

Research Report

Environment Commission

Increasing sustainable ways of fishing



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Forum	Environment Commission
Issue:	Increasing sustainable ways of fishing
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Introduction

17kg: this is how much fish an average person eats per year. This number rose, it was 9.9kg in 1960, and the tendency is still rising. The problem with commercial fish is the fact that most of this fish is wild-caught. The spread of aquaculture, the systematic rearing, is just on the move. Having overexploited fish stocks now leads to a break down of the fishing quotes in the future. The fishing fleet of the entire world has the potential to fish 25% more fish than it would be sustainable for the stocks. As every industry, the fishing industry is market-driven and therefore implementing sustainable ways of fishing is difficult as those would need an expensive restructure and rethinking of the companies. But not only the overexploitation of the fish stocks hinders the sustainability, the habitat loss caused by some fishing methods, the difficulty of the unwanted bycatch, illegal fishing and the recreational anglers, reducing the fish population just for fun, they all are a great danger to the sustainability. The solution to these several, sometimes very different, problems has to cover a lot of aspects and be very wide.

Definition of Key Terms

Juvenile

A juvenile is a young fish before its puberty. When it grows older and becomes able to spawn, it is called an *adult fish*. In general are Juveniles smaller, lighter and thinner than adults.

Illegal, unreported and unregulated fishing (IUU)

Illegal, unreported and unregulated (IUU) fishing is composed by three different terms. Illegal fishing occurs, when the fishing vessel violates international marine laws or national regulations. When the fishing is not reported to the national authority or relevant



organization, it is, obviously, unreported. As soon as the fishing methods don't agree with the conservation and management measures by the country or the organization on which area the fish is caught, the fishing is unregulated. These three methods of fishing are summarised by the term of IUU fishing.

Exclusive Economic Zones (EEZ's)

The Exclusive Economic Zones (EEZ's) were established as a part of the *UN Convention on the Law of the Sea* 1982. The EEZ's are the zones next to the territorial sea of a nation and reach until 200 nautical miles maximum from the coast. Other nations may travel through or above these zones, but the right to exploit and conserve the natural resources belongs to the coastal state. So it is the states responsibility to manage the ecosystems and to guarantee for the conservation of the marine environment. Via the EEZ's, developing countries got supported, because then they had a greater area to fish and they also could sell the right to fish to other nations or organizations.

European Common Fisheries Policy (CFP)

The European Common Fisheries Policy (CFP) was actually established by the *Treaties of Rome* in 1957, wherein a combined agricultural policy was mentioned. But it wasn't since the 1970s that there was a real combined policy concerning fishing. The Reform in 2002 was a major one and after it came into force on the 1st January 2003, there were some major changes in the CFP. The CFP asked for sustainable fishing rules, cooperation with international organizations, e.g. the UN, and other countries and data collection on the sustainability of fisheries. This should lead to a *fair price* as well as to the strengthening of the *aquacultural sector*. Fishing rules and an approach on IUU fishing were separately formulated. There are three ways formulated in order to control the fishing: the *size of the fishing fleet*, *catch limits* and the *technical measures*, i.e. how and where fisheries may fish. The rules concerning IUU fishing state that only fish may be imported to European nations if it's guaranteed that it is *legal*. Moreover a *black list* should be created for organizations and states helping or tolerating IUU fishing.

MSC Principles and Criteria for Sustainable Fish

The Principles and Criteria for sustainable fish got created by the Marine Stewardship Council (MSC). In 2004, the certification program started to grow and the MSC eco-label got popular.

Every fishery that fish in accordance with the MSC Principles and Criteria can get the label, a label standing for sustainable measures. There are three key principles



of the MSC: *sustainability*, *minimal impact* on the environment and good *management*. The fish stocks should not be overexploited and the ecosystems intact. Also is the management and therefore the ability to react to environmental changes in order to keep the sustainability upright, important to the MSC.

State of the World 2010: Fisheries and Aquaculture

The State of the World on Fisheries and Aquaculture was released by the FAO on the 31st January 2011. Even though there are still 32% of the fish stocks worldwide overexploited or just about to recover, the need for fish is still raising. The report praises the effective controls against IUU fishing and defines new key areas: the impacts of the *climate change*, the *ecosystem approach* in order to create a greater sustainability and the importance of *aquaculture*.

International Plan of Action to prevent, deter and eliminate the IUU fishing

The International Plan of Action against IUU fishing was created by the UN Food and Agricultural Organization (FAO). Having *close cooperation* between the different nations, IUU fishing should be eliminated. In order to do so, port measures, costal measures and market-related measures have to be implemented. *Transparency* in the controls and the conversation of the fish stocks are important concepts in this plan.

General Overview

As already indicated, there are several factors influencing the sustainability of the fish stocks.

Those factors affect each other and sometimes interact.

Overexploitation

Overexploitation is probably the biggest threat to the fish stocks and the marine environment as a whole. When fish stocks are not able to recover, the entire fish population is in danger.

Overexploitation occurs when fish don't have the possibility to spawn. This happens when especially Juveniles are caught. The catches of adult fish aren't such a threat to the stocks than the catch of the juveniles.

There are more answers to the question *why* it happens. Some experts are under the impression that mostly developed countries create this overexploitation with the over-consumption of fish, meanwhile others are saying that the developing countries are to blame due to their growing population and their growing demand. Those two effects, the over-consumption and the growing population, mean a high pressure on the

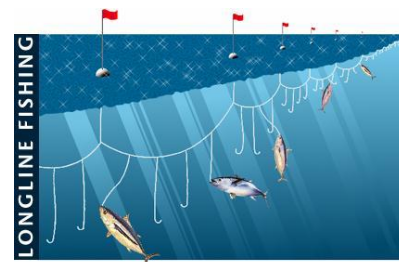


agriculture. And in order to live up against this pressure, the fisheries catch the wanted fish and doing this over-exploiting them. So the real cause of the over-exploitation is the inability to think of *long-term effects* and new possible solutions. Over-exploiting fish stocks might be helpful in order to satisfy the demand, but there are statistics stating that in 40 years there might be no fish left over on our planet. If a species extinct or is so over-exploited, that the quantity is highly declining, this affects others as well. The food chain is interrupted. With an overexploitation of salmon, e.g., the brown bears in the North-West coast of America suffer as well from the low catch they make during the autumn and with a declining brown bear population, e.g. the reindeer population explodes and destroys the forests and crops as well. This is naturally just an example and the question how likely this is going to happen another, but this is just a layout on the effects a disrupted food chain may have.

Bycatch

There is another threat to the sustainability of the fish stocks: the bycatch. The bycatch is actually the fish that is *accidentally caught* and isn't on the hit-list of the fishers.

Different fishing methods have different potentials to catch other marine animals as well. Longlining for example causes a lot of bycatch. A long line with many hooks is placed in the water, attracting the fish. The problem here is that all sort of fish are attracted and go for the bait. After the line gets reel



in, the bycatch is thrown back in the water again. This is done, because the catch limits pose a limit on how many kilo fish may be brought to the coast, so the bycatch that is brought to the land counts into the limits. This is the reason for throwing the bycatch back in the water. But after biting in the hook, most of the bycatch is not able to survive having a huge hole in their palate and so they perish miserably.

IUU fishing

IUU fishing is very dangerous to the fish stocks, the entire marine environment, but also to the markets. As IUU fishing is unregulated, it doesn't follow the rules and regulations creating sustainability and protecting the habitats. With increased IUU fishing both the specie and the habitats are in great danger. The regulations posed by international organizations don't apply to IUU fishers and this could lead to a collapse of the fish stocks if it gets exploited by both legal and illegal fisheries.



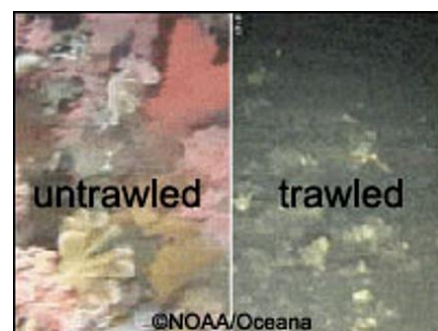
But not only makes the environmental impact IUU fishing so dangerous, the *economical aspect* makes it as well. As the achievement of international regulations and rules costs money, legal-caught products are more expensive. IUU fisheries therefore deform the competition as they don't have these extra-costs of reaching the regulations and rules. Especially in developing countries is the impact of IUU fishing incredibly huge.

Recreational fishing

On the first sign, recreational fishing has nothing to do with the sustainability of the fish stocks and therefore with commercial fishing, but this impression is deceptive. Especially on the East coast of the United States are many recreational anglers and their preys are mostly sharks and rays. The recreational catches of sharks are higher than the commercials and this shows how huge the impact of recreational fishing can be. The problem with recreational fishing is the fact that the caught fish has no use for the community. While every part of a commercial-caught fish is used, this is not the case with recreational fish. With only 15% of the fish stocks that are under- and moderately exploited, this *killing for fun* is unsustainable. In lakes, there are certain regulations on how many people may fish there and what, but these regulations seem mostly to miss in the oceans of the world.

Habitat loss

Some fishing methods have secondary effects, e.g. the destruction of the marine environment. One very dangerous method is the *bottom-trawling*. A funnel-shaped net is pulled over the ground to catch especially bottom-dwelling animals, e.g. lobster. This net is very destructive to the marine environment as it destroys the complete vegetated surface and so entire habitats. And with the destruction of the habitat, the ecosystems of the affected species start to be unbalanced and could fail at the very end. So as soon as the ecosystem isn't intact any longer, the affected species don't have the possibility to recover.



Not only the harvested species suffer from this habitat loss, but also other species whom habitats the net destroys as well. A solution sounding very simple is the reconstruction of the destroyed habitats and monitoring of the ecosystems in order to interfere if they start to fail.

Another problem is the deep-sea bottom-trawling. As the deep oceans are very less



discovered, in fact the human race knows more about the universe than their oceans, and so trawling there is double dangerous. Not only is the fear of habitat deconstruction there, nobody really knows what's being destroyed by doing this. Destroyed habitats can't be reconstructed, as the knowledge of what they looked like before doesn't exist.

Major Parties Involved

Food and Agricultural Organization (FAO)

The Food and Agricultural Organization (FAO) was established by the United States in 1943 as they decided to create an independent organization concerning the fields of food and agriculture. In 1945, the first FAO conference was held, where it determined the rules of procedures, the secretariat and their key areas of action. Nowadays, the FAO is a specialized agency of the UN. The key policy of the organization is to ensure *food security*, e.g. by improving the agricultural productivity. As a network for knowledge, the research from all areas gets collected and tests are being made on it.

In order to keep the productivity of the fishery upright, *sustainable fishing methods* are essential and therefore the FAO created and published the *State of the World 2010 Report on Fisheries and Aquaculture* as well as the *International Plan of Action on IUU fishing*.

Timeline of Key Events

Date	Event
1945	The FAO held its first conference.
November 16, 1994	The EEZ's came into force.
January 1, 2003	The new CFP came into force after the great reform in 2002.
Early 2004	The MSC certification program grows and with it the spread of the MSC Principles and Criteria for Sustainable Fish
January 31, 2011	The State of the World on Fisheries and Aquaculture by the FAO got published



Previous Attempts to Resolve the Issue

There had been several attempts to solve this issue, some are older but some are just very new and innovative.

The EEZ's were one of the first attempts to combine economy with the conservation of the marine environment. The coastal nations had the right to fish in these zones, meanwhile having the duty to preserve the environment and to maintain the fish stocks. However the major idea behind the EEZ's where the economic benefits of the developing countries and not directly the sustainability in the fish stocks.

The CFP focuses on three key areas: the control of the size of the fishing fleet, the catch limits and technical measures. Only with these limitations the sustainability of the fishing methods should be guaranteed.

One aspect of sustainable ways of fishing is tackled with the International Plan of Action against IUU fishing by the FAO. With the measures against IUU fishing, this threat towards the sustainability of the marine environment is embanked. The State of the World report praises the effectiveness this plan had and really, the rate of IUU fishing is declining.

The State of the World report suggested the *integrated ecosystem approach*, this means to not work on certain species and trying to maintain them, but seeing the species as a part of an ecosystem and trying to conserve it as a whole. The implemented steps were helpful to create certain sustainability, however there are still problem areas and the fact, that the percentage of over-exploited fish stocks is not decreasing, can be only seen as a positive effect when knowing that in the past it was growing.

There are very less plans on the impact of the *climate change*. With the climate change, the average temperature of the oceans rise and therefore it poses a danger to the nowadays existing ecosystems and species. The MSC Principles and Criteria are one of the first including management concerning changing circumstances in their program.

Possible Solutions

There are several possible solutions having a different coverage of the problem as a whole.

Public awareness is essential. With a greater awareness and knowledge, the consumer can take steps against the over-exploitation and for sustainable ways of fishing. They could, for example, buy only fish having the MSC label for sustainable fish or boycott habitat-unfriendly fishing methods and their products.

The *integrated ecosystem approach* suggested by the FAO is not a way to increase



sustainable ways of fishing, but a way to restore harmed ecosystems and doing this create sustainability in the fish stocks of the harvested fish.

A way to protect Juveniles and so the sustainability of the fish stock, a possibly could be to implement nets with *bigger holes*. Then the Juveniles, being smaller than the adults, have the possibility to escape while only the adult fish are being caught.

As it is very clear, the marine environment must be conserved, so a *moratorium on deep-sea trawling* would be very helpful. It is simply irresponsible to destroy habitats without knowing the impacts of that and without having the needed knowledge to restore them. In general, the little knowledge about our oceans is not very helpful when facing the rising pressure on the fishing industry and therefore the need to engage new areas of fishing.

Research and data collection are necessary to fill this gap of knowledge. Having done this research, the species in the deep oceans can be harvested and the pressure would not only lie on the commercial fish stocks we have now.

Marine protected areas could be also a way to increase sustainability in the fish stocks. Around 1% of the world oceans and lakes are protected, meaning that fishing is not or only with limitations allowed. The species there have the possibilities to recover and spawn.

The problem with the bycatch can be tackled with one simple solution. The catch limits now concern the fish the boats bring to the havens and not what they actually caught. Changing this could be very helpful. If there's a limit on how many fish the boats may fish, so *including the bycatch*, the fisheries themselves would have to implement sustainable fishing methods, methods with minimal bycatch. Doing this would combine the environmental problems with the economy. It would not be longer the politicians imposing sanctions and limitations on the economy, but it would be the economy to establish them alone.

Those solutions being mentioned until now cover the most important aspects in order to increase sustainable ways of fishing, however there is one solution suggested by the FAO going in a different direction. Until now, the goal was to create sustainability in the already existing fish stocks, which is utterly important; a very different way would be to "create" new fish stocks. This can be done via the *aquaculture*, the systematic rearing of fish. Like the land-animals, e.g. cows or sheep, are reared in great complexes, this can be also done underwater. Of course this has to be done sustainable and moderate, but as it can be found in South-East-Asia this can perfectly work in a sustainable way.



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