

Reducing the Footprint

Moving towards Low Impact Fisheries



SEAS AT RISK



Reducing the Footprint

Moving towards low impact fisheries

Marine biodiversity is rapidly declining, and because of their impacts on the marine environment, fisheries are a key contributor to that decline. Simultaneously, the effects of climate change on marine ecosystems are already visible and will place substantial additional pressure on fish stocks which are already heavily stressed by overfishing. Fisheries also contribute to climate change due to the large amounts of fuel used, resulting in considerable emissions of greenhouse gases.

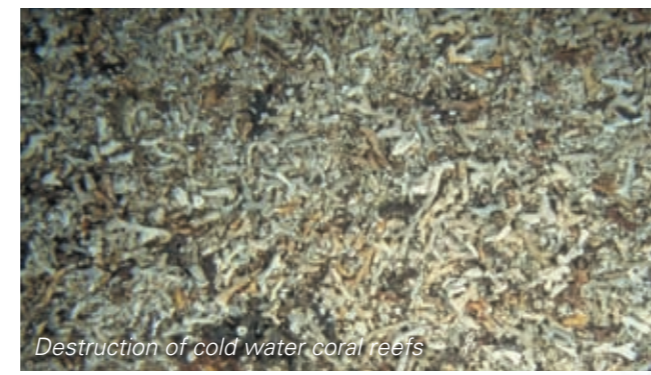
By changing gears, the fishing industry can decrease the damage it inflicts on marine ecosystems, reduce its greenhouse gas emissions and lower its fuel costs. The 2012 reform of the Common Fisheries Policy (CFP) provides a unique opportunity to adopt well designed policy measures which promote a shift to low impact fisheries.

Impacts of fisheries

Fisheries have direct and indirect impacts on the environment. Direct impacts are the most obvious and include by-catch of juveniles and untargeted species such as other fish species, birds and mammals, as well as destruction or modification of habitats. Indirect impacts are less evident and refer to the contribution to climate change by fishing vessels due to the carbon emissions resulting from their fuel use.



By-catch



Destruction of cold water coral reefs

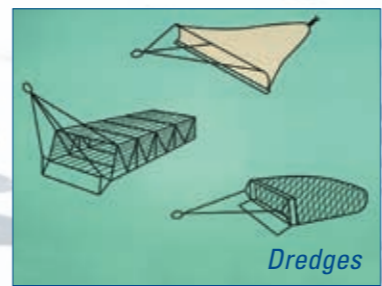
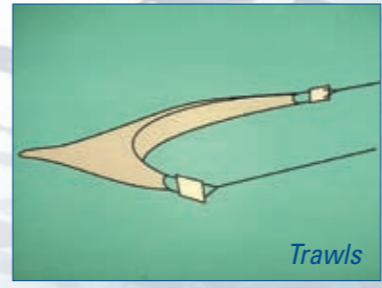

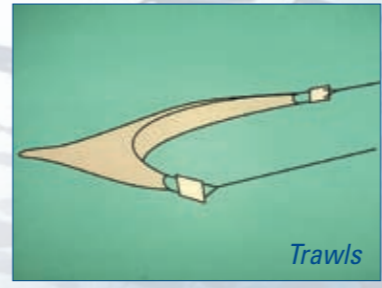
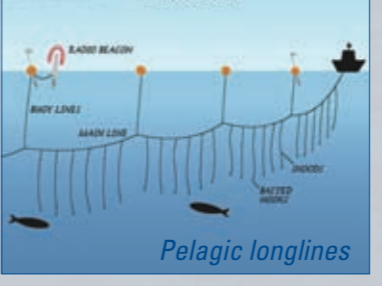
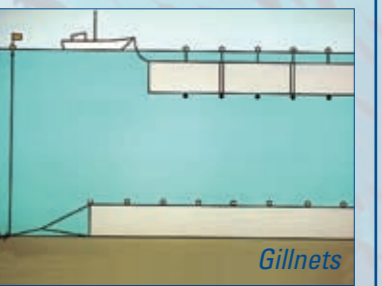
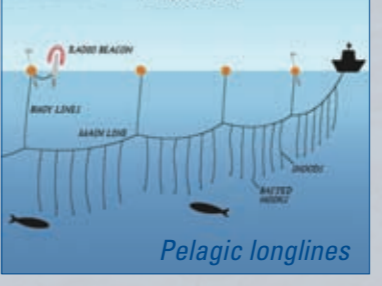
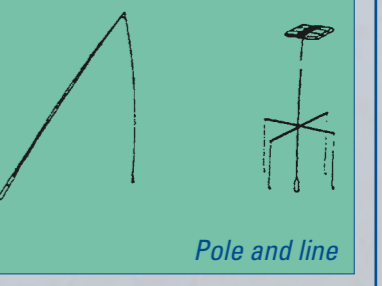


CO2 emissions

It is estimated that in 2000 global fisheries accounted for at least 1.2% of global oil consumption.

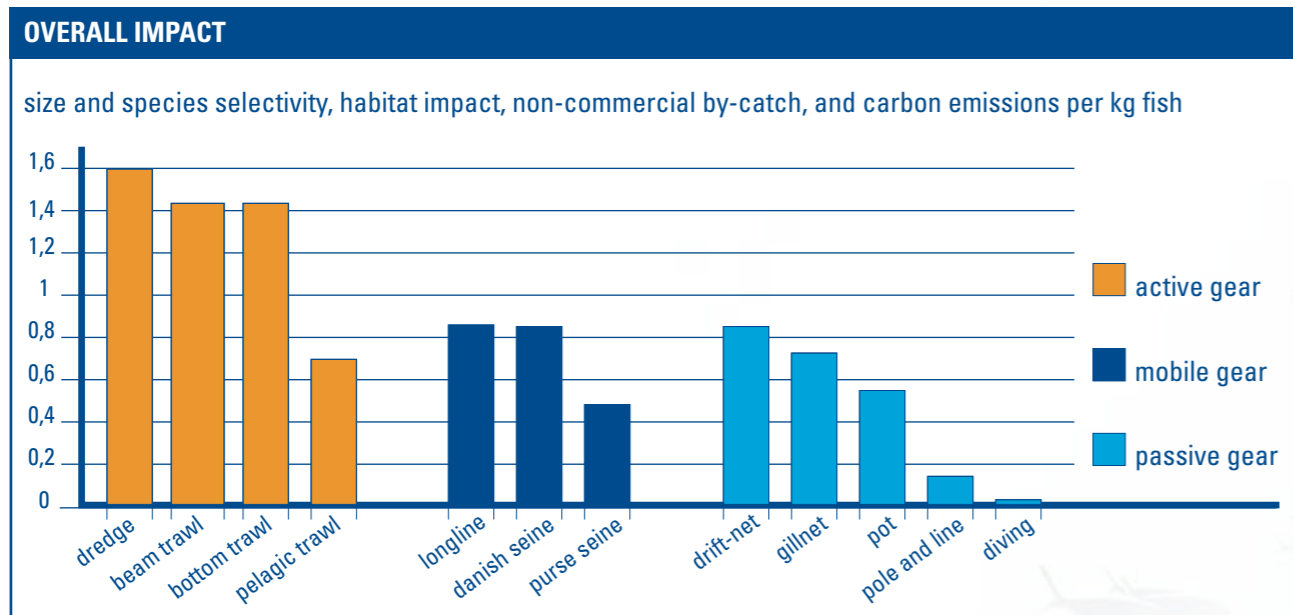
Common fishing gears in Europe

The European Commission categorises fishing gears into active, mobile and passive gears.

ACTIVE GEAR	MOBILE GEAR	PASSIVE (FIXED) GEAR
Gears towed across the seabed.	Gears that involve movement of the fishing vessel to deploy but are not actively towed.	Gears which are placed on the seabed and which do not move until lifted by the fishing vessel.
 <p>Dredges</p>	 <p>Seine Nets</p>	 <p>Gillnets</p>
 <p>Trawls</p>	 <p>Trolling Lines</p>	 <p>Pots and traps</p>
	 <p>Pelagic longlines</p>	 <p>Pole and line</p>

Good and bad gears

Not all fisheries affect the environment to the same extent. They vary greatly depending on gear and operating environment. There is much information about direct environmental impacts of different gears. Less is known about the carbon emissions during deployment of different gears. Still it is possible to produce rankings, which provide an indication for the harmfulness of a type of gear.



Source: ICES (2006), Report of the ICES-FAO Working Group on Fishing Technology and Fish Behaviour

Heavy trawls and dredges that scrape over or dig into the bottom have most impact on the environment, both in terms of habitat destruction and selectivity and in terms of carbon emissions. In general, active gears have more impacts than mobile or passive gears and larger offshore vessels emit more greenhouse gases than smaller inshore vessels, especially when expressed in terms of carbon emission per value of the catch. Where stocks are depleted and poorly managed, fisheries have bigger negative impacts than those fisheries on well-managed stocks.

Same stocks, different gears

The same stock can often be targeted with different types of gears. Different gears have different impacts. Overall, gears for pelagic species mainly have impacts on vulnerable species such as marine mammals, while demersal gears mainly have impacts on habitats. Discard impacts are most likely with active gears, while selectivity is lowest for trawls and drift-nets. A reduction of direct impacts from fisheries can be achieved by switching from the "bad" gears in the table to the "good" gears.

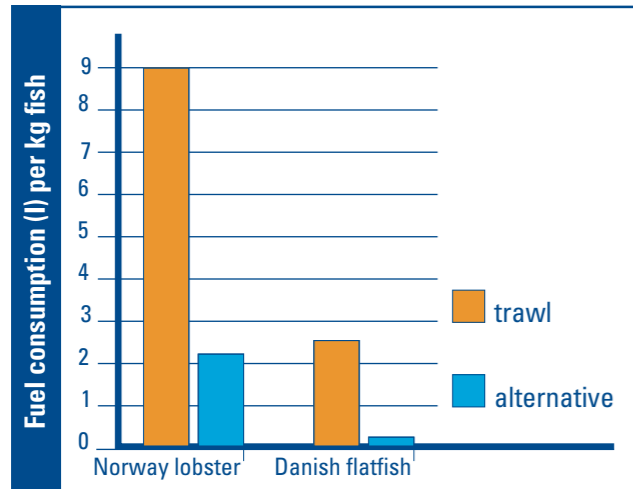
Impacts	Pelagic (mid-water) fish	Demersal (bottom) fish	Burrowing bivalves	Shellfish, octopus, etc.
Bad	○ drifting gillnet	beam trawl	mechanic dredge	beam trawl
	○ midwater trawl	otter trawl	boat dredge	otter trawl
	● purse seine, pelagic longline	trammel net	hand dredge	trammel net
	● trolling line	set gillnet		trap
	● handline	demersal seine		dive
Good	●	demersal longline		
	●	trap, handline		

A significant reduction of greenhouse gas emissions can be achieved by switching from fuel-intensive active gears such as dredging, bottom trawling and beam trawling, to mobile or passive gears, which use less fuel.

Both fishers and the environment will benefit from a shift to low impact fisheries: it will lower fuel costs whilst reducing greenhouse gas emissions and decreasing the damage to marine ecosystems. The resulting environmental benefits can in turn produce higher fish yields and therefore improve economic benefits.

Case studies

Case studies



Norway lobster fishery

The fuel needed to catch and land a kilo of Norway lobster can be reduced from 9 litres to 2.2 litres by switching from conventional trawl fisheries to creel (trap) fisheries. Such a switch would also reduce the impacted seafloor area from 33,000 m² to 1.8 m² per kilo landed Norway lobster. Similarly the amount of discard would be reduced from 4.5 kilo to 0.36 kilo per kilo landed Norway lobster. Not only would such a switch to creel fisheries significantly reduce environmental impacts, it would provide the consumer with a Norway lobster that has not been squashed in a trawlers net and is thus of a better quality.

Danish flatfish fishery

In the Danish flatfish fishery the amount of fuel per kg of caught fish can be reduced by a factor of 15 by switching from beam trawling to the Danish seine. The Danish seine is a semi-passive fishery which has less impact on the seabed than beam trawling.



In order to promote a shift to low impact fisheries the reformed CFP should include:


- Preferential access to fish resources for low impact fisheries;
- Elimination of overcapacity using environmental and social criteria, ensuring that the most sustainable vessels remain in the fleet;
- Phase-out of fuel tax exemptions and other perverse subsidies;
- Redirection of subsidies to training/education programs promoting low impact fisheries;
- Introduction and promotion of spatial planning, with zones set aside for low impact fisheries, especially those using passive gears.

Hurdles to change

Fishermen often face hurdles when trying to switch to less damaging fishing techniques. Well designed policy measures can significantly contribute to reduce such hurdles and encourage a shift towards environmentally sustainable fisheries.

Common problems faced by fishermen involve costs, a lack of knowledge on best practices, gear conflicts (passive gear cannot be used where a large number of towed gears are in operation), and practicalities (less harmful gear can be more difficult to use than harmful gear). These hurdles can often be tackled by national policy-makers. For example in the Netherlands, the government facilitates exchange of knowledge and experience between fishermen through so-called knowledge-circles. These are partly financed through the European Fisheries Fund.

Policy can also act as a hurdle to a shift to more sustainable fisheries. Currently, the most serious policy hurdle to low impact fisheries is the inflexible nature of the EU fisheries management system. The current short-term micro-management system based on TACs, quotas and effort should therefore be replaced by a more flexible and long-term management system, which supports low impact fisheries. The 2012 reform of the Common Fisheries Policy (CFP) provides a unique opportunity to recognize this and put environmental sustainability at the heart of European fisheries policy.



This brochure is based on the report 'Moving towards low impact fisheries in Europe: policy hurdles and actions', which was commissioned by Seas at Risk in 2009. The report suggests possible gear shifts to reduce direct and indirect environmental impacts of fishing activities, gives an inventory of hurdles preventing fishermen to shift based on case studies, and proposes policy measures to overcome these hurdles and promote low impact fisheries. The report can be downloaded from www.seas-at-risk.org and paper copies can be delivered on request.



Rue d'Edimbourg 26
1050 Brussels Belgium
secretariat@seas-at-risk.org
www.seas-at-risk.org

Credits for pictures:
W.J. Strietman, E. Willsteed,
Fisheries and Oceans Canada,
LLH Denmark

Text by Maja A. Dittel, Christien Absil,
Monica Verbeek

Graphic design: www.podivium.nl

This brochure was made possible through
the support of the European Commission (DG
Environment) and the Dutch Ministry of Housing,
Spatial Planning and the Environment.