

Committee/Council: Environmental Committee

Issue: The question of overfishing in Antarctica

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Introduction

In the last decades scientists from all over the world have observed that the actions of humans on the planet have caused radical changes especially on the way the different ecosystems work. The environmental crisis has many different sides. The natural resources of the earth are being depleted, the air in large cities is getting increasingly polluted and many animals face the danger of extinction either because of overexploitation or because of pollution. The overexploitation of marine living resources worldwide is a very important problem that endangers whole ecosystems. A very big threat that has troubled people for many years is that of the



Fishermen fishing

overfishing in the area around the Antarctic also known as the Southern Ocean. Overfishing in that area causes instability in the local ecosystems and can possibly lead to irreversible damages and great environmental catastrophes. In the past and present multiple species have been threatened and efforts have been made to protect them. Various animals with great value for fishermen play also a very important role in the ecosystem and their overfishing can cause many problems. One such animal for example is the Antarctic krill (*Euphausia superba*), which is in danger due to overfishing and particularly due to illegal, unregulated and unreported (IUU) fishing taking place in the area. Even after attempts to regulate fishing in that area, IUU fishing still takes place and poses a great threat.

Definition of Key-Terms

Bycatch

Fish or other sea creatures that are caught unintentionally by people who are trying to catch other types of fish.¹

Overfishing

Catching too many fish in an area of the sea, so that there are not many fish left there.²

Moratorium

A stopping of an activity for an agreed amount of time.³

Finfish

A fish with fins (the term is used to specify that other animals that include the word fish in their names (like shellfish) are not included)

Background Information

Antarctica

Antarctica is not a country. It doesn't have a government and it is governed by the Antarctic Treaty System, some international agreements that set the rules for the exploitation of Antarctica. The basic treaty is the [Antarctic Treaty](#), which was established in 1959 by 12 states with claims in the area, namely Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the United Kingdom, Northern Ireland, the United States of America and the Soviet Union. Nowadays there are 41 additional parties to the agreement in addition to the 12 original (full list of parties [here](#)). These states have agreed to use the Antarctic for peaceful reasons only and have decided to prohibit its use for military purposes.

Similarly not all the waters around Antarctica belong to a state. This makes the problem of overfishing in these waters an international problem. ([map of maritime boundaries of states](#))

History of overfishing

Humans have set their sights on the area around Antarctica for harvesting living marine resources since 1790. At that time primary target were the seals, whose pelts were sought after. Overfishing of those seals almost caused their

¹ "English Dictionary, Translations & Thesaurus." Cambridge Dictionary, dictionary.cambridge.org/.

² "English Dictionary, Translations & Thesaurus." Cambridge Dictionary, dictionary.cambridge.org/.

³ "English Dictionary, Translations & Thesaurus." Cambridge Dictionary, dictionary.cambridge.org/.

extinction by 1825. This is the first incident of overfishing in the area. In the beginning of the 20th century whales were also extensively hunted. Also finfish, squids and krill have been hunted by fishermen with varying levels of intensity since 1960.

Seals

Although the hunting of seals was reduced in the 20th century the damage from the earlier overfishing was clearly visible. As a result of their small population commercial sealing in the Southern Ocean has steadily declined until 1950 when it stopped. As a response to that crisis the



Crabeater seal

[Convention for the Conservation of Antarctic Seals](#) was established in 1972. This was signed and ratified by over 15 countries including the United States of America, the United Kingdom, South Africa, Russian Federation and others ([list of signatories on page 13 \(pdf\)](#)). This convention set a catch limit for some kinds of seals like the Crabeater seals *Lobodon carcinophagus* with the limit in this case being 175,000 and banned the exploitation of others like the Ross seals *Ommatophoca rossi*. It also set specific sealing seasons and zones and it gave large emphasis on scientific research.

The seal pelts which were the reason of the seal “hunt” are used mainly for clothing and accessories and the seal-pelt industry used to be quite large. Nowadays the demand for seal pelt products has fallen a lot and some even consider seal hunting not to be economically viable. However, the industry (although smaller) still exists.

Whales

Almost every species of whale in the Southern ocean was exploited intensively and was severely depleted. Even the minke whales, whose exploitation started only in the early 1970s have been depleted. Their total population today in the Southern Ocean is according to the scientific data from the Commission on the Conservation of



Minke whale

Antarctic Marine Living Resources less than 700,000 and this only after many attempts to protect the whales such as the creation of sanctuaries in the Southern Ocean (1994) (and the Indian Ocean in 1979) and the establishment of a moratorium of commercial whaling in 1987 by the International

Whaling Commission. The [International Whaling Commission](#) is responsible for the management of whales in the Southern Ocean and the monitoring of their numbers.

Nowadays the moratorium still applies and the vast majority of the countries have stopped exploiting whales thus helping the population of whales grow. Although commercial whaling has been banned in the Southern Ocean scientific whaling is still permitted. This gave rise to a controversy concerning Japan, which hunted and killed a very large number of whales allegedly for scientific research. The large number of hunted whales has sparked suspicions about the legitimacy of the research with some organizations and states accusing Japan of abusing the international agreements in order to continue commercial whaling. Japan has launched three allegedly scientific programs which have caused the hunting of thousands of whales: JARPA (1987/8-2004/5), JARPA II(2005/6-2010/11) and NEWREP-A (2015/6-2027/28). Other than that Norway and Iceland continue whaling according to the International Whaling Commission. However neither of them exploits the whales in the Southern Ocean.

Fish

The exploitation of finfish was not taking place until 1960. During the 1970s and 1980s marbled rockcod and possibly mackerel icefish were overexploited. Other than that until the 1990s squid, crab and Patagonian toothfish were exploited. The overexploitation of some species was stopped by the [Convention on the Conservation of Antarctic Marine Living Resources](#) (CCAMLR) (full text [here](#)).

Nowadays although there are many regulations imposed by the CCAMLR the Patagonian toothfish is in danger due to a variety of factors like its previous overfishing and the difficulty to gather and assess the scientific data. Some statistics indicate that the situation is under control and that there is no imminent threat and others show that the species is in danger. However, most organizations agree that the population has been depleted and that it is a very susceptible species.



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Patagonian toothfish

During the fishing for finfish sometimes birds get accidentally caught and sometimes subsequently die. This bycatch is not uncommon and damages the population of birds of the Antarctic, mainly that of albatrosses.

Krill

The Antarctic krill (*Euphausia superba*) is a very important species in the Southern Ocean that has been intensely exploited. Krills are a food source for various species of fish and whales and serve as a transporter of the nutrients that exist in phytoplankton and zooplankton. By eating these krill absorb their nutrients, which are later transported to larger animals. Because of its function krill is thought to be the “keystone” of the ecosystem. The krill population changes continuously and radically. Therefore, it is a very susceptible species and is often in danger. The Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR) has recognized the important role of krill in the ecosystem and its harvesting has been handled with caution. Allowable catch limits have been set alongside other measures to protect this species. Currently this catch limit is around 5.6 million tons annually. Furthermore, the CCAMLR has agreed that there shouldn't be an expansion to the current krill fishing industry, unless scientific data indicate the opposite.



Antarctic krill *Euphausia superba*

Krill has been and is still threatened. This threat also extends to the many of the animals that live in the Southern Ocean and Antarctica that depend on krill. The main reason for the decline of krill populations is speculated to be global warming. However, this fact doesn't mean that overfishing isn't a threat to krill populations. On the one hand there is illegal, unregulated and unreported (IUU) krill fishing and on the other hand more and more companies plan expeditions to the Southern Ocean for krill fishing. The first reason for this is the expansion of the fish farming industry, which uses krill as fish food and the second is the large stock of unexploited krill in the Antarctic. All this combined with the fact that there are great difficulties to determine how big the population is and uncertainties about the causes of the decline of the population, make it really difficult for all organizations involved to make sure that the current exploitation is sustainable and not damaging to the ecosystem. Krill is used mainly for health supplements and food for fish farms.

Illegal, unreported and unregulated (IUU) fishing

IUU fishing has been and still is a large problem all over the world. It had significant presence in Antarctica until approximately the 1990s, when the Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR)

adopted a variety of measures to combat it. Among them the creation of an IUU vessel list for both Contracting Parties and Non-Contracting parties and the [control of nationals](#). Even after these measures there is still IUU fishing in the Southern Ocean and it still poses a threat to the marine creatures there. Incidents of such fishing are not rare in the Southern Ocean. A typical example took place in 2015 when a navy patrol boat from New Zealand found three large boats fishing Antarctic toothfish using illegal methods. The three boats carried the flag of Equatorial Guinea and therefore the patrol boats were not able to detain them and instead took photos of the illegal activity. This very recent example shows that IUU fishing still is a problem and needs a solution.

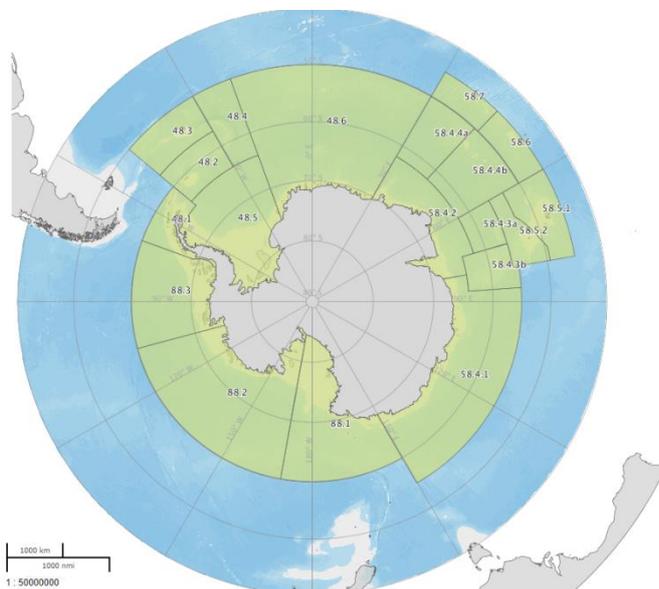
The Food and Agriculture Organization of the United Nations has promoted the [Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing](#), an agreement that takes an interesting approach to the IUU fishing and tries to combat it inside of the ports through inspections. It introduces the concept of permission to enter a port and the documenting of that permission. It has been signed by some states among them some of the states that claim land or waters in the area of the Antarctic.

Major Countries and Organizations Involved

Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR)

The CCAMLR was established by the Convention on the Conservation of Antarctic Marine Living Resources (also called CCAMLR) in 1982. The role of this commission is to help in the management of the ecosystem by coordinating scientific research and member states. There are 36 member states in total in this commission, which agree on conservation measures to be established in the Southern Ocean to protect the ecosystem. It has played a very big role in conserving the marine living resources and achieving international cooperation. The CCAMLR

manages the area that is marked on the map. It heavily relies on scientific data.



International Whaling Commission (IWC)

The IWC is an organization whose goal is to protect whales worldwide. As it is natural, this organization tries to combat the overfishing of whales and protect them from it. It was established in 1946 by the Convention for the Regulation of Whaling. The IWC has played a very big role in the whaling moratorium and the establishment of whale sanctuaries. These two events prevented an enormous environmental destruction and offered the whales a chance to grow in population.

Food and Agriculture Organization (FAO)

FAO has played a major role in the combating of illegal, unreported and unregulated (IUU) fishing in many ways. One of the most drastic ones being the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.

Japan

Japan is responsible for the deaths of thousands of whales (mainly minke whales) after the establishment of the moratorium of commercial whaling and the sanctuary in the Southern Ocean. Although Japan states that it is for scientific purposes, the international community remains skeptic and some accuse Japan of lying and abusing international agreements.

Countries that have maritime boundaries in the area of the Southern Ocean or that use the Antarctic for scientific purposes

These include the United States of America, the United Kingdom, New Zealand, Australia, South Africa and others. These are mainly the countries of origin of most of the fishing vessels. They are also part of most of the treaties in the Antarctic System and they have the biggest responsibility to preserve the Antarctic. Some of those countries have showed great engagement in the preservation of the Antarctic like Australia and the UK, which are very active members of the CCAMLR.

Timeline of Events

Date	Description of event
1790(approximately)	Exploitation of marine living resources begins in Antarctica
1825	Seals are close to extinction

1950(approximately)	Commercial sealing stops
1959	The Antarctic Treaty is signed
1972	The Convention for the Conversation of Antarctic Seals is established
1982	The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) is established
1987	Moratorium of commercial whaling begins
1987/8	Japan launches JARPA which results in the deaths of many whales
2008	Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing is created
January 13 2015	Navy patrol boats took photos of ships fishing illegally

Relevant UN Treaties, Resolutions and Events

Antarctic Treaty

It was established in 1959 and sets the rules that apply for the management and use of the Antarctic. It declares that Antarctica shall be used only for peaceful reasons and is the base of the Antarctic Treaty System.

Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)

This convention was created in 1982 as a response to the increasing interest for commercial fishing for krill in the area which threatened the entirety of the ecosystem. Its aim is to limit commercial fishing in the Antarctic. This convention established the Commission on the Conservation of Antarctic Marine Living Resources which until today closely monitors the Antarctic marine living resources and creates conservation measures for their protection.

Convention for the Conversation of Antarctic Seals

After the overexploitation of seals in the Southern Ocean throughout the 19th and the beginning of the 20th century this convention was created to ensure that no further overexploitation takes place. Through various measures such as catch limits

and the prohibition of exploitation of some species this convention ensures that seals won't be in danger in the near future. Over 15 countries have signed and ratified it

Convention for the Regulation of Whaling

It was established in 1946 by 15 states and created the IWC which has played an important role on the conservation of whales worldwide.

Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing

This agreement was established in 2008 in order to combat IUU fishing. It also applies in the case of the Antarctic, where IUU fishing is and will continue to be a very important threat. This agreement has the potential to cause severe damages to IUU fishing if the member states show more commitment. It proposes the control of some vessels in the ports regardless of their flag so as to combat IUU fishing in the ports.

Previous Attempts to solve the Issue

There are only 2 previous attempts to solve the issue. The first one is the Convention on the Conservation of Marine Living Resources (CCAMLR) which aimed at managing all fishing in the area. Although it was successful as far as commercial fishing is concerned, it still failed to eliminate completely IUU fishing due to the difficulties in controlling of such a large area. The second one is the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, which needs more commitment and better inspection methods as well as more signatories for it to be successful as although its measures are very drastic it is not applied to the extent that is needed to combat the issue. Since this problem doesn't directly affect some of the member states that are responsible for it and since its effects aren't imminent, many states lack the commitment to solve it and although this was partially solved by the CCAMLR, which established a commission of member states dedicated to this problem, member states still need to commit more to it.

Possible Solutions

International cooperation for better scientific data would be a way to better assess the situation and organize all member states on specific problems that need to be tackled. Another possible solution would be a better monitoring of the Southern Ocean. By doing this it would be easier to find and arrest illegal, unregulated and unreported vessels regardless of the state which they are flagged to. In addition, the port control measures of nearby ports could be further enhanced so as to detect vessels that have taken part in IUU fishing and their catch. Instead of

monitoring the whole Southern Ocean however one possibility is to create and monitor specific areas that will serve as sanctuaries or other types of protective zones for the species, in which fishing would be prohibited. Last but not least another way to combat this problem is to promote fish food other than krill so as to ensure that the demand for it falls and that it isn't targeted by fishers. This would help stabilizing the ecosystem and decrease the danger.

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