

## ICES glossary of principal pressures in ICES ecoregions

Pressure	Explanation and examples
Abrasion	Abrasion pressures relate to disturbance of the substrate at or below the surface of the seabed; aggregate and other mineral extraction is not covered by this pressure. Abrasion pressure is associated with bottom-contacting mobile and set fishing activities, in particular otter trawling, dredging for shellfish, and navigation and beam trawling. Other activities with a limited spatial footprint also cause abrasion.
Introduction of contaminating compounds	Examples of this pressure include discharges from ships, from hydrocarbon exploration and production, atmospheric deposition, and riverine inputs. Compounds of concern include: <ul style="list-style-type: none"> <li>• for marine sediments the main transition elements and compounds of concern include arsenic, cadmium, chromium, copper, mercury, nickel, lead, and zinc.</li> <li>• organometallic compounds such as tributyltin (TBT) and its derivatives can be highly persistent and even low levels of exposure can cause chronic toxicity.</li> <li>• Hydrocarbons, including polyaromatic hydrocarbons (PAH).</li> <li>• priority substances listed in Annex II of Directive 2008/105/EC<sup>1</sup>.</li> <li>• synthetic compounds, including pesticides, antifoulants, and pharmaceuticals.</li> </ul>
Introduction of non-indigenous species (NIS)	The direct or indirect introduction of NIS, e.g. Chinese mitten crabs <i>Eriocheir sinensis</i> , slipper limpets <i>Crepidula fornicata</i> , Pacific oyster <i>Crassostrea gigas</i> and their subsequent spreading and out-competing of native species. Ballast water and hull fouling can facilitate the spread of NIS. This pressure is also associated with aquaculture, translocation of organisms, or from accidental releases.
Nutrient and organic enrichment	Increased levels of nitrogen, phosphorus, silicon (and iron) in the marine environment compared to background concentrations. Anthropogenic sources include waste water, terrestrial/agricultural runoff, sewage discharges, aquaculture, and atmospheric deposition. Nutrient enrichment may lead to eutrophication (see also organic enrichment).
Selective extraction of species	The commercial exploitation of fish and shellfish stocks, including smaller scale harvesting, recreational fishing, and scientific sampling. Ecological consequences include the sustainability of stocks, impacting energy flows through food webs, and the size and age composition within fish stocks. This pressure includes bycatch associated with fishing activities.
Selective extraction of non-living resources from the seabed and subsoil	This pressure relates to marine aggregate extraction and mining. Some removal of benthic organisms and alteration of seabed topography may also occur.

<sup>1</sup> DIRECTIVE 2008/105/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council. Official Journal of the European Union, L 348/84.

Pressure	Explanation and examples
Smothering	Smothering pressures relate to siltation or sedimentation on the surface of the seabed. Activities associated with this pressure type include marine and coastal construction, aquaculture, land claim/reclamation, navigation dredging, disposal at sea, marine mineral extraction, fishing, cable and pipeline laying, and various construction activities.
Substrate loss	<p>This pressure type includes both:</p> <ul style="list-style-type: none"> <li>• the permanent loss of coastal habitats (associated with activities such as land claim, new coastal defences); and</li> <li>• the permanent change of one marine habitat type to another through a change in substratum, including artificial substrates (e.g. concrete). Associated activities include the installation of infrastructures such as hydrocarbon production facilities, wind farm foundations, marinas, pipelines, cables, and scour protection.</li> </ul>