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DESTRUCTIVE FISHING PRACTICES BEING APPLIED AT THE COASTAL AREAS OF LASBELA BALOCHISTAN, PAKISTAN.

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Abstract

Current work concentrates on the Destructive Fishing Practices (DFPs) which are being used, their impact on both marine biodiversity and on the livelihood of local inhabitants of coastal areas of District Lasbela, Balochistan Pakistan. Three coastal areas of District Lasbela were selected for the study i.e., Gaddani, Damb (Sonmiani) and Bundewari (Allana Goth) during Dec 2018 to Jan 2019 then in Dec 2019 to Feb 2020. Through an analysis of interviews, focus group discussions with local fishermen and personal observations, the data illustrates, illegal and prohibited fishing practices like bottom trawling is being applied extensively all-around coastal waters of Balochistan. In spite of being banned, encircling net/improvised purse seine net locally known as "wire net" or "Gujja" is being used widely in coastal waters of Lasbela. Around 60% of total catch landing on Gaddani, Dam and Bundewari fish landing sites/jetties, comprised of juvenile fish and other aquatic species are not consumed. These unwanted and trash fish in huge quantity is sold to feed mills which are further processed and used as poultry feed. According to local fishermen about 70%, fish catch is declined due to banned mesh sized fishing nets that trap premature fishes and many other marine species. As local fishermen can afford small wooden boats and catch fish up to 2-4 nautical miles, are facing fish decline problems the most. They spend more than 6-8 hours in sea coming back with only 10-20 kg fish or sometimes without any catch

KEYWORDS: Lasbela Destructive Fishing Practices, Gaddani, Dam Sonmiani

1. INTRODUCTION

Pakistan is situated in north western part of Arabian sea. Husain, et al., (2018). Pakistan's coastal area extends over 1046-1050 km (650 miles) and this coastal belt is spread in two provinces, Sindh (33% coastal belt) and Balochistan (65% coastal belt). Ali et al., (2003); Saifullah and Rasool (2002). Balochistan's coastal area is 700-800 km long and is located in two Districts Gawadar and Lasbela. Khattak, et al., (2012); Burke, et al., (2005). From the coast up to 12 nautical miles is marked as provincial territorial water. The Exclusive

Economic Zone starts from 12 nautical miles up to 200 nautical miles belongs to federal Govt, covering an area of about 240,000 sq. km with continental shelf area of about 50270 sq. km. Baloch *et al*., (2018). Fish is an important source of high quality protein, unsaturated fatty acids, essential minerals and vitamins for human beings. Jabeen and Chaudhary (2011).

Fisheries sector plays an important role in the economic development of a country and is a crucial source of livelihood for the inhabitants of coastal areas. Fanning, *et al*., (2011). Fishing practices are techniques used for catching fish and other aquatic organisms such as shell fishes like shrimps, prawns, lobsters etc. which are edible invertebrates.

Fisheries sector is one of the most important components of the national economy of Pakistan. Marine fisheries play an important role in fisheries economy which contributes about in 70% landing and 90% export. Khan, (2018). In Pakistan along with other developing countries, marine fisheries policies are focused to attain following objectives; to supply marine fish for domestic utilization in order to fulfil protein gap, to generate employment to strengthen source of income of the fishermen and to develop economic interest to get more foreign revenue by exporting fish and shell fish. Nazir, et al., (2015).

In Pakistan marine fisheries sector is in danger due to use of banned fishing net which are sweeping sea floor extensively. Government of Pakistan, (2013). Fishing with nets is a widespread method of catching fish commercially all around the world. The net is thrown at the shore or shallow water and it sinks deep in the water, the fish is trapped when the net is hauled back. Dumbar and Jaffery, (2001).

Several types of nets such as drift net, gill net, trawl net, and seine net are being used widely in coastal waters all around the world. Trawling is controversial because it is highly destroying ocean floor. Environmentalists are worried that this type of fishing practice may be responsible for the huge amount of by-catch mainly of juvenile fishes and endangered animals. Ross and Issac, (2004). Destructive fishing practices are those techniques which are carried out in the coastal waters, cause unrepairable damage to marine environment.

Destructive fishing practices are harmful to marine environment as well as affect the livelihood of local fishermen who depend on marine resources for their survival. According to local fishermen of coastal areas of District Lasbela, around 70% of fish catch has declined during last 10 years, due to heavy bottom trawling and using of mesh sized illegal nets.

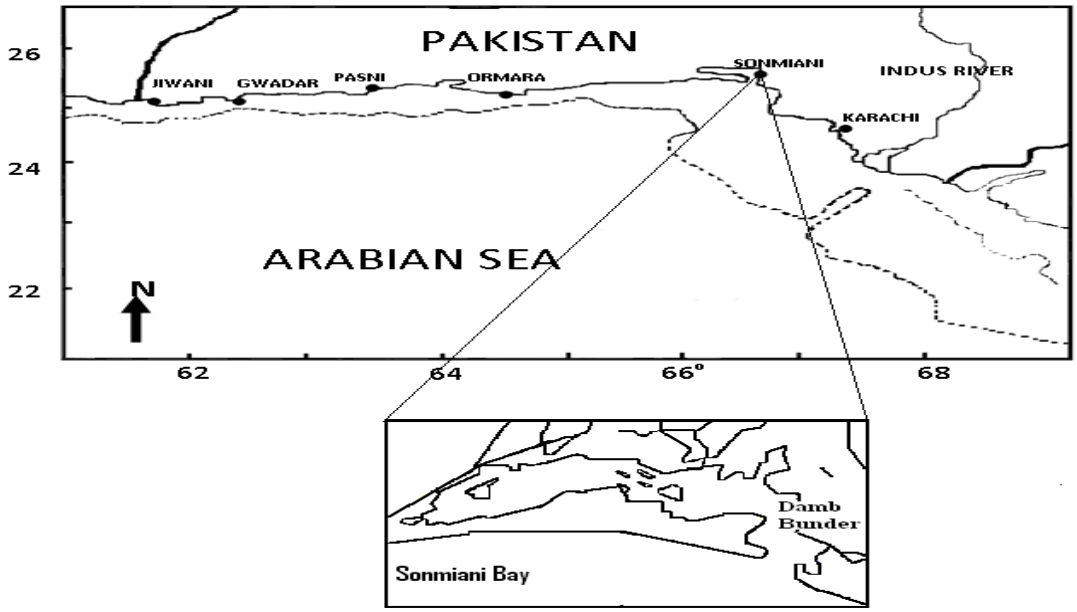


Figure 1. Map Representing Sonmiani Dam

2. RESEARCH METHODOLOGY

Study Area:

For the study of destructive fishing practices, three coastal areas of District Lasbela were selected, which are Gaddani, Damb (Sonmiani) and Bundewari (Allana Goth).

2.1. SITE DESCRIPTION

Gaddani/Gadani:

Gaddani is a small coastal village in District Lasbela Balochistan alongside Arabian sea, Pakistan. Biagi et al., (2013). Gaddani is a sub Tehsil of Tehsil Hub. The Gaddani beach is eventually known as sandy and rocky beach. Bano et al., (2015). Several prehistoric shell-midden sites were found along the shores of small bay near Gaddani, these were characterized as mass of fragments of shells of molluscs. Biagi et al., (2013). Gaddani is also known as country's largest ship breaking yard.

SONMIANI DAM:

Coastal area of Sonmiani Dam is situated at longitude of 66°.34 24.32 E and at latitude of 25°23 49.39 N (Bano et al., 2015). From Uthal city Dam is 45 kilometres away. Dam Sonmiani which is a coastal town in southwest of Balochistan province is present at approximately 8 kms northwest of Karachi. Saifullah and Rasool, (2002). Sonmiani is a lagoon, two seasonal rivers enter in it, one from eastern side which is Winder River which

from near the mouth enters the lagoon, and the second one is Porali River from northern side, empties into central part of the lagoon. Baloch et al., (2018).

BUNDEWARI:

Bundewari is a coastal area of Allana Goth village in District Lasbela Balochistan. Majority of inhabitants of Goth Allana are very poor and engaged in fishing activities as a mean of earning. The population of Allana Goth is scattered. There is scarcity of basic facilities like schools, hospitals, water, electricity etc. A floating jetty for the fishermen of Allana Goth was constructed by a Chinese company.

DATA COLLECTION:

The study consisted of mixed methods including direct observations, Questionnaire survey and review of literature. The literature review included both journals and reports which helped in study design and in development of survey Questionnaire. An initial visit to study site was made in Nov 2017 during which informal discussion with local fishermen occurred to pre-test survey Questionnaire for clarity of wordings. The main collection of data occurred in Dec 2018 to Jan 2019 then in Dec 2019 to Feb 2020.

STUDY TOOLS:

In this study a questionnaire survey was conducted, which is considered as an appropriate practice for conducting structured interviews. A set of similar questions were asked to target population and in turn limited set of responses are expected.

The questionnaire survey consisted of three parts. First part comprises of background information of respondents like Age, gender, number of family members (males/females), educational status, source of income, number of family members involved in fishing activities etc. In second part questions regarding destructive fishing practices are included just like which fishing net is more harmful to marine environment being used in particular coastal area, leading cause of decline in fish catch in sea of Balochistan, fishing gear lost (ghost nets) at the sea during catching fish etc.

In final section respondents were asked their opinions to report problems, and recommend how to conserve fishery resources.

In this study two groups of respondents were involved;

1) Fisher group, including fish crew, who catch fish either in their own fishing boat or work as labours. They are involved in fishing activities.

2) Fisheries officials/managers, they are officials of Fisheries Department Govt of Balochistan.

The respondents in the fisher group included fishing crew, and fish traders (who have transport facilities like trucks and lorries), buy fish from fishermen and sell them to local market or transport them to Karachi market for export. A total of 200 Questionnaires were completed, 50 from fishermen of each coastal areas and 50 from the officials of Fisheries Department government of Balochistan.

The Questionnaires of fisher group were filled by asking questions in local language Balochi and Urdu by Author at fish landing jetties of Gaddani, Damb and Bundewari. Some fishermen were interviewed at the site of fishing in the sea and some were filled at homes of local fishermen. In case of data of collection from Officials of Fisheries Department, questionnaires were sent through email, they were filled and sent back to Author.

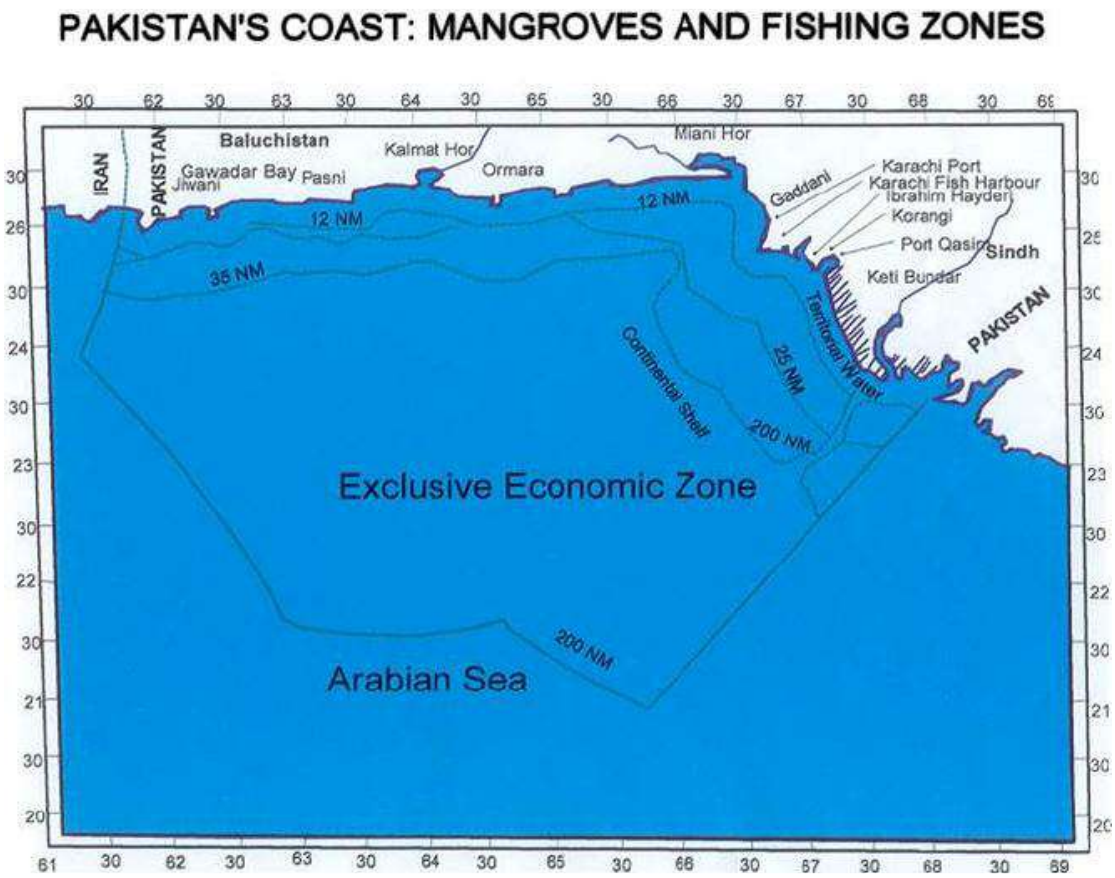


Figure 1.1. Pakistan's Coast Mangroves and Fishing Zones

Figure 1. 2. Data collection from fishermen at Sonmiani

3. RESULTS AND DISCUSSIONS:

Data collection was conducted during Dec 2018 to Jan 2019 then in Dec 2019 to Feb 2020. According to local fishermen, majority (90%) of fishermen are illiterate. They are totally dependent on marine resources. They do fishing from August to April. There is a temporary ban on fishing from May to end of July due to rise of sea level or rough sea during harsh summer season of coastal areas and breeding season of majority of marine animals. 90% of Local fishermen have fishing boats with size of 24-27 feet long and fishing nets like Thukri net, Indian Mackerel net, crab net and they can only fish from 2-4 nautical miles due to small sized fishing boats.

There was a continuous decline of fish catch due to extensive use of illegal fishing nets like trawl nets and wire nets at the coastal areas of Lasbela Balochistan (Graph 4). The main cause of decline in fish catch are, using of banned net like improvised purse seine net/wire net, illegal bottom trawling, overfishing and increased number of fishermen. Illegal trawlers are non-registered and mainly Sindh based (70%) which do illegal fishing in sea of Balochistan.

Active Marine species other than fin fishes, that are caught in Dam (Sonmiani) are Shrimps (17.5%), mud crab (21.5), blue crab (16.5%), jelly fish (7%), prawn (40%), lobsters (4.5%) other species are less active in catching area (Table & Graph1). In (Table & Graph

2) shown that the marine animals, Turtles (3.5%), Dolphins (1.5%), Rays (20%), Skates (10%), Small Fishes (16.5%) are the by-catches. Local fishermen use Thukri net (37%), Indian mackerel/Bangra jaal (42%), crab net or plastic net (5-10%) for fishing. These nets are less harmful for marine environment. According to local fishermen and officials of fisheries department, most destructive fishing practices being applied at coastal areas of Balochistan are using wire nets (98%), bottom trawling (94%) and ghost nets (80%) in (Graph and Table 3). A huge quantity of fish and shrimp is caught by large vessels which stay in open sea for several days in coastal waters of Balochistan, and use illegal mesh sized nets like Gujja and wires. Trawling is unselective which damages sea bed severely. A trawl net indiscriminately catches each and every aquatic life including endangered species, juvenile fish, destroy coral reefs which provide food and shelter to aquatic organisms in its catch. Trawlers damage the entire sea floor by destroying marine ecosystem.

According to Khuda Baksh, a local fisherman from Dam village said “All the fishes are eaten by trawlers”. 90% of local fishermen have small wooden boats which can only fish near shore up to 2-4 nautical miles. These fishermen report a continuous decline in their fish catch.

The only source of income for local fishermen is income generated from fishing but unfortunately due to political influence and making more money, trawler owners are sweeping sea floor by using destructive fishing methods including illegal and prohibited nets and bottom trawling for fishing. Although these nets are banned under provincial fishing laws but still they are being used without any check and balance. Bottom trawling threatens deep sea ecosystem, as trawl net is harmful by killing several tonnes of shrimps and juvenile fish. Fishermen who use small wooden boats and depend on creeks for their livelihood are suffering the most.

Harmful and exotic fishing gear has worsened the situation; the extensive use of harmful fishing gear may result in the collapse of fisheries resources in future. Fishing gear like Seine gear (Katra) is involved in overfishing of fishes like Mackerel Scads, Sardinellas and anchovies. Gill nets are observed as the “wall of death” due to high rate of mortality of fish and by-catch of non-targeted species like sea turtles, dolphins and whales. Deep sea trawling is posing an alarming threat to marine life and fisheries. These trawlers come in territorial waters of coastal areas of Balochistan are involved in massive poaching and polluting sea by throwing by-catch into the sea (MFF Pakistan, 2016).

Figure 2. Wire net used by fishermen in coastal areas of Lasbela Balochistan

Figure 2.1. Trawl net used by trawlers fishing at coast of Lasbela, Balochistan

Figure 2.2. Fish catch at Gadani landing site by wire nets for feed mills

Figure 2.3. Overfishing at Dam landing site by using banned wire net

Table.1. Other than fin fishes, which marine species are fished in the particular area?

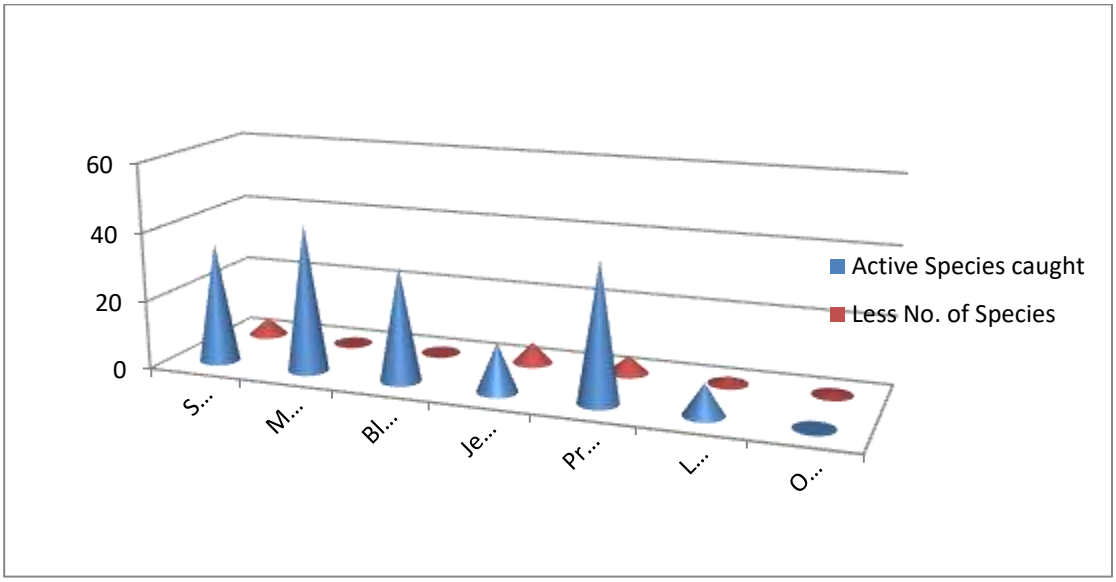
Species	Active Species caught	Less No. of Species
Shrimps	35	05
Mud crab	43	00
Blue crab	33	00
Jelly fish	14	6
Prawn	40	5
Lobsters	9	2
Other, specify	00	1

Table.2. The most entangled marine animals catch in Dam (Sonmiani)

Marine Animals	Total no of People we talked	No. of Catches	Missing Catches
Turtles	50	07 (3.5%)	43
Dolphins	50	03 (1.5%)	47
Rays	50	40 (20%)	10
Skates	50	20 (10%)	30
Small Fishes	50	33 (16.5%)	17

Types of destructive fishing practices	Total No. of People we talked	Yes	No.
Bottom trawling	50	47	3
Long-lining	50	03	47
Blast fishing	50	00	50
Dynamite	50	00	50
Ghost fishing	50	40	10
Cyanide/explosives	50	00	50
Wire net	50	49	1
Other	50	00	50

Table. 3. Destructive fishing practices applied at coastal areas of Lasbela Balochistan



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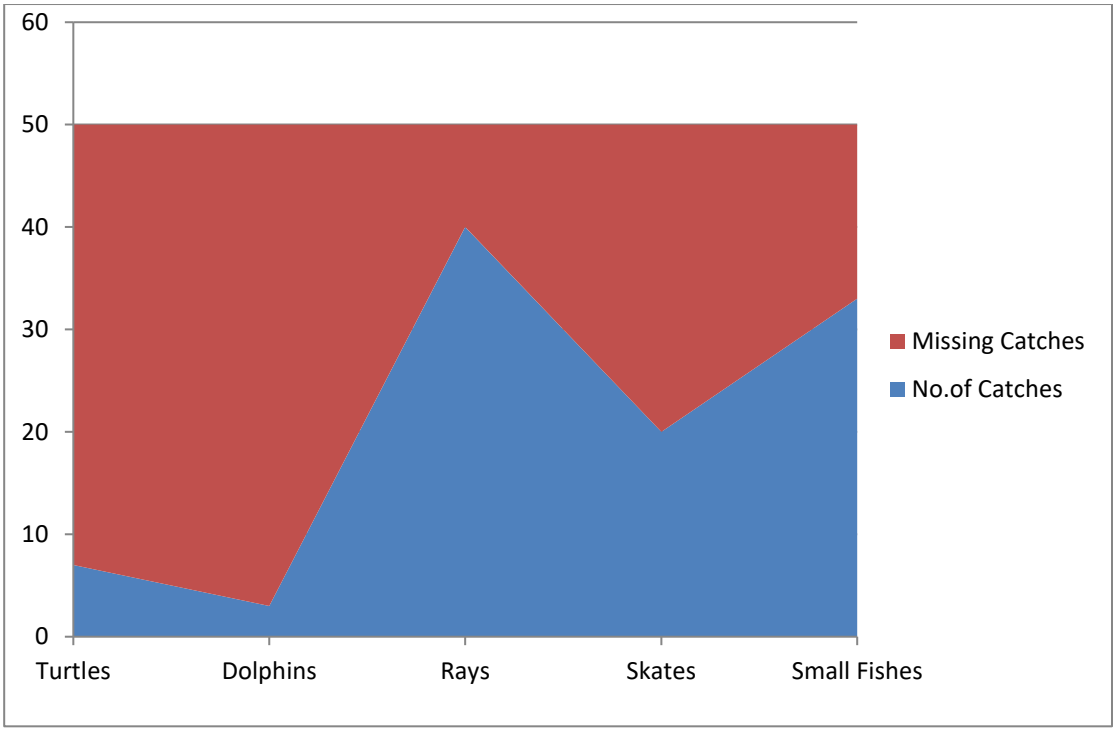

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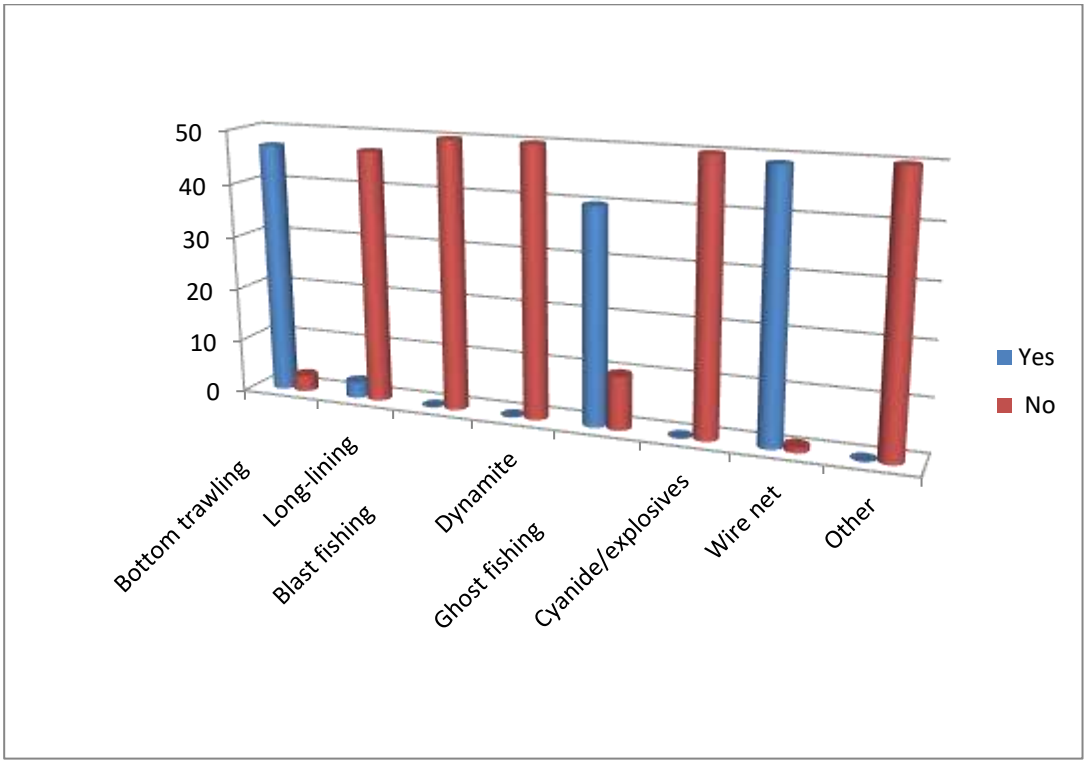

Figure 3.2. Destructive fishing practices being applied at coastal areas of Lasbela, Balochistan

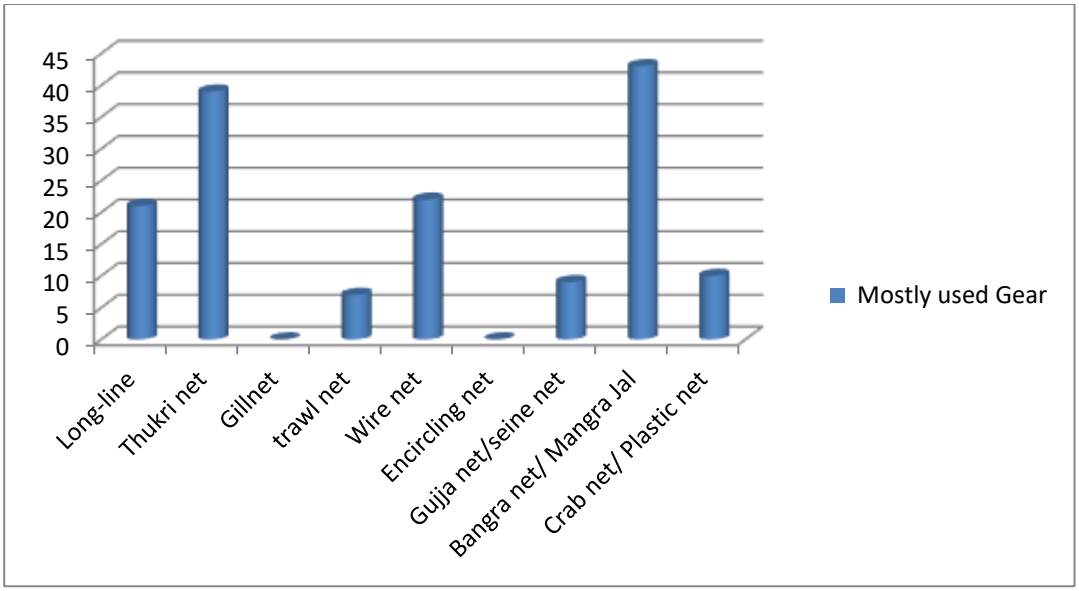

Figure 3.3. Gear used for fishing purpose by local fishermen

CONCLUSION:

From data collected during survey at coastal areas of Lasbela, Balochistan, we came to know that the most destructive fishing practices being applied at coastal areas of Lasbela Balochistan are bottom trawling, using of improvised purse seine net locally known as "wire net" and ghost nets. Nearly 10,000 local and foreign trawlers mainly Sindh based are involved in illegal fishing in the huge sea of Balochistan according to local fishermen. These trawlers do not have fishing permits/license and use illegal nets like trawl nets which are involved in destruction of marine ecosystem. Due to overfishing, local fishermen are suffering the most as fish catch is declined. Local fishermen have small boats they can only go for fishing from 2-4 nautical miles from shore to rest of coast.

The boats, which use illegal nets like wire nets are mainly owned by entrepreneurs/investors with strong political backing. The fishing crew are either local or migrant labours from Sindh. Under Balochistan Sea Fisheries Ordinance both trawl net and wire nets are banned at Coastal waters of Balochistan. Wire nets are involved in extreme overfishing of marine resources.

They catch huge quantity of different types of juvenile fish. The whole catch of wire net is sold to feed mill factories where it is further processed and used as poultry feed supplied to different companies all over the country. As 90% of local fishermen are illiterate,

they are unaware of the harms of ghost nets. Ghost nets are accidently lost in the sea due to rough weather or thrown by fishermen in the sea if their net is damaged and unrepairable. Ghost nets are involved in entanglement of marine animals like tortoise, shark, whale and dolphin. As fishing nets are made up of plastic and plastic is non-biodegradable. So, these nets remain under water for a long period of time and are involved in entanglement of aquatic animals which causes harms, injuries and even death to marine animals.

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