

Reduce the level of imposex in dogwhelks and other marine gastropods



North Sea EcoQO

The average level of imposex in a sample of not less than 10 female dogwhelks (*Nucella lapillus*) should be consistent with exposure to TBT concentrations below the environmental assessment criterion for TBT. Where *Nucella lapillus* does not occur naturally or where it has become extinct, other species may be used.

What is the problem?

Pollution due to TBT-containing anti-fouling paints on ships

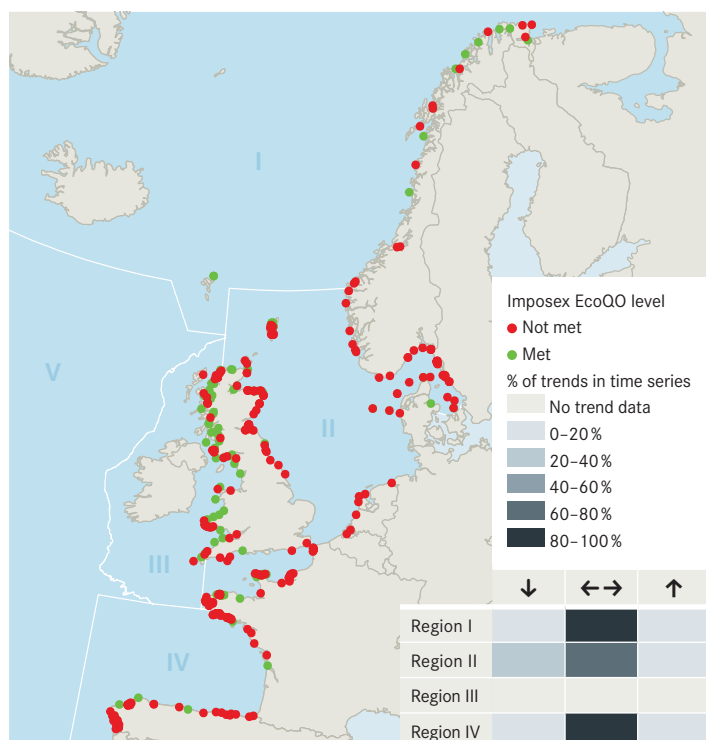
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What is the Ecological Quality Objective (EcoQO)?

The dogwhelk is a carnivorous sea snail that is found on most rocky shores in the OSPAR area. Dogwhelks and related snail species are extremely sensitive to the harmful effects of tributyltin (TBT), which has been extensively used as an anti-fouling agent in ship paints. Depending on the concentration of TBT in the seawater, female dogwhelks develop non-functional male characteristics (such as a male sex organ) in a pathological condition called imposex. This condition prohibits the snails from reproducing which leads to a decline or even disappearance of snail populations. Because of their extreme sensitivity, dogwhelks are used as an indicator species to measure the effects of TBT on the marine ecosystem.

Has the EcoQO been met?

Since 2003, when monitoring began for the entire OSPAR area, the intensity of TBT-specific effects on the dogwhelk and other marine snails has reduced in OSPAR Region II and all other OSPAR Regions, and there are few monitoring sites where such effects are increasing. While the situation is improving, TBT-specific effects are still found over large parts of the OSPAR area and the EcoQO is mostly not met in the North Sea. There is a clear relationship with shipping, with high effect levels near some large harbours (e.g. Rotterdam, Clydeport, Vigo) and lower levels in areas with less large vessel traffic. But even in areas of less large vessel traffic, harbours can have a noticeable impact, highlighting the importance of local sources and historic contamination of harbour sediments.



How does this affect the quality status?

Reductions in the effects of TBT on dogwhelks indicate reduced TBT-pollution and associated pressure on numerous marine species from the presence of TBT. Low-level exposure of aquatic organisms, such as mussels, clams and oysters, to TBT may cause structural changes, growth retardation and death. TBT is also highly toxic to crustaceans. Moreover, TBT bioaccumulates in the food chain posing a potential hazard to birds, sea mammals and even humans.

What happens next?

Measures within the International Maritime Organisation and the European Union prohibit at global and European level respectively the further use of TBT-containing paints on ships. Implementation of these measures should in time lead to the elimination of TBT from the marine environment and improve the water quality. As a result, an improvement in the condition of populations of dogwhelks should be expected over the next 10 years. OSPAR continues to monitor and will, if necessary, propose additional measures.