

FISHERIES IN BRUNEI DARUSSALAM

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1. INTRODUCTION

Brunei Darussalam has a long tradition of fishing and the resources of its rivers, Brunei Bay and the coastal waters have for centuries provided a substantial part of the protein requirements of its people. With an estimated population of about 300,000, the total consumption of fish is about 12,800 metric tons and this gives the per capita fish consumption is one of the highest in the region at around 45 kg per year. However, with an estimated of only about 500 full time fishermen and about 1,000 part-time where most of which are artisanals, Brunei Darussalam has to import about 50% of its requirement to supplement the local production.

Brunei Darussalam has a coastline of about 130 km facing the South China Sea, in 1983, Brunei Darussalam enacted the Brunei Fishery Limits Act which defines that the fishery limits extend to 200 miles from the baselines from which the breadth of the territorial sea adjacent to Brunei is measured. This gives a fishing area of roughly 38,600 square kilometres compared to the 5,765 square kilometres land area.

In terms of fisheries, Brunei Darussalam is fortunate that due to its abundant oil and gas reserves, there is no initial economic pressure to exploit its fisheries resources. However the Government, realising that oil and gas will not last forever, is putting a concerted effort in diversifying the economy. Fisheries has been identified as one of the sectors that can contribute to the economic diversification.

In playing this role, the Department has developed management plans in all sectors of fisheries so as to realise this dream of economic diversification as well as to develop it in such a way that it will not in any way harm the fisheries resources and the marine environment. The development and management of the capture fisheries did not start with the issuance of licenses to commercial operators operating trawlers and purse-seiners. The Department had conducted a number of stock assessment work in Brunei Darussalam's waters to estimate the fisheries resources and potentials, for the Department to draw up guidelines for the capture fisheries development strategies and its management.

2. THE FISHERIES

Capture fisheries started out artisanal in nature, the fisheries were by no means 'primitive'. Since then, the fishermen uses well-built local wooden boats powered by

the latest models of outboard motors with fuel comparatively cheap and equipped with fishing gear constructed from modern synthetic materials. The gear used includes portable traps, handlines, longlines and drift gillnets in the coastal waters for catching carangids, lutjanids, serranids and scombrids. For the capture of penaeid prawns, trammel nets are widely used. Various fixed palisade traps are operated in shallow water for the capture of a variety of inshore and estuarine species of lesser importance.

These artisanal fishermen still operate in these waters and has even been exclusively allocated with a zone within 3 nautical miles from the coast where commercial trawlers and purse-seiners are not allowed to operate. These artisanal fishermen notably still produces about 80% of the local fresh fish production compared to the commercial operators.

With the fishing pressures continuously being applied to the coastal areas, the Department has looked into developing the rest of the Brunei Darussalam's Fisheries Limits. Artisanal fishermen would not be able to explore these resources and has to rely on commercial operators operating larger vessels with inboard engines, compared to wooden (sometimes fibreglass) open boats with outboard engines that are being used by the artisanal fishermen.

3. MANAGEMENT STRATEGIES

The Department of Fisheries has been subscribing to sustainable development of the resources, hence the development is literally, up to the Maximum Economic Yield. Like any other capture fisheries in other parts of the world, stock assessment of the fisheries is a necessity in order to develop the fisheries of the country. A number of capture fisheries stock assessment work have been conducted in Brunei Darussalam's waters over the years, with the first one conducted in late 1940s, but without much significant effect on fisheries development in Brunei Darussalam. The first most comprehensive demersal survey was conducted in 1979-1981 soon after the delivery of the Department's first research and training vessel, K.P. Lumba-Lumba. The results of which were used to develop the demersal fisheries of the country with the first batch of trawlers were licenced in 1984. Further demersal surveys were conducted in 1990-1991 to reassess the status of the demersal stocks after the introduction of trawlers since 1984 with continuous monitoring of stocks were conducted through log-books supplied to the operators and through trawl monitoring surveys in selected areas. Another one is planned for 1997-1998 to reassess the stocks.

The first pelagic survey was conducted in 1989 to assess the pelagic stock, its status and potential for development. Prior to this, a few purse-seiners had already been licensed using extrapolated data from the neighbouring countries. The survey was to confirm its potential for development and the survey results were being used for the existing pelagic fishery development programme by the Department. In 1996, two pelagic surveys were conducted in March and in September to find out the status of the stocks after the first one was conducted some 7 years ago. Continuous monitoring of the pelagic stocks was conducted through log-books issued to the purse-seine operators.

With these survey results, the Department has been able to develop and manage the capture fisheries through phased introduction of trawl and purse-seine licensed since 1984. Since Brunei Darussalam's proclamation of the Brunei Fisheries Limits in 1983, the Department has drawn up a zonation scheme in its waters to cater for different types of fisheries according to either engine power of the vessels or the vessel sizes.

4. ZONATION SCHEME

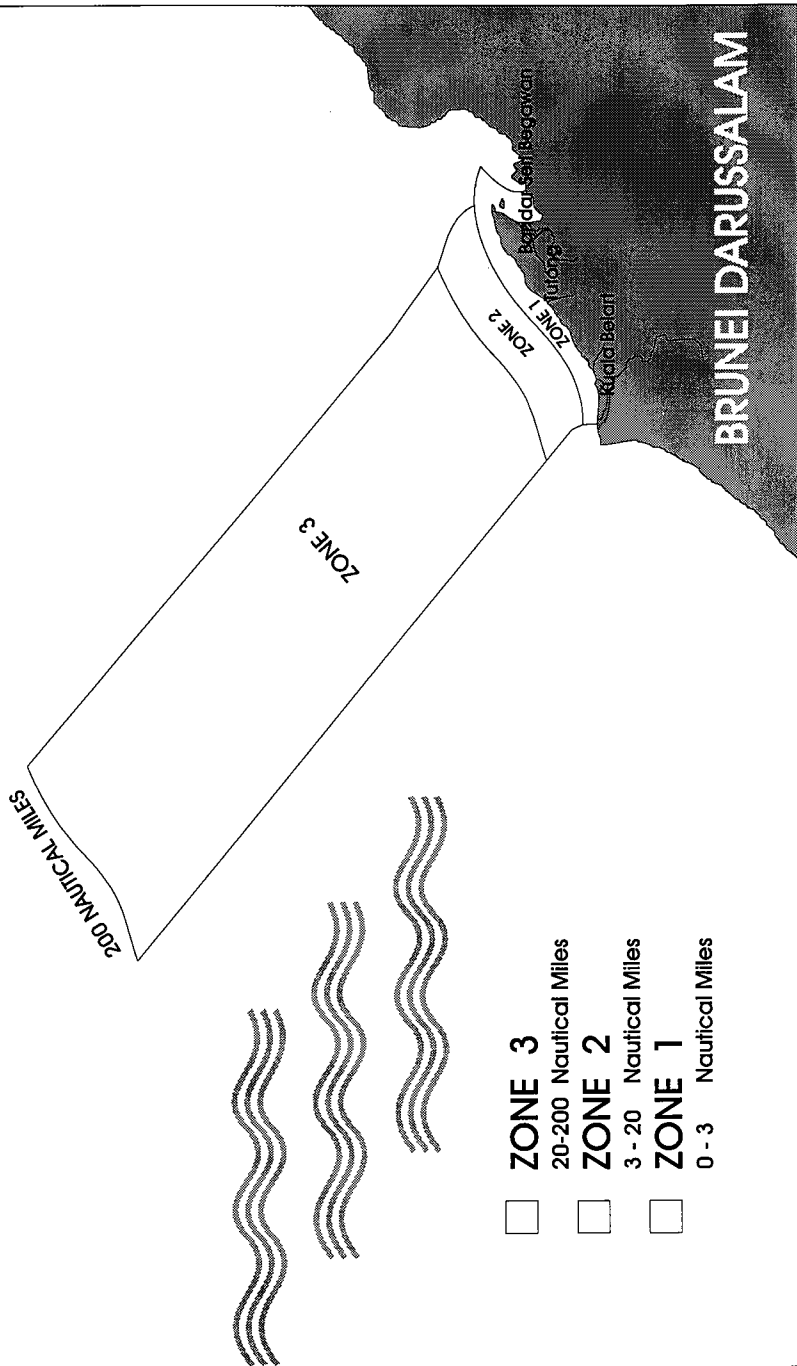
Subscribing to sound resource management and sustainability, the present policy of the fisheries resources exploitation is only up to the Maximum Economic Yield, literally. This has been estimated to be about 20,060 metric tons. Further to the management measures, administratively the Brunei Fishery Limits is divided into three zones, as follows :

- (a) Zone 1 - up to 3 nautical miles from the coastline. This zone is exclusively allocated for the artisanal fishermen operating out-board powered boats.
- (b) Zone 2 - between 3-20 nautical miles. This zone is for trawlers with no more than 350 Hp engines and purse-seiners of less than 20 metres length overall (LOA).
- (c) Zone 3 - from 20-200 nautical miles. This zone is for trawlers with more than 350 Hp engines and purse-seiners with more than 20 metres (LOA).

These resources according to zones are as follows:

TYPE OF FISHERIES	MEY (mt)
<u>Coastal</u>	
- Zone 1 (0 - 3 nm)	3,800
<u>Demersal</u>	
- Zone 2 (3 - 20 nm)	5,570
- Zone 3 (20 - 200 nm)	3,030
Subtotal	8,600
<u>Pelagic</u>	
- Zone 2 (3 - 20 nm)	4,060
- Zone 3 (20 - 200 nm)	3,600
Subtotal	7,660
TOTAL	20,060

BRUNEI FISHERY LIMITS



5. SELECTIVE LICENCING

All fishing gears meant for commercial use are required to be licensed at a minimal fee. This means that if the fishes caught by that particular fishing gear are going to be sold, the gear used has to be licensed by the Department. Whereas when the catches are for personal consumption, then the gear used need not to be licensed. With this licensing system employed, the number of fishing gears entering the fisheries can be controlled as well as the types used as a means to control the level of fishing effort.

Destructive fishing gears that are detrimental to the marine environment are not allowed to be used in the Brunei Darussalam's waters. These gears include Muro Ami, Pa Aling etc. Fishing using spear-guns are also not allowed to be used in these waters due to the safety aspect. New gears are considered on a case to case basis where there are being scrutinized throughly by the Department.

Even then, the licences for commercial gears (trawls and purse-seines) are not readily available for the taking. These licences are issued on a gradual phase where the performances of these vessels are monitored monthly until the Department are confident that new licences can be issued to new operators.

The boats or vessels used are also issued with licence plates together with the fishing licences. These metal plates (30 cm by 10 cm) are to be nailed to the bow of their boats or vessels. Another authority in issuing licences is the Marine Department that issues licences for the boats/vessels only on the safety aspect. They issue a certificate to this effect and a code number to be painted on the bow of the boat or vessel.

6. BANNING THE USE OF POISONS AND EXPLOSIVES IN FISHING

Poisons and explosives are totally banned in fishing. They are mainly reef distracting methods of fishing as well as to the marine environment as a whole.

7. MINIMUM COD-END MESH SIZE FOR TRAWLERS

Trawlers are required to have a minimum mesh size for the cod-end at 38 mm (L 1/2 inches) stretched. This is to control the size of the catches so as small, unmarketable fishes will be able to escape through the meshes.

8. CLOSED AREAS

Apart from the zonation scheme employed in the Brunei Darussalam's waters, certain areas are also prohibited to fishing. Commercial fishing (trawling an purse-seining) not allowed to fish in Zone 1 which includes the bay area. This is to avoid conflict between artisanal and commercial fishing operators.

Since some parts of the Brunei Darussalam's waters are within the concessionary areas of oil and gas explorations, a number of structures are installed in

9. ENHANCEMENT OF FISHING GROUNDS

The fishing grounds for the artisanal fishermen are very limited especially with the introduction of commercial fishing into the fisheries. The Fisheries Department is looking into ways to develop new fishing grounds or to enhance them. One of these is by constructing artificial reefs. The first artificial reef constructed by the Department was made of old tyres in 1985. This was later stopped after the Brunei Shell Company donated redundant oil platforms and jackets/rigs to the Department to be used as artificial reefs since 1988. Seeing the success of these artificial reefs constructed from these old jackets/rigs, the Department constructed smaller modules made out of galvanised iron shaped like these oil jackets/rigs.

The Department has also installed Fish Aggregating Devices (FADs) for the pelagic fishermen. These FADs are for obtaining live baits as well as for the use of purse-seine operators and tuna fishing.

10. ENFORCEMENT ACTIVITIES

The Enforcement Section of the Department ensures the laws and regulations are adhered to by the fishing communities. Encroachments by foreign vessels are being kept at bay as well as the encroachments between zones by local vessels. The Marine Police and the Royal Navy assist the Department in Monitoring our waters.

11. DISCUSSIONS

The Department of Fisheries are vigilant on the sustainability of the fisheries resources. With phased development of the capture fisheries, exploitation of these fisheries resources can be controlled at a comfortable level. Brunei Darussalam's effort alone is not enough to sustain these stocks, especially when we share the same stocks in the South China Sea. Brunei Darussalam's waters are not isolated from the region where over-exertion or over-exploitation on the stocks in other parts of the South China Sea will also affect us. Regional cooperation in this matter is imperative and the time for this has long passed. We have to work together and closely on this important issue to ensure the sustainability of the fisheries resources of the Southeast Asia.

12. REFERENCES

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