

# **FISHERIES STATISTICS IN BRUNEI DARUSSALAM**

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## **1. INTRODUCTION**

Fishery statistics in Brunei Darussalam, in one form or the other, have been collected by the Department of Fisheries since the 1940s. That was when the first ever demersal fisheries survey was conducted. The only fishery statistics collected during the following years were on demersal fisheries. In the early 1970s, when the Fisheries Act was enforced, statistics on the number of fishing gear licenses were collected. In the early 1980s, a number of statistics were collected such as the catch and effort data of artisanal fishermen, aquaculture statistics, processing statistics as well as data from major wet markets focusing on the amount, prices of marketed fish either from the local fishermen or imported. In 1984, the collection of statistics on commercial fishing was started.

The Department of Fisheries has been using fishery statistics in the formulation of fishery management and development policies as well as for sectoral development. The Department also saw a number of development in the collection of statistics for management purposes as well as for fulfilling the requirements of SEAFDEC and FAO.

## **2. DEPARTMENT OF FISHERIES: RESPONSIBILITY AND STATISTIC COLLECTION**

The Department of Fisheries has a mission to develop and manage Brunei Darussalam's fishery resources and potentials to their optimum level with emphasis on increasing the supply of quality of fish, undertaking research and development on new and value-added products, exploring niche markets and competitiveness of the industry, and intensifying human resource development.

With the above mission, the main focus of the Department is to increase the supply of quality fish for specialized markets, through continued but gradual issuance of commercial fishing licenses. Production of quality fish can also be attained from aquaculture activities while quality fish products through processing for the niche markets abroad.

In order to support this mission, the Department operates a number of functional sections (Fig. 1) of which five sections are responsible for the collection of statistics. The attainment of the above mission of the Department can be derived from the statistics collected by the following five sections:

The Marine Fisheries Section is responsible for the collection of statistics on fishing activities in the marine waters of Brunei Darussalam including:

- fishing establishments;
- fishing boats/vessels;
- catch in quantity by fishing gear, by species;
- effort data, which include:
  - number of fishing trips/month;
  - number of hauls/sets, gill nets, traps etc. per day; and
- revenue and expenses by operators.

The Aquaculture Section collects statistics on aquaculture activities, small or commercial scale, which include:

- aquaculture establishments by type of culture;
- production by species, by establishment, by area cultured;
- area under culture;
- seed production by species; and
- revenue and expenses.

In addition to the Enforcement Section in implementing the Fisheries Acts and Regulations, the section is also collecting statistics on:

- number and type of fishing boats/vessels in terms of dimensions, tonnage, engine horsepower;
- number of fishing gears by village/district;
- number of fishermen by age groupings, by status (full-time and part-time);
- imported and exported seafood by species by month; and
- imported ornamental fish by species by month.

The Post-Harvest Section is responsible for the collection of statistics on:

- Processing establishments;
- Production of fishery products by operator, by product type; and
- Revenue and expenses for the processors.

The Marketing/Business Promotion Unit, combined recently, looks at the promotion of new fishery ventures. The marketing side of the unit has been collecting statistics on:

- Quality of fish markets by species, from local production and import;
- Price of fresh fish marketed by species from local production and import;
- Number of seafood trading establishments; and
- Wholesale and retail price of cultured fish.

### **3. EMPLOYMENT IN THE FISHERY SECTOR**

Table 1 shows the number of persons employed in the various sectors of fisheries. The number of full-time and part-time fishermen seemed to decline in number in recent years which may be due to the fact that the number represents only recorded and licensed fishermen. The Department, however, assumes that actually there may not have been much decline on the number of fishermen over the years. The total is usually around 1,500-2,000 fishermen.

The number of fishermen employed in the commercial fishery sector seemed to increase over the years since 1984. Meanwhile, the number of persons employed in the aquaculture sector is also increasing as more and more areas have been opened up for aquaculture ventures. In the processing sector, however, the number seemed to stabilize over the years because the number of commercial operators has not changed much. The number of small-scale processors may have increased but this has not been reported.

The fishermen employed by fishing ventures are mainly from Indonesia, Malaysia and Thailand. Apart from the owners and their family members, the local people do not usually engage in fishing activities because of better working conditions on land. For the aquaculture sector, skilled workers or technicians as well as non-skilled workers mostly come from the Philippines. The processing labor component mostly come from Malaysia, that is why the quality of the product is in accordance with HALAL before these are sold in the local markets.

The number of importers have increased over the years. This is due to increasing demand for fish which local production cannot cope. On the other hand, Brunei Darussalam started to export fish in 1994 mainly aquaculture products. Recently, the export also includes capture fishes which had started to over supply the local markets. The retailers in wet fresh markets have also increased together with the number of importers.

### **4. FISHERIES PRODUCTION**

Table 2 shows the volume and value of the fishery production from 1991 to 1995 from the three main sectors of fisheries. There is a net increase in terms of volume and value over the years, which is due to the increased activities of these sectors. There has been an increased number of new operators as well as increased efficiencies of existing operators.

### **5. FISH MARKETED**

Table 3 shows the amount and value of fresh fish being marketed in the major wet markets in the four districts of Brunei Darussalam from 1991 to 1996 for fishes produced/caught locally as well as those imported from various countries. These data however, may not reflect the actual statistics, due to the following reasons:

- there are a number of road-side fish outlets being opened up and operated, and the sources of fish sold are not known and not covered in this collection;
- not all locally produced/caught fish are being marketed in the major markets covered in the collection;
- the amount of fish for subsistence cannot be deduced directly from the production data due to the above reasons.

Nonetheless, in 1991 and 1992, the amount and value of fish being marketed have stabilized at 5,000 mt and B\$30 million (B\$1.00 = US\$0.65, 3 October 1997), respectively. This figure increased sharply in 1993 and stabilized at 6,000 mt and B\$36 million per year. This increase is mainly contributed by the increase in the number of commercial fishing and aquaculture ventures.

## **6. GROSS DOMESTIC PRODUCT (GDP) FOR FISHERY INDUSTRY**

Table 4 shows the GDP for the main fishery sectors from 1991 to 1995. In capture fisheries, the GDP shows big increase from B\$ 5.4 million in 1991 to B\$ 24.7 million in 1995. The abnormality in 1994 may be due to statistical artifact because there was actually a drop in catches in 1991.

For aquaculture, the same increase is seen until 1994. Abnormality is seen in 1995 when there is an increase in the production from aquaculture activities. The increase in post-harvest (processing) sector is short-lived from 1991 to 1992 and then dropped in 1993 before picking up again. This tallies well with the amount produced for the year (Table 2).

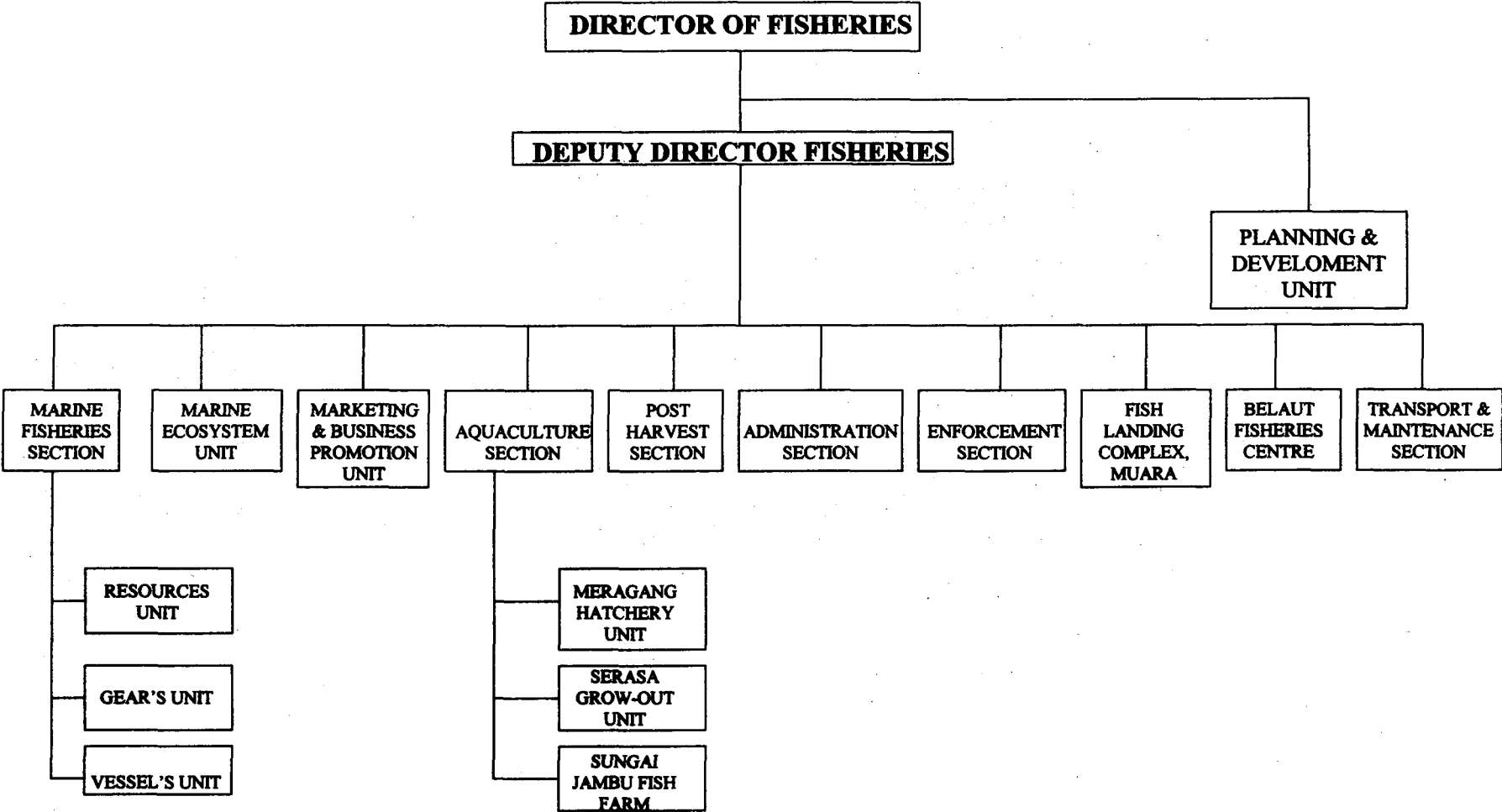
Thus, the fishery GDP contribution in the country increased from 0.2% in 1988 to 0.5% in 1994 (Source: Ministry of Finance 1994).

## **7. CONCLUSION**

The collection of fishery statistics in Brunei Darussalam generally covers all sectors for the management and development of the country's fisheries industry. Several minor adjustments may have to be undertaken as far as collection of statistics is concerned in order to comply with the requirements of SEAFDEC and FAO, which will be dealt with in near future.

It is important to collect accurate statistical data for the sound management of fisheries, in order to assess whether the supply for fish is declining and its demand increasing, world fisheries production may be on the brink of collapse, over-exploited or depleted. For Brunei Darussalam, fisheries is a very healthy industry when the production is well below the maximum allowable harvestable limit of 20,000 mt at 30%. The Department is actually embarking to increase production from the capture fishery sector to reduce the country's dependence on imported fish. The same goes for aquaculture, in order to complement production from capture fisheries. Brunei Darussalam is also joining this bandwagon by opening up new areas for aquaculture activities whilst maintaining the coastal resource environmental balance as far as possible. The processing sector is also increasing in importance especially with the increase in the number of capture fishery licenses, and the demand for quality and value-added products.

**FIGURE 1  
 ORGANIZATIONAL STRUCTURE OF FISHERIES DEPARTMENT  
 BRUNEI DARUSSALAM**



**Table 1. Employment in the fisheries sector**

	1991	1992	1993	1994	1995	1996
<b>Fisheries</b>						
• Full time	588	579	636	662	550	535
• Part time	1,227	1,412	1,225	939	795	637
• Trawlers	25	25	63	63	168	263
• Purse Seiners	36	36	36	36	-	-
<b>Aquaculture</b>						
• Coastal	21	21	38	43	60	72
• Inland	8	12	20	26	30	46
<b>Post-Harvest</b>						
• Processors	21	20	18	18	19	19
<b>Importers</b>	104	166	97	126	251	305
<b>Exporters</b>	-	-	-	-	3	8
<b>Retailers</b>	247	247	247	247	269	269

**Table 2. Volume and value of fisheries production**

	1991		1992		1993		1994		1995	
	VOLUME (mt)	B\$	VOLUME (mt)	B\$	VOLUME (mt)	B\$	VOLUME (mt)	B\$	VOLUME (mt)	B\$
<b>CAPTURE</b>	4,549	13.4 m	5,008	21.9 m	5,485	23.7 m	4,968	19.9 m	6,108	41.3 m
<b>CULTURE</b>	17	0.2 m	18	0.2 m	47	0.6 m	78	0.9 m	84	1.0 m
<b>PROCESSING</b>	137	1.3 m	160	1.5 m	131	1.2 m	133	1.2 m	165	1.8 m

**Table 3. Fish marketed: volume and value**

VOLUME IN MT

	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
<b>LOCAL</b>	1565	1685	1719	862	956	1439
<b>IMPORTS</b>	3447	3512	4962	5215	5189	4337

VALUE B\$ IN MILLIONS

	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
<b>LOCAL</b>	9.1	8.8	8.5	5.3	6.3	7
<b>IMPORTS</b>	18.9	20.3	27.4	32.1	31.6	29.3



**Table 4. GDP for fisheries industry**

	<b>1995</b>	<b>1994</b>	<b>1993</b>	<b>1992</b>	<b>1991</b>
<b>CAPTURE</b>	\$24.71 m	\$31.94 m	\$13.30 m	\$13.33 m	\$5.4 m
<b>AQUACULTURE</b>	\$0.23 m	\$0.31 m	\$0.20 m	\$0.09 m	(\$0.03 m)
<b>POST HARVEST</b>	\$0.58 m	\$0.51 m	\$0.24 m	\$0.40 m	\$0.32 m

**Overall GDP for fisheries increased from 0.2% in 1988 to 0.5% in 1994 (EPU, Ministry of Finance)**