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**COUNTRY STATUS REPORT
BRUNEI DARUSSALAM**

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Status Report of Pelagic Fisheries in Brunei Darussalam

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1. Introduction

The total fish production in 1998 was estimated at 12,641 metric tons and about 51% or roughly, 6,415 metric tons are pelagics. The estimated potential yield of small pelagic fishes from Brunei Darussalam's EEZ is around 7,660m.t. and currently an average of only about 38% of the potential yield have been exploited annually. Fisheries play an important role as one of the major sources of animal protein in Brunei. The average fish consumption annually is roughly 42-kg per person.

Most of the traditional or small-scale and commercial fishing activities are carried out in the near coastal waters, mainly within the 3-40 nautical mile offshore waters with very little fishing being done beyond the 40 nautical mile zone. Up to 1999, the small-scale fisheries contributed around 85% of the total fish production while the rest 15% being contributed by the commercial sector. However, with the addition of more commercial vessels beginning the year 2000 increased contribution from the commercial sector is anticipated in the subsequent years to come.

2. STATUS OF FISHERIES

2.1 Catch and effort (CPUE) of fishing gears

Fig. 1 shows the CPUE trends for the major fishing gears for the last 10 years. The general trend is on the decline but there are some oscillations in the purse seine and ring net. The purse seine virtually ceased operation towards the last quarter of 1996 due to some problems. However, towards the end of 1999 four new purse seine licenses were issued. During the 1997-1998 *El Nino / La Nina* phenomena there was a sudden increase in the ring nets CPUE, which corresponds to an increase in the pelagic fishes landed. The drift gill net has been banned since 1992 due to some conflicts and ever since has been replaced by the bottom set gill net. Lampara net also lost its popularity after 1991 and fishermen began switching to the use of ring net.

2.2 Production estimates

Fig. 2 indicates production estimates for the 10-year period of the major gears. Peak production occurred in 1991 but gradually decline with the lowest in 1997 during the *El Nino* occurrence. Interestingly the following year in 1998 there was an increase in the production of the pelagics, notably from the ring net from a low 374 metric tons in 1997, to 6,415 metric ton in 1998. A similar

situation has also been observed during the last *El Nino* occurrence in 1990 whereby the following year in 1991 there was a tremendous increase for pelagics being landed.

The magnitude of the production of ring net during the post *El Nino* year of 1991 and 1998 are of course of a varying degree. Significant landings were noted during the 1991 compared to 1998 at 17,230 metric exceeded the potential yield of 7,660 metric tons annually for the small pelagic.

Two traditional gears namely ring net and hook and line have been the major contributors to the total capture fisheries productions for the last 10 years with a combined contribution of about 46%.

2.3 Catch composition

For the purpose of getting the pelagic composition, statistical data were obtained from the regular weekly fish landing monitoring at selected sampling stations. Table 2 shows the production breakdown of selected fishing gears for 1999.

Small pelagics comprised about 35% of the total production of the major fishing gears for 1999. Among the pelagics, about 65% are composed of *Sardinella fimbriata*. Other pelagics include *Caranx* spp and *Selar mate* at 9% and 5% respectively

3. DATA COLLECTION

Data collection has been going on for the past few years covering both the pelagic and the demersal species. Randomly selected fishermen using various gears have been monitored for the last six years for the collection of catch and effort data as well as the catch composition according to gear.

The Department of Fisheries however, is having difficulty in its effort to obtain enough samples for the genetic and morphometric studies. Collaborative work with the University of Brunei Darussalam (UBD) is being planned this year especially in the genetics of shared stocks involving pelagic and demersal fishes.

Very little oceanographic work is being done but water quality sampling and monitoring is being done on regular basis and more sampling stations are being proposed offshore.

4. SUMMARY AND CONCLUSION

- Despite the sudden surge in the pelagic landings of 1998, the general trend is that it has been declining for the last six years.
- The species composition was dominated by *Sardinella fimbriata* in 1999. This may be due to the aftermath El Nino/La Nina phenomena. A more detailed analysis regarding these is being done and the collaboration with neighboring countries and institutions in the region is sought.

- Most of the pelagic species belongs to the shared stocks therefore, exchange of information such as the genetics of these species are necessary to manage the resources properly.

Fig 1: CPUE of major fishing gears, 1989 - 1999

CPUE (mt)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|--------------------------|------|------|------|------|------|------|------|------|------|------|
| TRAPS | 0.06 | 0.10 | 0.32 | 0.09 | 0.09 | 0.07 | 0.08 | 0.01 | 0.00 | 0.04 |
| HOOK AND LINE | 0.02 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.03 | 0.50 | 0.02 |
| BTTM SET GILL NET | 0.00 | 0.01 | 0.04 | 0.06 | 0.06 | 0.00 | 0.00 | 0.02 | 0.00 | 0.06 |
| TRAWL | 0.59 | 0.36 | 0.54 | 0.65 | 0.28 | 0.26 | 0.31 | 0.27 | 0.28 | 0.26 |
| P. SEINE | 0.41 | 0.97 | 1.15 | 0.64 | 0.46 | 0.20 | 0.44 | 0.34 | | |
| RING NET | 0.44 | 0.68 | 1.74 | 0.50 | 0.50 | 0.18 | 0.17 | 0.19 | 0.11 | 0.36 |
| DRIFT GILL NET | 0.24 | 0.41 | 0.80 | 0.49 | | | | | | |
| LAMPARA NET | 2.00 | 0.90 | 1.46 | | | | | | | |

Table 1: ESTIMATED ANNUAL FISH PRODUCTION FROM MAJOR FISHING GEARS IN BRUNEI DARUSSALAM (mt)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1 |
|-----------------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|----|
| HOOK AND LINE | 262 | 2,120 | 547 | 2,213 | 2,277 | 2,222 | 3,036 | 1,467 | 1,344 | |
| GILL NET | 45 | 421 | 397 | 1,294 | 1,160 | 35 | 59 | 63 | 37 | 1 |
| TRAWL | 2,297 | 1,807 | 3,307 | 3,607 | 2,843 | 3,043 | 3,330 | 3,820 | 4,230 | 4 |
| TRAP | 339 | 1,642 | 1,720 | 1,011 | 1,146 | 585 | 1,119 | 87 | 15 | |
| RING NET | 943 | 2,394 | 9,604 | 2,033 | 2,098 | 776 | 1,090 | 822 | 374 | 6 |
| P. SEINE | 317 | 563 | 663 | 371 | 459 | 66 | 111 | 71 | - | |
| DRIFT GILL NET | 790 | 892 | 289 | - | - | - | - | - | - | |
| LAMPARA NET | 810 | 1,222 | 703 | - | - | - | - | - | - | |
| TOTAL | 5,802 | 11,061 | 17,230 | 10,528 | 9,983 | 6,727 | 8,745 | 6,329 | 6,000 | 12 |

* Data from January to October only

** trawl figure include 70% discards

Fig 1: CPUE of Major Fishing Gears, 1989 - 1999

CPUE (mt)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|
| TRAPS | 0.06 | 0.10 | 0.32 | 0.09 | 0.09 | 0.07 | 0.08 | 0.01 | 0.00 | 0.04 | 0.03 |
| HOOK AND LINE | 0.02 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.03 | 0.05 | 0.02 | 0.03 |
| BTTM SET GILL NET | 0.00 | 0.01 | 0.04 | 0.06 | 0.06 | 0.00 | 0.00 | 0.02 | 0.00 | 0.06 | 0.05 |
| TRAWL | 0.59 | 0.36 | 0.54 | 0.65 | 0.28 | 0.26 | 0.31 | 0.27 | 0.28 | 0.26 | 0.17 |
| P. SEINE | 0.41 | 0.97 | 1.15 | 0.64 | 0.46 | 0.20 | 0.44 | 0.34 | 0.28 | 0.26 | 0.17 |
| RING NET | 0.44 | 0.68 | 1.74 | 0.50 | 0.50 | 0.18 | 0.17 | 0.19 | 0.11 | 0.36 | 0.29 |
| DRIFT GILL NET | 0.24 | 0.41 | 0.80 | 0.49 | | | | | | | |
| LAMPARA NET | 2.00 | 0.90 | 1.46 | | | | | | | | |

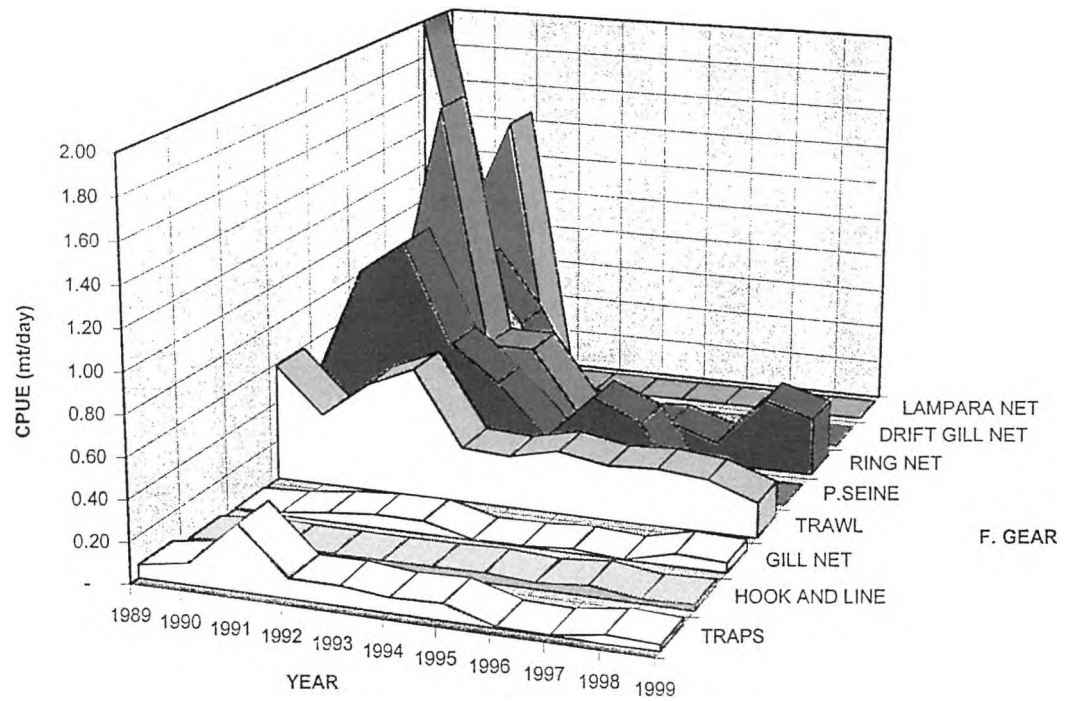
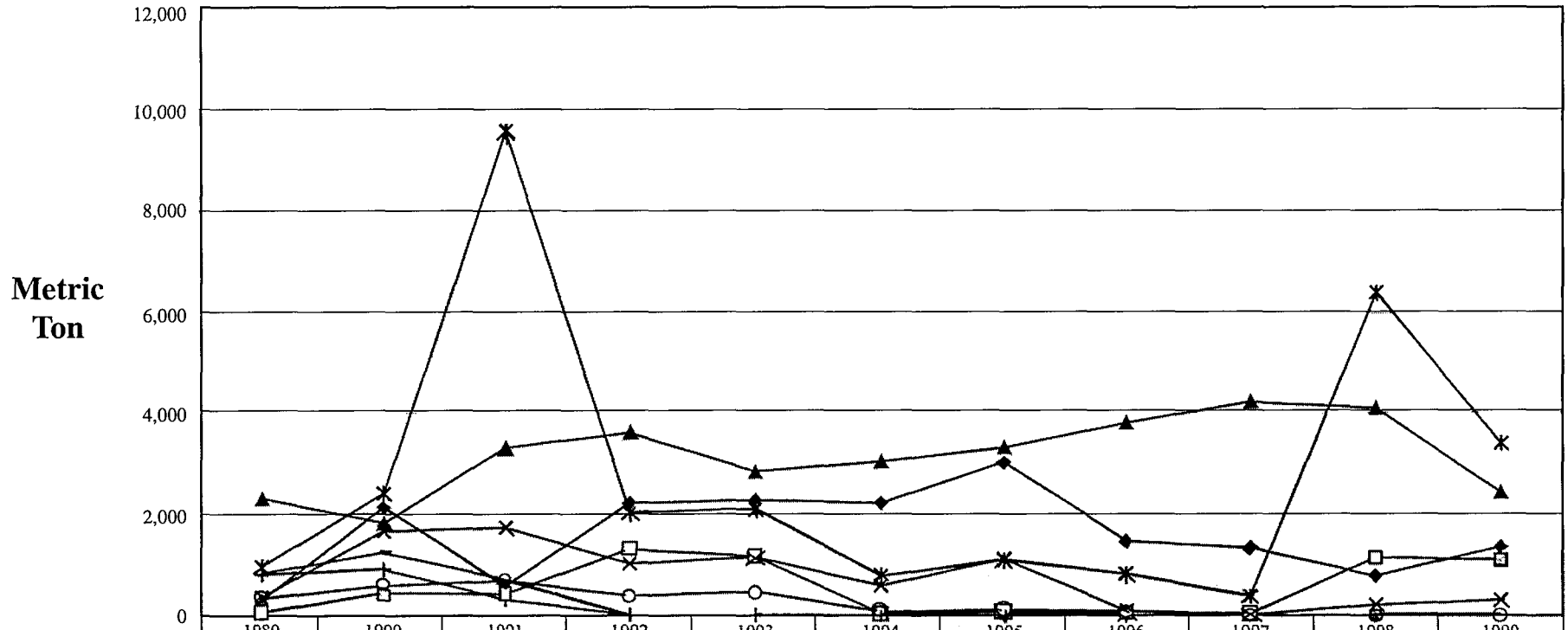


Fig 2: Production Trend of Major Gears, 1989 - 1999



| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ◆ HOOK AND LINE | 262 | 2,120 | 547 | 2,213 | 2,277 | 2,222 | 3,036 | 1,467 | 1,344 | 776 | 1,359 |
| □ GILL NET | 45 | 421 | 397 | 1,294 | 1,160 | 35 | 59 | 63 | 37 | 1,142 | 1,109 |
| ▲ TRAWL | 2,297 | 1,807 | 3,307 | 3,607 | 2,843 | 3,043 | 3,330 | 3,820 | 4,230 | 4,103 | 2,443 |
| ✕ TRAPS | 339 | 1,642 | 1,720 | 1,011 | 1,146 | 585 | 1,119 | 87 | 15 | 205 | 305 |
| ✱ RING NET | 943 | 2,394 | 9,604 | 2,033 | 2,098 | 776 | 1,090 | 822 | 374 | 6,415 | 3,414 |
| ○ P. SEINE | 317 | 563 | 663 | 371 | 459 | 66 | 111 | 71 | - | - | - |
| † DRIFT GILL NET | 790 | 892 | 289 | - | - | - | - | - | - | - | - |
| — LAMPARA NET | 810 | 1,222 | 703 | - | - | - | - | - | - | - | - |

TABLE 1 : ESTIMATED ANNUAL FISH PRODUCTION FROM MAJOR FISHING GEARS IN BRUNEI DARUSSALAM (mt)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | avg | 10yr total | % |
|----------------|--------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|----------------|----------------|
| HOOK AND LINE | 262 | 2,120 | 547 | 2,213 | 2,277 | 2,222 | 3,036 | 1,467 | 1,344 | 776 | 1,359 | 1,602 | 17,622 | 17.00% |
| GILL NET | 45 | 421 | 397 | 1,294 | 1,160 | 35 | 59 | 63 | 37 | 1,142 | 1,109 | 524 | 5,762 | 5.56% |
| TRAWL | 2,297 | 1,807 | 3,307 | 3,607 | 2,843 | 3,043 | 3,330 | 3,820 | 4,230 | 4,103 | 2,443 | 3,166 | 34,829 | 33.59% |
| TRAPS | 339 | 1,642 | 1,720 | 1,011 | 1,146 | 585 | 1,119 | 87 | 15 | 205 | 305 | 743 | 8,174 | 7.88% |
| RING NET | 943 | 2,394 | 9,604 | 2,033 | 2,098 | 776 | 1,090 | 822 | 374 | 6,415 | 3,414 | 2,724 | 29,962 | 28.90% |
| P. SEINE | 317 | 563 | 663 | 371 | 459 | 66 | 111 | 71 | - | - | - | 238 | 2,620 | 2.53% |
| DRIFT GILL NET | 790 | 892 | 289 | - | - | - | - | - | - | - | - | 179 | 1,971 | 1.90% |
| LAMPARA NET | 810 | 1,222 | 703 | - | - | - | - | - | - | - | - | 249 | 2,735 | 2.64% |
| TOTAL | 5,802 | 11,061 | 17,230 | 10,528 | 9,983 | 6,727 | 8,745 | 6,329 | 6,000 | 12,641 | 8,630 | 9,425 | 103,677 | 100.00% |

* data from January to October only

** trawl figures include 70% discards

TABLE 2 : PELAGIC SPECIES COMPOSITION FROM THE CATCH OF SELECTED FISHING GEARS IN BRUNEI DARUSSALAM 1999

| Scientific name | BS GNET | RING NET | FISH POT | HOOK & LINE | FISH CORRAL | TIDAL WEIR | BARRIER NET | LIFT NET | TRAWL | TOTAL | % PELAGICS |
|--------------------------------|------------|-------------|-------------|----------------|----------------|---------------|----------------|-------------|-------|----------|---------------|
| <i>Caranx spp.</i> | 112.66 | | 47.87 | 666.79 | 11.97 | 15.38 | | | 1.85 | 856.52 | 18.20% |
| <i>Caranx ignobilis</i> | - | - | - | - | 0.66 | - | - | - | 0.03 | 0.68 | 0.01% |
| <i>Carcharhinidae</i> | 55.55 | - | - | 18.70 | - | - | - | - | 23.53 | 97.78 | 2.08% |
| <i>Caesio sp</i> | - | - | 9.12 | - | - | - | - | - | - | 9.12 | 0.19% |
| <i>Drepane punctata</i> | 7.70 | - | - | - | - | - | - | - | 1.62 | 9.32 | 0.20% |
| <i>Euthynnus affinis</i> | - | 57.46 | - | - | - | - | - | - | 0.41 | 57.87 | 1.23% |
| <i>Parastromateus niger</i> | - | - | - | - | 4.06 | - | - | - | 0.48 | 4.54 | 0.10% |
| <i>Megalaspis cordyla</i> | 162.62 | - | - | - | - | - | - | - | 1.97 | 164.59 | 3.50% |
| <i>Rastrelliger brachysoma</i> | - | - | - | - | 5.88 | - | - | - | 8.65 | 14.53 | 0.31% |
| <i>Rastrelliger kanagurta</i> | - | - | - | - | 1.96 | - | - | - | 0.20 | 2.16 | 0.05% |
| <i>Sardinella fimbriata</i> | - | 2,932.52 | - | - | 86.73 | - | 20.02 | 10.20 | - | 3,049.47 | 64.81% |
| <i>Sardinella gibbosa</i> | - | 41.80 | - | - | 28.13 | - | - | - | - | 69.93 | 1.49% |
| <i>Scomberomorus guttatus</i> | 74.80 | - | - | - | - | - | - | - | 0.30 | 75.10 | 1.60% |
| <i>Selar crumenophthalmus</i> | - | - | - | 56.10 | - | - | - | - | 0.15 | 56.25 | 1.20% |
| <i>Selar mate</i> | 188.38 | 23.96 | - | 3.07 | - | - | - | - | 0.11 | 215.51 | 4.58% |
| <i>Stolephorus indicus</i> | - | 21.92 | - | - | - | - | - | - | - | 21.92 | 0.47% |
| Total | 489.04 | 3,077.66 | 9.12 | 77.87 | 127.41 | - | 20.02 | 10.20 | 37.44 | 3,848.77 | 81.80% |
| % of total production | 3.61% | 22.74% | 0.07% | 0.58% | 0.94% | 0.00% | 0.15% | 0.08% | 0.28% | 28.44% | |