WESTERN TUNA AND BILLFISH FISHERY SIZE MONITORING PROGRAM 2005-06

PROJECT NO. R04/1073

FINAL REPORT

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July 2008

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Summary

The WA longline fishery suffered a severe downturn in 2003/04 and has not recovered since then. Very little fishing effort has been expended over the last 3 years and that trend looks like continuing. However scientifically robust size data from the West Coast longline fishery in 2005/06 has been successfully collected for the three main species yellowfin tuna, bigeye tuna and broadbill swordfish. The size data are individual, processed (gilled and gutted or trunked) weights as in the east coast fishery.

The individual weight data are accessed from processing company records and transferred to computerised data bases. These data bases are passed on to BRS and CSIRO as required. This has been completed.

The number of records in the data base may be as many as 60% of the total landed number of fish of the three main species.

Introduction and Background

The collection of size data from the WA longline fishery commenced in 2000 in Geraldton. The data collection systems in various formats have been continuous since then, even though formal contracts have not always been issued. This report covers the period 1st July 2005 to 30th June 2006.

Catch size data are essential for the assessment of fish stocks. Any stock assessment or stock analysis requires an accurate catch by size and therefore an age data base, over a long time series. Information on age structure is also necessary for following cohorts through the fishery and for creating indices of abundance by year classes. Length and/or individual weight data can be used to create a number at age matrix of landed fish.

The WA longline fishery is still in relative infancy and is already showing large fluctuations in catches. Scientifically robust size data from the early stages of fisheries can be extremely valuable to scientists. However as the fishery changes so should the data collection techniques and strategies. The fishery has suffered a severe downturn in late 2003 and since late 2004 only a few boats have been operating.

In consultation with AFMA management and the scientific agencies involved it was decided that the best and most cost effective approach in future years would be to collect as much computerised data as possible and await further developments in the fishery.

Original Objectives

1. Continue the length and weight data collection system established at Geraldton in collaboration with the main processor. The CSIRO bigeye otolith collection program that was run in conjunction with the size monitoring program has now finished and size data collection must now be run independently.

2. Continue to investigate methods for identifying and accessing caches of individual size data available from the unloading port of Fremantle. This process began in 2002/3. Continue to explore and develop the possibilities of establishing a routine length/weight data gathering system there as and when landings dictate the necessity. Events of the last year suggest high variation in the fishing effort and landings.

3. Continue to gather the individual weight records identified at Albany as an indication of size structure in the southern areas of the fishery.

4. In collaboration with CSIRO and BRS, continue to develop and maintain (including data verification and back-up procedures) a data base of size and length/weight data collected by the monitoring program.

5. Opportunistically collect data on the size composition of secondary target and by-catch species.

6. Carry out general liaison with CSIRO, BRS, AFMA and industry and State bodies in matters to do with the field programs and the fishery as required.

Methods, Results and Discussion

The physical length/weight sampling in Geraldton has continued since the program's 2000 inception. It was initially run in conjunction with the CSIRO bigeye otolith program but this funding has now ceased.

Following the downturn in the fishery during 2003 and several staff changes, the length/weight sampling program operated much more sporadically in 2003/04 and ceased in 2004/05. There have however been some changes to the data storage systems at the principal processing establishment at Geraldton and their historical records, where excellent size data exists, can now be accessed. These data (all individual weights) were gathered for limited periods in 2002/03 and all the 2003-04 data available were accessed and added to the database for that year. Now similarly the 2005-06 data has been accessed and used for this season.

The data collected for the 2005/06 financial year cover approximately 60% of the total landed weight of the catch in WA, represented as individual weight data. These data comprise as much as 90% from Geraldton and more northern ports.

The length/weight pairs data collections ceased in 2004/05 and the database is reliant on landed individual weights only, the same as for the east coast data collection. Most processors have either closed down entirely or are running at a very low level with minimal staff.

All the individual weight data from the electronic data sets and the hard copy collections, as well as the length/weight data pairs have been collated and transferred electronically to BRS as required. The data base contains approximately 4,100 records of the three main species. This is approximately one third of two years ago which is consistent with the fishery downturn.

No data was collected from the Albany and Fremantle processors due to the low fishing activity in these areas. Also, because no hard copy data are now being accessed, no information on by-catch is available and only data on the 3 main species is entered into thee computerized records.

Histograms of the size data for the three main species bigeye tuna, broadbill swordfish and yellowfin tuna for the entire WA fishery for the year are attached as appendices.

Benefits / Management Outcomes

Long term catch by size data-bases are important in most fisheries but particularly in fisheries involving relatively long-lived slow growing species. Catch size data are essential for the assessment of fish stocks and one of the principle inputs into any stock assessment/stock analysis is an accurate catch by size data base. A long term (and continuous) series of catch by year by size is required.

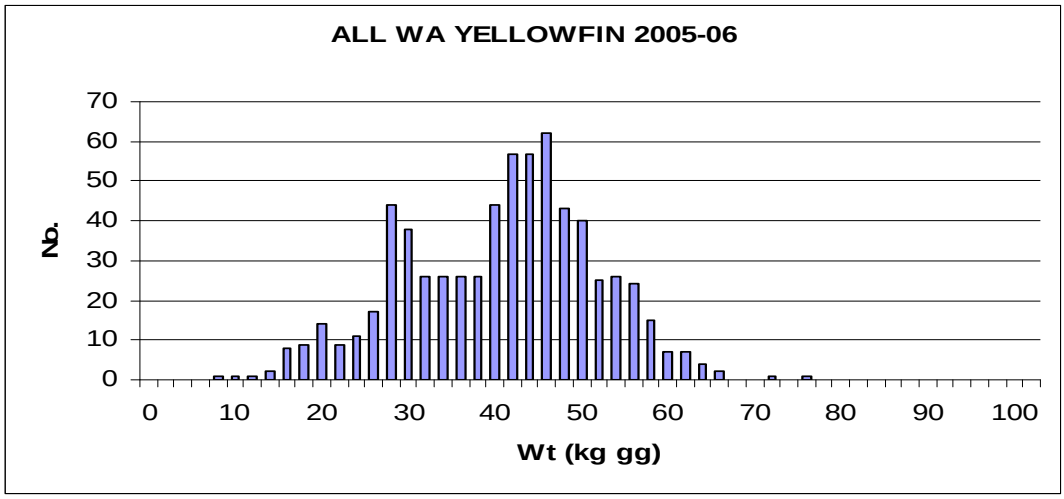
The incorporation of these data into any stock assessments and population analyses would be an indication of the benefit derived to the fishery over a long term. The more accurate any scientific analyses can be, the more confident fisheries managers can be in their management decisions. The early establishment of a suitable size data base in the WA longline fishery may prove to be extremely valuable to researchers in the future. If the fishery develops further it may be absolutely essential.

Conclusions

The size monitoring program must be seen as part of a long term series of data collections and must change strategically as the fishery changes and develops or contracts. While there have been major changes recently and the program has undergone significant basic restructuring, a sufficient result has still been achieved this year. While not without some problems, good access to historical records of individual weights has been achieved and these data incorporated into the data base.

While catches in the fishery are running down and may continue to run at a low level for some indefinite period, it may be prudent to continue to monitor the processor data collection where possible and add some length/weight pairs at opportunity. The situation could then be re-assessed when fishing improves but some size monitoring should be maintained in the interim. Discussions have taken place with AFMA management concerning problems with the program coverage in a much reduced fishery.

One of the major problems is setting aside funding well in advance and putting in place contracts as much as 12 months in advance so some monitoring can be carried out if necessary. This contract for example, was initiated in mid 2004 when the fishery was still operating at a reasonable level. AFMA require systems to be set in place this far ahead but it is obviously not prudent to commit too many funds to a fishery running at a very low (near nil) level. With that in mind, after discussions with AFMA management it was thought that in future a contract could be put in place but only spend the funding necessary for minimal coverage even though more funds were committed. Hence a 2006/07 contract has been signed and only the initial payment made. This should be sufficient to generate minimal coverage in the still very depressed fishery over the next year or so by accessing company computerized records. Further discussions with AFMA management will be held as soon as practicable.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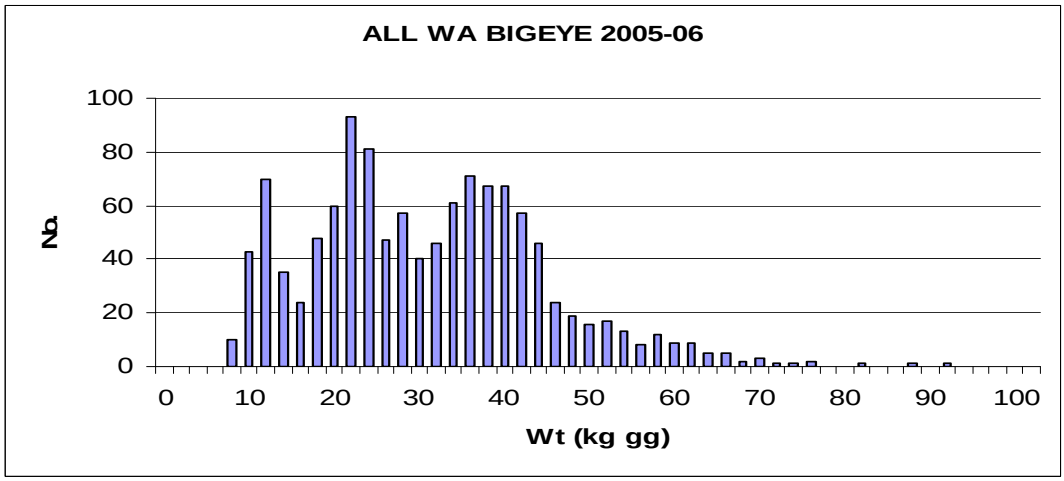
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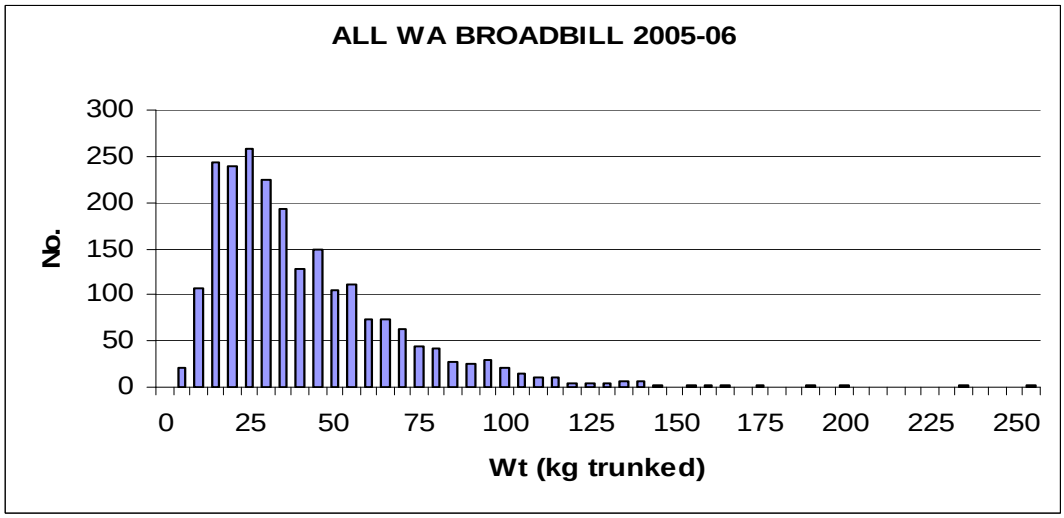
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