

Fig.58 Comparison of vertical water temperature distribution at the station No.16 by time intervals observation.

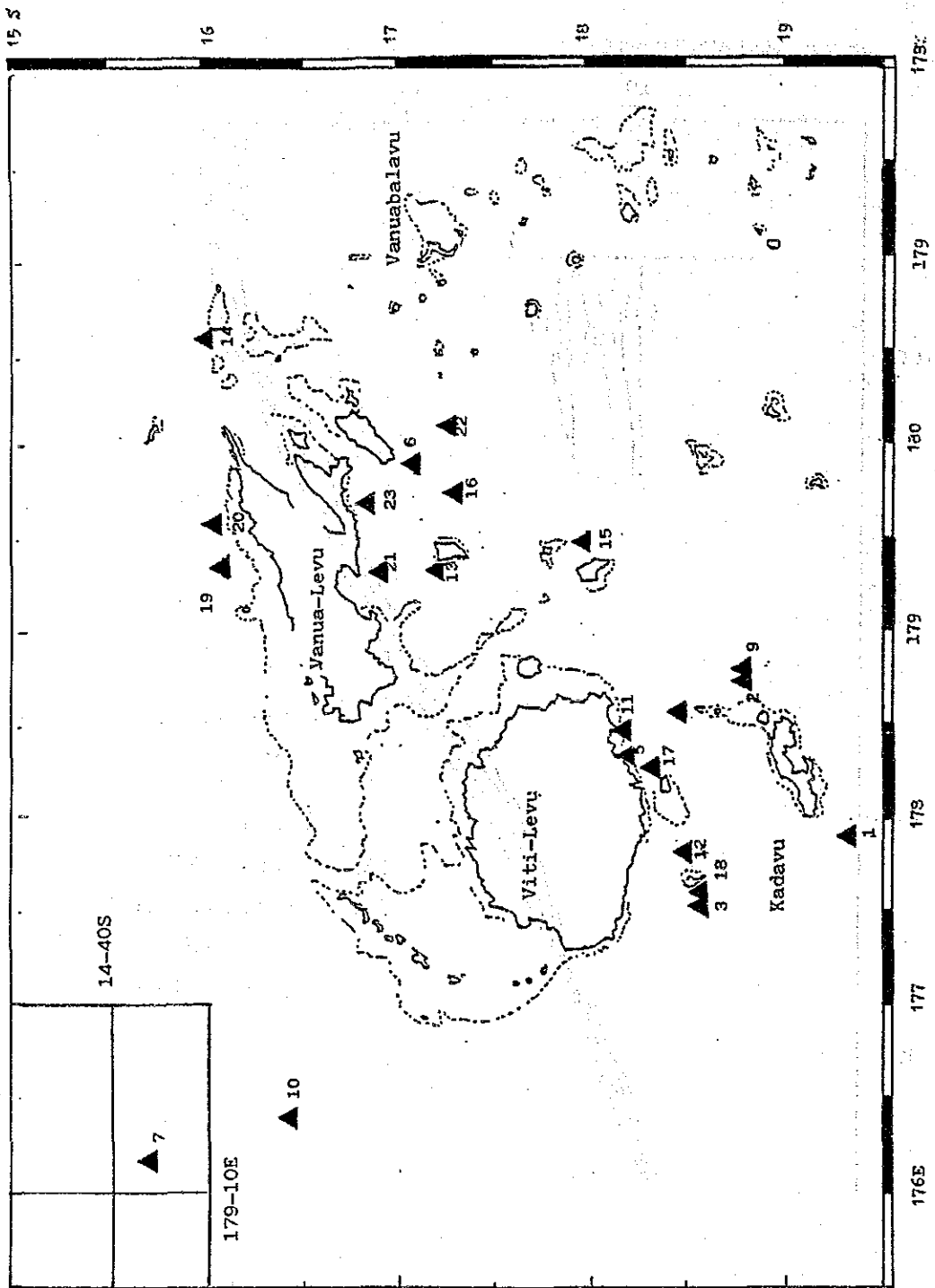


Fig. 59-(1) Location of Payao setting in the waters of Fiji.
 (Setting No. were shown in the figure)

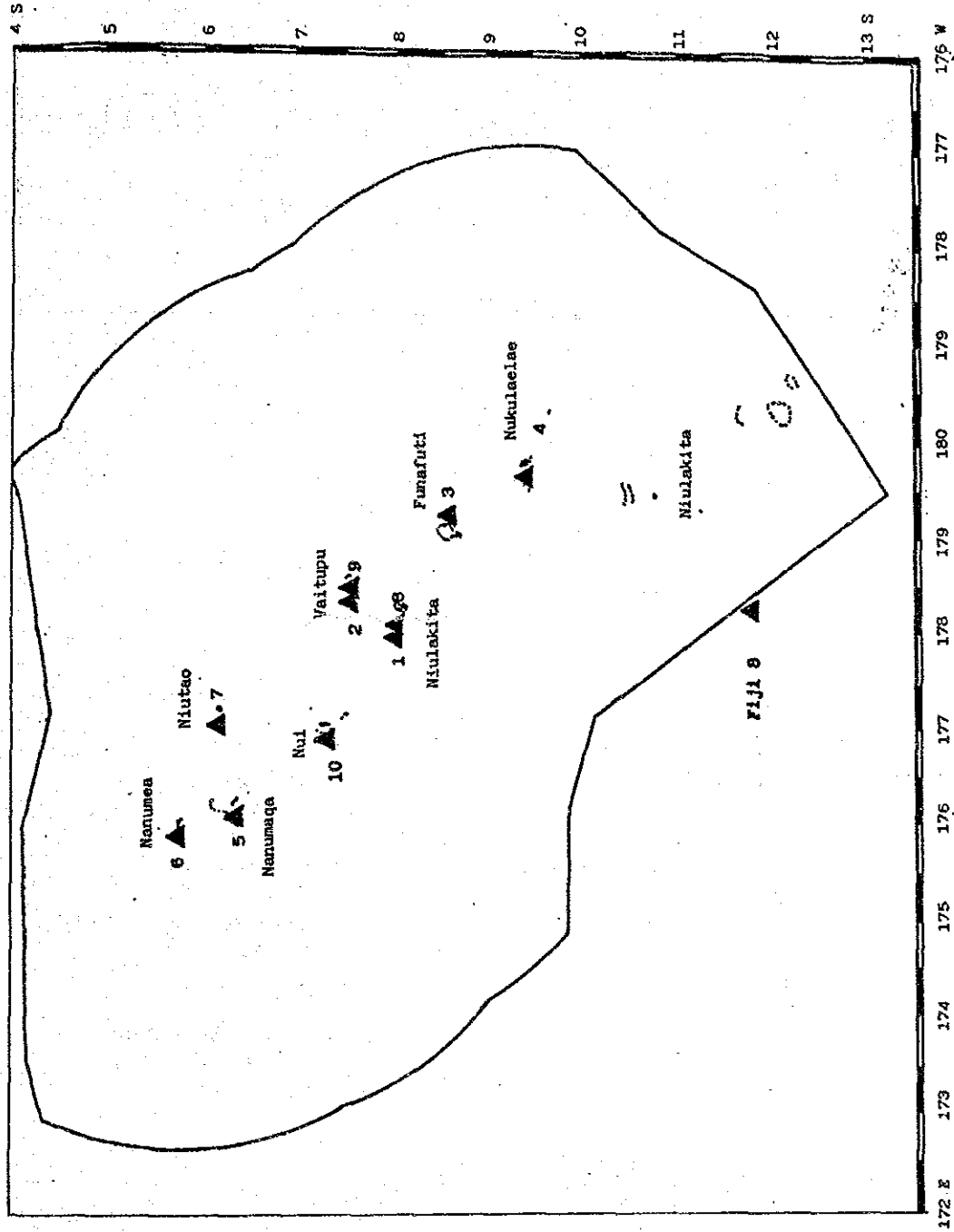
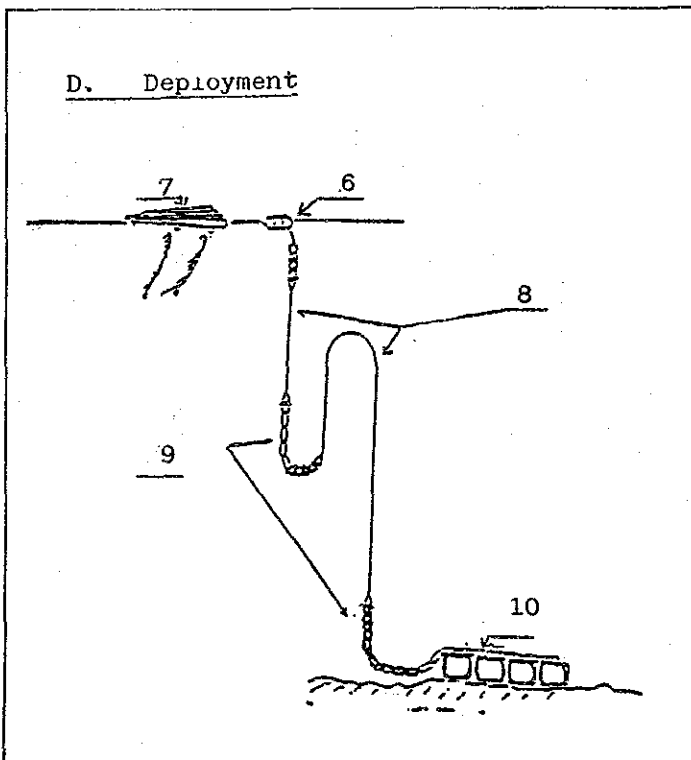
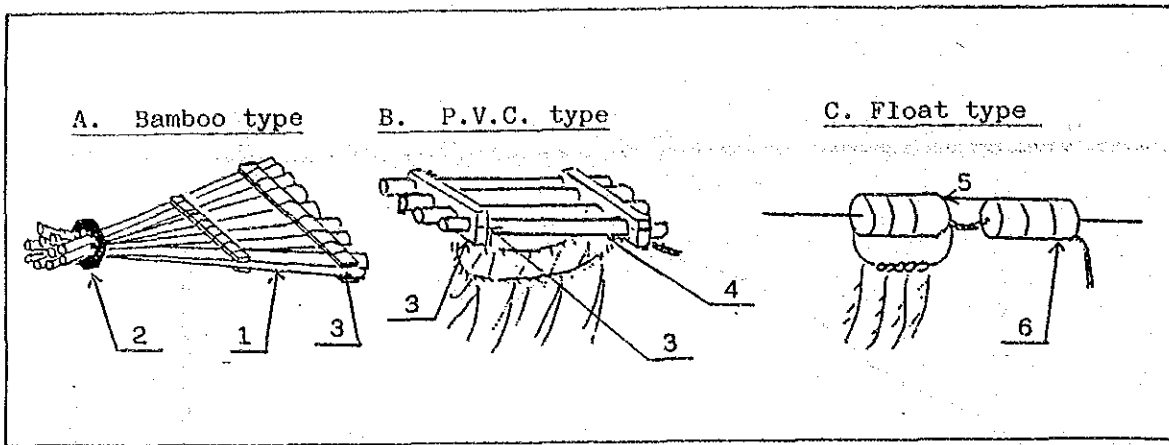


Fig.59-(2) Location of Payao setting in the waters of Tuvalu.
 (Setting No. were shown in the figure)



1. Bamboo
2. Used tire
3. Timber
4. P.V.C pipe
5. Buoy float
6. Intermediate buoy
7. Payao
8. 18mm rope
9. 8mm rope
10. Concrete block
(250 Kg X 4)

Fig.60 A schematic illustration of Payao and deployment of Payao at sea.

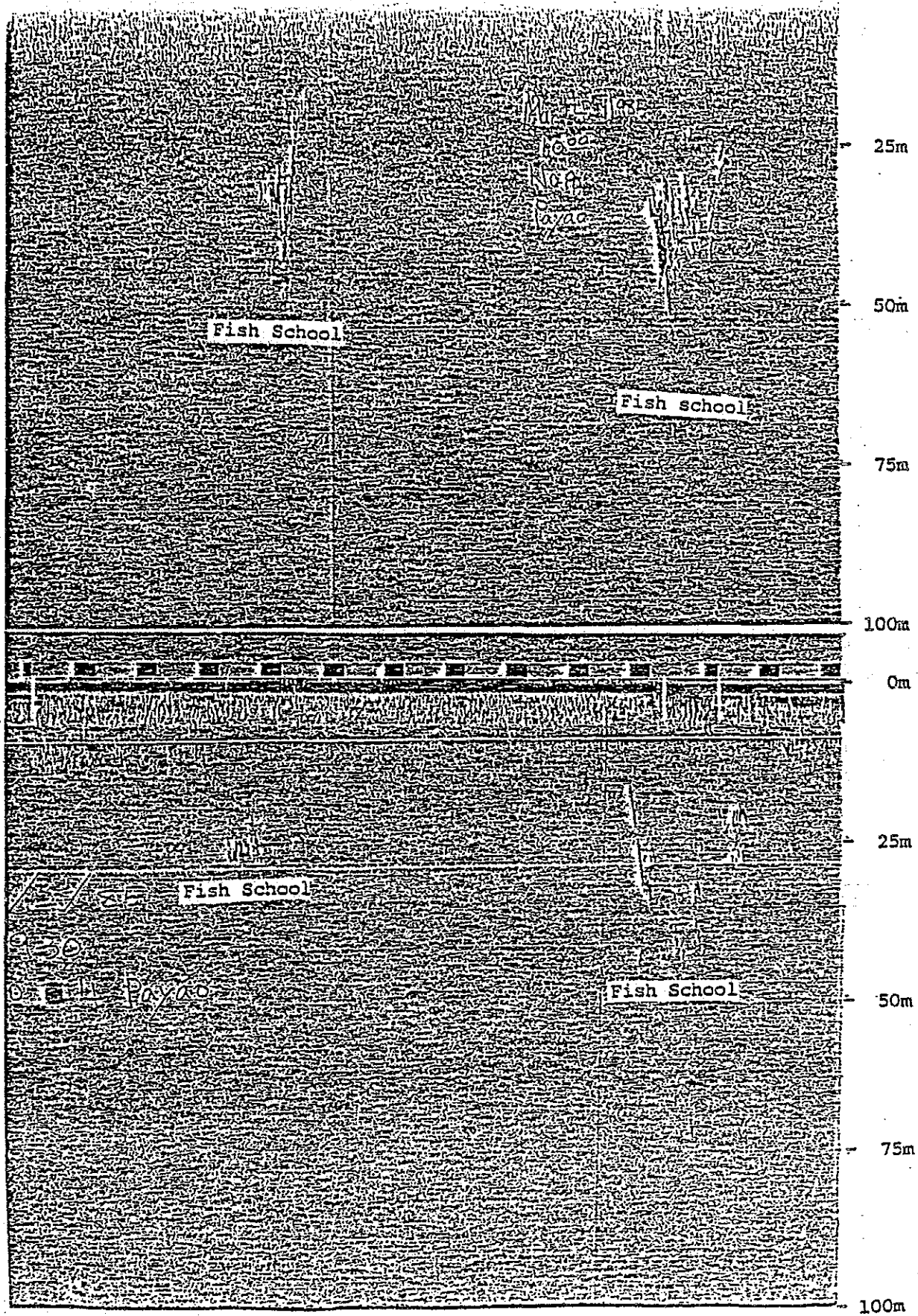
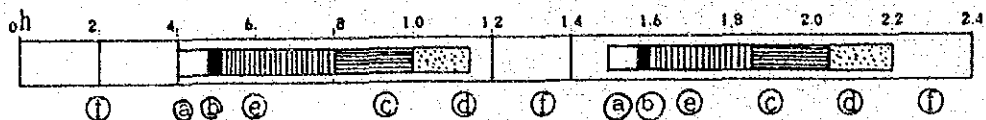


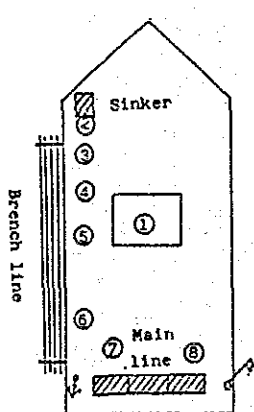
Fig.61 Echo sounder reading at Payao.

a. Time belt of the fishing operation day.



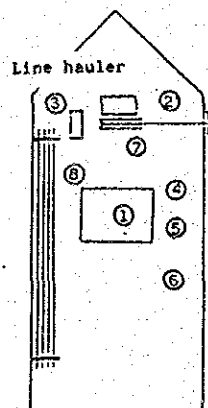
| | | | |
|-----|--|-------|---------|
| (a) | Stand by setting bottom-line and fixing bait to the branch | ----- | 2.0 Hrs |
| (b) | Setting bottom line | ----- | 0.5 Hrs |
| (c) | Soaking time | ----- | 3.0 Hrs |
| (d) | Hauling the line | ----- | 2.0 Hrs |
| (e) | Resetting bottom-line gears | ----- | 3.0 Hrs |
| (f) | Rest and shifting F.G. | ----- | 6.0 Hrs |

b. Station bill for bottom line fishing operation.



SETTING

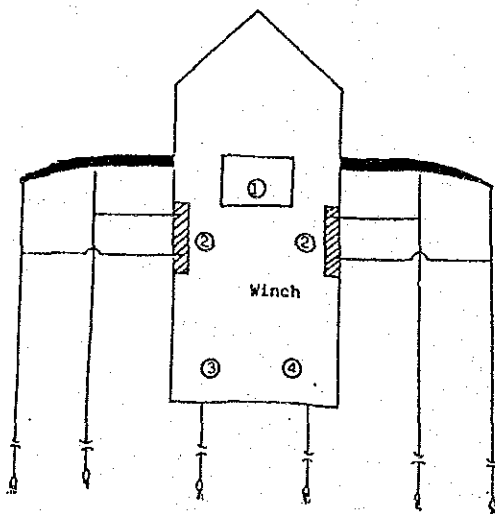
- ① Controlling
- ② Setting weight
- ③ Hooking
- ④ Hooking
- ⑤ Hooking
- ⑥ Setting branch line
- ⑦ Setting main line and float
- ⑧ Preparing gears



HAULING

- ① Controlling
- ② Taking linehauler
- ③ Adjusting main line
- ④ Removing branch line and float
- ⑤ Heaving branch line
- ⑥ Heaving branch line
- ⑦ Arranging branch line and catches
- ⑧ Arranging hook and branch line

c. Station bill for trolling.



- ① Controlling and supporting
- ② Taking winch handle
- ③ Heaving and setting trolling line and handling catches
- ④ Heaving and setting trolling line and handling catches

Fig.62 A station bill for the bottom line and trolling fishing operation.

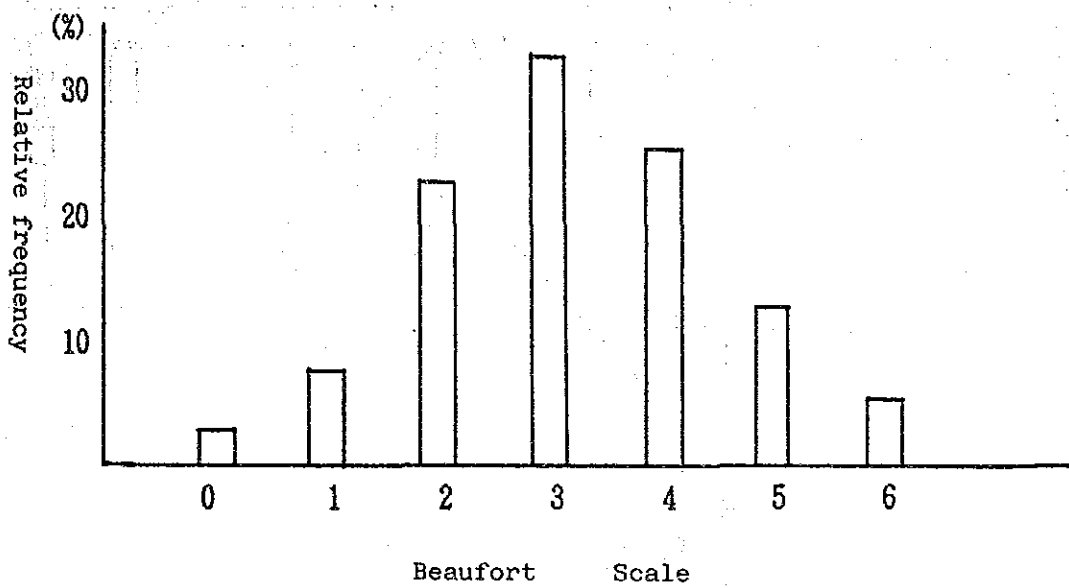
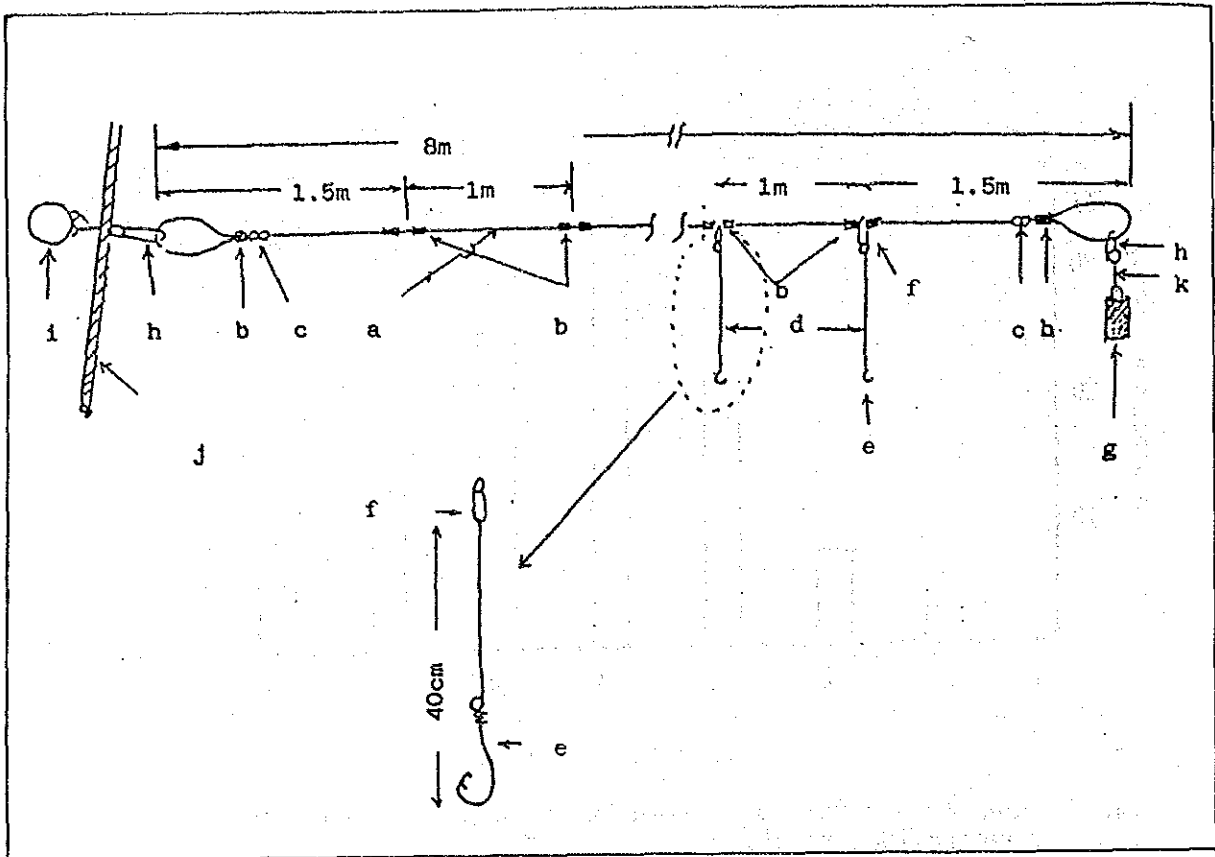


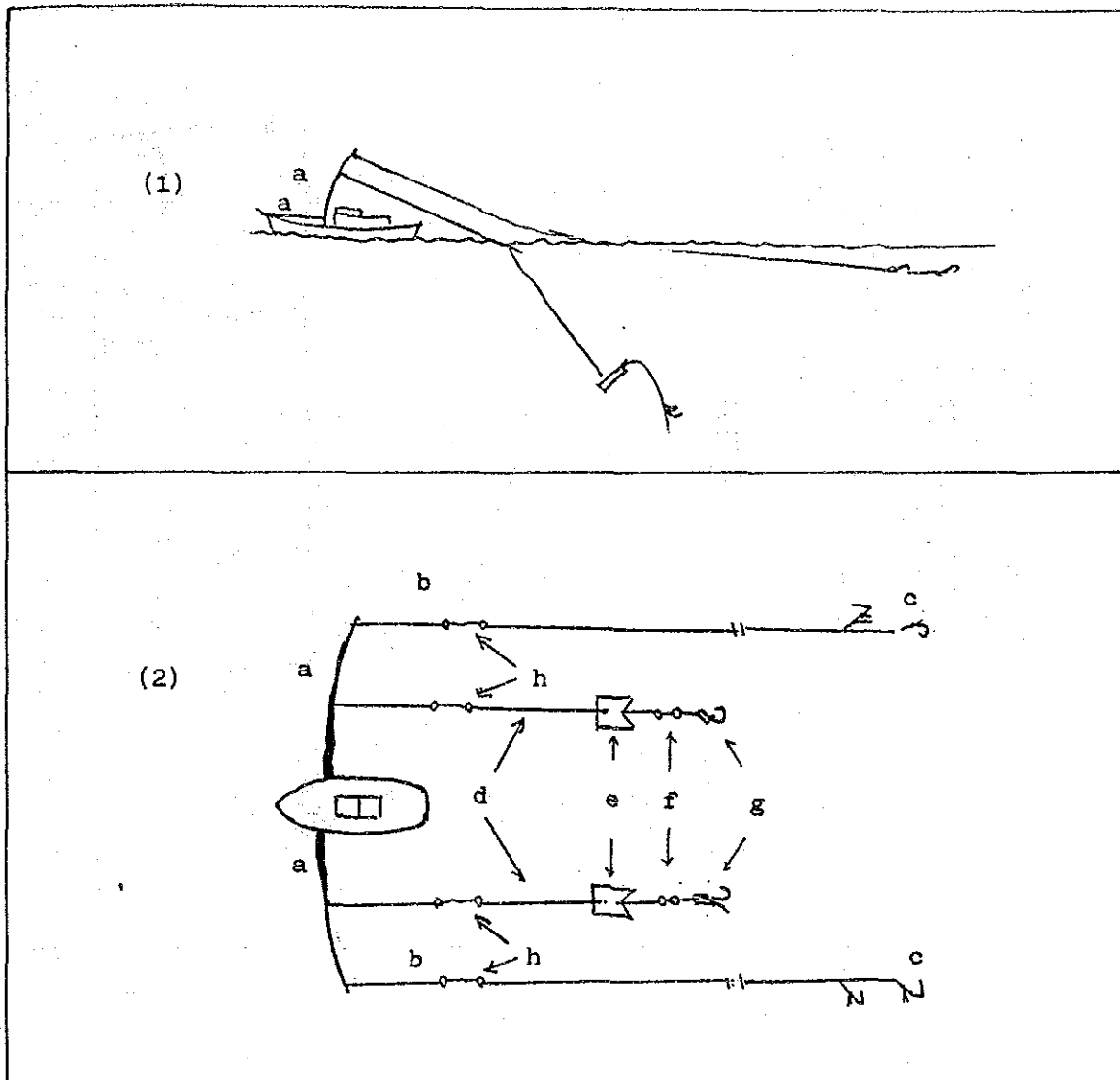
Fig.63 Appearance rate of average wind force for the year during 1984 to 1986.
 (Observation data during April to June quoted from the operation record of fishing vessel belong IKA corporation operated in the area.)



- a. Main line--Nylon gut #100-120 1 m
- b. Aluminium clip--#100-120
- c. Box type swivel
- d. Branch line---- Nylon gut #40-60 35 cm
- e. Hook ---- #23-25
- f. Snap
- g. Weight---- 1.0-1.5 g
- h. Snap
- i. Pressure float---- 1200 mm
- j. Main rope----- 9 mm
- k. Lead line ---- Nylon gut #50

Fig.64 Improvement for bottom line fishery gear.
(A construction of branch line)

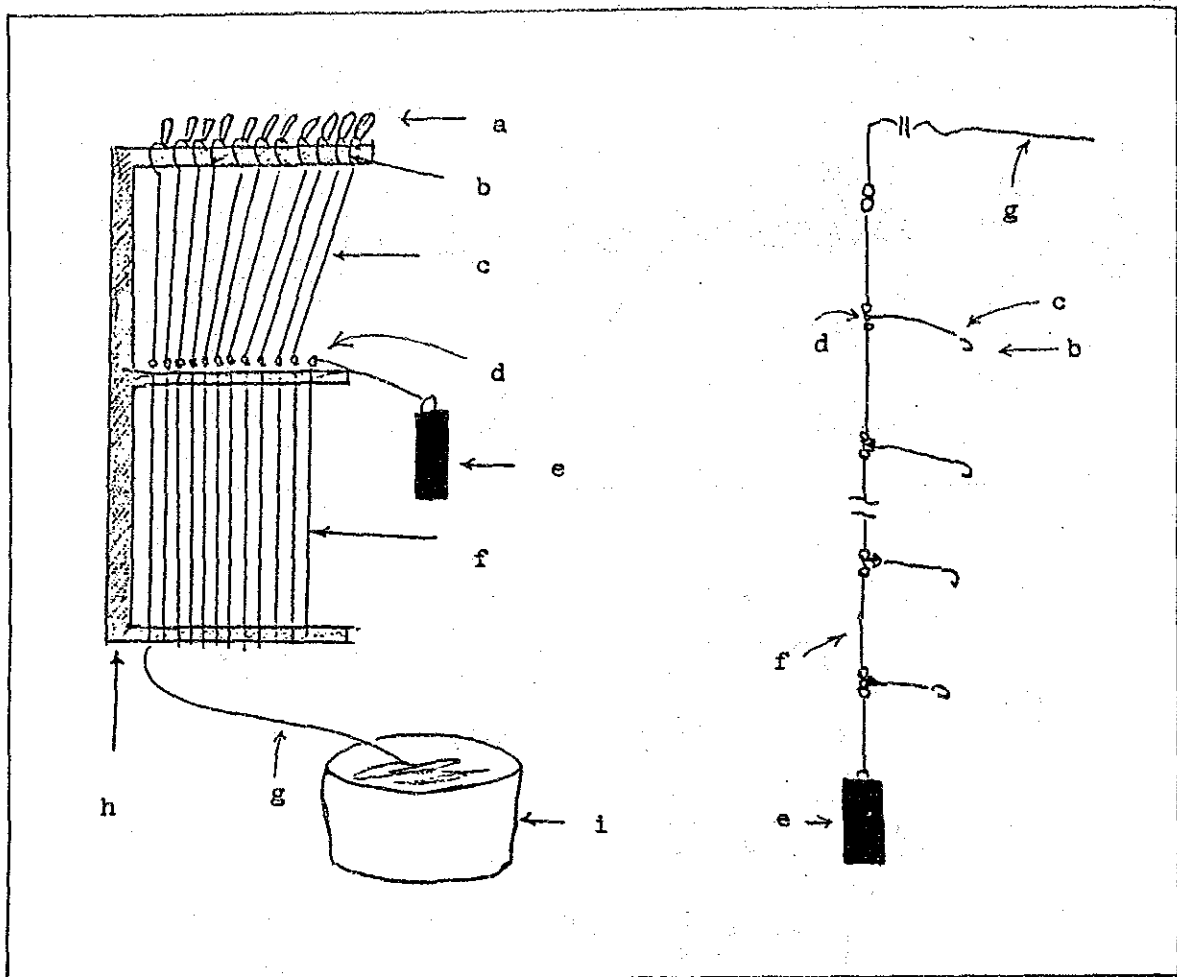
Relationship between the breaking strength and No. of nylon fishing gut were shown on the margin of figure 9.



- a. Trolling pole ----- Glass fiber
- b. Main line----- (Surface trolling) Nylon gut #120
- c. False bait
- d. Main line----- (Middle water trolling) Nylon gut #120
- e. Diving board
- f. Swivel
- g. False bait
- h. Gum

Fig.65 Improvement for trolling fishery gear.

Relationship between the breaking strength and No. of nylon fishing gut were shown on the margin of figure 9.



- a. Bait
- b. Hook--# 23-25
- c. Branch line----- Nylon gut #30 40 cm
- d. Three portion swivel
- e. Weight ----- 1 Kg
- f. Main line ----- #40, 50, 60, 70, 1.5 m
- g. Main line ----- Polypropylene #100 500 m
- h. Wooden frame
- i. Cask (for setting gears)

Fig.66 Improvement for dropline fishery gear.
(A construction of dropline gear)

Relationship between the breaking strength and No. of nylon fishing gut were shown on the margin of figure 9.

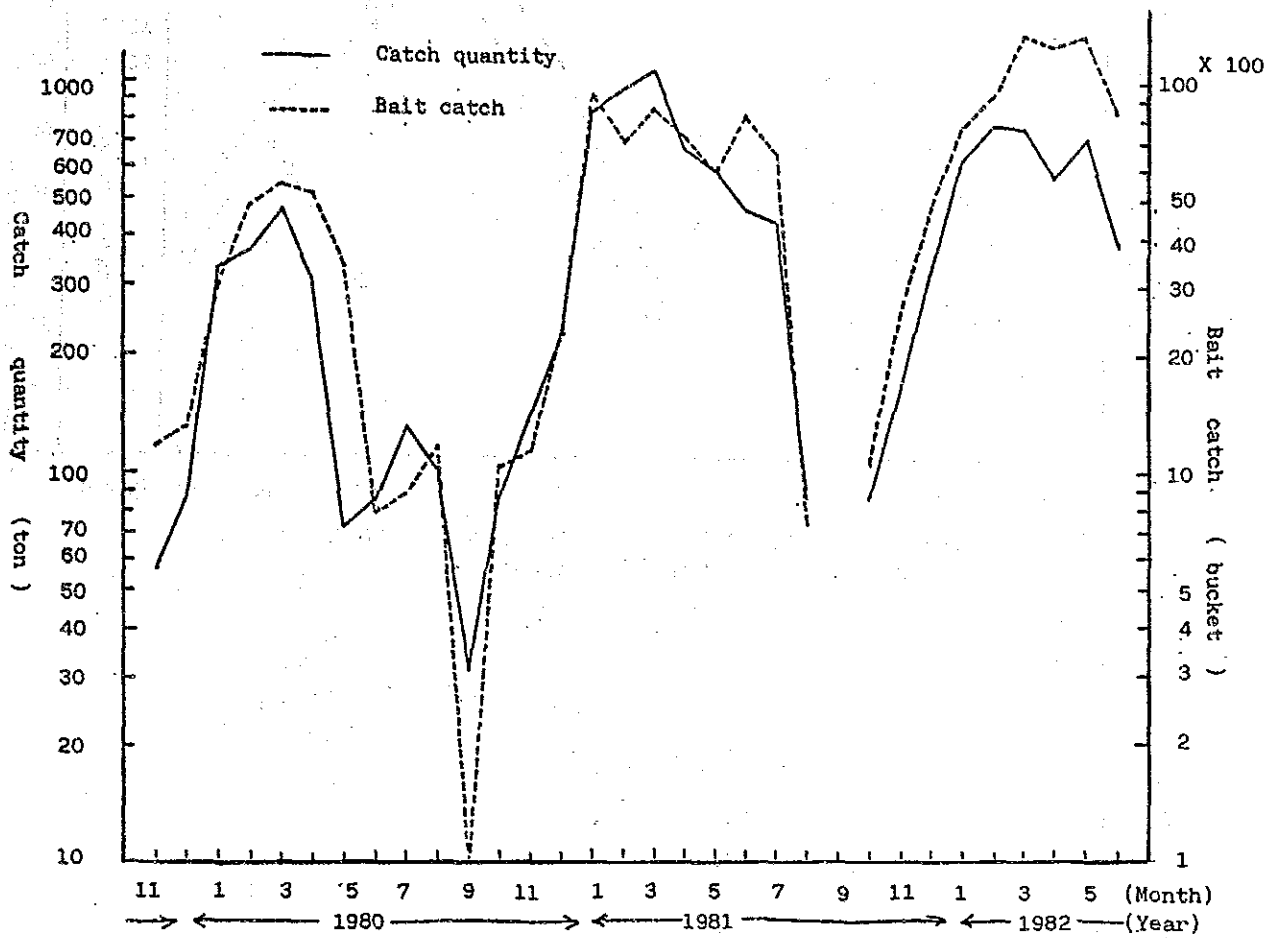


Fig. 67 Monthly catch weight (ton) and the baitfish catch (bucket) of Ika fleet during the 1980-1982 seasons.

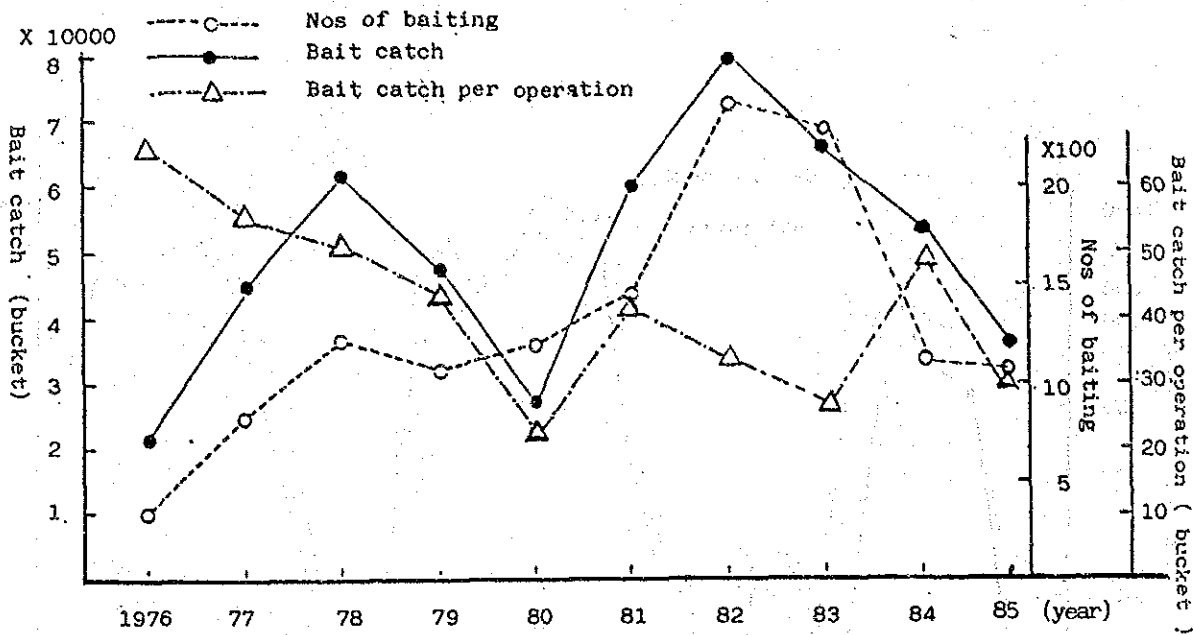


Fig.68 Relationship between baitfish catch and effort in Fiji baitfishery for the 1976-1984 seasons.

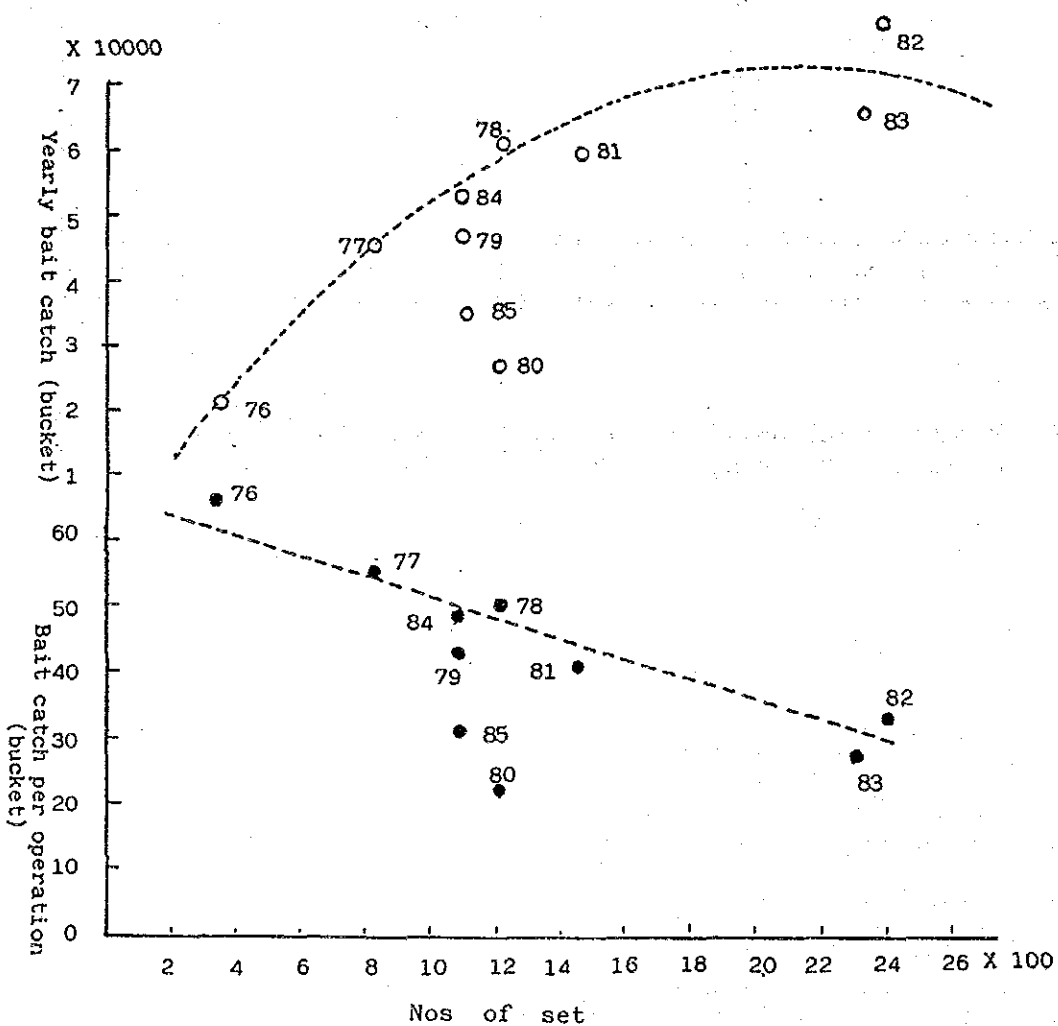


Fig.69 Relationship between baitfish catch per effort and nos of effort in Fiji baitfishery for the 1976-1984 seasons.

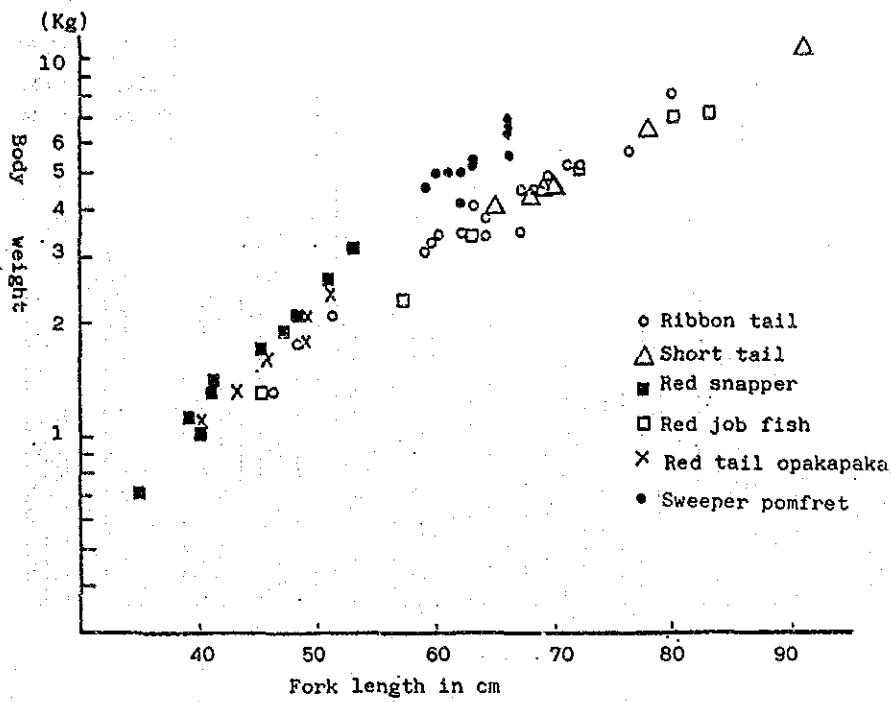


Fig.70 Relationship between fork length and body weight of major species caught in bottom line operation.

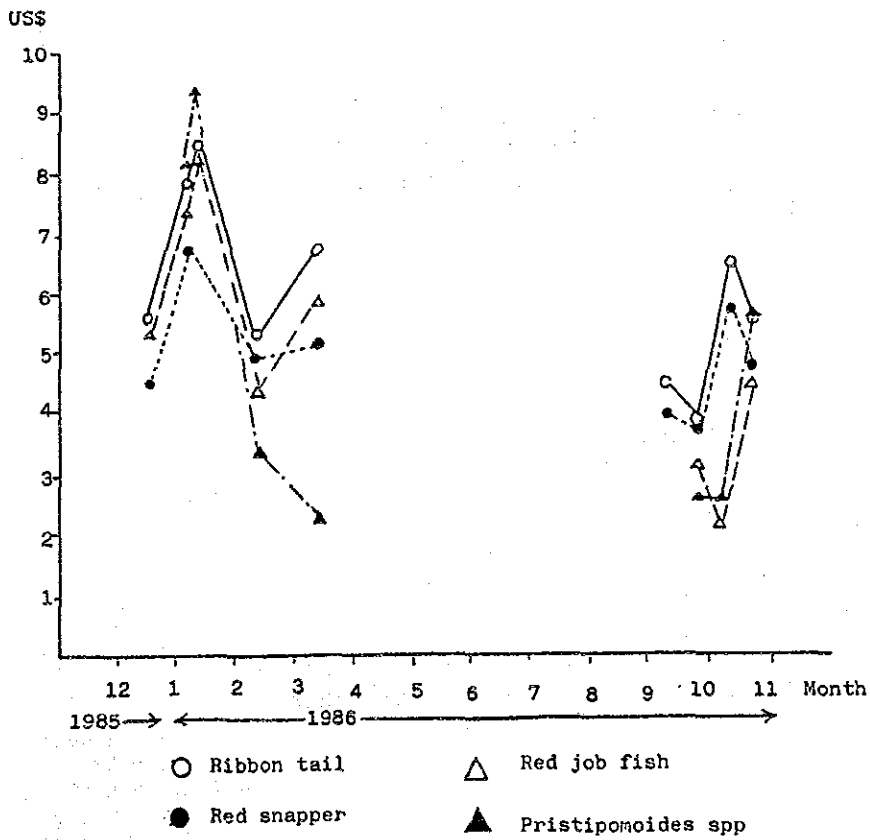


Fig.71 Fluctuation of exported major species fish price at Honolulu market.

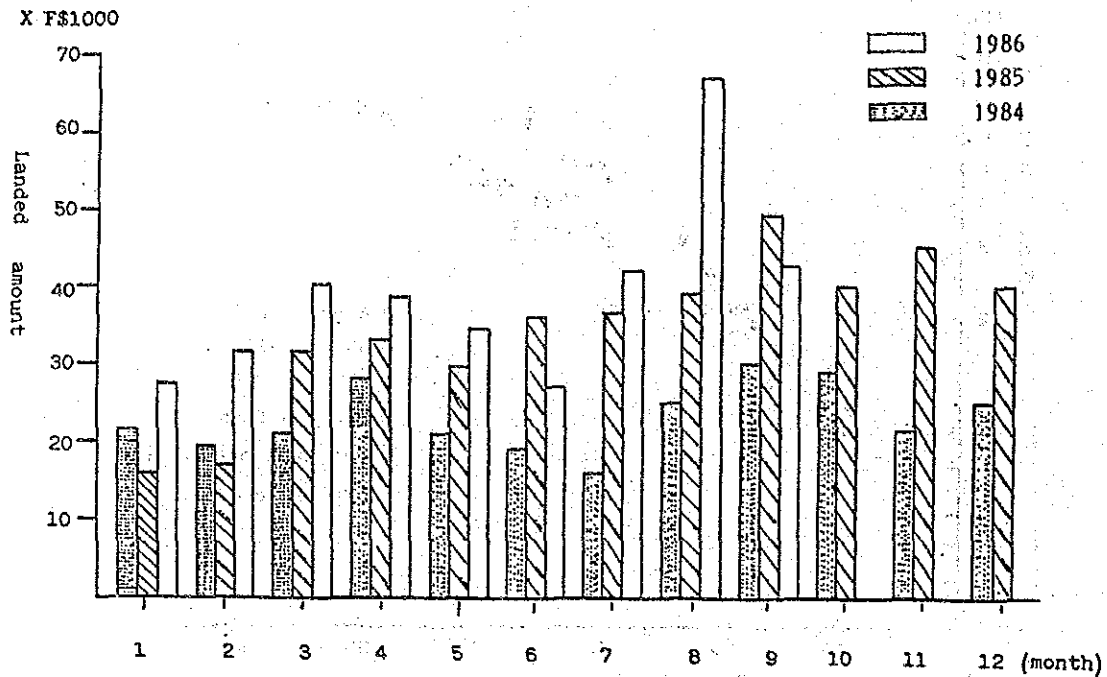


Fig.72 Domestic marketing circumstance at Lami station for the year during 1984 to 1986.
(Fisheries Division of Fiji)

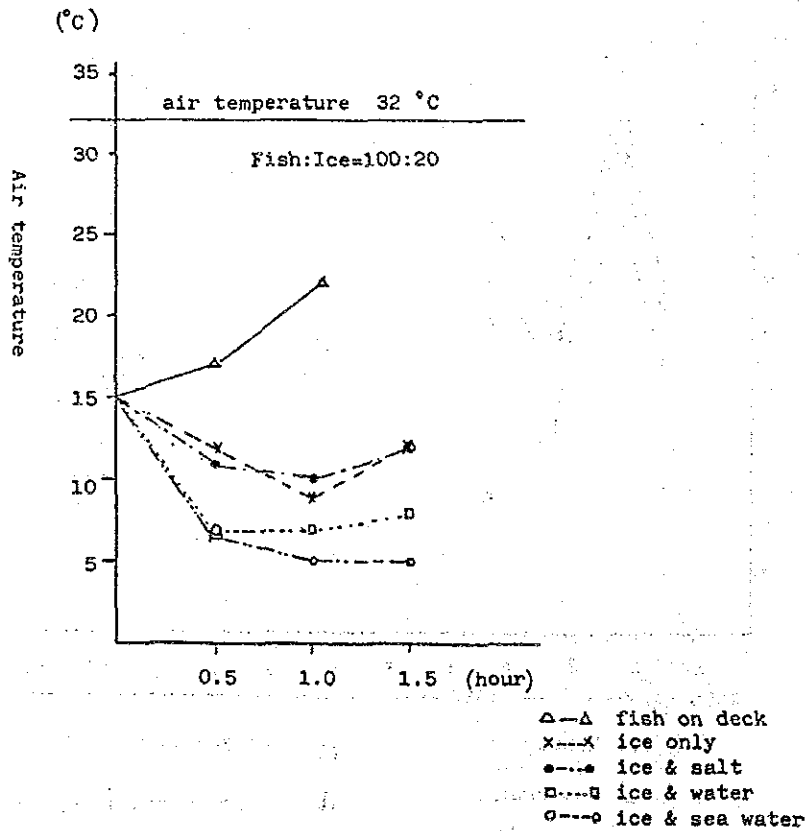


Fig.73 Relationship between elapsed time and body temperature change in fresh fish by method of cold storage.

(Uchiyama. TOKAI regional laboratory)

Table 1. Specification of Gillnets used in the survey.

| Mesh Size (m/m) | Thickness of Netting Materials | Nos. of Stretch along Longitudinal | Nos of grain along Latitudinal | Net Depth (m) | Net Color | Nos of Tan Produced |
|-----------------|--------------------------------|------------------------------------|--------------------------------|---------------|------------|---------------------|
| 150 | 210D 3/21 | 505 | 73 | 9.6 | Gray | 15 |
| | | | | 12.0 | Lightblue | 15 |
| | | | | | Gray | 10 |
| 160 | 210D 3/24 | 474 | 68 | 9.6 | Gray | 15 |
| | | | | 12.0 | Light blue | 15 |
| | | | | | Gray | 10 |
| 170 | 210D 3/21 | 446 | 64 | 9.6 | Gray | 15 |
| | | | | 12.0 | Light blue | 15 |
| | | | | | Gray | 15 |
| 180 | 210D 3/27 | 446 | 64 | 9.6 | Gray | 15 |
| | | | | 12.0 | Light blue | 15 |
| | | | | | Gray | 15 |
| 200 | 210D 3/30 | 421 | 61 | 9.6 | Gray | 15 |
| | | | | 12.0 | Light blue | 15 |
| | | | | | Gray | 10 |
| 200 | 210D 3/36 | 379 | 55 | 9.6 | Gray | 15 |
| | | | | 12.0 | Light blue | 15 |
| | | | | | Gray | 10 |
| TOTAL | | | | | | 250 |

Other Specification

| | | | |
|---------------------------|---------------------------|--------------------------|--|
| Upper Row--Floats | Lower Row--Sinkers | Float Side & Sinker Side | Stitching Thread--Webbing(Upper/Lower) |
| Polypropylene Rope 22g | Polypropylene Rope 80g | 210I 3/27 half opening | Spun-Nylon 10S 3/24 |
| 1 each left & right twist | 1 each left & right twist | 210D 3/30 half opening | Float Attachment Thread |
| Webbing length 36m | Webbing length 36m | Mouth stitching | Cremona 20S 3/45 |
| Total length 36.8m | Total length 36.8m | Nylon multifilament | Sinker Rope Attachment |
| Floats | Net body | 210D 3/36 | Cremona 20S 3/36 |
| F-1X34 | Nylon (Multifilament) | Shortening | Retaining Thread |
| Total buoyancy 7.48Kg | Net Edge | Float side 52.5% | Spun-Nylon 10S 3/27 |
| | Nylon (multifilament) | Sinker side 53.8% | |

Table 2. Specification of the survey vessel.

| | | |
|------------------------------|---|--|
| Name of the vessel | TE-TAUTAI | IKA NO. 5 |
| Owner | NAFICOT | IKA-CORPORATION |
| Hull | Steel | Steel |
| Date of launched | February. 4. 1982 | January. 14. 1980 |
| Gross tonnage | 173.12 | 105.00 |
| L X B X D | 31.47M X 6.8M X 3.05M | 27.00M X 5.70M X 2.60M |
| Main engine | Diesel 1,100PS X 1 | Diesel 750PS X 1 |
| Aux' engine | 185PS X 2 62PS X 1 | X 2 |
| Capacity of the refrigerator | 25 tons/24 hrs. | 5 tons/24 hrs. |
| Navigation equipment | NNSS X 1 Radar X 2 Magnetic log X 1 Fish finder X 1 Gyro compass X 1 Radio direction finder X 1 SSB X 1 | Radar X 2 Magnetic compass X 1 Fish finder X 1 SSB X 1 Radio direction finder X 1 |

Table 3. Gears and equipments installed the survey vessel.

| Name of vessel | TE-TAUTAI | IKA NO. 5 |
|-------------------|--|--|
| Fishing equipment | Net hauler and system X 1 Stern roller X 1 Net tube X 1 Trolling system (HAMA -REEL) X 1 Line hauler system X 1 Deep sea reel system X 1 | Line hauler system X 1 Deep sea reel system X 1 |
| Survey equipment | X. B. T. (Expendable bathy- metric thermometer) X 1 Anemometer X 1 Fish measurement board and others | Gyro compass and system X 1 NNSS system X 1 Anemometer X 1 X. B. T. (Expendable bathy- metric thermometer) X 1 Fish measurement board and others |

Table 4-(1) Monthly catch weight (Kg) and fishing details of the survey area in pole-and-line operation.

| | Nos of operation day | Nos of school sighted | Nos of operation | Catch weight (Kg) | | | Average catch per day |
|------------|----------------------|-----------------------|------------------|-------------------|----------------|--------|-----------------------|
| | | | | Skipjack | Yellowfin tuna | Others | |
| TUVALU | | | | | | | |
| Sept. 1985 | 9 | 32 | 25 | 21,419 | 5 | - | 21,424 |
| October | 11 | 72 | 25 | 11,009 | 10 | 5 | 11,024 |
| Total | 20 | 104 | 50 | 32,428 | 15 | 5 | 32,448 |
| F I J I | | | | | | | |
| Sept. 1985 | 4 | 8 | 3 | 1,343 | 104 | 1 | 1,448 |
| October | 3 | 24 | 2 | 825 | 546 | 92 | 1,463 |
| November | 20 | 70 | 54 | 31,655 | 24,800 | 879 | 57,334 |
| December | 10 | 28 | 16 | 22,443 | 1,183 | 83 | 23,709 |
| Jan. 1986 | 12 | 41 | 37 | 24,846 | 3,705 | 251 | 28,802 |
| February | 14 | 66 | 66 | 26,175 | 5,301 | 194 | 31,670 |
| March | 7 | 34 | 35 | 19,070 | 14,083 | 79 | 33,232 |
| Total | 70 | 325 | 213 | 126,357 | 49,722 | 1,579 | 177,658 |
| | | | | | | | 2,538 |

Table 4-(2) Continued.

| | Nos of operation day | Nos of school sighted | Nos of operation | Catch weight(Kg) | | | | Average catch per operation day |
|-----------------------------|----------------------|-----------------------|------------------|------------------|----------------|--------|--------|---------------------------------|
| | | | | Skipjack | Yellowfin tuna | Others | Total | |
| Tuvalu waters July, 1986 | 4 | 1 9 | 1 9 | 5,230 | 123 | 0 | 5,353 | 1,388.3 |
| August | 9 | 3 2 | 3 2 | 4,453 | 46 | 0 | 4,499 | 499.9 |
| Total | 1 3 | 5 1 | 5 1 | 9,683 | 169 | 0 | 9,852 | 757.8 |
| Fiji waters July, 1986 | 9 | 2 3 | 1 7 | 8,754 | 12,358 | 143 | 21,255 | 2,361.7 |
| August | 3 | 8 | 8 | 3,468 | 2,941 | 52 | 6,461 | 2,153.7 |
| November | 7 | 1 1 | 1 1 | 6,660 | 3,770 | 5 | 10,435 | 1,490.7 |
| Total | 1 9 | 4 2 | 3 6 | 18,882 | 19,069 | 200 | 38,151 | 2,007.9 |

Table 5. Catch record and fishing details by cruise in pole-and-line operation in the waters of Fiji.

| Cruise No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total |
|---------------------------|---------------------|--------------|------------------|--------------|--------------|-------------|-------------|---------------|
| Duration | 1985 10.29~11.25 | 12.13~12.23 | 1986 1.7~1.21 | 2.7~2.21 | 3.12~3.21 | 7.10~7.21 | 11.5~11.14 | |
| Nos of day Operated | 20 | 10 | 12 | 14 | 7 | 9 | 7 | 79 |
| Nos of Ope | 54 | 16 | 37 | 66 | 35 | 17 | 11 | 236 |
| Nos of bait used (bucket) | 687 | 248 | 342 | 582 | 277 | 145 | 55 | 2,336 |
| Skipjack | kg 31,655 | kg 22,443 | kg 24,846 | kg 26,175 | kg 19,070 | kg 5,358 | kg 6,660 | kg 136,207 |
| Yellowfin tuna | 24,800 | 1,183 | 3,705 | 5,301 | 14,083 | 12,279 | 3,770 | 65,121 |
| Others | 879 | 83 | 251 | 194 | 79 | 143 | 5 | 1,634 |
| Total | 57,334 | 23,709 | 28,802 | 31,670 | 33,232 | 17,780 | 10,435 | 202,962 |

Table 6. Catch record and fishing details by cruise in pole-and-line operation in the waters of Tuvalu.

| Area | Tuvalu waters | | | | Fiji waters (Shuttle between Fiji and Tuvalu) | | | |
|---------------------------|-------------------|--------------|-------------------|--------------|---|-----------|------------------------|-------------|
| | 1 | 2 | 3 | Total | 1 | 2 | 3 | Total |
| Duration | 1985 9.12~10.8 | 10.9~10.28 | 1986 7.22~8.18 | | 1985.9.15~ 9.17 10.7 | 10.12 | 1986.7.26 8.14~8.16 | |
| Nos of day operated | 9 | 11 | 13 | 33 | 3 | 1 | 4 | 8 |
| Nos of Ope' | 25 | 25 | 51 | 101 | 4 | 1 | 15 | 20 |
| Nos of bait used (bucket) | 208 | 220 | 114 | 542 | 267 | 13 | 102 | 382 |
| Skipjack | kg 21,419 | kg 11,009 | kg 9,683 | kg 42,111 | kg 2,063 | kg 111 | kg 6,862 | kg 9,036 |
| Yellowfin tuna | 5 | 10 | 169 | 184 | 651 | — | 3,020 | 3,671 |
| Others | — | 5 | — | 5 | 93 | — | 75 | 168 |
| Total | 21,424 | 11,024 | 9,852 | 42,300 | 2,807 | 111 | 9,957 | 12,875 |

Table 7. Number of sighted school by cruise at the size and poling situation in pole-and-line operation in the waters of Fiji.

| Cruise No | Size of school | Nos of sighted school | Poling situation | | | | No fishing |
|-----------|----------------|-----------------------|------------------|---------|------|---------|------------|
| | | | Good | Natural | Poor | Nothing | |
| 1 | Large | 3 | 2 | — | 1 | — | — |
| | Medium | 30 | 6 | 12 | 3 | 4 | 5 |
| | Small | 37 | — | 1 | 16 | 9 | 11 |
| 2 | Large | 7 | 2 | 1 | 1 | — | 3 |
| | Medium | 10 | 1 | 1 | 4 | — | 4 |
| | Small | 11 | — | 1 | 2 | 3 | 5 |
| 3 | Large | 7 | 2 | 1 | 4 | — | — |
| | Medium | 21 | — | 4 | 7 | 8 | 2 |
| | Small | 13 | — | — | 2 | 9 | 2 |
| 4 | Large | 3 | 1 | — | 1 | 1 | — |
| | Medium | 19 | — | 6 | 9 | 4 | — |
| | Small | 44 | — | 3 | 20 | 21 | — |
| 5 | Large | 2 | 1 | — | 1 | — | — |
| | Medium | 14 | 3 | 3 | 4 | 4 | — |
| | Small | 19 | — | 3 | 9 | 7 | — |
| 6 | Large | — | — | — | — | — | — |
| | Medium | 2 | 1 | 1 | — | — | — |
| | Small | 15 | 1 | 4 | 6 | 4 | — |
| 7 | Large | — | — | — | — | — | — |
| | Medium | 9 | 1 | 4 | 2 | 2 | — |
| | Small | 2 | — | — | 2 | — | — |
| Total | Large | 22 | 8 | 2 | 8 | 1 | 3 |
| | Medium | 105 | 12 | 31 | 29 | 22 | 11 |
| | Small | 141 | 1 | 12 | 57 | 53 | 18 |
| Total | | 268 | 21 | 45 | 94 | 76 | 32 |

Table 8. Nos of operation day, nos of sighted school and catch weight(Kg) by species.

| Region | Nos of operation day | Nos of Shool | Nos of operation | Nos of operation with catches | Skipjack | Yellowfin tuna | Others | Total |
|-----------------------|----------------------|--------------|------------------|-------------------------------|----------|----------------|--------|---------|
| Kadavu | 2 6 | 7 9 | 6 4 | 4 3 | 58,469 | 22,573 | 86 | 81,128 |
| Yasawa | 7 | 1 5 | 1 3 | 9 | 6,771 | 1,915 | 71 | 8,757 |
| Kia | 1 6 | 7 0 | 7 0 | 4 2 | 18,463 | 10,851 | 664 | 29,978 |
| Koro and Northern Lau | 2 9 | 1 0 4 | 8 8 | 6 6 | 52,504 | 29,782 | 813 | 83,099 |
| Total | 7 8 | 2 6 8 | 2 3 5 | 1 6 0 | 136,207 | 65,121 | 1,634 | 202,962 |

Table 9. Average catch weight (Kg) by school at the size and poling situation in pole-and-line operation in the waters of Fiji.

n---Nos of operation CPUE---Catch weight per effort(Kg)
s---Standard deviation

| Poling situation Size of school | Good | | | Natural | | | Poor | | |
|------------------------------------|------|---------|----------|---------|---------|--------|------|-------|--------|
| | N | CPUE | S | N | CPUE | S | N | CPUE | S |
| Large | 8 | 6,783.7 | 3,006.86 | 2 | 3,156.0 | 39.00 | 8 | 909.4 | 413.24 |
| Medium | 12 | 3,576.3 | 1,893.49 | 31 | 1,568.7 | 731.57 | 29 | 526.5 | 449.01 |
| Small | 1 | 2,547.0 | -- | 12 | 915.9 | 417.51 | 57 | 272.6 | 262.54 |

Table 10. Number of sighted school by cruise at the size and poling situation in pole-and-line operation in the waters of Tuvalu.

| Cruise No | Size of school | Nos of school sighted | Poling situation | | | | No fishing |
|-----------|----------------|-----------------------|------------------|---------|------|---------|------------|
| | | | Good | Natural | Poor | Nothing | |
| 1 | Large | 3 | 2 | — | — | — | 1 |
| | Medium | 4 | 1 | — | 2 | 1 | — |
| | Small | 25 | 4 | 1 | 3 | 11 | 6 |
| 2 | Large | 27 | — | 1 | 6 | 5 | 15 |
| | Medium | 23 | — | 4 | 3 | 2 | 14 |
| | Small | 30 | — | 1 | 2 | 1 | 26 |
| 3 | Large | — | — | — | — | — | — |
| | Medium | — | — | — | — | — | — |
| | Small | 51 | — | 2 | 25 | 24 | — |
| Total | Large | 30 | 2 | 1 | 6 | 5 | 16 |
| | Medium | 27 | 1 | 4 | 5 | 3 | 14 |
| | Small | 106 | 4 | 4 | 30 | 36 | 32 |
| Total | | 163 | 7 | 9 | 41 | 44 | 62 |

Table 11. Average catch weight(Kg) by school at the size and poling situation in pole-and-line operation in the waters of Tuvalu.

| Poling Situation | | n ----- Nos of operation c ----- Average catch weight | | | | | |
|------------------|---|--|---|---------|----|-------|---|
| | | Good | | Natural | | Poor | |
| | | n | c | n | c | n | c |
| Large | 2 | 3,914.0 | 1 | 4,391.0 | 6 | 269.3 | |
| Medium | 1 | 2,597.0 | 4 | 867.0 | 5 | 263.4 | |
| Small | 4 | 2,092.5 | 4 | 846.5 | 30 | 310.9 | |

Table 12-(1) Monthly average baitfish catch in nos of bucket by baitfishing ground.

| | 1985 | | | | | | 1986 | | | | | | The 1985 fiscal year | | | | |
|-----------------|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|-------------------|------------|---------------|-----------------------|
| | September | | October | | November | | December | | January | | February | | March | | Total | | |
| | Nos of set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of bucket set | Nos of set | Nos of bucket | Average catch per set |
| Tuvalu waters | | | | | | | | | | | | | | | | | |
| ①Funafuti | 6 | 172 | 16 | 337 | | | | | | | | | | | 22 | 509 | 23.1 |
| ②Nukufetau | 2 | 16 | | | | | | | | | | | | 2 | 16 | 8.0 | |
| Total | 8 | 188 | 16 | 337 | | | | | | | | | | 24 | 525 | | |
| Catch per set | | | | | | | | | | | | | | | | | 21.9 |
| Fiji waters | | | | | | | | | | | | | | | | | |
| ① Rukuruku | 2 | 25 | | | 1 | 49 | | | | | | | | | | 74 | 24.7 |
| ② Kia | 3 | 176 | | | 1 | 92 | | | 4 | 65 | 4 | 110 | 4 | 145 | 16 | 588 | 36.8 |
| ③ Mali | 1 | 8 | | | | | | | | | | | | | 1 | 8 | 8.0 |
| ④ Sausau | | | 2 | 58 | | | | | | | | | | | 4 | 120 | 30.0 |
| ⑤ Yasawa harbor | | | | | | | | | | | | | | | | | |
| ⑥ Vanuabalavu | | | 1 | 13 | 10 | 460 | | | 4 | | 4 | 102 | | | 10 | 460 | 46.0 |
| ⑦ Viani bay | | | | | 1 | 5 | | | | | | | | | 6 | 120 | 20.0 |
| ⑧ Nasonisoni | | | | | 1 | 26 | | | | | | | | | 1 | 26 | 26.0 |
| ⑨ Ngau | | | 1 | 1 | | | | | | | | | | | 5 | 108 | 21.6 |
| ⑩ Suva | | | | | | | | | | 1 | 25 | 13 | | | 3 | 56 | 18.7 |
| ⑪ Mbeqa | | | | | 3 | 38 | | | | 1 | 22 | 4 | | | 4 | 83 | 20.8 |
| ⑫ Serua | | | | | | | | | | 1 | 47 | 2 | | | 3 | 59 | 19.7 |
| ⑬ Ngaloa | | | | | 1 | 2 | | | | 4 | 140 | 250 | | | 1 | 551 | 50.1 |
| ⑭ Momi | | | | | 2 | 15 | | | | 3 | 47 | 25 | | | 3 | 29 | 9.7 |
| ⑮ Mana | | | | | | | | | | 1 | 25 | 1 | | | 5 | 92 | 18.4 |
| ⑯ Yanuya | | | | | | | | | | 1 | 18 | | | | 1 | 25 | 25.0 |
| ⑰ Namubukelu | | | | | | | | | | | | | | | | | |
| ⑱ Land harbor | | | | | | | | | | | | | | | | | |
| ⑳ Koro | | | | | | | | | | | | | | | 1 | 18 | 18.0 |
| Total | 6 | 209 | 4 | 72 | 20 | 687 | 10 | 248 | 15 | 342 | 15 | 582 | 7 | 277 | 77 | 2,417 | |
| Catch per set | | | | | | | | | | | | | | | | | 31.4 |

Table 12-(2) Continued.

| | 1986 | | | | | | The 1986 fiscal year | | | | Grand Total | | | | | | | | |
|--------------------------------|------------|---------------|------------|---------------|------------|---------------|----------------------|---------------|----------------------------|-----|-------------|---------------|----------------------------|--|--|--|--|--|--|
| | July | | August | | November | | Total | | | | Nos of set | Nos of bucket | Average bait catch per set | | | | | | |
| | Nos of set | Nos of bucket | Nos of set | Nos of bucket | Nos of set | Nos of bucket | Nos of set | Nos of bucket | Average bait catch per set | | | | | | | | | | |
| Tuvalu waters | | | | | | | | | | | | | | | | | | | |
| ①Funafuti | | | 5 | 67 | | | 5 | 67 | | | 27 | 576 | 21.3 | | | | | | |
| ②Nukufetau | | | | | | | | | | 2 | 16 | 8.0 | | | | | | | |
| Total | | | 5 | 67 | | | 5 | 67 | | 29 | 592 | | | | | | | | |
| Average baitfish catch per set | | | | | | | | | | | | 20.4 | | | | | | | |
| Fiji waters | | | | | | | | | | | | | | | | | | | |
| ① Rukurulu | | | 1 | 5 | | | 2 | 13 | | | 5 | 87 | 17.4 | | | | | | |
| ② Kia | 3 | 90 | 6 | 48 | 1 | 8 | 9 | 138 | | 25 | 726 | 29.0 | | | | | | | |
| ③ Mali | | | | | | | | | | 1 | 8 | 8.0 | | | | | | | |
| ④ Sausau | | | 1 | 12 | | | 1 | 12 | | 5 | 132 | 26.4 | | | | | | | |
| ⑤ Yasawa harbor | | | | | 2 | 12 | 2 | 12 | | 2 | 12 | 6.0 | | | | | | | |
| ⑥ Vanuabalavu | | | | | 5 | 29 | 5 | 29 | | 15 | 489 | 32.6 | | | | | | | |
| ⑦ Viani bay | | | | | | | | | | 6 | 120 | 20.0 | | | | | | | |
| ⑧ Masionisoni | | | | | | | | | | 1 | 26 | 26.0 | | | | | | | |
| ⑨ Ngau | 2 | | | | | | 2 | 30 | | 7 | 138 | 19.7 | | | | | | | |
| ⑩ Suva | 1 | | | | | | 1 | 18 | | 4 | 74 | 18.5 | | | | | | | |
| ⑪ Mbeqa | 1 | | | | | | 1 | 4 | | 5 | 87 | 17.4 | | | | | | | |
| ⑫ Serua | | | | | | | | | | 3 | 59 | 19.7 | | | | | | | |
| ⑬ Ngaloa | 4 | | | | | | 4 | 84 | | 15 | 635 | 42.3 | | | | | | | |
| ⑭ Momi | 1 | | | | | | 1 | 5 | | 4 | 34 | 8.5 | | | | | | | |
| ⑮ Mana | 1 | | | | | | 1 | 8 | | 6 | 100 | 16.6 | | | | | | | |
| ⑯ Yanuya | | | | | | | | | | 1 | 25 | 25.0 | | | | | | | |
| ⑰ Namubukelu | 1 | | | | | | 1 | 8 | | 1 | 8 | 8.0 | | | | | | | |
| ⑱ Land harbor | | | | | | | | | | 1 | 18 | 18.0 | | | | | | | |
| ⑲ Koro | | | 1 | | | 2 | 1 | 2 | | 1 | 2 | 2.0 | | | | | | | |
| Total | 14 | 247 | 8 | 65 | 9 | 51 | 31 | 363 | | 108 | 2,780 | | | | | | | | |
| Average baitfish catch per set | | | | | | | | | | | | 11.7 | 25.7 | | | | | | |

Table 13. Monthly baitfish catch (bucket) and baitfish composition (%) by major species in pole-and-line operation in the waters of Tuvalu.

| Species | September 1985 | | October | | November | | December | | January 1986 | | February | | March | | July | | August | | November | | Total | |
|-------------------|-------------------|------|---------|------|----------|------|----------|------|-----------------|------|----------|------|--------|------|--------|------|--------|------|----------|------|---------|------|
| | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % | bucket | % |
| Blue sprat | 7.8 | 3.7 | 3.8 | 5.3 | 109.7 | 16.0 | 13.4 | 5.4 | 46.3 | 13.5 | 56.8 | 10.1 | 35.7 | 12.9 | 5.7 | 2.3 | 2.5 | 4.0 | 15.8 | 31.0 | 297.5 | 10.8 |
| Sirdines | 165.1 | 79.0 | 9.1 | 12.6 | 457.9 | 66.7 | 112.6 | 45.4 | 104.9 | 30.7 | 187.3 | 32.2 | 61.3 | 22.1 | 46.8 | 18.9 | 12.3 | 19.5 | 10.6 | 20.8 | 1,167.9 | 42.0 |
| Gold-spot herring | 2.7 | 1.3 | | | 45.6 | 6.6 | 20.9 | 8.4 | 26.9 | 7.9 | 53.4 | 9.2 | 19.3 | 7.0 | 49.3 | 20.0 | 1.8 | 2.9 | 1.6 | 3.1 | 221.5 | 8.0 |
| Silver sides | 21.5 | 10.3 | 3.7 | 5.1 | 18.3 | 2.7 | 7.6 | 3.1 | 19.4 | 5.7 | 20.2 | 3.5 | 9.8 | 3.5 | 13.0 | 5.3 | 2.6 | 4.1 | 7.7 | 15.1 | 123.8 | 4.4 |
| Mackerels | 6.6 | 3.2 | | | | | 4.7 | 1.9 | 45.8 | 13.4 | 21.6 | 3.7 | 7.7 | 2.8 | 10.0 | 4.0 | 3.1 | 4.9 | | | 99.5 | 3.6 |
| Cardinals | | | | | 0.7 | 0.1 | 4.0 | 1.6 | 33.8 | 9.9 | 97.4 | 16.7 | 36.6 | 13.2 | 29.6 | 12.0 | 32.8 | 52.1 | 1.2 | 2.4 | 236.1 | 8.5 |
| Anchovies | 1.6 | 0.8 | 46.4 | 64.4 | 3.3 | 0.5 | 4.6 | 1.9 | 11.9 | 3.5 | 54.8 | 9.5 | 57.1 | 20.6 | 1.3 | 0.5 | 3.4 | 5.4 | 1.1 | 2.2 | 185.5 | 6.7 |
| Caesionidae | | | | | | | | | 11.9 | 3.5 | 22.3 | 3.8 | 0.6 | 0.2 | 0.3 | 0.1 | | | 0.2 | 0.1 | 35.3 | 1.3 |
| Other | 3.7 | 1.8 | 9.0 | 12.5 | 51.5 | 7.5 | 80.2 | 32.3 | 41.1 | 12.0 | 66.2 | 11.4 | 48.9 | 17.7 | 91.0 | 36.8 | 4.5 | 7.1 | 12.8 | 25.1 | 408.9 | 14.2 |
| Total | 209.0 | | 72.0 | | 687.0 | | 248.0 | | 342.0 | | 582.0 | | 277.0 | | 247.0 | | 65.0 | | 51.0 | | 2,780.0 | |

Table 14. Monthly catch number of skipjack by sex and the grouping fork length caught in trolling operation.

| Fork length Date | ~ 49 cm | | 50 ~ 59 cm | | 60cm ~ | | Total | |
|---------------------|---------|----|------------|----|--------|---|-------|----|
| | ♀ | ♂ | ♀ | ♂ | ♀ | ♂ | ♀ | ♂ |
| 1984. 12 | 9 | 5 | — | 3 | — | — | 9 | 8 |
| 1985. 1 | 32 | 38 | 12 | 22 | 1 | — | 45 | 60 |
| 2 | 2 | 6 | — | 2 | — | — | 2 | 8 |
| 3 | 3 | 5 | — | — | — | — | 3 | 5 |
| Total | 46 | 54 | 12 | 27 | 1 | — | 59 | 81 |

Table 15. Monthly catch number of skipjack by sex and the grouping fork length caught in pole-and-line operation.

| Fork length Date | ~ 49 cm | | 50 ~ 59 cm | | 60cm ~ | | | Total | | | |
|----------------------------|------------|-----|------------|-----|--------|----|-----|-------|-----|-----|---|
| | ♀ | ♂ | ♀ | ♂ | ♀ | ♂ | ? | ♀ | ♂ | ? | |
| T u v a i u | 1985. 9 | — | — | 6 | 4 | 37 | 54 | — | 43 | 58 | — |
| | 10 | 14 | 13 | 13 | 15 | 49 | 56 | — | 76 | 84 | — |
| | 1986. 7, 8 | 14 | 6 | 37 | 28 | 5 | 9 | 1 | 56 | 43 | 1 |
| | Total | 28 | 19 | 56 | 47 | 91 | 119 | 1 | 175 | 185 | 1 |
| F i j i | 1985. 11 | 106 | 133 | 8 | 15 | 2 | 6 | — | 116 | 154 | — |
| | 12 | 17 | 22 | 38 | 13 | — | — | — | 55 | 35 | — |
| | 1986. 1 | 65 | 62 | 20 | 29 | 1 | 3 | — | 86 | 94 | — |
| | 2 | 82 | 76 | 22 | 50 | — | — | — | 104 | 126 | — |
| | 3 | 27 | 18 | 32 | 53 | — | — | — | 59 | 71 | — |
| | 7, 8 | 8 | 8 | 12 | 24 | 4 | 4 | — | 24 | 36 | — |
| | 11 | 15 | 20 | 7 | 18 | — | — | — | 22 | 38 | — |
| Total | 320 | 339 | 139 | 202 | 7 | 13 | — | 466 | 554 | — | |

Table 16. Monthly catch number of yellowfin tuna by sex and the grouping fork length caught in trolling operation.

| Fork length Date | ~ 49cm | | | 50 ~59cm | | | 60~79cm | | 80cm~ | | Total | | |
|---------------------|--------|---|---|----------|----|---|---------|----|-------|---|-------|----|---|
| | ♀ | ♂ | ? | ♀ | ♂ | ? | ♀ | ♂ | ♀ | ♂ | ♀ | ♂ | ? |
| 1984. 12 | — | — | — | — | 1 | — | 2 | 3 | 3 | 1 | 5 | 5 | — |
| 1985. 1 | 8 | 9 | 3 | 12 | 12 | 2 | 30 | 14 | 1 | 3 | 51 | 38 | 5 |
| 2 | — | — | — | 6 | 4 | — | 3 | 2 | 4 | — | 13 | 6 | — |
| Total | 8 | 9 | 3 | 18 | 17 | 2 | 35 | 19 | 8 | 4 | 69 | 49 | 5 |

Table 17. Monthly catch number of yellowfin tuna by sex and the grouping fork length caught in pole-and-line operation.

| Fork length Date | ~49cm | | | 50cm ~ 59cm | | | 60cm ~ | | | Total | | |
|---------------------|-------|----|----|-------------|-----|----|--------|----|---|-------|-----|----|
| | ♀ | ♂ | ? | ♀ | ♂ | ? | ♀ | ♂ | ? | ♀ | ♂ | ? |
| 1985. 10 | 1 | 1 | — | 5 | 3 | — | — | — | — | 6 | 4 | — |
| 11 | 24 | 43 | 13 | 51 | 74 | 15 | 1 | — | — | 76 | 117 | 28 |
| 12 | — | — | — | 9 | 11 | 1 | 5 | 4 | — | 14 | 15 | 1 |
| 1986 1 | 3 | 3 | 4 | 16 | 19 | 11 | — | 1 | — | 19 | 23 | 15 |
| 2 | 9 | 14 | 17 | 36 | 37 | 12 | — | 5 | — | 45 | 56 | 29 |
| 3 | 4 | 7 | 8 | 30 | 37 | 2 | — | 2 | — | 34 | 46 | 10 |
| 7, 8 | — | 2 | 1 | 9 | 24 | 1 | 7 | 15 | 1 | 16 | 41 | 3 |
| 11 | 1 | 13 | 5 | 10 | 18 | 2 | 1 | — | — | 12 | 31 | 7 |
| Total | 42 | 83 | 48 | 166 | 223 | 44 | 14 | 27 | 1 | 222 | 333 | 93 |

Table 18. Appearance of catch number of skipjack and yellowfin tuna by the condition of remainder in stomach caught in pole-and-line operation. (Percentage were shown under the column)

| | | Empty | Half full | Full | Total |
|--------|---------------|-------------|-------------|-----------|-------|
| Fiji | Pole-and-line | 613 60.1 | 360 35.5 | 47 4.6 | 1020 |
| | Trolling | 83 59.3 | 56 40.0 | 1 0.7 | 140 |
| Tuvalu | Pole-and-line | 124 34.5 | 201 56.0 | 34 9.5 | 359 |
| Total | | 820 | 617 | 82 | 1519 |

Table 19. Monthly catch number in appearance of skipjack by the condition of remainder in stomach caught in pole-and-line operation. (Percentage were shown under the column)

| | | Empty | Half full | Full | Total |
|----------------------------|------------|-------------|-------------|------------|-------|
| F i j i | 1985. 11 | 207 76.7 | 54 20.0 | 9 3.3 | 270 |
| | 12 | 59 65.6 | 31 34.4 | — — | 90 |
| | 1986. 1 | 93 51.7 | 80 44.4 | 7 3.9 | 180 |
| | 2 | 111 48.3 | 104 45.2 | 15 6.5 | 230 |
| | 3 | 53 40.8 | 64 49.2 | 13 10.0 | 130 |
| | 7, 8 | 46 76.7 | 14 23.3 | — — | 60 |
| | 11 | 44 73.3 | 13 21.7 | 3 5.0 | 60 |
| T u v a l u | 1985. 9 | 59 59.0 | 37 37.0 | 4 4.0 | 100 |
| | 10 | 46 28.8 | 100 62.9 | 13 8.2 | 159 |
| | 1986. 7, 8 | 19 19.0 | 64 64.0 | 17 17.0 | 100 |
| Total | | 737 53.4 | 561 40.7 | 81 5.9 | 1379 |

Table 20. Relationship between the condition of remainder in stomach and poling situation on skipjack caught in pole-and-line operation in the waters of Fiji and Tuvalu. (Percentage were shown under the column)

| | | Poling situation (Nos of school) | | | Total |
|----------------------------|-----------|------------------------------------|------------|------------|-------|
| | | Good | Normal | Poor | |
| F i j i | Empty | 15 26.8 | 25 44.6 | 16 28.6 | 56 |
| | Half full | — — | 4 50.0 | 4 50.0 | 8 |
| | Full | 2 5.7 | 14 40.0 | 19 54.3 | 35 |
| | Total | 17 | 43 | 39 | 99 |
| T u v a l u | Empty | 3 50.0 | 1 16.7 | 2 33.3 | 6 |
| | Half full | 2 28.6 | 1 14.3 | 4 57.1 | 7 |
| | Full | 1 4.8 | 7 33.3 | 13 61.9 | 21 |
| | Total | 6 | 9 | 19 | 34 |

Table 21. Appearance number of major bait species fed by skipjack caught in pole-and-line operation in the waters of Fiji and Tuvalu.

| | Tuvalu waters | | | Fiji waters | | | | | | | Total |
|------------------|---------------|-----|-------------|-------------|----|-----------|-----|----|-----|----|-------|
| | 1985 9 | 10 | 1986 7,8 | 1985 11 | 12 | 1986 1 | 2 | 3 | 7,8 | 11 | |
| Juvenils | | | 28 | | | | | | | | 28 |
| White bait | | | | | | 2 | | | | 1 | 3 |
| Triggerfishes | 4 | 5 | | 3 | 1 | 6 | 1 | | 1 | 3 | 24 |
| Pilefishes | 1 | 12 | | 7 | 14 | 1 | 7 | 2 | | | 44 |
| Rabbitfishes | | | 10 | | 15 | 4 | 2 | | | 5 | 36 |
| Ponyfishes | 1 | | | 2 | | 2 | | | | | 5 |
| Barracudas | | | 2 | | | | | | | | 2 |
| Anchovies | | 43 | | | | | | 22 | | | 65 |
| Flying fishes | 10 | 7 | | | 6 | 11 | | 4 | | | 38 |
| Porcupine fishes | | | | | | | | 1 | | | 1 |
| Baloon fishes | 1 | | | | | | | | | | 1 |
| Skipjack(Juve) | | | | | | 5 | 13 | 1 | | | 19 |
| Zea stage | | | | 1 | | 10 | 2 | 3 | 2 | 1 | 19 |
| Nautilus sp | | 2 | | | | 3 | | | | | 5 |
| Stomatopoda | | | | | 10 | 8 | | | | | 18 |
| Mysidae | | | | 7 | 9 | 18 | 7 | 21 | 5 | | 67 |
| Squid | 14 | 32 | 72 | 14 | 14 | 30 | 81 | 33 | 4 | | 294 |
| Total | 31 | 101 | 112 | 34 | 69 | 100 | 113 | 87 | 12 | 10 | 669 |

Table 22. Monthly catch number in appearance of yellowfin tuna by the condition of remainder in stomach caught in pole-and-line and trolling operation in the waters of Fiji and Tuvalu. (Percentage were shown under the column)

| | | Empty | Half full | Full | Total |
|---|--------------|-------------|-------------|-----------|-------|
| T r o l l i n g | 1984. 12 | 1 10.0 | 8 80.0 | 1 10.0 | 10 |
| | 1985. 1 | 37 32.5 | 75 65.8 | 2 1.7 | 114 |
| | Sub Total | 38 30.7 | 83 66.9 | 3 2.4 | 124 |
| P o l e a n d l i n e | 1985. 10 | 7 70.0 | 3 30.0 | — — | 10 |
| | 11 | 130 58.8 | 90 40.7 | 1 0.5 | 221 |
| | 12 | 8 26.7 | 22 73.3 | — — | 30 |
| | 1986. 1 | 16 28.1 | 35 61.4 | 6 10.5 | 57 |
| | 2 | 67 51.6 | 61 46.9 | 2 1.5 | 130 |
| | 3 | 33 36.7 | 51 56.7 | 6 6.6 | 90 |
| | 7,8 | 34 56.7 | 24 40.0 | 2 3.3 | 60 |
| | 11 | 21 42.0 | 29 58.0 | — — | 50 |
| | Sub Total | 316 48.8 | 315 48.6 | 17 2.6 | 648 |
| Total | | 354 48.5 | 398 51.6 | 20 2.6 | 772 |

Table 23. Appearance rate by the grouping of the condition of remainder in stomach on skipjack and yellowfin tuna caught in pole-and-line and trolling operation.

| Group | Rate of appearance | | Total (%) |
|-------------------------|--------------------|----------|-------------|
| | Pole-and-line | Trolling | |
| Skipjack-Yellowfin tuna | | | |
| Empty - Empty | 23 | 1 | 24 (32.9) |
| Empty - Half full | 9 | 3 | 12 (16.4) |
| Empty - Full | 12 | 2 | 14 (19.2) |
| Half full - Empty | 1 | 1 | 2 (2.7) |
| Half full - Half full | — | — | — (—) |
| Half full - Full | 4 | 4 | 8 (10.9) |
| Full - Empty | 1 | — | 1 (1.4) |
| Full - Half full | 1 | — | 1 (1.4) |
| Full - Full | 10 | 1 | 11 (15.1) |
| Total | 61 | 12 | 73 (100.0) |

Table 24. Appearance number of major bait species fed by yellowfin tuna caught in pole-and-line.

| Species | Date | 1985 | | | 1986 | | | 7,8 | 11 | 計 |
|------------------|------|------|-----|----|------|----|----|-----|----|-----|
| | 10 | 11 | 12 | 1 | 2 | 3 | | | | |
| White bait | | | 13 | | | | | | | 13 |
| Triggerfishes | | | 7 | | 3 | 1 | | 6 | 1 | 18 |
| Filefishes | | | 18 | | 6 | 19 | 2 | | | 45 |
| Rabbitfishes | | | 3 | | | | | | | 3 |
| Anchovies | | | | | | | 10 | | | 10 |
| Flying fishes | | | 1 | | | | | | | 1 |
| Baloon fishes | 1 | | 3 | | | 5 | | 1 | 1 | 11 |
| Porcupine fishes | | | | | | | | 2 | | 2 |
| Skipjack(Juve) | | | | | | 1 | | | | 1 |
| Zea stage | | | 4 | | 1 | 12 | | | | 7 |
| Nautilus spp | | | 2 | | 2 | 3 | | | | 7 |
| Stomatopoda | | | | 7 | 7 | | | | | 14 |
| Mysidae | | | 44 | 4 | | 13 | 10 | 18 | 13 | 102 |
| Squid | 2 | | 19 | 2 | 3 | 29 | | 6 | 2 | 63 |
| Shrimps | | | 1 | | | | | | | 1 |
| Total | 3 | | 115 | 13 | 22 | 83 | 22 | 33 | 17 | 308 |

Table 25. Catch weight(Kg), catch number and fishing details by cruise in species caught in trolling operation.

| Cruise No. | 1 | | 2 | | 3 | | 4 | | Total | |
|--------------------------------------|-------------------------------------|--------------|-------------------------------------|--------------|-------------------------------------|--------------|-------------------------------------|--------------|---------------------------------------|--------------|
| | Nov. 26 ~ Dec. 22, 1984 | | Dec. 23, 1984 ~ Jan. 28, 1985 | | Jan. 29 ~ Feb. 25, 1985 | | Feb. 26 ~ Mar. 22, 1985 | | | |
| Nos of operation | 1.4 | | 2.0 | | 1.9 | | 1.1 | | 6.4 | |
| Hrs of operation | 3.3 ^h - 1.0 ^m | | 6.2 ^h - 4.0 ^m | | 2.5 ^h - 1.0 ^m | | 1.1 ^h - 2.5 ^m | | 1.3.2 ^h - 2.5 ^m | |
| Nos of hook | 7.0 | | 1.4.0 | | 1.6.1 | | 9.9 | | 4.7.0 | |
| Nos of school | 2.1 | | 3.3 | | 3.9 | | 1.9 | | 1.1.2 | |
| Average time taken per one operation | 2 ^h - 2 ^m | | 3 ^h - 0.8 ^m | | 1 ^h - 1.9 ^m | | 1 ^h - 0.2 ^m | | 2 ^h - 0.4 ^m | |
| Catch per hour | 6.7.5 Kg | | 4.3.9 Kg | | 8.5.3 Kg | | 8.4.5 Kg | | 6.1.1 Kg | |
| Catch per school fished | 1.0.6.6 Kg | | 8.2.9 Kg | | 5.5.1 Kg | | 5.0.8 Kg | | 7.2.2 Kg | |
| Catch per operation | 1.5.9.9 Kg | | 1.3.6.8 Kg | | 1.1.3.0 Kg | | 8.7.7 Kg | | 1.2.6.3 Kg | |
| Species name | Nos | Catch weight | Nos | Catch weight | Nos | Catch weight | Nos | Catch weight | Nos | Catch weight |
| Skipjack | 1.0.9 | 2.5.4.9 | 4.7.8 | 1.0.1.4.7 | 1.7.9 | 6.3.5.4 | 1.9.3 | 4.1.4.7 | 9.5.9 | 2.3.1.9.7 |
| Yellowfin tuna | 2.4.9 | 1.4.3.5.9 | 2.7.1 | 1.2.0.5.5 | 2.4.6 | 1.1.2.6.6 | 6.8 | 3.0.7.3 | 8.3.4 | 4.0.7.5.3 |
| Bigeye tuna | | | 3 | 1.5.8 | | | | | 3 | 1.5.8 |
| Dog tooth tuna | 8 | 6.4.2 | 1 | 2.9.0 | 3 | 2.1.2 | | | 1.2 | 1.1.4.4 |
| Frigate mackerel | 1 | 1.0 | 1 | 1.0 | 1.7 | 2.8.3 | | | 1.9 | 3.0.3 |
| Wahoo | 1 | 7.0 | 4 | 5.5.7 | 1.4 | 6.5.5 | | | 1.9 | 1.2.0.2 |
| Spanish mackerel | 2 | 3.5.4 | 1 | 1.5.6 | | | | | 3 | 5.1.0 |
| Blue marlin | | | 1 | 4.7.0 | | | | | 1 | 4.7.0 |
| Salmon mackerel | 8 | 8.3 | | | 2 | 1.0 | | | 1.0 | 9.3 |
| Dolphine fish | 1.9 | 1.4.3.1 | 1.3 | 7.3.0 | 8 | 5.9.7 | 9 | 7.0.2 | 4.9 | 3.5.4.0 |
| Rainbow runner | 1.5.8 | 2.7.0.7 | 1.3.7 | 2.7.2.4 | 5.6 | 1.7.4.4 | 5.2 | 1.7.2.2 | 4.0.3 | 8.8.9.7 |
| Barracudas | 2 | 7.0 | 2 | 5.3 | 6 | 1.8.2 | | | 1.0 | 3.0.5 |
| Green job fish | 5 | 1.1.4 | | | | | | | 5 | 1.1.4 |
| Requiem shark | | | | | 2 | 1.6.7 | | | 2 | 1.6.7 |
| Total | 5.6.2 | 2.2.3.8.9 | 9.1.2 | 2.7.3.5.0 | 5.3.3 | 2.1.4.7.0 | 3.2.2 | 9.6.4.4 | 2.3.2.9 | 8.0.8.5.3 |

Table 26. A list of species name caught in trolling operation.

| <u>English name</u> | <u>Scientific name</u> | <u>Japanese name</u> |
|---------------------|-----------------------------------|----------------------|
| Skipjack | <i>Katsuwonus pelamis</i> | Katsuo |
| Yellowfin tuna | <i>Thunnus albacares</i> | Kihada |
| Bigeye tuna | <i>Thunnus obesus</i> | Mebachi |
| Dogtooth tuna | <i>Gymnosarda unicolor</i> | Isomaguro |
| Frigate mackerel | <i>Auxis thazard</i> | Hirasouda |
| Mackerel tuna | <i>Euthynnus affinis</i> | Suma |
| Common dolphin | <i>Coryphaena hippurus</i> | Shiira |
| Rainbow runner | <i>Elagatis bipinnulata</i> | Tsumuburi |
| Requiem shark | <i>Carcharhinus plumbeus</i> | Mejirozame |
| Barracudas | <i>Sphyræna</i> sp | Kamasu-ka |
| Green job fish | <i>Aprion virescens</i> | Aochibiki |
| Blue marlin | <i>Makaira mazara</i> | Kurokajiki |
| Shortbill spearfish | <i>Tetrapturus angustirostris</i> | Huuraikajiki |
| Salmon mackerel | <i>Grammatorcynus bilineatus</i> | Nijohsaba |
| Spanish mackerel | <i>Scomberomorus commerson</i> | Yokoshimasawara |
| Wahoo | <i>Acanthocybium solandri</i> | Kamasusawara |

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(Tokai University)

Table 27. Nos and rate of appearance and average catch number when appeared by species caught in trolling operation.

| Species | Nos of appearance | Rate of appearance (%) | Average catch number |
|------------------|-------------------|------------------------|----------------------|
| Skipjack | 54 | 84.4 | 17.8 |
| Yellowfin tuna | 56 | 87.5 | 14.9 |
| Bigeye tuna | 1 | 1.6 | 3.0 |
| Dog tooth tuna | 5 | 7.8 | 2.4 |
| Mackerel tuna | 7 | 10.9 | 2.7 |
| Wahoo | 7 | 10.9 | 2.7 |
| Spanish mackerel | 3 | 4.7 | 1.0 |
| Blue marlin | 1 | 1.6 | 1.0 |
| Salmon mackerel | 3 | 4.7 | 3.3 |
| Dolphin fish | 21 | 32.8 | 1.9 |
| Rainbow runner | 39 | 60.9 | 10.3 |
| Barracudas | 9 | 14.1 | 2.1 |
| Green job fish | 2 | 3.1 | 2.5 |
| Requiem shark | 1 | 1.6 | 1.0 |

Table 28. Catch weight (Kg) by catch weight group and species caught in trolling operation.

| Catch weight | Over 120kg | | 50 ~120kg | | Less than 50kg | |
|------------------|---------------|------|-----------|------|----------------|------|
| | Nos operation | | 2 | | 1 4 | |
| Species | Weight | (%) | Weight | (%) | Weight | (%) |
| Skipjack | 1,562.8 | 27.5 | 623.0 | 31.1 | 133.9 | 33.3 |
| Yellowfin tuna | 2,846.7 | 50.1 | 1,051.7 | 52.5 | 176.9 | 43.9 |
| Bigeye tuna | 15.8 | 0.3 | — | — | — | — |
| Dog tooth tuna | 93.2 | 1.6 | 21.2 | 1.1 | — | — |
| Mackerel tuna | 3.2 | 0.1 | 17.1 | 0.9 | 10.0 | 2.5 |
| Wahoo | 103.0 | 1.8 | 17.2 | 0.9 | — | — |
| Spanish mackerel | 22.8 | 0.4 | 28.2 | 1.4 | — | — |
| Blue marlin | 47.0 | 0.8 | — | — | — | — |
| Salmon mackerel | 7.1 | 0.1 | 2.2 | 0.1 | — | — |
| Dolphin fish | 260.7 | 4.6 | 76.9 | 3.8 | 16.4 | 4.1 |
| Rainbow runner | 677.0 | 11.9 | 156.7 | 7.8 | 56 | 13.9 |
| Barracudas | 10.6 | 0.2 | 10.5 | 0.5 | 9 | 2.3 |
| Green job fish | 11.4 | 0.2 | — | — | — | — |
| Requiem shark | 16.7 | 0.3 | — | — | — | — |
| Total | 5,678.0 | | 2,004.7 | | 402.6 | |

Table 29. Nos of fishing operation by cruise and region in trolling operation.

| Area Cruise No. | North- ern Lau | Koro | South- ern Lau | Kadavu | Yasawa | Rotuma | Kia |
|--------------------|----------------------|------|----------------------|--------|--------|--------|-----|
| 1 | 5 | 3 | 6 | | | | |
| 2 | | 2 | 2 | 16 | | | |
| 3 | | | | 1 | 7 | 6 | 5 |
| 4 | 1 | 5 | | 3 | 1 | 1 | |
| Total | 6 | 10 | 8 | 20 | 8 | 7 | 5 |

Table 30. Nos of fishing operation by catch weight group and area in trolling operation.

| Area Catch weight | North- ern Lau | Koro | South- ern Lau | Kadavu | Yasawa | Rotuma | Kia |
|-------------------------|----------------------|------|----------------------|--------|--------|--------|-----|
| Over 120kg | 2 | 7 | 2 | 9 | 1 | 2 | 2 |
| 50~120kg | 2 | 2 | 6 | 8 | 5 | 2 | — |
| Less than 50 kg | 2 | 1 | — | 3 | 2 | 3 | 3 |
| Total | 6 | 10 | 8 | 20 | 8 | 7 | 5 |

Table 31. Catch weight (kg) by region in species caught in trolling operation.
 C ... Catch weight CPUE... Catch weight per one fishing hour (kg)

| Species | Northern Lau | | Koro | | Southern Lau | | Kadavu | | Yasawa | | Rotuma | | Kia | |
|------------------|--------------|------|--------|------|--------------|------|--------|------|--------|------|--------|-------|-------|------|
| | C | CPUE | C | CPUE | C | CPUE | C | CPUE | C | CPUE | C | CPUE | C | CPUE |
| Skipjack | 121.0 | 9.0 | 476.5 | 20.5 | 216.6 | 12.0 | 822.1 | 15.6 | 323.5 | 37.6 | 37.4 | 7.8 | 252.6 | 27.5 |
| Yellowfin tuna | 386.3 | 28.6 | 859.9 | 36.9 | 622.4 | 34.6 | 1096.7 | 20.8 | 304.5 | 35.4 | 445.3 | 92.8 | 360.5 | 39.2 |
| Bigeye tuna | | | 15.8 | 0.7 | | | | | | | | | | |
| Dog tooth tuna | 64.3 | 4.8 | | | | | 29.0 | 0.5 | | | 21.2 | 4.4 | | |
| Frigate mackerel | 1.0 | 0.1 | 1.0 | 0.1 | | | | | | | 22.5 | 4.7 | 5.8 | 0.6 |
| Wahoo | | | 23.7 | 1.0 | 7.0 | 0.4 | 32.0 | 0.6 | 7.0 | 0.8 | 58.5 | 12.2 | | |
| Spanish mackerel | 7.2 | 0.5 | 28.2 | 1.2 | | | 15.6 | 0.3 | | | | | | |
| Blue marlin | | | 47.0 | 2.0 | | | | | | | | | | |
| Salmon mackerel | 7.1 | 0.5 | 1.2 | 0.1 | | | | | | | 1.0 | 0.2 | | |
| Dolphine fish | 15.0 | 1.1 | 32.5 | 1.4 | 134.6 | 7.5 | 95.0 | 1.8 | 39.2 | 4.6 | | | 29.7 | 3.2 |
| Rainbow runner | 101.9 | 7.5 | 217.7 | 9.3 | 82.2 | 4.6 | 316.9 | 6.0 | 66.7 | 7.8 | 23.4 | 4.9 | 80.9 | 8.8 |
| Barracudas | 7.0 | 0.5 | | | | | 5.3 | 0.1 | 4.6 | 0.5 | 5.9 | 1.2 | 7.7 | 0.8 |
| Green job fish | 11.4 | 0.8 | | | | | | | | | | | | |
| Requiem shark | | | | | | | | | | | 16.7 | 3.5 | | |
| Total | 722.2 | 53.5 | 1703.5 | 73.2 | 1062.8 | 59.1 | 2412.6 | 45.7 | 745.5 | 86.7 | 631.9 | 131.7 | 737.2 | 80.1 |

Table 32. Comparative catch weight(Kg) in species caught in trolling operation by the inside and outside of the existing fishing ground.

CPUE -----Catch weight per one fishing hour (kg)

| Species | Inside of existing fishing ground | | Outside of existing fishing ground | |
|------------------|-----------------------------------|-------|------------------------------------|-------|
| | Catch weight (kg) | CPUE | Catch weight (kg) | CPUE |
| Skipjack | 1,644.4 | 16.30 | 675.3 | 21.44 |
| Yellowfin tuna | 3,105.3 | 30.78 | 970.0 | 30.79 |
| Bigeye tuna | 15.8 | 0.16 | — | — |
| Dog tooth tuna | 93.2 | 0.92 | 21.2 | 0.67 |
| Mackerel tuna | 7.8 | 0.08 | 22.5 | 0.72 |
| Wahoo | 54.7 | 0.54 | 65.5 | 2.08 |
| Spanish mackerel | 51.0 | 0.51 | — | — |
| Blue marlin | 47.0 | 0.47 | — | — |
| Salmon mackerel | 8.3 | 0.08 | 1.0 | 0.03 |
| Dolphin fish | 303.1 | 3.00 | 50.9 | 1.62 |
| Raibow runner | 835.9 | 8.28 | 53.8 | 1.71 |
| Barracudas | 20.0 | 0.20 | 10.5 | 0.33 |
| Green job fish | 11.4 | 0.11 | — | — |
| Requiem shark | — | — | 16.7 | 0.53 |
| Total | 6,197.9 | 61.43 | 1,887.4 | 59.92 |

Table 33. Catch weight(Kg), catch number and fishing details by cruise in species caught in surface gillnet operation.

| Cruise No. Duration | 1 Nov. 26. ~Dec. 22, 1984 | | 2 Dec. 23, 1984 ~Jan. 28, 1985 | | 3 Jan. 29~Feb. 25, 1985 | | 4 Feb. 26. ~Mar. 22, 1985 | | Total |
|---------------------------------|------------------------------|------------|-----------------------------------|------------|----------------------------|------------|------------------------------|------------|--------------|
| | Lau group | | Kadavu | | Rotuma and Yasawa | | Yasawa, Kadavu, Lau, Rotuma | | |
| Nos of day on the sea | 31 | | 36 | | 27 | | 32 | | 126 |
| Nos of operation day | 13 | | 22 | | 16 | | 8 | | 59 |
| Nos of operation | 13 | | 22 | | 17 | | 10 | | 62 |
| Nos of effective tan | 648 | | 1,199 | | 1,020 | | 600 | | 3,467 |
| Nos of effective tan per effort | 49.8 | | 57.1 | | 60 | | 60 | | 55.9 |
| Catch weight(Kg)per effort | 92.8 | | 43.9 | | 71.8 | | 27.8 | | 59.2 |
| Skipjack | 11.0 (11.9%) | | 4.6 (11.0%) | | 5.4 (7.5%) | | 0.3 (1.1%) | | 5.6 (9.4%) |
| % Yellowfin tuna | 5.7 (6.1%) | | 2.8 (6.4%) | | 9.5 (13.2%) | | 11.7 (41.9%) | | 6.7 (11.3%) |
| Requiem shark | 54.6 (58.8%) | | 7.2 (16.4%) | | 41.0 (57.1%) | | 9.3 (33.5%) | | 26.8 (45.2%) |
| Species | Nos | Weight(kg) | Nos | Weight(kg) | Nos | Weight(kg) | Nos | Weight(kg) | |
| Skipjack | 45 | 143.8 | 19 | 105.8 | 27 | 92.0 | 1 | 3.3 | 344.9 |
| Yellowfin tuna | 11 | 74.7 | 7 | 61.0 | 19 | 161.2 | 11 | 116.6 | 444.1 |
| Albacore | 1 | 13.5 | | | | | 1 | 13.5 | 13.5 |
| Mackerel tuna | 6 | 6.0 | 2 | 7.0 | 4 | 9.2 | | | 22.2 |
| Wahoo | 2 | 44.0 | | | | | | | 44.0 |
| Dipine fish | 3 | 31.0 | 1 | 8.5 | 2 | 10.8 | 4 | 28.7 | 79.0 |
| Rainbow runner | | | 1 | 2.5 | 1 | 2.6 | | | 5.1 |
| Barracudas | | | | | | 2.5 | | | 2.5 |
| Striped marlin | 2 | 219.0 | | | | | | | 219.0 |
| Swordfish | 2 | 255.0 | | | | | | | 255.0 |
| Shortbill spearfish | 1 | 13.0 | | | | | | | 13.0 |
| Pacific sailfish | 2 | 62.5 | | | | | 1 | 40.9 | 28.1 |
| Requiem shark | 17 | 709.5 | 5 | 159.2 | 36 | 697.5 | 6 | 93.1 | 1,659.3 |
| Hammerhead sharks | | | 1 | 60.0 | 1 | 125.0 | | | 185.0 |
| Thresher shark | | | 1 | 62.0 | | | | | 62.0 |
| Devil ray | 1 | 97.0 | | | | | | | 97.0 |
| Oblong-banded trevally | 3 | 11.2 | 10 | 22.3 | 27 | 72.5 | 1 | 1.8 | 107.8 |
| Mirrorfish | | | 1 | 2.6 | | | | | 2.6 |
| Triple tail | | | 1 | 1.8 | | | 3 | 6.7 | 8.5 |
| Milk fish | | | | | 1 | 6.8 | | | 6.8 |
| Pilot fish | 1 | 0.2 | | | | | | | 0.2 |
| Total | 93 | 1,206.4 | 54 | 967.6 | 120 | 1,221.0 | 27 | 278.3 | 3,673.3 |

Table 34. A list of species name caught in surface gillnet operation.

| <u>English name</u> | <u>Scientific name</u> | <u>Japanese name</u> |
|-------------------------|-----------------------------------|----------------------|
| Skipjack | <i>Katsuwonus pelamis</i> | Katsuo |
| Yellowfin tuna | <i>Thunnus albacares</i> | Kihada |
| Bigeye tuna | <i>T. obesus</i> | Mebachi |
| Mackerel tuna | <i>Euthynnus affinis</i> | Suma |
| Albacore | <i>Thunnus alalunga</i> | Binnaga |
| Pacific sailfish | <i>Istiophorus platypterus</i> | Bashoukajiki |
| Shortbill spearfish | <i>Tetrapturus angustirostris</i> | Huuraikajiki |
| Striped marlin | <i>Tetrapturus audax</i> | Makajiki |
| Black malin | <i>Makaira indica</i> | Shirokajiki |
| Swordfish | <i>Xiphias gladius</i> | Mekajiki |
| Requiem shark | <i>Carcharhinus plumbeus</i> | Mejirozame |
| Hammerhead sharks | <i>Sphyrna</i> sp | Shumokuzame |
| Thresher shark | <i>Alopias pelagicus</i> | Onagazame |
| Devil ray | <i>Mobula japonica</i> | Itomakiei |
| Milkfish | <i>Chanos chanos</i> | Sabahii |
| Barracudas | <i>Sphyraena</i> sp | Kamasu-ka |
| Pilot fish | <i>Naucrates ductor</i> | Burimodoki |
| Rainbow runner | <i>Elagatis bipinnulata</i> | Tsumuburi |
| Dusky jack | <i>Caranx sexfasciatus</i> | Gingameaji |
| Yellowfin jack | <i>C. ignobilis</i> | Rouninaji |
| Oblique-banded trevally | <i>Carangoides plagiotaenia</i> | Indokaiwari |
| Mirrorfish | <i>Alectis indicus</i> | Umazuraaaji |
| Pennant fish | <i>Alectis ciliaris</i> | Itohikiaji |
| Common dolphin | <i>Coryphaena hippurus</i> | Shiira |
| Triple tail | <i>Lobotes surinamensis</i> | Matsudai |
| Wahoo | <i>Acanthocybium solandri</i> | Kamasusawara |

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Table 35. Nos and rate of appearance and average catch number when appeared by species caught in surface gillnet operation.

| Species | Nos of appearance | Rate of appearance (%) | Average catch number |
|-------------------------|-------------------|------------------------|----------------------|
| Skipjack | 23 | 37.1 | 4.0 |
| Yellowfin tuna | 16 | 25.8 | 3.0 |
| Albacore | 1 | 1.6 | 1.0 |
| Mackerel tuna | 6 | 9.7 | 2.0 |
| Wahoo | 2 | 3.2 | 1.0 |
| Dolphine fish | 8 | 12.9 | 1.3 |
| Rainbow runner | 2 | 3.2 | 1.0 |
| Barracudas | 1 | 1.6 | 1.0 |
| Striped marlin | 2 | 3.2 | 1.0 |
| Swordfish | 2 | 3.2 | 1.0 |
| Shortbill spearfish | 1 | 1.6 | 1.0 |
| Pacific sailfish | 4 | 6.5 | 1.0 |
| Requiem shark | 16 | 25.8 | 4.0 |
| Hammerhead sharks | 2 | 3.2 | 1.0 |
| Thresher shark | 1 | 1.6 | 1.0 |
| Devil ray | 1 | 1.6 | 1.0 |
| Oblique-banded trevally | 10 | 16.1 | 4.1 |
| Mirrorfish | 1 | 1.6 | 1.0 |
| Tripple tail | 3 | 4.8 | 1.3 |
| Milk fish | 1 | 1.6 | 1.0 |
| Pilot fish | 2 | 3.2 | 1.0 |

Table 36. Catch weight(Kg) by catch weight group and species caught in surface gillnet operation.

| Species | Catch group | | 50 ~120Kg | | Less than 50 Kg | |
|-------------------------|---------------|------|-----------|------|-----------------|------|
| | Nos operation | | 8 | | 4 2 | |
| | Weight | (%) | Weight | (%) | Weight | (%) |
| Skipjack | 132.5 | 5.2 | 8.9 | 1.3 | 203.5 | 43.1 |
| Yellowfin tuna | 287.1 | 11.4 | 15.5 | 2.3 | 111.5 | 23.6 |
| Albacore | 13.5 | 0.5 | — | — | — | — |
| Mackerel tuna | 12.2 | 0.5 | — | — | 10.0 | 2.1 |
| Wahoo | 44.0 | 1.7 | — | — | — | — |
| Dolphine fish | 15.0 | 0.6 | 39.5 | 5.8 | 24.5 | 5.2 |
| Rainbow runner | 2.6 | 0.1 | 2.5 | 0.4 | — | — |
| Barracudas | 2.5 | 0.1 | — | — | — | — |
| Striped marlin | 120.0 | 4.8 | 99.0 | 14.6 | — | — |
| Swordfish | 255.0 | 10.1 | — | — | — | — |
| Shortbill spearfish | 13.0 | 0.5 | — | — | — | — |
| Pacific sailfish | 83.4 | 3.3 | 20.0 | 3.0 | 28.1 | 6.0 |
| Requiem shark | 1,227.5 | 48.6 | 369.3 | 54.6 | 62.5 | 13.2 |
| Hammerhead sharks | 125.0 | 5.0 | 60.0 | 8.9 | — | — |
| Thresher shark | — | — | 62.0 | 9.2 | — | — |
| Devil ray | 97.0 | 3.8 | — | — | — | — |
| Oblique-banded travally | 84.8 | 3.4 | — | — | 23.0 | 4.9 |
| Mirrorfish | 2.6 | 0.1 | — | — | — | — |
| Tripple tail | — | — | — | — | 8.5 | 1.8 |
| Milk fish | 6.8 | 0.3 | — | — | — | — |
| Pilot fish | 0.2 | — | — | — | 0.3 | 0.1 |
| Total | 2,524.7 | | 676.7 | | 471.9 | |

Table 37. Nos of operation by area catch weight group in surface gillnet operation.

| Area Catch weight | North- ern Lau | Koro | South- ern Lau | Kadavu | Yasawa | Rotuma | Kia |
|----------------------|----------------------|------|----------------------|--------|--------|--------|-----|
| Over 120 Kg | 1 | 2 | 4 | 1 | 1 | 2 | 1 |
| 50~120 Kg | 1 | — | 1 | 5 | 1 | — | — |
| Less than 50 Kg | 5 | 3 | 3 | 1 1 | 4 | 2 | 1 |
| Nothing | 1 | 1 | 3 | 3 | 1 | 2 | 2 |
| Total | 8 | 6 | 1 1 | 2 0 | 7 | 6 | 4 |

Table 38. Catch weight(Kg) by area in species caught in surface gillnet operation.

C ... Catch weight (Kg) CPUE... Catch weight per effort (kg)

| Species | Northen Lau | | Koro | | Southern Lau | | Kadavu | | Yasawa | | Rotuma | | Kia | |
|----------------------|-------------|------|-------|------|--------------|-------|--------|------|--------|------|--------|------|-------|------|
| | C | CPUE | C | CPUE | C | CPUE | C | CPUE | C | CPUE | C | CPUE | C | CPUE |
| Skipjack | 75.3 | 9.4 | 4.2 | 0.7 | 101.7 | 9.2 | 75.6 | 3.8 | 64.8 | 9.3 | 19.6 | 3.3 | 3.7 | 0.9 |
| Yellow fin tuna | 26. | 3.4 | 122.8 | 20.5 | 58.1 | 5.3 | 45.2 | 2.3 | 75.6 | 10.8 | 85.6 | 14.3 | | |
| Albacore | 13.5 | 1.7 | | | | | | | | | | | | |
| Frigate mackerel | | | | | 6.0 | 0.5 | 7.0 | 0.4 | | | | | 9.2 | 2.3 |
| Wahoo | 23.0 | 2.9 | | | 21.0 | 1.9 | | | | | | | | |
| Dolphine fish | 9.0 | 1.1 | 9.6 | 1.6 | 31.0 | 2.8 | 18.6 | 0.9 | 5.4 | 0.8 | | | 5.4 | 1.4 |
| Rainbow runner | | | | | | | 2.5 | 0.1 | | | | | 2.6 | 0.7 |
| Barracudas | | | | | | | | | | | | | 2.5 | 0.6 |
| Striped marlin | | | | | 120.0 | 10.9 | 99.0 | 5.0 | | | | | | |
| Swordfish | | | 125.0 | 20.8 | 130.0 | 11.8 | | | | | | | | |
| Shortbill spearfish | | | | | 13.0 | 1.2 | | | | | | | | |
| Pacific sailfish | 20.0 | 2.5 | 94.0 | 15.7 | 42.5 | 3.9 | | | 28.1 | 4.0 | | | 40.9 | 10.2 |
| Requiem shark | 90.5 | 11.3 | | | 625.0 | 56.8 | 134.2 | 6.7 | 310.0 | 44.3 | 254.6 | 42.4 | 151.0 | 37.8 |
| Hammerhead sharks | | | | | | | 185.0 | 9.3 | | | | | | |
| Thresher shark | | | | | | | 62.0 | 3.1 | | | | | | |
| Devil ray | 97.0 | 12.1 | 7.2 | 1.2 | | | | | | | | | | |
| Obliqueband travally | 4.0 | 0.5 | 3.4 | 0.6 | 7.2 | 0.7 | 13.5 | 0.7 | 4.8 | 0.7 | | | 67.7 | 16.9 |
| Mirrorfish | | | 2.6 | 0.4 | | | | | | | | | | |
| Tripple tail | | | 1.7 | 0.3 | | | 6.8 | 0.3 | | | | | | |
| Milk fish | | | | | | | | | | | | | 6.8 | 1.7 |
| Pilot fish | | | | | | | 0.5 | 0.0 | | | | | | |
| Total | 359.3 | 44.9 | 370.5 | 61.8 | 1155.5 | 105.0 | 649.9 | 32.5 | 488.7 | 69.8 | 359.8 | 60.0 | 289.8 | 72.5 |

Table 39. Relationship between catch weight(Kg) and the transparency of water in surface gillnet operation in the waters of Fiji.

| Transparency | Nos of operation | Catch weight(Kg) | Average | Standard deviation |
|--------------|------------------|------------------|---------|--------------------|
| 1 7 | 1 | 577.6 | | |
| 2 0 | 1 | 26.5 | | |
| 2 3 | 1 | 16.0 | | |
| 2 4 | 5 | 524.2 | 104.8 | 252.08 |
| 2 5 | 8 | 682.8 | 85.4 | 240.51 |
| 2 6 | 7 | 344.1 | 49.2 | 173.12 |
| 2 7 | 5 | 236.2 | 47.2 | 104.32 |
| 2 8 | 6 | 173.9 | 29.0 | 74.87 |
| 2 9 | 1 | 14.6 | | |
| 3 0 | 1 7 | 714.5 | 42.0 | 209.07 |
| 3 1 | 2 | 6.8 | 3.4 | 4.38 |
| 3 2 | 1 | 0 | | |
| 3 3 | 1 | 161.2 | | |
| 3 4 | 3 | 19.8 | 6.6 | 15.93 |
| 3 5 | 3 | 156.9 | 52.3 | 115.61 |

Table 40. Comparison catch weight(Kg) by species caught in surface gillnet operation with the inside and outside of the existing fishing ground

| Species | Inside | | Outside | |
|-------------------------|-------------------|-----------------------|-------------------|-----------------------|
| | Catch weight (Kg) | Catch per effort (Kg) | Catch weight (Kg) | Catch per effort (Kg) |
| Skipjack | 211.3 | 5.28 | 133.6 | 6.07 |
| Yellowfin tuna | 266.4 | 6.66 | 147.7 | 6.71 |
| Bigeye tuna | 13.5 | 0.34 | — | — |
| Mackerel tuna | 17.2 | 0.43 | 5.0 | 0.23 |
| Wahoo | 23.0 | 0.58 | 21.0 | 0.95 |
| Dolphin fish | 73.6 | 1.84 | 5.4 | 0.25 |
| Rainbow runner | 2.6 | 0.06 | 2.5 | 0.11 |
| Barracudas | 2.5 | 0.06 | — | — |
| Striped marlin | — | — | 219.0 | 9.95 |
| Swordfish | 125.0 | 3.13 | 130.0 | 5.91 |
| Shortbill spearfish | — | — | 13.0 | 0.59 |
| Pacific sailfish | 131.5 | 3.29 | — | — |
| Requiem shark | 1,096.7 | 27.42 | 562.6 | 25.57 |
| Hammerhead sharks | 185.0 | 4.63 | — | — |
| Thresher shark | 62.0 | 1.55 | — | — |
| Devil ray | 97.0 | 2.43 | — | — |
| Oblique-banded trevally | 107.8 | 2.69 | — | — |
| Mirrorfish | 2.6 | 0.06 | — | — |
| Tripple tail | 8.5 | 0.21 | — | — |
| Milkfish | 6.8 | 0.17 | — | — |
| Pilot fish | 0.2 | 0.01 | 0.3 | 0.01 |
| Total | 2,433.2 | 60.83 | 1,240.1 | 56.37 |

Table 41-(1). A list of species name caught in bottom-line operation.

| <u>English name</u> | <u>Scientific name</u> | <u>Japanese name</u> |
|------------------------|-------------------------------------|-----------------------|
| Ribbon tail | <i>Etelis coruscans</i> | Hamadai |
| Short tail | <i>E. radiosus</i> | Ooguchihamadai |
| Red snapper | <i>E. carbunculus</i> | Hachijouakamutsu |
| Red job fish | <i>Aphareus rutilans</i> | Oogutiishichibiki |
| Red tail opakapaka | <i>Pristipomoides filamentosus</i> | Oohime |
| Yellowfinned opakapaka | <i>P. flavipinnis</i> | Kinmehimedai |
| Kusakar's snapper | <i>Paracaesio kusakarii</i> | Shimaaodai |
| Stone's snapper | <i>P. stonei</i> | Yanbarushimaaodai |
| Curve banded grouper | <i>Epinephelus morrhua</i> | Kakehashihata |
| Sevenbanded grouper | <i>E. septemfasciatus</i> | Mahata |
| Broad alfonsino | <i>Beryx decadactylus</i> | Nanyoukinme |
| Cow shark | <i>Hexanchus griseus</i> | Kagurazame |
| Sevengilled shark | <i>Heptanchias perlo</i> | Edoaburazame |
| Swell shark | <i>Cephaloscyllium umbratile</i> | Nanukazame |
| Salamander shark | <i>Parmaturus pilosus</i> | Imorizame |
| Gummy shark | <i>Mustelus manazo</i> | Hoshizame |
| Japanese gray shark | <i>Hemitriakis japonica</i> | Eirakubuka |
| Whitetip bound shark | <i>Triaenodon obesus</i> | Nemurihuka |
| Whitetip shark | <i>Carcharhinus albimarginatus</i> | Tsumajiro |
| Sorraha shark | <i>C. sorrah</i> | Houraizame |
| Requiem shark | <i>C. plumbeus</i> | Mejirozame |
| Requiem sharks | <i>C. obscurus</i> | Dotabuka |
| Scalloped hammerhead | <i>Sphyrna lewini</i> | Akashumokuzame |
| White shark | <i>Carcharodon carcharias</i> | Hohojirozame |
| Spiny shark | <i>Etmopterus lucifer</i> | Hujikujira |
| Lantern shark | <i>E. pusillus</i> | Karasuzame |
| Dogfish sharks | <i>Squalus blainville</i> | Hiretakatunozame |
| Dogfish shark | <i>S. mitsukurii</i> | Hutotsunozame |
| Barbed spiny dogfish | <i>Cirrhigaleus barbifer</i> | Higetsunozame |
| Granulose shark | <i>Centrophorus atramarginatus</i> | Aizame |
| Round rays | <i>Urotrygon daviesi</i> | Usuei |
| Sting ray | <i>Dasyatis akajei</i> | Akaei |
| Richardson's moray | <i>Gymnothorax</i> sp | Okinoshimautsubo |
| Whitespotted moray | <i>G. neglectus</i> | Hizoreutsubo |
| Moray eels | <i>Gymnothorax</i> sp | Utsubo-ka utsubo-zoku |
| Beach conger | <i>Conger japonicus</i> | Kuroanago |
| Bucktooth conger | <i>Gnathophis nystromi ginanago</i> | Niseginanago |
| Pike eel | <i>Muraenesox cinereus</i> | Hamo |
| Morid cods | <i>Physiculus</i> sp | Tigodara |
| Bighand grenadier | <i>Abyssicola macrochir</i> | Tenagadara |
| Alfonsino | <i>Beryx splendens</i> | Kinmedai |
| Hardscale soldierfish | <i>Ostichthys japonicus</i> | Ebisudai |
| Soldierfishes | <i>O. archiepiscopus</i> | Okiebisu |
| Beardfishes | <i>Polymixia</i> sp | Ginmedai-ka |
| Giant barracuda | <i>Sphyrnaena barracuda</i> | Onikamasu |
| Slender sea pike | <i>S. putnamiae</i> | Ookamasu |
| Forsters barracuda | <i>S. forsteri</i> | Oomekamasu |
| Temperate basses | <i>Neoscombrops pacificus</i> | Bakamutsu |

Table 41-(2). Continued

| <u>English name</u> | <u>Scientific name</u> | <u>Japanese name</u> |
|----------------------------|------------------------------------|-------------------------------|
| Rockcods | <i>Variola albimarginatus</i> | Ojirobarahata |
| Purple rockcod | <i>Epinephelus cynopodus</i> | Hata-ka |
| Brownspotted reefcod | <i>E. chlorostigma</i> | Housekihata |
| Black-axil goggle eye | <i>Priacanthus</i> sp | Minamikintoki |
| Longfinned bullseye | <i>Cookeolus boops</i> | Chikamekintoki |
| Rainbow runner | <i>Elagatis bipinnulata</i> | Tsumuburi |
| Amberjack | <i>Seriola dumerili</i> | Kanpachi |
| Longfinned amberjack | <i>S. rivoliana</i> | Hirenagakanpachi |
| Dusky jack | <i>Caranx</i> sp | Aji-ka gingameaji-zoku |
| Yellowfin jack | <i>Caranx ignobilis</i> | Rouninaji |
| Bronze trevally | <i>Carangoides ferdau</i> | Kurohiraaji |
| Sweeper pomfret | <i>Eumegistus illustris</i> | Tikameetiopia |
| Crimson snapper | <i>Pristipomoides sieboldii</i> | Himedai |
| Yellowfin fusiform snapper | <i>P. auricilla</i> | Kimadarahimedai |
| Obliquebanded snapper | <i>Tropidinius zonatus</i> | Shimachibiki |
| Flower jobfish | <i>T. amoenus</i> | Hanafuedai |
| Snappers | <i>Randallichthys filamentosus</i> | Bakeakamutu |
| Snappers | <i>Paracaesio gonzalesi</i> | Huedai-ka aodai-zoku |
| Yellow roundhead snapper | <i>P. xanthurus</i> | Umeiro |
| Mangrove jack | <i>Lutjanus argentimaculatus</i> | Gomafuedai |
| Twospot red snapper | <i>L. bohar</i> | Barafuedai |
| Maori sea perch | <i>L. rivulatus</i> | Namifuedai |
| Onespot sea perch | <i>L. monostigma</i> | Ittenfuedai |
| Blood red snapper | <i>L. malabaricus</i> | Fuedai-ka |
| Blue and yellow snapper | <i>L. kasmira</i> | Yosujifuedai |
| Grunt | <i>Plectrorhynchus picus</i> | Ajiakoshoudai |
| Large eye bream | <i>Wattsia mossambica</i> | Kokenokogiri |
| Emperors | <i>Lethrinus</i> sp | Fuefukidai-ka fuefukidai-zoku |
| Variegated pigface bream | <i>Lethrinus rubrioperculatus</i> | Hooakakutibi |
| Dog tooth tuna | <i>Gymnosarda unicolor</i> | Isomaguro |
| Yellowfin tuna | <i>Thunnus albacares</i> | Kihada |
| Bigeye tuna | <i>T. obesus</i> | Mebati |
| Sackfish | <i>Neopinnula orientalis</i> | Touyoukamasu |
| Snake mackerel | <i>Tongaichthys robustus</i> | Kurotachikamasu-ka |
| King barracuda | <i>Rexea prometheoides</i> | Kagokamasu |
| Snake mackarel | <i>Promethichythus prometheus</i> | Kuroshibikamasu |
| Snake mackerel | <i>Thyrsooides marleyi</i> | Nagatachikamasu |
| Oilfish | <i>Ruvettus pretiosus</i> | Baramutsu |
| Deep sea bream | <i>Hyperoglyphe antarctica</i> | Minamimedai |
| Evermannsnoeid fish | <i>Arionna evermanni</i> | Nagamedai |
| Yellow barred red rockfish | <i>Sebastes albobasclatus</i> | Ayamekasago |
| Red scorpion fish | <i>Pontinus macropterus</i> | Hiodoshi |
| Spotted longhorn searobin | <i>Pterygotrigla multiocellata</i> | Onisokohoubou |
| Threetooth puffer | <i>Triodon macropterus</i> | Uchiwafugu |
| Kingcrabs | <i>Lithodes</i> sp | Ibaragani-ru |

Reference--- The Fishes of the Japanese Archipelago (Tokai University).
Hyperoglyphe artarcfica and Fiji Fisheries Division.

Table 42. Catch weight(Kg), catch number and fishing details by cruise in species caught in bottom line operation.

| Cruise No. | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | TOTAL | |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|
| | Nos. | Weight | Nos. | Weight | Nos. | Weight | Nos. | Weight | Nos. | Weight | Nos. | Weight | Nos. | Weight | Nos. | Weight | Nos. | Weight | | |
| Nos. of operation | 6 | 5 | 11 | | 4 | 8 | | | 8 | | 7 | | | 8 | | 7 | | 8 | 70 | |
| Time taken for setting | 02h-05a | 03h-00m | 02h-55a | 02h-55a | 01h-50m | 03h-30m | 03h-10m | 03h-20m | 03h-20m | 03h-30m | 17h-50m | 17h-50m | 18h-10m | 18h-10m | 19h-30m | 02h-30m | 03h-10h | 03h-10h | 25h-15a | |
| Time taken for hauling | 11h-05m | 16h-35m | 13h-15m | 20h-40m | 11h-40m | 17h-50m | 20h-40m | 20h-40m | 11h-40m | 17h-50m | 41h-20m | 41h-20m | 39h-10m | 39h-10m | 37h-15m | 37h-15m | 41h-10m | 41h-10m | 154h-35a | |
| Soaking time | 17h-05m | 28h-10m | 30h-00m | 39h-35m | 18h-55m | 41h-20m | 39h-35m | 39h-35m | 18h-55m | 41h-20m | 799 | 799 | 758 | 758 | 704 | 704 | 800 | 800 | 293h-10m | |
| Nos. of bachi | 340 | 536 | 533 | 682 | 349 | 799 | 682 | 682 | 349 | 799 | 11370 | 11370 | 8819 | 8819 | 10560 | 10560 | 12000 | 12000 | 92370 | |
| Nos. of hook | 6800 | 10720 | 10660 | 13040 | 5295 | 11985 | 13040 | 13040 | 5295 | 11985 | 7165 | 7165 | 6482 | 6482 | 6482 | 6482 | 8819 | 8819 | 53218 | |
| Nos. of effective hook | 2480 | 5330 | 5420 | 6590 | 3223 | 7909 | 6590 | 6590 | 3223 | 7909 | 38.1 | 38.1 | 48.4 | 48.4 | 48.4 | 48.4 | 82.7 | 82.7 | 57.6 | |
| Ratio to effective hook (%) | 32.2 | 37.1 | 39.2 | 32.3 | 58.5 | 54.0 | 32.3 | 32.3 | 58.5 | 54.0 | 76.9 | 76.9 | 82.7 | 82.7 | 82.7 | 82.7 | 88.7 | 88.7 | 88.7 | |
| Max | 39.7 | 58.9 | 69.5 | 63.6 | 63.8 | 86.5 | 63.6 | 63.6 | 63.8 | 86.5 | 63.6 | 63.6 | 82.7 | 82.7 | 82.7 | 82.7 | 88.7 | 88.7 | 88.7 | |
| Ave | 36.2 | 49.7 | 50.5 | 61.7 | 61.7 | 66.0 | 61.7 | 61.7 | 61.7 | 66.0 | 63.6 | 63.6 | 61.5 | 61.5 | 61.5 | 61.5 | 73.5 | 73.5 | 57.6 | |
| Hooking rate | 0.15 | 0.19 | 0.09 | 0.11 | 0.18 | 0.08 | 0.11 | 0.11 | 0.18 | 0.08 | 0.05 | 0.08 | 0.05 | 0.05 | 0.08 | 0.08 | 0.14 | 0.14 | 0.11 | |
| Species name | Catches | | 0.19 | | 0.09 | | 0.11 | | 0.18 | | 0.08 | | 0.05 | | 0.08 | | 0.14 | | 0.11 | |
| Ribbon tail | 138 | 599 | 225 | 764 | 41 | 200 | 199 | 760 | 344 | 1453 | 27 | 127 | 32 | 131 | 99 | 407 | 473 | 1585 | 1578 | 6026 |
| Short tail | 40 | 241 | 23 | 90 | 12 | 52 | 18 | 94 | | | 1 | 4 | | | 19 | 88 | 30 | 201 | 143 | 770 |
| Red snapper | 50 | 404 | 133 | 971 | 51 | 275 | 146 | 976 | 26 | 274 | 57 | 280 | 40 | 196 | 101 | 521 | 151 | 722 | 755 | 4619 |
| Red job fish | 9 | 56 | 54 | 197 | 29 | 152 | 42 | 167 | 7 | 21 | 7 | 21 | 3 | 5 | | | 15 | 77 | 159 | 677 |
| Broad alfonsino | 11 | 22 | 1 | 4 | 4 | 10 | 3 | 7 | 42 | 96 | 5 | 9 | 4 | 7 | 17 | 28 | 4 | 8 | 91 | 191 |
| Bedfords | 64 | 149 | 136 | 418 | 20 | 48 | 119 | 333 | | | | | 17 | 45 | 91 | 251 | 147 | 469 | 594 | 1713 |
| Other snappers | 16 | 18 | 163 | 274 | 64 | 101 | 16 | 18 | 20 | 105 | 184 | 385 | 62 | 68 | 39 | 49 | 105 | 114 | 669 | 1132 |
| Large eye bream | 14 | 29 | 23 | 70 | 22 | 36 | 22 | 43 | | | 10 | 19 | 14 | 20 | 8 | 15 | 34 | 74 | 147 | 306 |
| Other emperors | | | 2 | 11 | 1 | 16 | | | | | 7 | 9 | | | | | | | 10 | 26 |
| Amberjack | | | 51 | 297 | 4 | 11 | 3 | 31 | | | 5 | 33 | 2 | 13 | 1 | 7 | 14 | 105 | 80 | 497 |
| Other jacks | 4 | 24 | | | 1 | 4 | | | | | 105 | 357 | 6 | 21 | | | 1 | 7 | 117 | 413 |
| Sweeper pomfret | | | 35 | 188 | 9 | 46 | 31 | 157 | 101 | 267 | 1 | 5 | 6 | 41 | 7 | 38 | 3 | 15 | 193 | 757 |
| Cow sharks | | | | | | | 2 | 36 | | | 2 | 22 | | | 1 | 11 | 1 | 5 | 6 | 74 |
| Smooth dogfishes | | | 3 | 10 | 4 | 20 | 2 | 4 | | | 1 | 2 | 2 | 4 | 3 | 17 | 9 | 37 | 24 | 94 |
| Dogfish sharks | 7 | 33 | 82 | 212 | 15 | 57 | 28 | 134 | 6 | 12 | 41 | 301 | 18 | 131 | 39 | 173 | 110 | 336 | 346 | 1389 |
| Other sharks | | | 3 | 26 | 11 | 194 | 1 | 60 | 2 | 53 | 14 | 241 | 5 | 51 | 3 | 41 | | | 39 | 666 |
| Sea basses | 2 | 57 | 14 | 144 | 4 | 126 | 6 | 147 | | | 30 | 95 | 12 | 33 | 2 | 45 | 44 | 569 | 114 | 1216 |
| Tunas | 4 | 35 | 4 | 22 | 1 | 10 | 1 | 13 | 9 | 80 | 25 | 161 | 18 | 113 | 19 | 184 | 8 | 90 | 89 | 708 |
| Other species | 15 | 38 | 64 | 222 | 191 | 399 | 71 | 148 | 45 | 60 | 94 | 397 | 83 | 136 | 81 | 202 | 55 | 229 | 633 | 1531 |
| TOTAL | 374 | 1707 | 1016 | 3920 | 484 | 1747 | 710 | 3128 | 595 | 2400 | 616 | 2468 | 324 | 1015 | 530 | 2077 | 1204 | 4643 | 5853 | 23105 |

Table 43. Nos of bottom line operation by catch weight group and area.

| Catch weight group | Area North- ern Lau | Koro | South- ern Lau | Kadavu | Yasawa | Kia | Rotuma | Tuvalu South | Tuvalu North | Total |
|--------------------|------------------------------|------|----------------------|--------|--------|-----|--------|-----------------|-----------------|-------|
| Less than 200Kg | 3 | 2 | 1 | 1 | 4 | 1 | 6 | 3 | — | 21 |
| 200 ~ 399 kg | 6 | 3 | 4 | 2 | 1 | 1 | 1 | 6 | 2 | 26 |
| 400 ~ 599 kg | 4 | 3 | 4 | — | — | 3 | — | 2 | — | 16 |
| Over 600 Kg | 1 | — | 4 | — | — | — | — | — | 2 | 7 |
| Total | 14 | 8 | 13 | 3 | 5 | 5 | 7 | 11 | 4 | 70 |

Table 44-(1) Catch weight(Kg), average catch weight and catch weight composition by area in bottom line operation.

C.....Catch weight CPUE.....Catch weight per effort(Kg) P...Species composition (%)

| Species | Northern Lau | | | Koro | | | Southern Lau | | | Kadavu | | | Yasawa | | | Kia | | | |
|----------------------|--------------|-------|------|-------|-------|------|--------------|-------|------|--------|-------|------|--------|-------|------|-------|-------|------|---|
| | C | CPUE | P | C | CPUE | P | C | CPUE | P | C | CPUE | P | C | CPUE | P | C | CPUE | P | |
| Ribbon tail | 1,293 | 88.1 | 24.2 | 568 | 71.0 | 22.0 | 1,999 | 153.8 | 32.5 | 126 | 42.0 | 19.7 | 57 | 11.4 | 7.0 | 328 | 65.6 | 19.1 | |
| Short tail | 334 | 23.9 | 6.6 | 104 | 13.0 | 4.0 | 203 | 15.6 | 3.3 | 14 | 4.7 | 2.2 | 9 | 1.8 | 1.1 | 95 | 19.0 | 5.5 | |
| Red snapper | 2,082 | 147.3 | 40.5 | 897 | 112.1 | 34.7 | 378 | 29.1 | 6.2 | 83 | 27.7 | 13.0 | 190 | 38.0 | 23.2 | 186 | 37.2 | 10.8 | |
| Red job fish | 87 | 6.2 | 1.7 | 120 | 15.0 | 4.6 | 250 | 19.2 | 4.1 | 34 | 11.3 | 5.3 | 5 | 1.0 | 0.6 | 155 | 31.0 | 9.0 | |
| Broad alfonsino | 22 | 1.6 | 0.4 | 12 | 1.5 | 0.5 | 8 | 0.6 | 0.1 | — | — | — | 10 | 2.0 | 1.2 | 1 | 0.2 | 0.1 | |
| Bedfords | 505 | 36.1 | 9.9 | 111 | 13.9 | 4.3 | 641 | 49.3 | 10.4 | 46 | 15.3 | 7.2 | — | — | — | 365 | 73.0 | 21.2 | |
| Other snappers | 39 | 2.8 | 0.8 | 21 | 2.6 | 0.8 | 379 | 29.2 | 6.2 | 42 | 14.0 | 6.6 | 47 | 9.4 | 5.7 | 42 | 8.4 | 2.4 | |
| Large eye bream | 111 | 7.9 | 2.2 | 26 | 3.3 | 1.0 | 85 | 6.5 | 1.4 | 15 | 5.0 | 2.4 | — | — | — | 30 | 6.0 | 1.7 | |
| Other emperors | — | — | — | — | — | — | 11 | 0.8 | 0.2 | — | — | — | 6 | 1.2 | 0.7 | — | — | — | |
| Longfinned amberjack | 55 | 3.9 | 1.1 | — | — | — | 378 | 29.1 | 6.1 | 11 | 3.6 | 1.7 | — | — | — | 7 | 1.4 | 0.4 | |
| Other jacks | 24 | 1.7 | 0.5 | — | — | — | 7 | 0.5 | 0.1 | — | — | — | 4 | 0.8 | 0.5 | — | — | — | |
| Sweeper pomfret | 62 | 4.4 | 1.2 | 178 | 22.2 | 6.9 | 153 | 11.8 | 2.5 | 6 | 2.0 | 0.9 | 40 | 8.0 | 4.9 | 5 | 1.0 | 0.3 | |
| Cow sharks | 31 | 2.2 | 0.6 | 16 | 2.0 | 0.6 | 5 | 0.4 | 0.1 | — | — | — | — | — | — | — | — | — | |
| Smooth dogfishes | 17 | 1.2 | 0.3 | — | — | — | 47 | 3.6 | 0.8 | — | — | — | 20 | 4.0 | 2.5 | 4 | 0.8 | 0.2 | |
| Dogfish sharks | 122 | 8.7 | 2.4 | 157 | 19.6 | 6.1 | 539 | 41.5 | 8.8 | — | — | — | 53 | 10.0 | 6.5 | 33 | 6.6 | 1.9 | |
| Other sharks | — | — | — | 75 | 9.4 | 2.9 | 26 | 2.0 | 0.4 | 80 | 26.7 | 12.5 | 39 | 7.8 | 4.8 | 99 | 19.8 | 5.7 | |
| Sea basses | 150 | 10.7 | 2.9 | 39 | 4.9 | 1.5 | 638 | 49.1 | 10.4 | 66 | 22.0 | 10.3 | 60 | 12.0 | 7.3 | 135 | 27.0 | 7.8 | |
| Tunas | 53 | 3.8 | 1.0 | 7 | 0.9 | 0.3 | 104 | 8.0 | 1.7 | — | — | — | 10 | 2.0 | 1.2 | 175 | 35.0 | 10.2 | |
| Other fishes | 187 | 13.4 | 3.7 | 254 | 31.7 | 9.8 | 294 | 22.6 | 4.8 | 116 | 38.7 | 18.2 | 269 | 53.8 | 32.8 | 62 | 12.4 | 3.6 | |
| Red king crabs | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Total | 5,094 | 363.9 | — | 2,585 | 323.1 | — | 6,145 | 472.7 | — | 639 | 213.0 | — | 819 | 163.8 | — | 1,722 | 344.4 | — | |
| Nos of operation | — | — | 1 4 | — | — | 8 | — | — | 1 3 | — | — | 3 | — | — | 5 | — | — | — | 5 |

Table 44-(2) Continued.

| Species | Region | | Rotuma | | Tuvalu, South | | | Tuvalu, North | | |
|----------------------|--------|-------|--------|---|---------------|-------|------|---------------|-------|------|
| | C | CPUE | CPUE | P | C | CPUE | P | C | CPUE | P |
| Ribbon tail | 117 | 16.7 | 11.5 | | 145 | 13.2 | 5.4 | 1,453 | 363.2 | 60.5 |
| Short tail | 7 | 1.0 | 0.7 | | 4 | 0.4 | 0.1 | | | |
| Red snapper | 229 | 32.7 | 22.5 | | 320 | 29.1 | 11.9 | 274 | 68.5 | 11.4 |
| Red job fish | 2 | 0.3 | 0.2 | | 24 | 2.2 | 0.9 | | | |
| Broad alfonfino | 30 | 4.3 | 3.0 | | 12 | 1.1 | 0.4 | 96 | 24.0 | 4.0 |
| Bedfords | 45 | 6.4 | 4.4 | | | | | | | |
| Other snappers | 35 | 5.0 | 3.4 | | 422 | 38.4 | 15.7 | 105 | 26.3 | 4.4 |
| Large eye bream | 11 | 1.6 | 1.1 | | 28 | 2.5 | 1.0 | | | |
| Other emperors | | | | | 9 | 0.8 | 0.3 | | | |
| Longfinned amberjack | 7 | 1.0 | 0.7 | | 39 | 3.5 | 1.5 | | | |
| Other jacks | 10 | 1.4 | 1.0 | | 368 | 33.4 | 13.7 | | | |
| Sweeper pomfret | 34 | 4.9 | 3.3 | | 12 | 1.1 | 0.4 | 267 | 66.7 | 11.1 |
| Cow sharks | | | | | 22 | 2.0 | 0.8 | | | |
| Smooth dogfishes | 4 | 0.6 | 0.4 | | 2 | 0.2 | 0.1 | | | |
| Dogfish sharks | 139 | 19.8 | 13.7 | | 334 | 30.4 | 12.4 | 12 | 3.0 | 0.5 |
| Other sharks | 48 | 6.8 | 4.7 | | 246 | 22.4 | 9.2 | 53 | 13.3 | 2.2 |
| Sea basses | | | | | 128 | 11.6 | 4.8 | | | |
| Tunas | 116 | 16.6 | 11.4 | | 163 | 14.8 | 6.1 | 80 | 20.0 | 3.3 |
| Other fishes | 182 | 26.0 | 17.9 | | 407 | 37.0 | 15.2 | 59 | 14.8 | 2.5 |
| Red king crabs | | | | | | | | 1 | 0.2 | 0.0 |
| Total | 1,016 | 145.1 | | | 2,685 | 244.1 | | 2,400 | 600.0 | |
| Nos of operation | | 7 | | | | 11 | | | 4 | |

Table 45. Catch weight(Kg), catch number and catch species composition by catch weight group in bottom line operation.

C1...Catch number C2...Catch weight CPUE...Catch weight per effort
P... Percentage (%)

| Species | Less than 200 Kg | | | | | | 400 ~ 599 k g | | | | | | Over 600 k g | | | | | |
|----------------------|------------------|---------|-------|------|---------|---------|---------------|------|---------|---------|-------|------|--------------|---------|-------|------|--|--|
| | C1 | C2 | CPUE | P | C1 | C2 | CPUE | P | C1 | C2 | CPUE | P | C1 | C2 | CPUE | P | | |
| Ribbon tail | 8 6 | 3 3 4 | 15.9 | 13.7 | 3 7 7 | 1 5 2 1 | 58.5 | 20.3 | 5 3 6 | 1 9 1 9 | 119.9 | 24.8 | 5 7 9 | 2 2 5 2 | 321.7 | 41.2 | | |
| Short tail | 2 1 | 1 4 5 | 6.9 | 5.9 | 5 0 | 2 5 4 | 9.8 | 3.4 | 3 7 | 1 8 3 | 11.4 | 2.4 | 3 5 | 1 8 8 | 26.9 | 3.4 | | |
| Red snapper | 1 0 2 | 4 8 0 | 22.9 | 19.6 | 2 3 2 | 1 4 6 9 | 56.5 | 19.7 | 2 7 6 | 1 7 2 0 | 107.5 | 22.3 | 1 4 5 | 9 5 0 | 135.7 | 17.3 | | |
| Red job fish | 4 | 1 2 | 0.6 | 0.5 | 6 0 | 2 9 1 | 11.2 | 3.9 | 5 4 | 2 0 3 | 12.7 | 2.6 | 4 1 | 1 7 1 | 24.4 | 3.1 | | |
| Broad alfonfino | 2 3 | 4 2 | 2.0 | 1.7 | 2 2 | 4 2 | 1.6 | 0.6 | 1 1 | 2 2 | 1.4 | 0.3 | 6 2 | 1 5 0 | 21.4 | 2.7 | | |
| Bedfords | 5 | 1 0 | 0.5 | 0.4 | 2 1 8 | 6 3 3 | 24.3 | 8.5 | 2 9 7 | 8 2 8 | 51.7 | 10.7 | 5 1 | 1 8 1 | 25.9 | 3.3 | | |
| Other snappers | 1 0 0 | 1 2 2 | 5.8 | 5.0 | 1 8 6 | 2 8 8 | 11.1 | 3.8 | 2 2 1 | 3 9 5 | 24.7 | 5.1 | 1 6 1 | 3 3 1 | 47.3 | 6.1 | | |
| Large eye bream | 1 6 | 2 3 | 1.1 | 0.9 | 6 3 | 1 1 9 | 4.6 | 1.6 | 6 4 | 1 5 3 | 9.6 | 2.0 | 1 | 3 | 0.4 | 0.1 | | |
| Other emperors | 1 | 6 | 0.3 | 0.2 | 7 | 9 | 0.3 | 0.1 | 2 | 1 1 | 0.7 | 0.1 | 1 | 7 | 1.0 | 0.1 | | |
| Longfinned amberjack | 3 | 1 9 | 0.9 | 0.8 | 1 1 | 6 8 | 2.6 | 0.9 | 1 5 | 8 3 | 5.2 | 1.1 | 5 0 | 3 2 0 | 45.7 | 5.9 | | |
| Other jacks | 5 | 1 6 | 0.8 | 0.7 | 3 0 | 8 9 | 3.4 | 1.2 | 8 2 | 3 0 8 | 19.2 | 4.0 | 6 | 3 3 | 4.7 | 0.6 | | |
| Sweeper pomfret | 3 6 | 1 9 9 | 9.5 | 8.2 | 7 6 | 2 7 9 | 10.7 | 3.7 | 2 1 | 1 1 0 | 6.9 | 1.4 | 5 4 | 1 3 6 | 19.4 | 2.5 | | |
| Cow sharks | 1 | 1 1 | 0.5 | 0.5 | 2 | 2 2 | 0.8 | 0.3 | 3 | 4 1 | 2.6 | 0.5 | — | — | — | — | | |
| Smooth dogfish | 7 | 2 8 | 1.3 | 1.1 | 5 | 2 1 | 0.8 | 0.3 | 7 | 2 5 | 1.6 | 0.3 | 5 | 2 0 | 2.9 | 0.4 | | |
| Dogfish sharks | 5 2 | 2 9 0 | 13.8 | 11.9 | 1 2 7 | 5 6 6 | 21.8 | 7.6 | 1 2 7 | 3 8 7 | 24.2 | 5.0 | 4 0 | 1 4 6 | 20.9 | 2.7 | | |
| Other sharks | 1 3 | 7 3 | 3.5 | 3.0 | 1 8 | 4 4 7 | 17.2 | 6.0 | 6 | 9 3 | 5.8 | 1.2 | 2 | 5 3 | 7.6 | 1.0 | | |
| Sea basses | 1 4 | 5 9 | 2.8 | 2.4 | 3 2 | 3 6 5 | 14.0 | 4.9 | 3 8 | 4 4 8 | 28.0 | 5.8 | 3 0 | 3 4 4 | 49.1 | 6.3 | | |
| Tunas | 2 0 | 1 2 3 | 5.9 | 5.0 | 2 5 | 1 9 2 | 7.3 | 2.6 | 3 8 | 3 1 0 | 19.4 | 4.0 | 6 | 8 3 | 11.9 | 1.5 | | |
| Other fishes | 2 2 5 | 4 5 1 | 21.5 | 18.5 | 2 5 7 | 7 9 6 | 30.6 | 10.6 | 1 6 3 | 4 8 7 | 30.4 | 6.3 | 5 3 | 9 6 | 13.7 | 1.8 | | |
| King crabs | — | — | — | — | — | — | — | — | — | — | — | — | 1 | 1 | 0.1 | — | | |
| Total | 7 3 4 | 2 4 4 3 | 116.5 | — | 1 7 9 8 | 7 4 7 1 | 287.1 | — | 1 9 9 8 | 7 7 2 6 | 482.9 | — | 1 3 2 3 | 5 4 6 5 | 780.7 | — | | |

Table 46. Details of the newly found Seamount.

| No. | Name | Position | Depth of the peak | Type of the shape |
|-----|----------------------|---------------------|-------------------|-------------------|
| 1 | Ngelelevu | 15-54.8S, 179-16.9W | 25 m | Battery shape |
| 2 | Vanuabalavu South | 17-21.8S, 178-35.0W | 250 m | Plural peak |
| 3 | Yagasa | 18-53.3S, 178-16.7W | 100 m | Single peak |
| 4 | Tuvana-i-tholo | 20-46.4S, 178-34.6W | 315 m | Single peak |
| 5 | Ngau | 17-58.4S, 179-30.2E | 300 m | Single peak |
| 6 | Mbeqa | 18-34.4S, 177-40.7E | 205 m | Single peak |
| 7 | Balmoral -reef | 15-56.9S, 175-36.8E | 5 m | Battery shape |

Table 47. Monthly appearance rate of weather for the year during 1984 to 1986.

| Weather | Year Period | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Total | |
|---------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day | Nos of day |
| bc | 1984 | | | | | 3 | 13 | 22 | 13 | 4 | 55 | 59 |
| | 1985 | | | 10 | 9 | 10 | 10 | 6 | 13 | 10 | 68 | 49 |
| | 1986 | 10 | 16 | 12 | 11 | 3 | | | | | 52 | 49 |
| | Total | 10 | 16 | 22 | 20 | 16 | 23 | 28 | 26 | 14 | 175 | 52 |
| c | 1984 | | | | | | 6 | 3 | 5 | 3 | 17 | 18 |
| | 1985 | | | 4 | 4 | 4 | 4 | 9 | 3 | 3 | 31 | 22 |
| | 1986 | 4 | 6 | 9 | 10 | 7 | | | | | 36 | 34 |
| | Total | 4 | 6 | 13 | 14 | 11 | 10 | 12 | 8 | 6 | 84 | 25 |
| o | 1984 | | | | | | 3 | 2 | 3 | 7 | 15 | 16 |
| | 1985 | | | | 6 | 8 | 7 | 7 | 3 | 5 | 36 | 26 |
| | 1986 | 3 | 2 | 3 | 3 | 3 | | | | | 14 | 13 |
| | Total | 3 | 2 | 3 | 9 | 11 | 10 | 9 | 6 | 12 | 65 | 19 |
| r | 1984 | | | | | | 1 | 1 | 1 | 4 | 7 | 7 |
| | 1985 | | | | 2 | | | | 1 | | 3 | 2 |
| | 1986 | | | 2 | 2 | | | | | | 4 | 4 |
| | Total | | | 2 | 4 | | 1 | 1 | 2 | 4 | 14 | 4 |
| Total | | 17 | 24 | 40 | 47 | 38 | 44 | 50 | 42 | 36 | 338 | |

bc.....Blue sky with detached clouds

oOvercast

cCloudy

rRain

Table 48. Location of payao setting.

(1) Fiji waters

| No. | Date | Position | Depth(m) | Remark |
|-----|--------------|------------------------|----------|---------------------|
| 1 | 1984. 12. 11 | 19-14.5 S , 177-53.5 E | 1,456 | SW of Kadavu |
| 2 | 12. 12 | 18-48.7 S , 178-43.2 E | 880 | East of Kadavu |
| 3 | 12. 27 | 18-34.3 S , 177-31.1 E | 1,810 | West of Vatulele |
| 4 | 12. 28 | 18-27.2 S , 178-34.2 E | 1,900 | SE of Viti-Levu |
| 5 | 1985. 1. 9 | 18-13.5 S , 178-20.6 E | 660 | South of Viti-Levu |
| 6 | 1. 10 | 17-06.2 S , 179-52.7 E | 1,865 | South of Taveuni |
| 7 | 2. 2 | 14-42.7 S , 179-11.4 E | 1,760 | North of Vanua-Levu |
| 8 | 2. 3 | 11-47.8 S , 178-18.1 E | 1,500 | East of Rotuma |
| 9 | 2. 15 | 18-49.0 S , 178-43.5 E | 940 | East of Kadavu |
| 10 | 2. 16 | 16-26.8 S , 176-26.9 E | 1,330 | NW of Viti-Levu |
| 11 | 2. 28 | 18-12.0 S , 178-27.6 E | 240 | SE of Viti-Levu |
| 12 | 2. 28 | 18-30.9 S , 177-47.7 E | 1,110 | East of Vatulele |
| 13 | 3. 12 | 17-14.6 S , 179-17.4 E | 1,520 | North of Koro |
| 14 | 3. 13 | 16-01.5 S , 179-26.6 W | 640 | East of Vanua-Levu |
| 15 | 1986. 2. 27 | 17-59.0 S , 179-29.9 E | 900 | East of Ngau |
| 16 | 2. 27 | 17-22.0 S , 179-43.8 E | 1,250 | South of Taveuni |
| 17 | 3. 12 | 18-22.3 S , 178-16.1 E | 1,400 | South of Viti-Levu |
| 18 | 3. 12 | 18-34.5 S , 177-31.4 E | 1,800 | West of Vatulele |
| 19 | 3. 13 | 16-04.4 S , 179-19.5 E | 1,350 | North of Vanua-Levu |
| 20 | 3. 14 | 16-01.8 S , 179-33.8 E | 1,500 | North of Vanua-Levu |
| 21 | 11. 6 | 16-56.3 S , 179-19.3 E | 500 | Savu savu off |
| 22 | 11. 7 | 17-17.0 S , 179-57.1 W | 500 | Taveuni off |
| 23 | 11. 7 | 16-50.9 S , 179-40.1 E | 620 | West of Taveuni |

(2) Tuvalu waters

| No. | Date | Position | Depth(m) | Remark |
|-----|-------------|------------------------|----------|--------------------|
| 1 | 1985. 9. 23 | 08-00.9 S , 178-17.8 E | 670 | West of Nukufetau |
| 2 | 9. 24 | 07-29.6 S , 178-40.9 E | 370 | West of Vaitupu |
| 3 | 9. 27 | 08-31.3 S , 179-14.3 E | 1,270 | East of Funafuti |
| 4 | 10. 4 | 09-23.0 S , 179-49.6 E | 610 | West of Nukulaelae |
| 5 | 1986. 8. 2 | 06-18.0 S , 176-17.8 E | 800 | West of Nanumanq |
| 6 | 8. 2 | 05-41.1 S , 176-08.2 E | 1,000 | West of Nanumea |
| 7 | 8. 3 | 06-07.1 S , 177-16.8 E | 1,300 | West of Nanumea |
| 8 | 8. 30 | 08-00.0 S , 178-17.6 E | 1,400 | West of Nukufetau |
| 9 | 8. 30 | 07-29.7 S , 178-40.0 E | 1,250 | West of Vaitupu |
| 10 | 8. 31 | 07-13.0 S , 177-07.0 E | 1,420 | West of Nui |

Table 49. Details of landed catches caught by pole-and-line, trolling and surface gillnet operation.

| Date | Skipjack(kg) | | Yellowfin tuna(kg) | | | | Bigeye tuna (kg) | Swordfishes (kg) | TOTAL | | Remarks |
|-------------|--------------|------------|--------------------|----------|------------|--------------|------------------|------------------|--------------------|-----------|--------------------------------------|
| | 4lbs over | 4lbs under | 20lbs over | 20-5 lbs | 5lbs under | Landing (kg) | | | Amount sold (US\$) | | |
| Dec.22.1984 | 468 | - | 1916 | 340 | 20 | - | - | 72 | 2816 | 2513.16 | Catches by Drift gill net & Trolling |
| Jan.28.1985 | 899 | 114 | 245 | 732 | 201 | - | - | 206 | 2413 | 1496.45 | |
| Feb.25.1985 | 604 | - | 200 | 733 | 334 | - | - | 35 | 1906 | 1136.38 | |
| Mar.22.1985 | 211 | 15 | 125 | 168 | 34 | - | - | 25 | 598 | 461.78 | |
| Total | 2182 | 129 | 2486 | 1993 | 589 | - | - | 338 | 7733 | 5607.77 | |
| Oct.19.1985 | 19889 | 99 | - | 603 | - | - | - | - | 20591 | 12956.82 | Catches by Pole & line |
| Oct.28.1985 | 8757 | - | - | - | - | - | - | - | 8757 | 5516.91 | |
| Nov.15.1985 | 8183 | 2176 | - | 3227 | - | - | - | - | 13586 | 8189.26 | |
| Nov.25.1985 | 13008 | 8954 | - | 20519 | 1573 | - | - | - | 44154 | 25746.69 | |
| Dec.23.1985 | 23021 | 384 | - | 1250 | - | - | - | - | 24655 | 15467.37 | |
| Jan.23.1986 | 24876 | 818 | - | 4402 | 74 | - | - | - | 30170 | 18855.46 | |
| Feb.17.1986 | 22296 | 3241 | 60 | 5700 | - | - | - | - | 31297 | 19186.66 | |
| Feb.21.1986 | 2113 | 933 | - | 62 | - | - | - | - | 3108 | 1799.43 | |
| Mar.21.1986 | 21391 | 1246 | - | 14200 | 878 | - | - | - | 37715 | 29417.65 | |
| Total | 143534 | 17851 | 60 | 50063 | 2525 | - | - | - | 214033 | 131136.25 | |
| Jul.21.1986 | 5225 | 276 | - | 12195 | 148 | - | - | - | 17844 | 12805.96 | Catches by Pole & line |
| Aug. 8.1986 | 11322 | - | - | 124 | 72 | - | - | - | 11518 | 8279.76 | |
| Aug.18.1986 | 1973 | - | - | 2815 | 150 | - | - | - | 4998 | 3528.36 | |
| Nov.14.1986 | 6174 | 359 | - | 3441 | 381 | - | - | - | 10355 | 7369.29 | |
| Total | 24694 | 635 | - | 18575 | 751 | - | - | - | 44655 | 31983.37 | |
| TOTAL | 170410 | 18615 | 2546 | 70631 | 3665 | - | - | 338 | 266421 | 168727.39 | |

Table 50. Specification of landed catches caught in bottom line operation.

| Species Date of Landed | Ribbon tail | | | Red snapper | | | Red job fish | | | Snappers | | | Other species mixed | | | Total exported | | | Total(Domestic market) | | |
|---------------------------|-------------|------------------|------|-------------|------------------|------|--------------|------------------|------|-------------|-----------------|------|---------------------|-----------------|------|----------------|-----------------|------|------------------------|-----------------|------|
| | Weight (kg) | Amount sold (US) | @ | Weight (kg) | Amount sold (US) | @ | Weight (kg) | Amount sold (US) | @ | Weight (kg) | Amount sold(US) | @ | Weight (kg) | Amount sold(US) | @ | Weight (kg) | Amount sold(US) | @ | Weight (kg) | Amount sold(US) | @ |
| 1985.12.13 | 518.4 | 2,870.51 | 5.54 | 201.4 | 909.75 | 4.52 | 55.0 | 294.05 | 5.35 | - | - | - | 195.7 | 1,054.55 | 5.39 | 970.5 | 5,128.86 | 5.28 | 561.0 | 663.24 | 1.18 |
| 1986.1.8 | 563.6 | 4,423.25 | 7.85 | 704.8 | 4,808.86 | 6.82 | 132.0 | 975.87 | 7.39 | 223.9 | 1,873.79 | 8.37 | 88.9 | 652.90 | 7.34 | 1713.2 | 12,730.67 | 7.43 | - | - | - |
| 1.10 | 84.8 | 715.02 | 8.43 | 40.7 | 326.37 | 8.02 | 52.5 | 418.72 | 7.98 | 5.4 | 50.10 | 9.28 | - | - | - | 183.4 | 1,510.21 | 8.23 | 902.0 | 902.92 | 1.01 |
| 2.7 | 190.9 | 1,005.87 | 5.27 | 262.7 | 1,283.63 | 4.89 | 152.3 | 665.80 | 4.37 | 103.9 | 350.70 | 3.38 | 59.5 | 206.47 | 3.47 | 789.3 | 3,512.46 | 4.57 | 315.0 | 627.30 | 1.99 |
| 3.7 | 492.3 | 3,337.15 | 6.78 | 519.1 | 2,670.40 | 5.14 | 100.5 | 952.15 | 5.93 | 1.1 | 2.50 | 2.27 | 64.3 | 196.95 | 3.05 | 1237.3 | 7,158.55 | 5.79 | 536.0 | 1,346.04 | 2.51 |
| 3.12 | 202.3 | 1,189.45 | 5.87 | 432.3 | 2,051.70 | 4.75 | 12.3 | 59.45 | 4.83 | 3.6 | 13.77 | 3.82 | 70.9 | 318.15 | 4.48 | 721.4 | 3,035.52 | 5.03 | - | - | - |
| Total | 2052.3 | 13,541.25 | 6.06 | 2161.0 | 12,053.71 | 5.76 | 564.6 | 3,366.04 | 5.96 | 337.9 | 2,290.86 | 6.78 | 479.3 | 2,428.42 | 5.07 | 5595.1 | 33,680.28 | 6.01 | 2314.0 | 3,539.50 | 1.57 |
| 1986.9.10 | 1385.2 | 6,775.90 | 4.89 | 237.3 | 941.55 | 3.97 | - | - | - | - | - | - | 152.9 | 456.70 | 2.99 | 1775.4 | 8,174.15 | 4.60 | 464.0 | 765.43 | 1.65 |
| 9.24 | 121.4 | 473.27 | 3.90 | 255.9 | 976.97 | 3.82 | 15.7 | 48.25 | 3.07 | 29.5 | 78.84 | 2.67 | 18.5 | 23.54 | 1.27 | 441.1 | 1,600.87 | 3.63 | - | - | - |
| 10.9 | 121.4 | 791.75 | 6.54 | 184.5 | 1,071.04 | 5.80 | 5.5 | 12.00 | 2.18 | 36.6 | 97.75 | 2.67 | 140.0 | 292.27 | 2.08 | 488.0 | 2,267.81 | 4.65 | - | - | - |
| 10.21 | 365.7 | 2,025.45 | 5.53 | 506.6 | 2,410.00 | 4.75 | - | - | - | 10.9 | 62.40 | 5.72 | 95.4 | 378.80 | 3.97 | 978.6 | 4,876.65 | 4.98 | 520.0 | 816.45 | 1.57 |
| 11.4 | 1366.1 | 7,189.40 | 5.26 | 618.0 | 2,619.50 | 4.23 | 75.0 | 336.75 | 4.49 | 51.1 | 415.10 | 8.12 | 193.2 | 627.25 | 3.25 | 2303.4 | 11,187.00 | 4.86 | 1133.0 | 1,779.10 | 1.57 |
| Total | 3359.8 | 17,257.77 | 5.14 | 1802.3 | 8,019.06 | 4.45 | 96.2 | 397.00 | 4.13 | 128.1 | 654.09 | 5.11 | 600.1 | 1,778.56 | 2.96 | 5986.5 | 28,106.48 | 4.69 | 2117.0 | 3,360.98 | 1.58 |
| Grand Total | 5412.1 | 30,799.02 | 5.69 | 3963.3 | 20,072.77 | 5.06 | 660.8 | 3,763.04 | 5.89 | 466.0 | 2,944.95 | 6.32 | 1079.4 | 4,206.98 | 3.90 | 11577.6 | 61,786.76 | 5.33 | 4431.0 | 6,900.48 | 1.58 |

U \$United State \$ (Catches were exported to Honolulu and Los Angeles . Market commission =10% +US 5.00)

@Average amount

F \$Fiji \$

Table 51. Catch weight (Kg) and number, catch weight and number per effort by area in species caught in bottom line operation.

| Fishing area | Tuvalu | | Average | | Fiji | | Average | | Total | | Average | | | |
|------------------------|---------|------|---------|-------|----------|-------|---------|-------|----------|-------|---------|-------|--------|--|
| Nos. of operation | 15 | | | | 55 | | | | 70 | | | | | |
| Time taken for setting | 06h-30m | | 00h-26m | | 18h-45m | | 00h-20m | | 25h-15m | | 00h-22m | | | |
| Time taken for hauling | 35h-30m | | 02h-22m | | 119h-05m | | 02h-10m | | 154h-35m | | 02h-12m | | | |
| Soaking time | 75h-05m | | 05h-00m | | 218h-05m | | 03h-58m | | 293h-10m | | 04h-11m | | | |
| Nos. of hachi | 1402 | | 93.5 | | 4069 | | 74.0 | | 5471 | | 78.2 | | | |
| Nos. of hook | 21030 | | 1402.0 | | 71340 | | 1297.1 | | 92370 | | 1319.6 | | | |
| Nos. of effective hook | 13959 | | 930.6 | | 39259 | | 713.8 | | 53218 | | 760.3 | | | |
| Hooking rate | 0.09 | | | | 0.12 | | | | 0.11 | | | | | |
| Species name | Catches | | Nos | | Weight | | Nos | | Weight | | Nos | | Weight | |
| Ribbon tail | 375 | 1598 | 25.0 | 106.5 | 1203 | 4428 | 21.9 | 80.5 | 1578 | 6026 | 22.5 | 86.1 | | |
| Short tail | 1 | 4 | 0.1 | 0.3 | 142 | 766 | 2.6 | 13.9 | 143 | 770 | 2.0 | 11.0 | | |
| Red snapper | 92 | 594 | 6.1 | 39.6 | 663 | 4025 | 12.1 | 73.2 | 755 | 4619 | 10.8 | 68.0 | | |
| Red job fish | 9 | 24 | 0.6 | 1.6 | 150 | 653 | 2.7 | 11.9 | 159 | 677 | 2.3 | 9.7 | | |
| Broad alfoncino | 48 | 108 | 3.2 | 7.2 | 43 | 83 | 0.8 | 1.5 | 91 | 191 | 1.3 | 2.7 | | |
| Bedfords | | | | | 594 | 1713 | 10.8 | 31.1 | 594 | 1713 | 8.5 | 24.5 | | |
| Other snappers | 233 | 527 | 15.5 | 35.1 | 436 | 605 | 7.9 | 11.0 | 669 | 1132 | 9.6 | 16.2 | | |
| Large eye bream | 17 | 28 | 1.1 | 1.9 | 130 | 278 | 2.4 | 5.1 | 147 | 306 | 2.1 | 4.4 | | |
| Other emperors | 7 | 9 | 0.5 | 0.6 | 3 | 17 | 0.1 | 0.3 | 10 | 26 | 0.1 | 0.4 | | |
| Amberjack | 6 | 39 | 0.4 | 2.6 | 74 | 458 | 1.3 | 8.3 | 80 | 497 | 1.1 | 7.1 | | |
| Other jacks | 108 | 368 | 7.2 | 24.5 | 9 | 45 | 0.2 | 0.8 | 117 | 413 | 1.7 | 5.9 | | |
| Sweeper pomfret | 103 | 279 | 6.9 | 18.6 | 90 | 478 | 1.6 | 8.7 | 193 | 757 | 2.8 | 10.8 | | |
| Cow sharks | 2 | 22 | 0.1 | 1.5 | 4 | 52 | 0.1 | 0.9 | 6 | 74 | 0.1 | 1.1 | | |
| Smooth dogfishes | 1 | 2 | 0.1 | 0.1 | 23 | 92 | 0.4 | 1.7 | 24 | 94 | 0.3 | 1.3 | | |
| Dogfish sharks | 51 | 346 | 3.4 | 23.1 | 295 | 1043 | 5.4 | 19.0 | 346 | 1389 | 4.9 | 19.8 | | |
| Other sharks | 17 | 299 | 1.1 | 19.9 | 22 | 367 | 0.4 | 6.7 | 39 | 666 | 0.6 | 9.5 | | |
| Sea basses | 42 | 128 | 2.8 | 8.5 | 72 | 1088 | 1.3 | 19.8 | 114 | 1216 | 1.6 | 17.4 | | |
| Tunes | 35 | 243 | 2.3 | 16.2 | 54 | 465 | 1.0 | 8.5 | 89 | 708 | 1.3 | 10.1 | | |
| Other species | 152 | 467 | 10.2 | 31.2 | 547 | 1364 | 9.8 | 24.7 | 698 | 1830 | 10.0 | 26.1 | | |
| TOTAL | 1299 | 5085 | 86.6 | 339.0 | 4554 | 18020 | 82.8 | 327.6 | 5853 | 23105 | 83.6 | 330.1 | | |

Table 52. Total number of effective hook and number of effective hook per operation, total catch weight and catch weight per effort in bottom line operation in the waters of Fiji and Tuvalu except Rotuma and Yasawa area.

F: Nos of operation E: Nos of effective hook E/F: Nos of effective hook per operation.
 C: Catch weight(Kg) C/F: Catch weight per effort (Kg)

| | Fiji Water | | | | | | Tuvalu Water | | | TOTAL |
|-----|------------|--------|--------|-------|--------|--------|--------------|-------|-------|-------|
| | Kia | Lau(N) | Lau(S) | Koro | Kadavu | Total | North | South | Total | |
| F | 5 | 14 | 13 | 8 | 3 | 43 | 4 | 11 | 15 | 58 |
| E | 3249 | 9124 | 10884 | 5444 | 1288 | 29989 | 3223 | 10736 | 13959 | 43948 |
| E/F | 649.8 | 651.7 | 837.2 | 680.5 | 429.3 | 697.4 | 805.8 | 976.0 | 930.6 | 757.7 |
| C | 1722. | 5094 | 6145 | 2585 | 639 | 16185. | 2400 | 2685 | 5085 | 21270 |
| C/F | 344.4 | 363.9 | 472.7 | 323.1 | 213.0 | 376.4 | 600.0 | 244.1 | 339.0 | 366.7 |

Table 53. Specification of the model vessel for bottom line and trolling fishery.

| Equipment | Item | Quantity |
|----------------------|---------------------|---|
| Net tonnage | F R P | 16 G/T |
| L×B×D | | 16.4 ^M ×4.0 ^M ×1.4 ^M |
| Main engine | Turbo charger 200PS | 1 |
| Aux engine | 2.5KW | 1 |
| Refrigerator | Ice strage 0°C | 1 |
| Generator | DC-24 60W | 1 |
| Speed | | 9 Knots |
| Fuel oil tank | Capacity 7 kl | 9 m ³ |
| Ice Fish hold | 2~3 hold | 15 m ³ |
| Fresh water tank | 4 ton | 4.5 m ³ |
| Nos of bunk | | 8 |
| Navigation equipment | | |
| Magnetic compass | Portable type | 1 |
| Fish finder | 1,500m | 1 |
| Wireless | 10 W | 1 |
| Rador | Portable 30' | 1 |
| Fishing equipment | | |
| Line hauler | Bottom-line | 1 |
| Side roller | Bottom-line | 1 |
| Trolling winch | HAMA-REEL HR-S2 | 2 |

Table 54. Catch rate and stock of pelagic fish school(ton) by area in pole-and-line operation in the waters of Fiji.

| Area | Nos of school sighted | Size of school | | | Index of stock | Nos of school fished | Size of school fished | | | Index of stock | Catch weight (ton) | Stock weight (ton) | Catch rate (%) |
|-----------------------|-----------------------|----------------|--------|-------|----------------|----------------------|-----------------------|--------|-------|----------------|--------------------|--------------------|----------------|
| | | Large | Medium | Small | | | Large | Medium | Small | | | | |
| Kadavu | 79 | 8 | 34 | 37 | 361K | 43 | 8 | 22 | 13 | 37.9K | 81.13 | 746.19 | 10.9 |
| Yasawa | 15 | 3 | 8 | 4 | 82K | 9 | 2 | 5 | 2 | 4.1K | 8.76 | 169.49 | 5.2 |
| Kia | 70 | 7 | 21 | 42 | 301K | 42 | 6 | 12 | 24 | 18.6K | 29.98 | 622.17 | 4.8 |
| Koro and Southern Lau | 104 | 2 | 43 | 59 | 412K | 66 | 2 | 33 | 31 | 37.6K | 83.10 | 851.60 | 9.8 |
| Total | 268 | 20 | 106 | 142 | 1156K | 160 | 18 | 72 | 70 | 98.2K | 202.97 | 2,389.45 | 8.5 |

Table 55. Catch rate and stock of pelagic fish school (ton) by cruise in pole-and-line operation in the waters of Tuvalu.

| Cruise No | Nos of school sighted | Size of school | | | Index of stock | Stock weight of school (ton) | Cach weight (ton) | Catch rate (%) |
|-----------|-----------------------|----------------|--------|-------|----------------|--------------------------------|---------------------|----------------|
| | | Large | Medium | Small | | | | |
| 1 | 32 | 3 | 4 | 25 | 125K | 258.38 | 21.42 | 8.3 |
| 2 | 80 | 27 | 23 | 30 | 475K | 981.83 | 11.62 | 1.1 |
| 3 | 51 | | | 51 | 153K | 316.25 | 9.85 | 3.1 |
| Total | 163 | 30 | 27 | 106 | 753K | 1556.46 | 42.89 | 2.8 |

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