COMPARISON OF THE SPECIES COMPOSITION OF CATCHES BY PURSE SEINERS IN THE WESTERN AND CENTRAL PACIFIC OCEAN DETERMINED FROM OBSERVER AND OTHER TYPES OF DATA

WCPFC-SC1   ST Working Paper 4

Proportion of skipjack in purse-seine catches determined from observer data

- 4,428 samples covering 1995–2003 containing skipjack, yellowfin and/or bigeye

- The proportion of skipjack in purse-seine catches determined from all samples for 1995–2003 is 55.4%.

- For school fish (i.e., unassociated schools or schools feeding on baitfish), the proportion of skipjack for 1995–2003 was 66.3%, while for schools associated with logs and drifting FADs, the proportion of skipjack was lower, 46.4% and 46.0% respectively.

If the proportions based on the observer data are applied to the average of the total catches for 1995–2003 that are reported in the Yearbook, then

- the catch of skipjack would be revised downwards by 29.1%,

- the catch of yellowfin would be revised upwards by 82.2%

- and the catch of bigeye would be revised upwards by 299.9%.

Comparison of the species composition determined from operational catch data held by the OFP to the species composition determined from observer data

- The data were grouped into strata of school association, year, quarter, area and flag, and the average percentage of skipjack in the catch was determined for each stratum and type of data. Only strata with at least ten sets of both types of data were included; hence, the data were equally distributed among strata.

- The average proportion of skipjack determined from logsheet data is 78.3%, while for observer data, the average proportion is 53.5%.

Comparison of the species composition determined from unloadings data held by the OFP to the species composition determined from observer data

- The observer data and unloadings data were grouped into strata of year and flag.

- The average proportion of skipjack determined from unloadings data is 76.9%, while for observer data, the average proportion is 56.5%.

Comparison of the species composition determined from port sampling data held by the OFP to the species composition determined from observer data

- The average proportion of skipjack determined from port sampling data is 72.5%, while for observer data, the average proportion is 57.3%.

- For associated sets, the proportions are 64.4% and 47.8% for port sampling data and observer data respectively.

- For unassociated sets, the proportions are 83.9% and 70.7% for port sampling data and observer data respectively.

Table 12. Percentages of observed and port sampled catches, by school association, species and size class

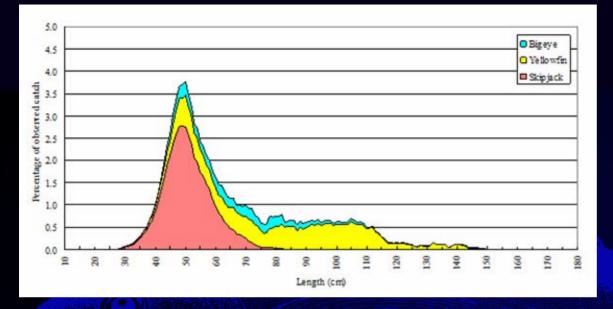|	Observer Data				Port Sampling Data			
	Skipjack	Yellowfin	Bigeye	Total	Skipjack	Yellowfin	Bigeye	Total
Associated Schools								
< 80 cm	47.7	18.0	8.5	74.2	64.2	13.8	3.5	81.5
>= 80 cm	0.1	22.3	3.4	25.8	0.2	17.1	1.3	18.5
Total	47.8	40.3	11.9	100.0	64.4	30.8	4.8	100.0
Unassociated Schools								
< 80 cm	69.6	2.8	0.3	72.7	82.9	2.3	0.5	85.8
>= 80 cm	1.1	25.0	1.2	27.3	1.0	13.0	0.2	14.2
Total	70.7	27.8	1.5	100.0	83.9	15.3	0.8	100.0
Associated and Unassociated Combined								
< 80 cm	56.8	11.6	5.0	73.4	72.1	9.0	2.3	83.4
>= 80 cm	0.5	23.5	2.5	26.6	0.4	15.4	0.8	16.6
Total	57.3	35.1	7.6	100.0	72.5	24.4	3.1	100.0

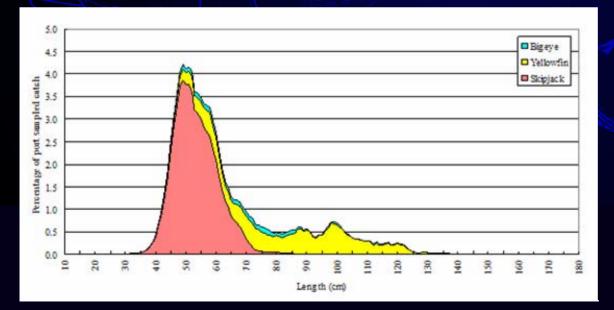Figure 4. Length frequency for associated schools determined from observer data

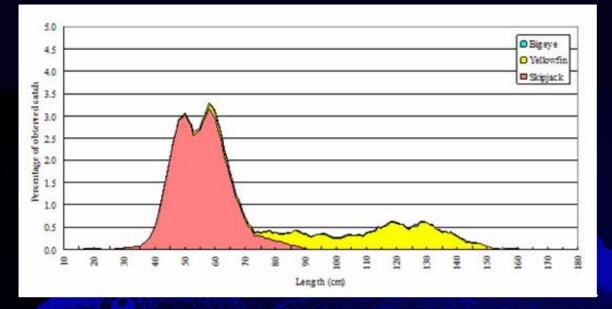Figure 5. Length frequency for associated schools determined from port sampling data

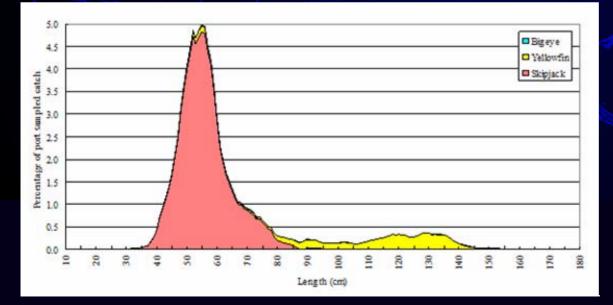Figure 6. Length frequency for unassociated schools determined from observer data

Figure 7. Length frequency for unassociated schools determined from port sampling data

Comparison of the species composition determined from Final Out-Turn reports to the species composition determined from observer data, for the United States fleet

- The proportions of the three species/size categories (skipjack, yellowfin and bigeye < 20 lbs and yellowfin and bigeye ≥ 20 lbs) determined from the FOT reports — i.e., 74.2%, 10.0% and 15.9% respectively — are similar to those for all fleets determined from the port sampling data — i.e., 72.5%, 11.3% and 16.2%.

- The proportions determined from the observer data for all fleets — i.e., 57.3%, 16.6% and 26.0% — are different from both the port sampling data and the FOT reports.

Figure 8. Relationship between bias in observer sampling and estimates of the percentage of skipjack in the catch, for simulated sampling of sets on an associated school and an unassociated school