



WWF

POSITION

2014

Smart Fishing Initiative

BOTTOM TRAWLING

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature. WWF therefore recognizes that the importance of large- and small-scale fishing activities to the environmental, economic, social, and food security interests of many communities and countries depends on healthy ecosystems. Therefore, WWF only supports fishing that is sustainably managed, effectively regulated and enforced, and conducted in a manner that does not damage or threaten habitats, ecosystems, biodiversity or populations of target and non-target species.

WWF's Position on Bottom Trawling

- WWF works to eliminate illegal bottom trawling and to halt unregulated and unreported bottom trawling.
- WWF favors a ban on all bottom trawling within Ecologically and Biologically Significant Marine Areas (EBSAs), Vulnerable Marine Ecosystems (VMEs) or other sensitive benthic habitats.
- WWF actively seeks realistic solutions that freeze the current bottom trawl footprint and progressively reduces its impacts in accordance with international instruments and agreements by, for example, substitution with lower impact gear and minimum impact catching methods.
- WWF does not accept new areas being opened to bottom trawling.
- WWF does not accept bottom trawling being conducted in marine protected areas (MPAs) designated/established to conserve benthic habitats/communities under national and/or international law.

To ensure that the bottom trawling impact is reduced and does not compromise future objectives for healthy oceans:

- The overall global bottom trawl seafloor footprint must be reduced significantly;

- Zero impact for trawl management is necessary for all structured and sensitive habitats and ecosystems (e.g. seamounts, submarine canyons, channels and fjords, hydrothermal vents, coral reefs and associated habitats, cold water corals, seagrass meadows, other structured habitats, nursery grounds such as those in shallow coastal waters);
- Bottom trawling must be conducted only with ecologically acceptable impacts within:
 - Effective ecosystem-based management systems;
 - Spatial management regimes that have identified and implemented measures to protect habitats and species sufficient to protect full ecosystem health and -resilience, and appropriately manage the area and frequency of trawling according to ecological sensitivity. The impact should be brief and reversible (not more than several months to a few years).

Only those bottom trawl fisheries that address all key elements outlined in this document are considered acceptable to WWF.

The following information provides further rationale to support this overall position, including more specific recommendations and a statement of WWF's commitment to work in a collaborative and solutions oriented manner.

FOCUS

This paper relates to the specific impacts of bottom trawling on seabed habitats and benthic communities. Whilst bottom trawling can have broader impacts (e.g. on target and non-target fish; endangered, threatened and protected animals; marine ecosystems generally), these threats also apply to many other fishing methods and are thus not the focus of this paper.

Background

“Bottom trawling” is the towing or dragging of fishing gear in continuous or occasional contact with the bottom. Bottom trawl gears include otter board trawl, Danish seine, beam trawl, dredge as well as the recently developed hydraulic dredge fisheries. Mid-water trawl nets can be used to target fish stocks living close to the seafloor and can be operated in a manner that also results (whether intentionally or unintentionally) in contact with the seabed or with species living on it.

Any fishing gear that contacts the seafloor can cause damage. With regard to bottom trawling, the severity of its environmental impact depends on a number of factors:

- The type of trawl gear (e.g. mid-water or bottom gear; the use and specifications of rollers, chains or warps; the weight of doors, etc.);
- How the trawl gear is used (e.g. targeting species aggregations; time in contact with seabed, etc.);
- Where the trawl gear is used (e.g. habitat type, fauna present; vulnerability to trawling; contamination of seafloor sediment);
- The frequency of use (e.g. one or multiple passes of a trawl per year);
- Disturbance recovery rate (e.g. as related to substrate type);
- Level of natural disturbances (e.g. tidal or storm events); and
- Cumulative impacts from other human activities, such as non-trawl related dredging (e.g. aggregate extraction), shipping, sediment run-off, mining, and drilling for oil and gas.

The key to evaluating the impact of bottom trawling lies in a fact-based understanding of the magnitude, duration and reversibility of these impacts and how they can be avoided or mitigated.

OVERVIEW

The practice of bottom trawling often causes substantial and irreversible harm to fragile benthic ecosystems and dependent species, presenting significant challenges for the sustainability of fisheries and broader ecosystem function and resilience. Bottom trawling in its various forms is a widespread method of fishing that supplies significant amounts of seafood. It is very important for marine conservation that management frameworks are in place to minimise its impacts and ensure it is not occurring to an unsustainable extent.

Bottom trawling often:

- Damages or destroys seafloor habitats;
- Causes declines in the number, size and variety of marine life on or near the seafloor;
- Captures a disproportionately large amount of non-target fish and other marine life, which is often discarded and wasted; and
- Has led to the irreversible loss of marine biodiversity and diminished ecosystem resilience.

Accordingly, bottom trawling is now one of the most critical and controversial forms of fishing and has attracted considerable public attention. It is the subject of several United Nation General Assembly (UNGA) resolutions, latest in 2011, calling upon States to “take action immediately, individually and through Regional Fisheries Management Organizations (RFMOs) in order to sustainably manage fish stocks and protect vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold water corals, from destructive fishing practices, recognizing the immense importance and value of deep sea ecosystems and the biodiversity they contain”. In addition, especially sensitive/important areas such as structured habitats and nursery grounds (such as those in shallow coastal waters) need protection from the negative impacts associated with bottom trawling.

Recommendations

WWF believes that bottom trawling should only occur where measures are in place to protect all seabed ecosystems from adverse impacts. There are international commitments to healthy oceans (biodiversity) and sustainable fisheries and measures that will deliver these goals. Bottom trawl fisheries threaten the achievement of these goals. Therefore, WWF supports:

- UN General Assembly (UNGA) Resolutions 61/105, 64/72 and 66/68 relating to the management of bottom trawl fisheries;
- The Convention on Biological Diversity (CBD) CoP10 decision X/29 paragraph 54, and in relation to the identification and protection of ecologically or biologically significant areas; and
- The United Nations Food and Agriculture Organization (FAO) Technical Guidelines for Responsible Fisheries, and the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, including the identification and protection of Vulnerable Marine Ecosystems.

All unregulated and unreported bottom trawling must be halted. Existing bottom trawling should only be permitted in national and international jurisdictions where responsible states and relevant regional fisheries management organizations (RFMOs) and national governments have established governance systems that have accomplished the following steps and aim for an overall significant reduction of negative bottom trawl impacts to the environment:

1. **Strategic Environmental Assessments (SEA¹)** of the likely impacts of bottom trawling on the marine environment completed, including the potential cumulative effects in conjunction with other human activities.

¹ Strategic environmental assessment is a process for incorporating environmental considerations into policies, plans, and programmes. The Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) laid the

2. Implemented ecosystem-based **oceans management strategies**, laws and regulations that:
 - a. Reverse the burden of proof approach, i.e. adopt a precautionary approach that assumes that bottom trawling will have adverse ecological impacts in the absence of compelling evidence to the contrary by an Environmental Impact Assessment (EIA);
 - b. Give effect to international directives, agreements and conventions regarding the protection of threatened and declining species and habitats;
 - c. Collect adequate baseline information on the marine environment where bottom trawling occurs including a detailed map of the locations of sensitive seabed habitats, ecosystems and shallow water nursery grounds;
 - d. Establish a comprehensive network of well-managed adequately sized and spaced protected areas to safeguard vulnerable marine ecosystems², ecologically or biologically significant areas³, depleted, threatened or endangered species⁴, and representative examples of seabed ecosystems⁵ as an addition to currently existing protected areas;
 - e. Develop and implement a Spatial Management Plan for the allowed fished areas within the fishery;
 - f. Establish protocols in the case of unexpected encounters with vulnerable marine ecosystems, including a stringent and enforceable application of the move-on rule;
 - g. Define environmental standards for bottom trawling (e.g. spatial extent, gear deployment and use, etc.), to avoid significant and irreversible adverse environmental impacts. This should be precautionary and build on local, national and regional knowledge of the sensitivities of seabed ecosystems; and
 - h. Implement Fisheries Improvement Plans to significantly reduce the footprint and impact of bottom trawling on the environment, including measures to protect habitats and species that are sufficient to protect full ecosystem health and -resilience, and manage the area and frequency of trawling according to ecological sensitivity. The impact should not be irreversible nor should it be long-lasting (not more than several months to a few years).
3. **Fisheries regulations** implemented that:
 - a. Are consistent with the UN FAO Code of Conduct and Technical Guidelines for Responsible Fisheries and the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;
 - b. Require an EIA that includes identification, assessment and treatment of risks preceding bottom trawling for each fishery in order to:
 - Eliminate fishing in all sensitive and vulnerable benthic habitats as well as any identified nursery habitats;
 - Reduce the impact to not more than several months to a few years;
 - c. Limit and reduce the trawl footprint on the seafloor to locally relevant limit reference points having regard to the nature and vulnerability of habitat types;
 - d. Given the restrictive conditions by which bottom trawling would have acceptable levels of impact, alternative low impact gears and methods should be implemented and consideration given to the eventual phasing out of bottom trawling;
 - e. Define non-compliance with bottom trawling closures and legal provisions to avoid VMEs as illegal, unregulated and unreported (IUU) fishing in order to facilitate enforcement and sanctions

foundations for the introduction of SEA in 1991. An SEA is conducted before environmental impact assessments (EIAs) are undertaken, allowing information on the environmental impact of a plan to cascade down through the tiers of decision making. The information can be used in more specific EIAs at a later stage.

² FAO (2009) (http://www.fao.org/fileadmin/user_upload/newsroom/docs/io816t.pdf)

³ CBD (2008) (<http://www.cbd.int/cop/cop-10/doc/gobi-briefing-cbsa-process-en.pdf>)

⁴ UNCLOS (Art. 194 (5))

⁵ World Summit on Sustainable Development (2002) Plan of Implementation

- f. Establish adequate and transparent monitoring, control and surveillance (MCS) measures, including:
- Requiring all licensed fishing vessels in all fisheries to have IMO numbers, Vessel Monitoring Systems and S-AIS;
 - A high degree of independent observer coverage (human and electronic) that is statistically robust to support management information needs; and
 - Monitoring environmental impacts of bottom trawling;
 - Consistently applied penalties for infringements

WWF's commitment

WWF is creating solutions to the most serious environmental problems facing our planet, helping people and nature to thrive. WWF aims to safeguard marine wildlife, marine ecosystems and community livelihoods by working with the fishing industry, other businesses, governments and local communities to ensure that bottom trawl fisheries are conducted only with ecologically acceptable impacts or, otherwise, are closed.

Consequently, WWF will:

Promote the development and effective implementation of Marine Protected Areas (MPAs) and networks of MPAs that will provide necessary spatial protection from trawling for key species and habitats as well as underpin ecosystem functioning and resilience.

Work with fishers and researchers to minimise the impact of bottom trawling/gear on the environment, including investigating and implementing alternative low impact gear and practices.

Assist fisheries to improve sustainability performance, including through specific Fishery Improvement Projects (FIPs).

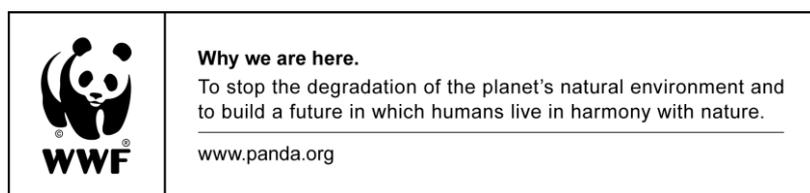
Promote market-based approaches for sustainable seafood, including:

- facilitating market recognition of trawl fisheries with ecologically acceptable impacts, through sustainability certification (i.e. through the Marine Stewardship Council (MSC)) and the provision of information on seafood choices (WWF seafood guides)
- developing procurement policies to support and reward bottom fisheries with ecologically acceptable impacts, including: working with retailers, market partners to encourage moving towards sourcing of bottom trawl products with ecologically acceptable impacts;

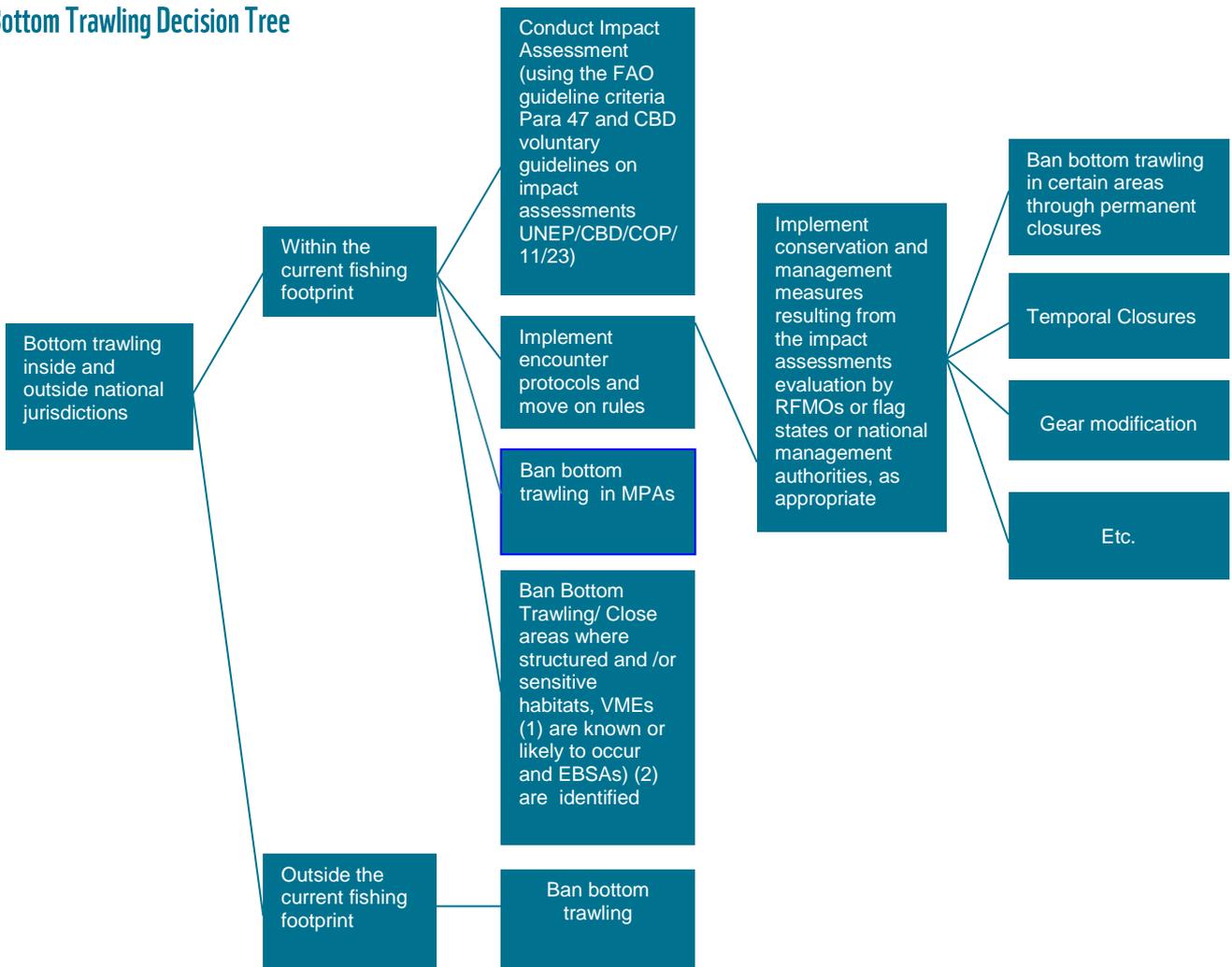
Continue working with the MSC to improve their standards for certifying bottom fisheries.

Support governments, international organisations, local communities and businesses to establish and implement Strategic Environmental Assessments and ecosystem-based oceans management strategies to ensure that impacts of bottom fisheries are ecologically acceptable; and

Urge Regional Fisheries Management Organisations and national governments to impose appropriate controls on the use of bottom gear to sustainably manage fisheries.



Bottom Trawling Decision Tree



Appendix II

Habitats where bottom trawling should be prohibited

According to FAO Guidelines on the Management of Deep-Sea Fisheries in the High Seas bottom trawling must not be conducted in areas where Vulnerable Marine Ecosystems (VMEs) are known (or likely) to occur. VMEs meet the following criteria: uniqueness / rarity, functional significance of habitat, fragility, life history attributes of species, structural complexity.

The following species groups, communities and habitat forming species are considered sensitive and potentially vulnerable to deep sea fisheries in the high-seas and may contribute to forming VMEs:

- i. certain coldwater corals and hydroids, e.g. reef builders and coral forest including: stony corals (Scleractinia), alcyonaceans and gorgonians (Octocorallia), black corals (Antipatharia) and hydrocorals (Stylasteridae);
- ii. types of sponge dominated communities;
- iii. communities composed of dense emergent fauna where large sessile protozoans (xenophyphores) and invertebrates (e.g. hydroids and bryozoans) form an important structural component of habitat;
- iv. seep and vent communities comprised of invertebrate and microbial species found nowhere else (i.e. endemic).

Examples of topographical, hydrophysical or geological features, including fragile geological structures, that potentially support the species groups or communities, referred to above:

- i. submerged edges and slopes (e.g. corals and sponges);
- ii. summits and flanks of seamounts, guyots, banks, knolls, and hills (e.g. corals, sponges, xenophyphores);
- iii. canyons and trenches (e.g. burrowed clay outcrops, corals);
- iv. hydrothermal vents (e.g. microbial communities and endemic invertebrates); and
- v. cold seeps (e.g. mud volcanoes for microbes, hard substrates for sessile invertebrates).

VME indicator species are listed by different RFMOs (see NAFO example attached). These lists are tailor-made for each respective region. A comparison of NEAFC and NAFO lists is attached.

In new fishing areas, RFMOs practice the move-on-rule. Under the NEAFC regime the threshold levels for defining an encounter with primary VME indicator species are part of all NEAFC Recommendations on regulating bottom fishing as follows:

30 kg of live coral and/or 400 kg of live sponge. (We believe that this numbers are inacceptably high and WWF-International asks for an immediate stop of bottom fishing if any encounter with corals, sponge, seabed vegetation or structured habitats occurs).

In addition, bottom trawling should not be conducted where marine protected areas are established for the conservation of (including) benthic features, depending on legal frameworks and regional provisions. Such regional lists from the EU and/or North-East Atlantic context may be representative for temperate waters:

EC Habitats Directive Annex I - Marine features for the conservation of which marine Natura 2000-sites are established at a range of 20-60% of their occurrence in EU Member States' waters:

Sandbanks which are slightly covered by sea water all the time

Estuaries

Mudflats and sandflats not covered by seawater at low tide

Intertidal mudflats and sandflats

Coastal lagoons

Shallow inlets and bays

Reefs

Submarine structures made by leaking gases

OSPAR list of threatened and/or declining habitats - Features for the conservation of which OSPAR MPAs are established:

Carbonate mounds

Coral Gardens

Cymodocea meadows

Deep-sea sponge aggregations

Intertidal *Mytilus edulis* beds on mixed and sandy sediments

Intertidal mudflats

Littoral chalk communities

Lophelia pertusa reefs

Maerl beds

Modiolus modiolus beds

Oceanic ridges with hydrothermal vents/fields

Ostrea edulis beds

Sabellaria spinulosa reefs

Seamounts

Sea-pen and burrowing megafauna communities

Zostera beds

Rollers (Rock hoppers) – If the net is to be towed over rough bottoms rubber disks, rubber rollers (bobbins), discs, or even steel balls, are attached to the footrope under the centre and wing sections of the net, to allow the net to ride over obstacles.

Tickler chains – Tickler chains are used to disturb the seafloor to flush out species that may be in the sandy seabed or sediment. The species then jump into the water column and get caught in the trawl net.

Trawl warps – trawl warps are long steel flexible cables or rope that connect the trawl net to the fishing vessel.

Otter boards (trawl doors) – used to keep the mouth of the trawl net open. Otter boards are made of timber or steel and are positioned in such a way that the hydrodynamic forces, acting on them when the net is towed along the seabed, pushes them outwards and prevents the mouth of the net from closing. They also act like a plough, digging up to 15 cm into the seabed, creating a turbid cloud, and scaring fish towards the net mouth.

Otter board trawl – a large net dragged behind a vessel either on the seabed (demersal or bottom trawl) or in the water column. The mouth of the net is held open by two large otter boards which are attached to either side of the net. The doors and the footrope of a bottom trawl are in contact with the seabed. They are used to target ground-fish, flatfish, shrimp and squid. The type and construction of net varies. Fish are herded into the path of the net by the noise and disturbance of the sea bed.

Danish seine – A trawling method used by relatively small boats (usually one vessel) in shallow waters (up to about 200m). Lengths of weighted ropes of up to 2,800m are laid on the sea floor in a diamond pattern with the boat at one end of the diamond and the net at the other. As the boat moves forward the diamond becomes elongated allowing the fish to be herded into the path of the net (AFMA)⁶. In some ways this gear is similar to trawl gear in that it harvests bottom fish by herding the fish with gear (the seine ropes) that is in contact with the seabed. However, this gear does not use doors to spread the net; the net is spread by the two warps. Because the long seine ropes are vulnerable to snagging, this gear is generally used only on relatively smooth seabed.

Mid-water trawl – Mid-water (or pelagic) trawls are used to catch fishes in the water column. In mid-water trawling, a cone-shaped net can be towed behind a single boat and spread by trawl doors, or it can be towed behind two boats (pair trawling) which act as the spreading device. Mid-water trawling catches pelagic fish such as anchovies, shrimp, tuna and mackerel.

Beam trawl – The simplest method of bottom trawling, the mouth of the net is held open by a solid metal beam, attached to two "shoes", which are solid metal plates, welded to the ends of the beam, which slide over and disturb the seabed. This method is mainly used on smaller vessels, fishing for flatfish or prawns, relatively close inshore. Beam trawl consists of a cone-shaped body ending in a bag or codend, which retains the catch.

⁶ www.afma.gov.au

In these trawls the horizontal opening of the net is provided by a beam, made of wood or metal, which is up to 12 m long. The vertically opening is provided by two hoop-like trawl mostly made from steel. No hydrodynamic forces are needed to keep a beam trawl open.

Dredge – A dredge, also known as a scallop dredge, oyster dredge, etc., is towed along the bottom of the sea by a fishing boat in order to collect a targeted edible bottom-dwelling species. The gear is used to fish for various species but mainly scallops, oysters, clams, crabs, and sea cucumbers. The dredge is then winched up into the boat and emptied. The dredge is usually constructed from a heavy steel frame in the form of a scoop. The frame is covered with chain mesh which is open on the front side, which is towed. The chain mesh functions as a net.

Hydrolic fishery: A fishery that pumps seawater using high pressure into the seafloor, suspends the bottom up to several dozens of cm depth and extracts benthic species like clams.

Move-on rule: The move-on rule requires fishing vessels to move away a certain distance (xy nautical miles) if they encounter VMEs. The move-on rule is often the only management regulation in place to protect VMEs but most RFMOs have set threshold limits of by-catch so high that the regulation is ineffective.