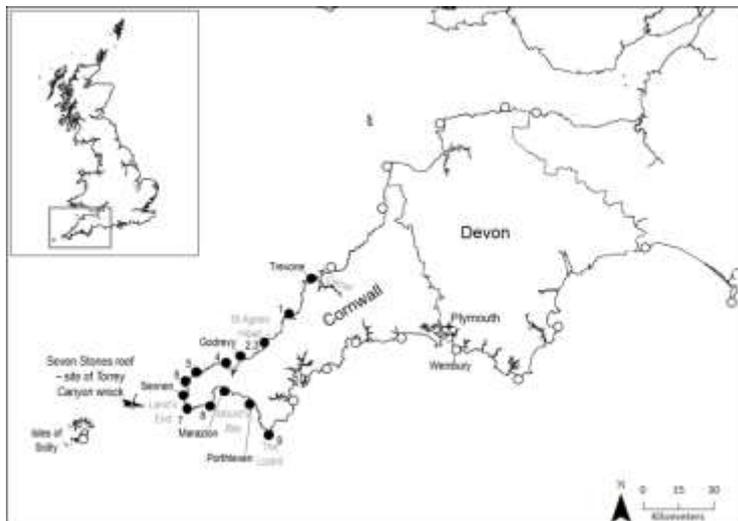


Figure 1. Long-term study sites in southwest England monitored since the 1950s by Alan Southward and Eve Southward, and more recently by Steve Hawkins (since 1980), Nova Mieszowska (since 2002) and colleagues from the MBA. Closed circles represent sites affected by the *Torrey Canyon* oil spill and clean-up operation. Open circles represent sites not affected by the incident.

In 1967 after the wreck, all the scientific staff of the MBA were mobilized to deal with the immediate environmental impacts of the spill. Scientists Alan and Eve Southward, who studied fluctuations of rocky shore species in South-west England since the 1950s, continued monitoring after the spill to measure the recovery of rocky shore species. Now, helped by new generations of MBA scientists, recovery can be placed in the context of climate driven fluctuations.

After the oil spill, highly toxic dispersants were used to clean oil off the shores. This was, however, at the expense of marine life. On rocky

shores the dispersants killed all the limpets, the dominant grazer, subsequently leading to massive unnatural colonization of seaweeds. A huge number of limpets then recolonized, eventually eating it all. They then died due to starvation, which then prompted a second burst of seaweed colonization. Normal fluctuations between the seaweed and limpets, and therefore recovery, did not occur until



13-15 years after the oil spill, in the 1980s. On shores where no dispersants were used and limpets largely survived the oil, recovery occurred within 2-3 years.

During the aftermath of the spill, and after the prolonged recovery became apparent, it is clear that in most cases letting nature take its course via natural dispersal by wind and waves is the best course of action on exposed rocky shores. Fortunately much was learned from the *Torrey Canyon* spill; current responses to such environmental disasters benefit from contingency planning beforehand and well-informed responses avoiding application of highly toxic dispersants on the shore. Dispersants in use today are much less toxic, largely used at sea and rarely if at all applied to the shore.

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The Marine Biological Association (MBA) is a professional body for marine scientists with some 1,400 members world-wide. Since 1884 the MBA has established itself as a leading marine biological research organization contributing to the work of several Nobel Laureates and over 170 Fellows of the Royal Society. In 2013, the MBA was awarded a Royal Charter in recognition of its long and eminent history and its status within the field of marine biology. The award strengthens the Association's role in promoting marine biology as a discipline and in representing the interests of the marine biological community.

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