

PART SEVEN

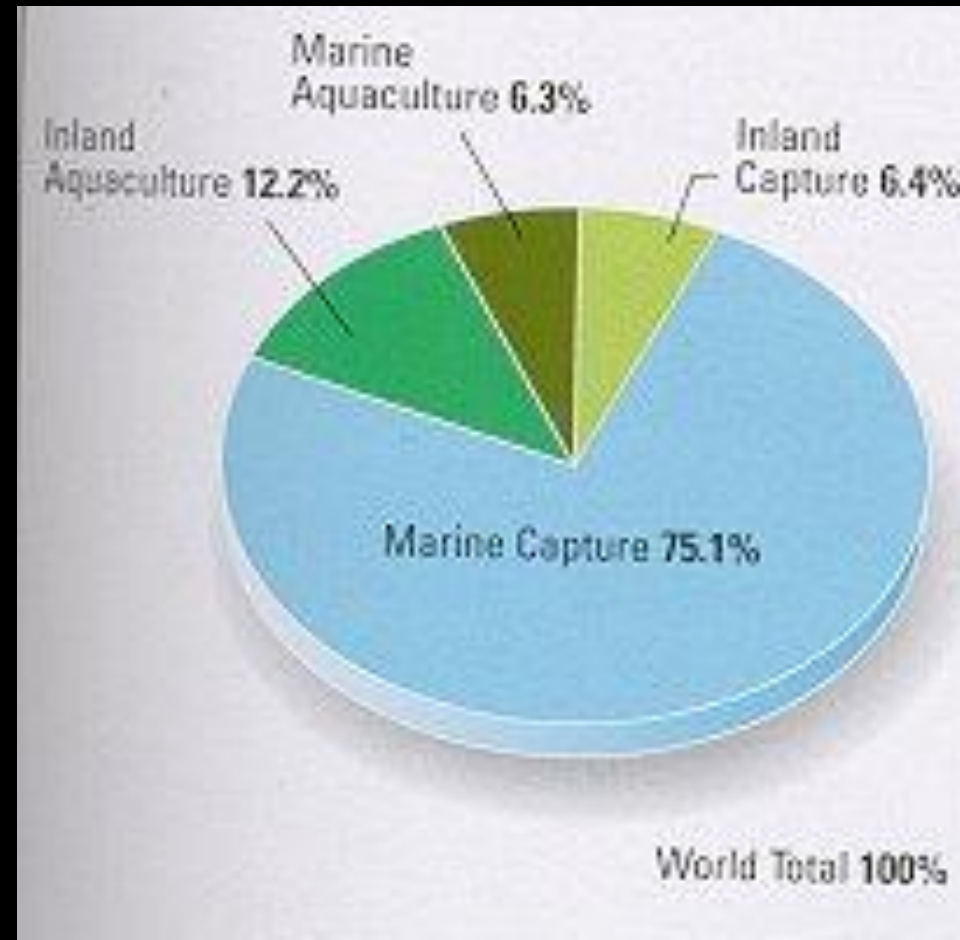
Fish Resource Management



Introduction

- About 80% of fish harvested come from oceans.
- **Why is this obvious?**

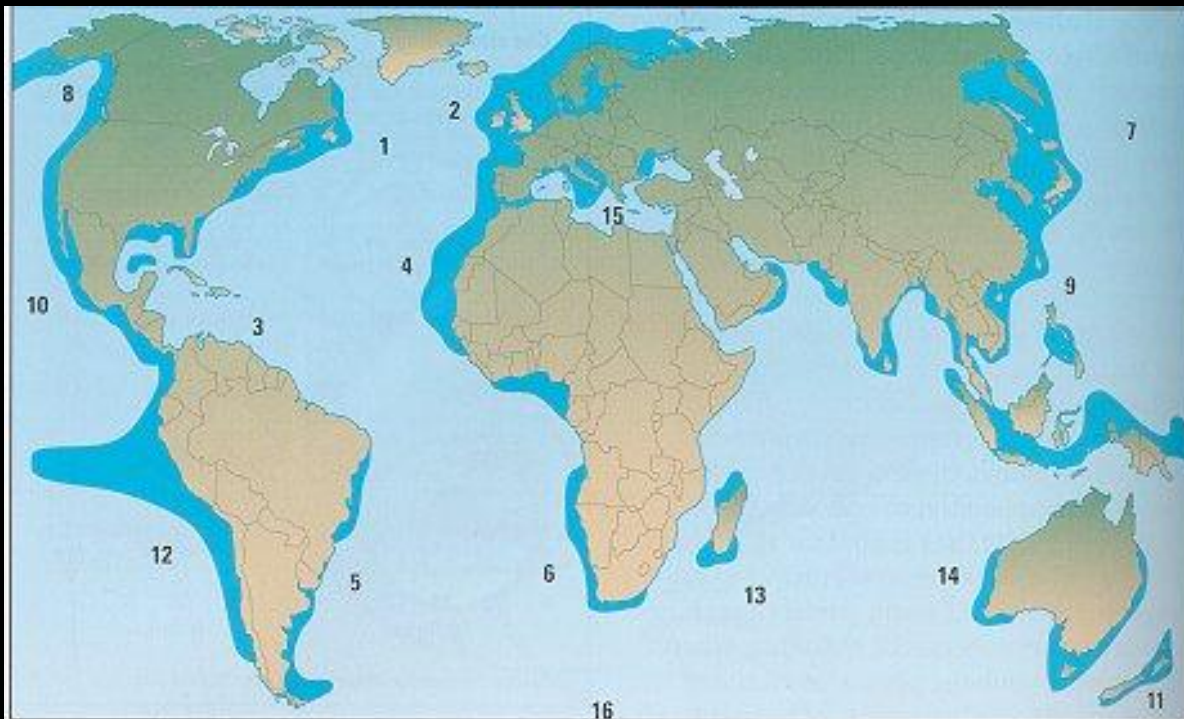
➤ Most of the world's water is ocean, therefore it would be expected that fresh water would only contain a small portion of the world's fish.



Introduction

There are 4 major fishing regions:

- North east Atlantic (England/Norway);
- North west Pacific (Japan);
- West central Pacific (China/Indonesia);
- South east Pacific (Western South America).



Most fishing grounds are found on continental shelves for 2 reasons:

1. The **shallow waters** of the shelves make harvesting **more cost effective**.
- ~ The fish have to be landed on shore for human use so the regions closer to shore are fished most profitably.

2. The **shallow waters** of the shelf **promote plankton production** which serve as the base of the marine food web including fish.

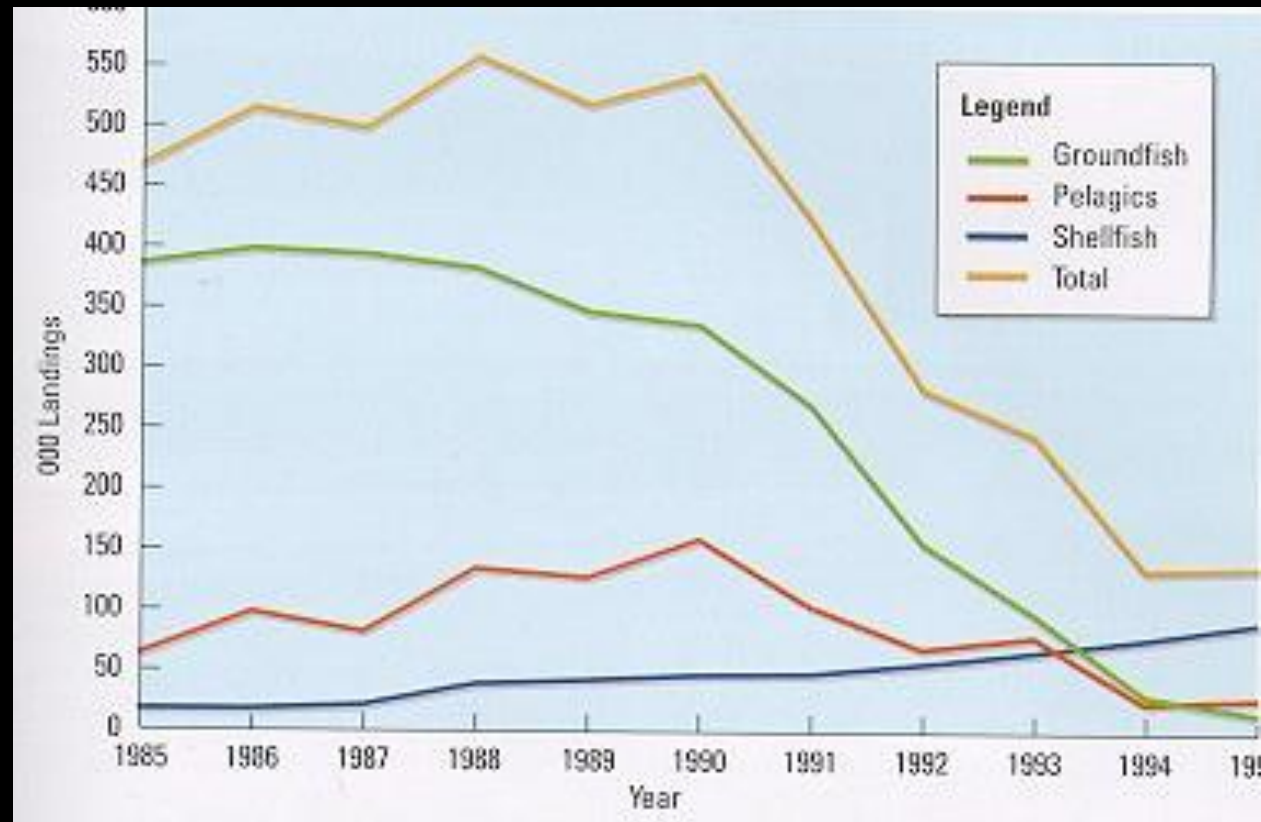
– **Shallow water ensures:**

- enough light for phytoplankton
- effective circulation of nutrients.

Trends in Fish Catches

Usually when one fish species declines, fishers increase harvesting of another species.

According to the graph does seem to be true for NL?



In NL it looks like the decline in the ground fish species (ex: cod), caused an increase in harvesting shell fish. Most likely, the increase came in the crab and shrimp fisheries. However, some of the increased shellfish harvest might have been mussels.

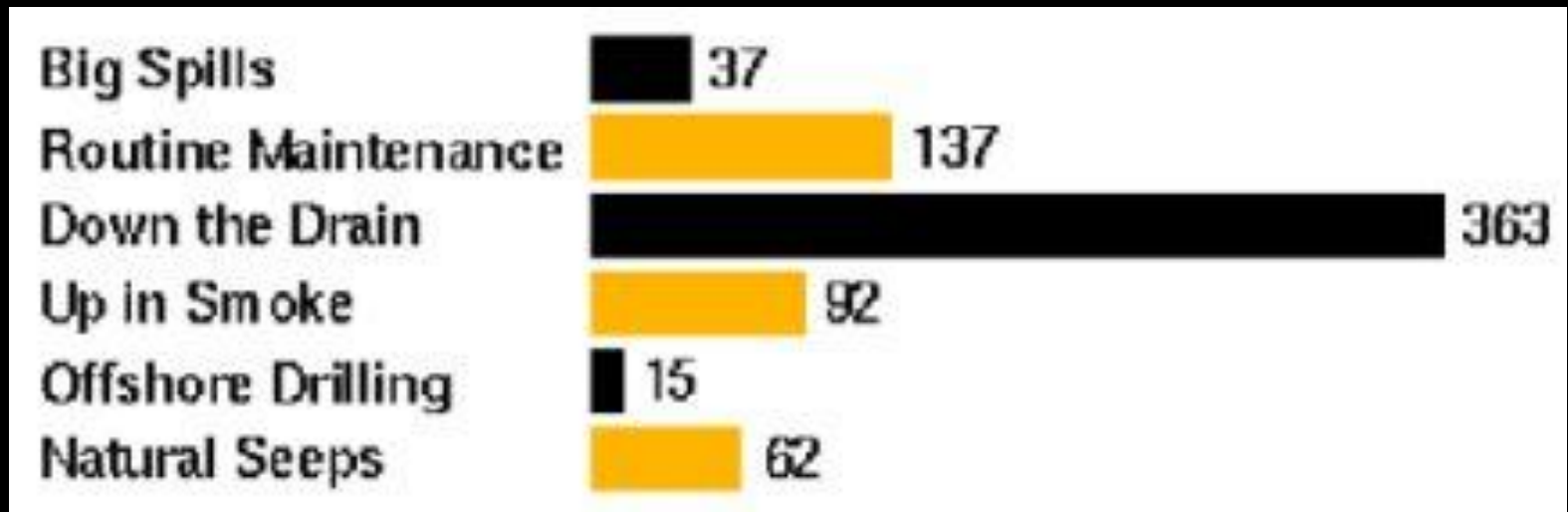
Fisheries Management

- There are a number of issues related to the fishery that require management.
- **Pollution** and **conservation of fish stocks** top the list.

Major Sources of Ocean Pollution

Oil

- Oceans suffer from **many devastating spills**.
- Hundreds of millions of gallons of oil quietly end up in the seas every year, **mostly from non-accidental sources**.





Major Sources of Ocean Pollution

Toxic Material

- Industrial, agricultural, household cleaning, gardening, and automotive products regularly end up in water.
- EX: TBT, or tributyl tin, is added to boat paints to kill or repel barnacles and other troubling organisms that soil ships' hulls.



Major Sources of Ocean Pollution

Dangerous Debris

- When **trash**, particularly plastics, end up in the sea, they **pose hazards to marine life**.
- **Animals drown or strangle** from getting tangled in discarded or lost fishing gear, or **suffer and even die** from eating plastics and other garbage.





Major Sources of Ocean Pollution

Deposits & Withdrawals

- Humans have used oceans as vast dumps for domestic, municipal, and industrial garbage for thousands of years.
- The enormous deep-sea resources will undoubtedly attract more miners in the future, as easy-to-reach deposits on land are depleted.



Impact of New Technology on the Ocean Environment

(Pg. 206)

Factory freezer Trawlers

~ have likely had the most significant and negative impact.



The reasons for this include:

1. Highly efficient at catching fish, but greatly reduces the population & reproduction.
2. Large diesel engines, echo sounding equipment, onboard freezers, and GPS navigation contribute to their efficiency.
3. Destruction of the ocean floor by trawls/draggers eliminates good spawning locations for fish. Also, it disperses eggs, making fertilization more difficult.



4. By-catch is often discarded. Some regulations require ships to return with low levels of by catch.
5. Traveling great distances and being able to stay at sea for long periods allows trawlers from all over the world to come together in good fishing areas. This puts added pressure on the fish stock.



Sustainable Fishery

Definition:

Using a resources such as the ocean species in a way that will ensure they will not become extinct, but will be protected to increase for the benefit of future generations.

Strategies for a Sustainable Fishery

- Have **knowledge** about sustaining the fishery.
- Human **attitudes** must change.
- People need to **understand the long-term wellbeing** of the resource.
- **Decrease consumption** and world's **population**.
- **Extend legal jurisdictions**.
- Try to **prevent foreign fishing**.

Aquaculture

- : It is also known as **fish farming** and involves the **raising of marine life in a controlled environment**. Hence, this activity breeds and raises fish in tanks, ponds, and reservoirs.
- ~ Since the fish are fed regularly and are safe from natural predators, they **mature rapidly and successfully**.

Fish Resource & Fishers' Livelihood

- The declining fish resources may have a variety of affects on fishers.

Some of those include:

- Fishers may concentrate more on conservation.
- Fishers and their community will have to diversify:
 - develop aquaculture (ex. Bay D'Espoir)
 - golf course construction (ex. Frenchman's cove)
 - sea weed aquaculture (ex. Isle aux Morts)
 - eco-tourism (ex. Northern Peninsula)
 - catch underutilized species