

Types of fishing

1. Marine fishing
2. Inland fishing

Fishing

1. It is a primary sector industry
2. It is the main occupation of people living in coastal areas of Pakistan
3. Serves as their main source of food and cash as surplus catch is sold.



Marine fishing

It is carried out in sindh and balochistan

it is carried out on the coasts

Type of fishes caught includes

1. Prawns, crabs, lobsters in indus delta
2. Mackerel in hab delta
3. Sardines and sharks



Inland fishing

It is carried out in the reservoirs and lakes or rivers

Usually fish farms are made along these areas

Types of fishes caught includes

1. Hilla , palla , trout and mahseer

Subsistence fishing

1. It is carried out by illiterate and poor people living in coastal villages
2. A fisherman has a wooden sail boat which can only go for 5-10 km away from the coast. Since his boat uses land and sea breezes for locomotion, he can only go for fishing in morning and come back in afternoon.
3. The subsistence fisherman may also use a wooden row boat or a wooden boat fitted with a small engine
4. Since the distance travelled by these boats is small, the fisherman can only exploit the fish near the continental shelf but not that is in deep sea.
5. Thus fish stocks in continental shelf are over- exploited
6. The fisherman has a traditional small net so his catch is small.
7. During the monsoon season the sea is rough so he can't go out, thus the
8. fisherman must find some alternative work
9. The whole family is involved; male catches the fish whole the rest of the family cleans off the scales and removes the gut of fish

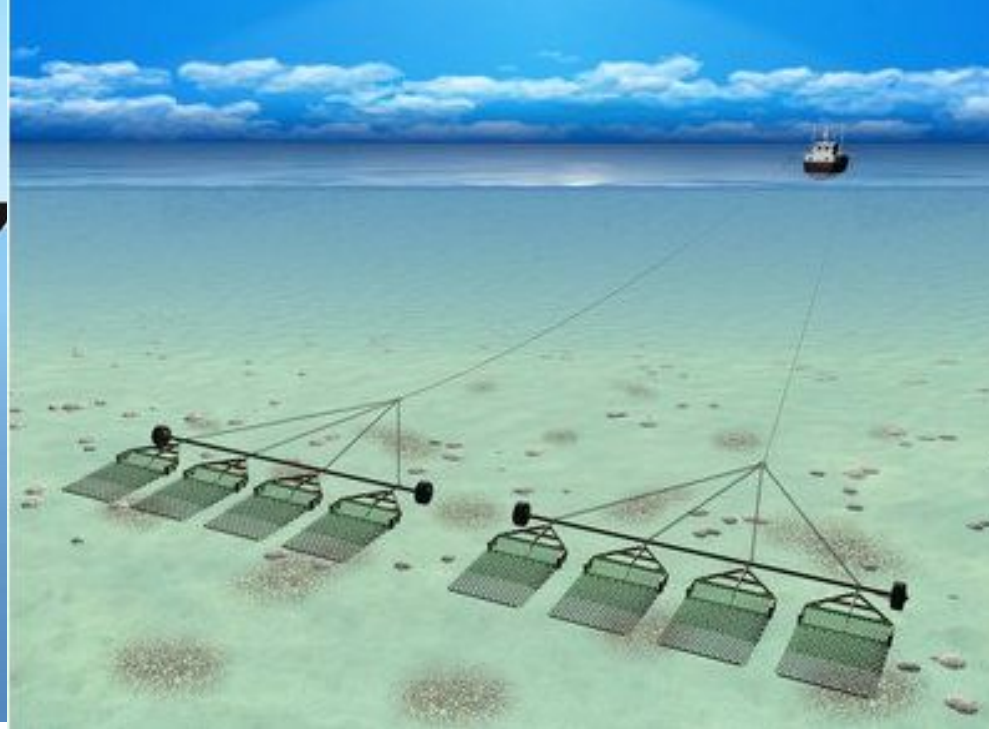
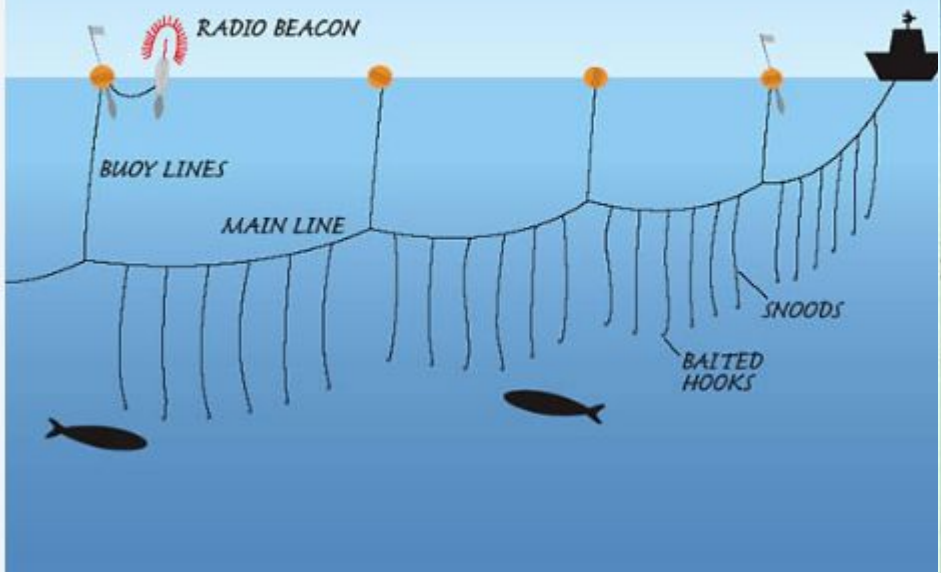
Commercial Fishing

1. It is practiced by fishing companies mostly along the developed Sindh coastline.
2. It involves fish caught in bulk, thus it is a permanent source of income
3. Motorized boats are used which can travel 40-50 km off coast and into the deep water to catch the unexploited stocks of fish
4. These boats also have refrigeration facilities so fishing can be done uninterruptedly for 10-15 days.
5. Ice is bought in large quantities from ice factories along both coasts and loaded onto the fishing vessels
6. Gill netters help in quickly catching large amount of fish
7. Sonar is also used to locate shoals of fish so more fish can be caught in less time. This saves operating costs
8. Weather forecasts are used for safe navigation and for returning catch without sinking
9. GPS helps in quickly locating fish/crab pots

Fishing methods

- 1. Gill nets** : Gillnets are walls of netting designed to trap fish by their gill covers. The gillnets hang in the water and only allow the heads of the fish to pass ...
- 2. Trawlers** : Trawling, which uses a ship to drag large, conical nets through the water dragging a net through the water behind a boat.
- 3. Dredging** : Dredging involves towing a heavy steel frame, attached to a chainmail bag, over the seabed. There may be teeth at the front to flip shellfish into the bag.
- 4. Pole and line** : setting of long lines of baited hooks and are one of the most widely used forms of hook fishing
Pole-and-line gear consists of rigid rods or poles with baited lines that are used
- 5. Handline or hand gathering.**

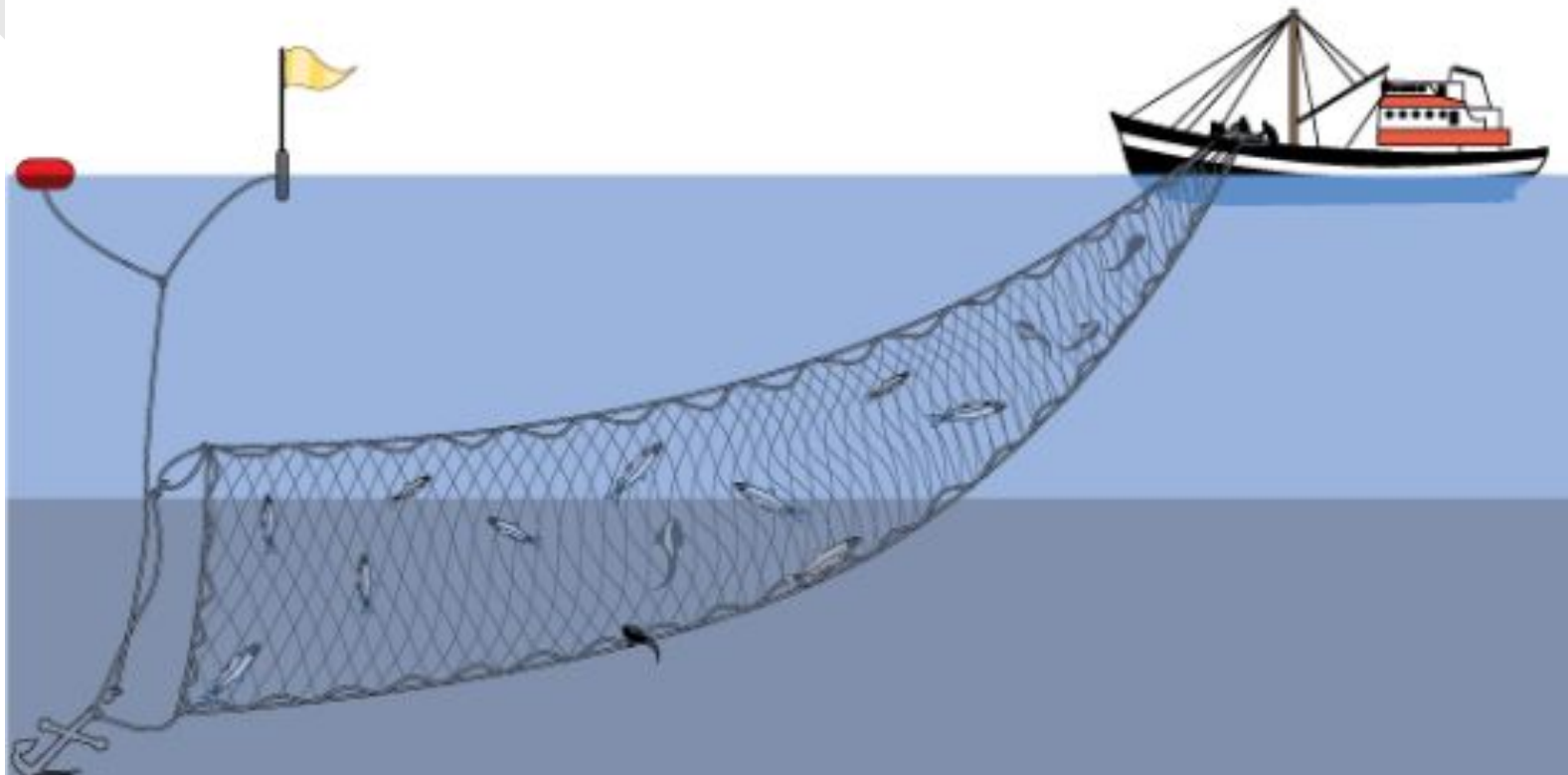
PELAGIC LONGLINE



Pole and line / Longline

Dredging

The North Atlantic gill net





Hand lining or hand catching

Trawlers



Ports in Pakistan

1. Jiwani
2. Gwadar
3. Pasni
4. Ormara
5. Sonmiani
6. Karachi
7. Port Qasim
8. Kemari





Uses and Importance of fishing


1. The fish is gutted (stomach and intestines are removed etc), after which it is canned or salted or frozen and transported Later on it may be made into other products like finger fish etc Fish guts, eyes and scales are used to make fertilizer and animal feed
2. Fish is sold to earn cash, the sale price is increasing due to ever increasing demand from a growing population
3. Shrimps are exported to USA etc and some fish is dried and then salted for export to Middle East and Sri Lanka
4. Fish meat is better than red meat as it has Omega 3 so it is better for heart patients. With increasing awareness about benefits of eating fish, the demand for white meat is increasing steadily
5. Fish catching also may serve as a tourist attraction in Northern Areas of Pakistan
6. Importantly increasing trends of eating fish would put less pressure on demand of cereal crops like wheat. It will result in less
7. land being cleared (to feed a growing population) for growing crops and thus decrease rate of deforestation
8. It also provides employment to many people either directly or indirectly and makes use of local resources like cheap abundant pool of labour. Capital (setup) costs are low and returns are quick

Growth of fish farming



1. Government has provided loans to farmers so they could build and maintain the ponds. These fish farms provide employment and fish exports, which helps to raise the foreign exchange
2. The demand for fish has increased due to growing population and increasing public awareness about eating fish with its healthier meat
3. Fish farming combined with poultry (whose waste forms excellent fertilizer for plants in pond) gives much higher profit In the plains of Punjab and Sindh, these farms are easy to dig and the water level are easy to maintain due to flat land.
4. Machinery can also be used to dig the farm as it is soft with less hard surfaces.
5. High water table and network of canals provide easy access to water, which fills the ponds
6. As compared to marine fishing, more people are required in inland fishing; for growing fish (hatcheries) and feeding, maintaining ponds and ultimately catching the fish and transporting it

How to make fishing sustainable

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1. Fishing of endangered species of fish must be banned to allow stocks to recover
 2. Nets with certain size of holes be used to avoid bycatch of smaller fish, also it allows immature fish to escape so they can breed in the future and allow for recovery of the fish stocks
 3. Fishing should be banned during the breeding season of the fish, so stocks can recover
 4. Illegal fishing must be stopped as the illegal fishermen do not conform to rules and regulations. For example they catch smaller and immature fish to maximize their profits, at the expense of future
 5. Stocks Quotas must be set for countries in international water
 6. Strict patrols must be carried out on the edges of Pakistan's waters, where foreign trawlers illegally can easily fish, without port charges/license/taxes etc

Problems FOR fishing industry

1. Main problem facing the fishing sector is the **lack of funds or mismanagement in development**. The longest coast (Makran) is least developed where obsolete methods of catching fish are still being used. Most areas along the Makran Coast have **no electricity, so it is impossible to build ice factories**.
2. **Low level of education of fishermen means that only a small number of them can be trained to operate big fishing boats or work in processing factories**.
3. Telecommunication facilities are still poor, thus there is a **communication gap**.
4. **Overfishing** is also another problem.
5. After building of Tarbela and Mangla dams, much of the farming area in the Indus Delta was lost.
6. **already overcrowded environment. This resulted in decreasing fish stocks**
7. These dams also resulted in fewer amounts of fresh water and silt for Mangroves.
8. Much of Pakistan's fish products like canned fish are **banned in EU due to the unhygienic conditions in which they are processed**. The other low value added goods like salted fish are exported to Sri Lanka.
9. This all results in very low investment in this neglected sector of economy, with Gwadar port having only 2 ice factories. Supplies of potable water to Karachi harbour are limited.
10. **Breeding season** and other natural reasons for less fish coming to surface.

Problems caused BY the industry

1. **Overfishing**: Imagine if you catch more fish than can be replaced. It's like eating all the cookies without leaving some to make more. Overfishing does not allow the fish to grow and breed properly

2. **Destruction of Marine Habitats**: Some ways of fishing, like using metal dredges that drag on the ocean floor, can damage the homes of sea creatures as well as ruin the sea bed preventing growth of sea plants

3. **Accidentally Catching the Wrong Animals (Bycatch)**: When fishing, sometimes other animals, like dolphins or turtles, get caught by mistake. This is called bycatch, and it can be harmful because it affects animals we don't want to catch.

4. **Breaking the Rules (Illegal Fishing)**: Some people fish without permission or catch too many fish, breaking the rules. This also causes the extinction of endangered species.

Problems continued

5. **Making the Water Dirty (Pollution)**: Fishing can sometimes make the water dirty with waste or oil leak from ships and boats

6. **Treating Workers Unfairly (Social and Economic Issues)**: Sometimes, people working in the fishing industry don't get treated well. They might not get paid enough or have to work in bad conditions.

7. **Changes in Weather (Climate Change)**: The weather can affect where fish live and how many there are. If the weather changes a lot, it can make it harder for fishermen to catch fish, and that can be a problem for everyone who depends on fish.

8. **Losing Jobs (Loss of Livelihoods)**: If we don't fish responsibly, there might not be enough fish for everyone. This means some people might lose their jobs because there won't be fish to catch.



Difference in fishing subsistence and commercial

Subsistence

1. Small wooden boat
2. Goes max 10 km
3. No cold storage
4. No GPS
5. Traditional nets
6. Small mesh
7. Unhygienic storage
8. handline

Commercial

1. BIG trawlers, large ships
2. Powerful engines with fuel
3. Refrigerator and high capacity cold storage
4. GPS and Radio system
5. Strong Nylon nets , Gill nets, trawler nets
6. Clean plastic storage
7. Salted to preserve
8. Pole and line can be used

Fish farm

Fish farming involves commercial breeding of fish, most often for food or export in fish tanks or artificial enclosures such as fish ponds.



Fish Farming



Fish breeding months: June and July.

Inland Fishing Areas:

- >Punjab: Man made ponds near rivers, canals
- >Sindh: River Indus (Sukkur, Kotri and Thatta) lakes (Kairi, Halegi, Manchur)
- >NWFP: Near Rivers and Canals (Kabul) Dams (warsak)

Inland Fish Farms:

- >Man Made, Ponds dug to keep and breed fishies
- >Natural Lakes (aka Tobas) used as farms in Sindh
- >Long thin rectangles, present in grid patterns (to separate species)
- >Raised embankments made by mud to separate ponds
- >Lined with bricks or cement, (Less seepage)
- >Lined with Trees (Less evaporation)

Methods:

- >Ponds half filled with insects
- >Eggs hatched or small fishes brought in (Different specie in each pond)
- >Food given regularly (e.g poultry waste)
- >Health checked
- >Water level checked
- >Fish transferred b/w ponds by size for providing space, oxygen, food.
- >Fully matured Fish caught by nets and delivered to markets

Favorable factors

Impervious soft soil, underground rivers for clean water, low evaporation

Flat land, large open lands

Dense population or labour, road network, capital, demand, canals, hatcheries.

Advantages and disadvantages of fishing

ADV of Fish Industry:

- >Earning of foreign exchange by exporting fish
- >Employment generated (Fishermen, Fish dealers, Packing, Processing)
- >Healthy food is available
- >Infrastructure developed
- >Acquiring of new technology/methods (engines, machines, radar, GPS)
- >Growth of other industries (Boat making, net making, processing, Packing)
- >Fish farms give quick profit in 3-4 months
- >No pest, disease danger
- >Cheap Inputs in fish farming

disADV of Fish Industry:

- >Not enough skilled workers
- >Expensive to lay down roads, Railway, Electricity, Technology
- >New technology is expensive (radar System, Satellites, GPS, Sonar)
- >Higher chances of overfishing
- >More Rural to Urban Migration
- >Water Pollution (e.g: Dumping of unwanted dead fish species)
- >New Infrastructure needs capital
- >Loadshedding
- >No Fishing in breeding season
- >Sustainability is hard



Links for fishing methods

https://youtu.be/-EXcDPpngi0?si=KXwDAvJ6vt_Qc_Of

<https://youtu.be/GcHuzl3wrW8?si=KUAU6v6YOLLXPk4J>

https://youtu.be/BcJFSL_YJHk?si=oSbeg6CztkR1jLef