



The catch of SBT by the Indonesian longline fishery operating out of Benoa, Bali in 2006

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Abstract

This paper reports on the longline catch of southern bluefin tuna and other tuna and billfish species landed at the Port of Benoa, Bali in 2006. The total landings at Benoa, estimated by IOTC, in 2006 for southern bluefin, bigeye and yellowfin tuna were 558, 4366 and 4323 tonnes respectively. An additional catch of 39.8² tonnes of SBT were landed at the southern Java ports of Cilacap, Batere and Seleko in 2006. The total catch of SBT landed in Indonesia is down from 1724 tonnes in 2005 to 598 tonnes in 2006. The total catch of tunas and billfish landed in Benoa, at 12,433 tonnes, is a slight reduction from the 2005 total of 13,147 tonnes. The percentage of SBT in the Benoa landings decreased from 12.9% in 2005 to 4.5% in 2006. The majority of this decrease is attributed to an overall decline in the level of longline activity and, in particular, a lower level of activity in the region to the south of the spawning ground. Rises in fuel price in Indonesia in October 2005 continue to have a very significant impact on fishing operations and result in further changes in fishing behaviours. The proportion of frozen catch has increased significantly and poses new challenges for the sampling program. Preliminary sampling data from Benoa in first quarter of 2007 suggest a likely higher total of SBT catch by Indonesia's longline fleets in 2007 compared to 2006.

Introduction

In 2002 a collaborative project between Indonesia's Research Centre for Capture Fisheries/Research Institute for Marine Fisheries (RCCF/RIMF) and Directorate General for Capture Fisheries (DGCF), CSIRO Marine Research, Australia's Department of Agriculture of Fisheries and Forestry (DAFF), Australian Centre for International Agricultural Research (ACIAR), Indian Ocean Tuna Commission (IOTC) and Overseas Fisheries Cooperation Foundation of Japan (OFCF), established an integrated monitoring program at three major Indonesian ports where tuna and billfish caught by longline fleets operating in the Indian Ocean are landed and processed. SBT are mainly landed in the most eastern port of Benoa (south Bali) which services longline vessels fishing on the SBT spawning grounds south and east of Central and Eastern Java. A small quantity of SBT is also landed at Cilacap (south coast, Central Java) and very occasionally SBT is landed at Muara Baru (North Jakarta). This expanded monitoring program built on the earlier RCCF/RIMF/CSIRO catch monitoring initiated in 1993. This paper focuses on monitoring activities at Benoa and presents the IOTC catch estimates for SBT, other tuna, and billfish landed at this port during 2006, and also includes information on SBT landings at other Indonesian ports.

Methods

The Indonesian SBT catch monitoring is focused on the Port of Benoa in South Bali where the majority of SBT landings in Indonesia occur. A small amount of SBT is also landed at the Fishing Port of Cilacap, the nearby ports of Batere and Seleko, and Muara Baru which are covered by the IOTC monitoring but without additional targeted sampling of SBT landings.

Monitoring at Benoa

Catches are monitored by seven enumerators at the fourteen processing plants at Benoa where tuna and billfish landings are processed for export. A target of >30% coverage of landings at each processor each month is maintained throughout the reporting period. The information is entered on to IOTC's FINSS (formerly "WinTuna") database by staff at the Gondol Research

² Preliminary estimate – IOTC waiting on provision of 2006 data from DGCF for ports of Batere and Seleko.

Institute of Mariculture, Bali. The resulting data are sent to IOTC through the Research Centre for Capture Fisheries after each month's data entry is complete. After data checking, the total catch by species and month is estimated by IOTC. The procedure for estimating total catch was detailed in Andamari et al. 2004. This procedure has been the routine since the IOTC/OFCF/RCCF/RIMF/DGCF/CSIRO monitoring program commenced in mid-2002. However, following the handover of responsibility by IOTC/OFCF to Indonesia for the fiscal and operational management of the monitoring programs in Muara Baru and Cilacap at the end of 2006, the responsibility for the estimation of total catch of tunas and bycatch species by the Indonesian fleet has been taken up by Indonesia. IOTC have provided training on their catch estimation and monitoring protocols to staff within MMAF and will continue to provide assistance to Indonesia where required.

The sampling protocol calls for balanced sub-sampling of 10% of all tuna landed for length measurement. This is insufficient for determining the biological characteristics of the SBT spawning population as less than 5% of these measurements would be on SBT. By directed targeting of landings that have SBT in them it is possible to measure a much greater number of SBT. These additional data, as well as biological data from IOTC monitored landings, are entered into the SBT Biologicals Database at RIMF and regular updates of the database are provided to CSIRO in Hobart.

Results

Benoa Catch Monitoring

A summary of monitoring activities during 2006 and first five months of 2007 are presented in Table 1 and Figure 1. The target of 30% coverage of landings at each processor each month was exceeded during this 18 month period, with an overall coverage of 51% of landings for the 2006 year. In addition, 136,260 individual fish weights (tunas, billfish, and sharks) were recorded, and 2916 lengths measured during 2006.

The number of landings by tuna longline vessels at Benoa during 2006 was substantially lower than during 2005 and 2004. There were 1664 landings (of which 858 were sampled) compared to 2439 and 2922 during 2005 and 2004 respectively. August, September, and November were particularly quiet months with only 102, 119, 104 landings respectively. The average number of landings per month for the year was only 139, compared to 203 during 2005 and 244 during 2004.

Available information suggests this decline in number of landings was the result of several factors:

1. The ongoing impacts of the fuel-price rise of October 2005 – fewer vessels going to sea but also more vessels staying out for longer periods (up to 3 – 5 months at sea compared to 1 – 3 months previously)
2. Directly related to 1 above, the increase frequency and use of carrier vessel activity, or at least fishing vessels operating as carriers
3. Also related to 1 above, the increase in number of vessels upgrading their on-board storage to include freezer facilities and an associated increase in landings of frozen catch

4. Prolonged severe weather conditions during some months resulting in many vessels remaining in port.
5. It is also possible that the continued closure of the Japanese markets to export of SBT product from Indonesia provided a disincentive to some companies to fish at the same level as during 2005 and earlier years.

Table 1. Summary of IOTC monitoring activities at Benoa during 2006 and first six months of 2007.

Month	No. Landings	No. Sampled	% Coverage	No. weights recorded	No. length/weight measured*
2006					
January	193	97	50.3	10464	329
February	111	53	47.7	7491	170
March	130	65	50.0	8073	147
April	129	61	47.3	17010	248
May	157	76	48.4	11753	192
June	170	83	48.8	12749	297
July	130	76	58.5	11160	306
August	102	47	46.1	10348	197
September	119	53	44.5	15733	239
October	160	100	62.5	11783	52
November	104	59	56.7	9722	206
December	159	88	55.3	9974	533
Total	1664	858	51.3⁺	136260	2916
2007					
January	145	71	49.0	13630	279
February	165	84	50.9	12925	398
March	159	69	43.4	17325	537
April	168	70	41.7	14436	468
May	195	95	48.7	16004	874
June	179	94	52.5	14029	652
Total	1011	483	47.7⁺	88349	3208

*Mean monthly coverage. *This includes tuna, billfish and sharks.

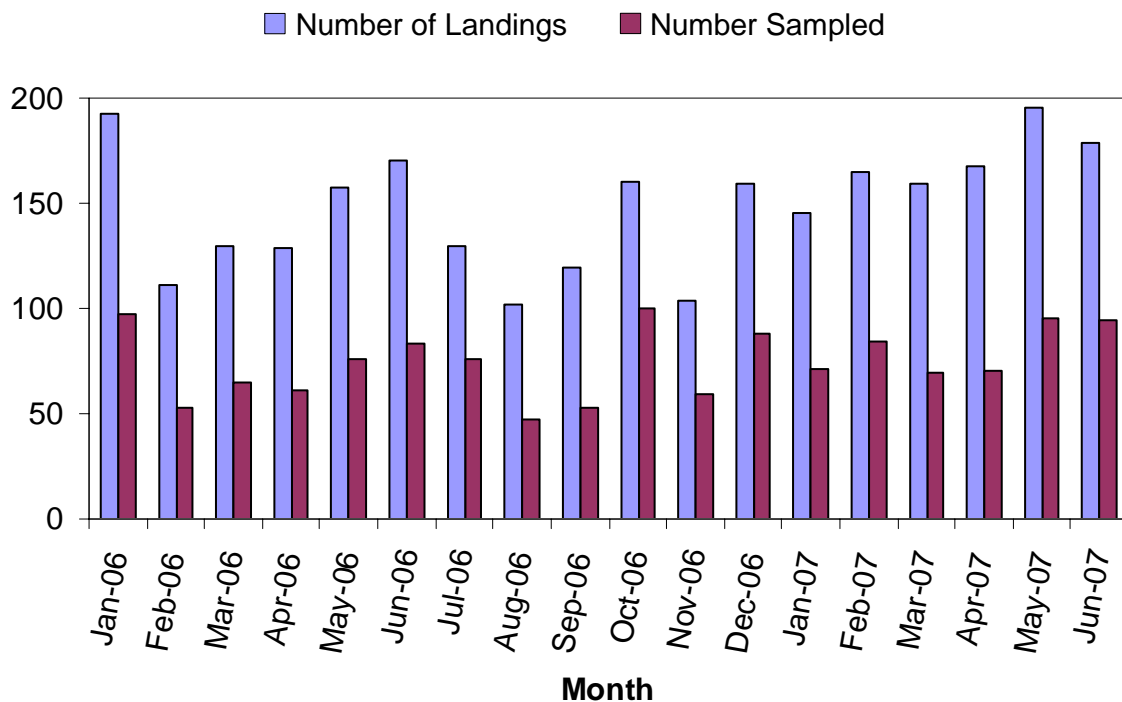


Figure 1. Number of landings and number of samplings at Benoa by month, January 2006 to June 2007.

Catch Estimates for 2006

IOTC have provided the catch estimates for 2006, based on the data collected by the enumerator team at Benoa (Tables 2 & 3, and Figures 2 & 3). In 2006 there were 557.7 tonnes of SBT landed at Benoa and an additional 25.8 tonnes landed at Cilacap. IOTC have produced an estimate of 14.0 tonnes landed at the minor ports of Seleko and Batere but this is a preliminary estimate, in lieu of data to be provided by DGCF, and is based on landings at these ports in 2005 and 2004 and the trends of catches at Benoa over recent years. Only a few SBT (342 kg total) were landed at Muara Baru (Jakarta) during 2006. The preliminary estimate of total catch of SBT landed in Indonesia in 2006 is 597.9 tonnes.

This is a very substantial reduction on the 1724.2 tonnes estimate for 2005, but only slightly down on the 2004 estimate of 632.6 tonnes. The estimates of total catch of tunas and billfish landed in Benoa during 2006, at 12,433 tonnes, is slightly down on that for 2005 and 2004 (13,147 and 13,570 tonnes respectively).

As CCSBT have already indicated to the Data Exchange Group in June 2007, IOTC provided updated SBT Indonesian catch estimates for the ports of Jakarta, Seleko, Batere and "other" ports. This increases Indonesia's SBT catch by 0.97t, 14.9t, and 14.32t in 2004, 2005 and 2006 respectively.

Table 2. IOTC estimated catch (tonnes) of tuna by species landed at Benoa in 2004, 2005, and 2006.

YEAR	BET	YFT	SBT	ALB	SKJ	SWO	OBILL	Total	%SBT
2004	4,184	4,413	613	1,906	21	1,243	1,190	13,570	4.5
2005	3,939	4,196	1,690	1,494	22	778	1,028	13,147	12.9
2006	4,366	4,323	558	1,450	7	774	955	12,433	4.5

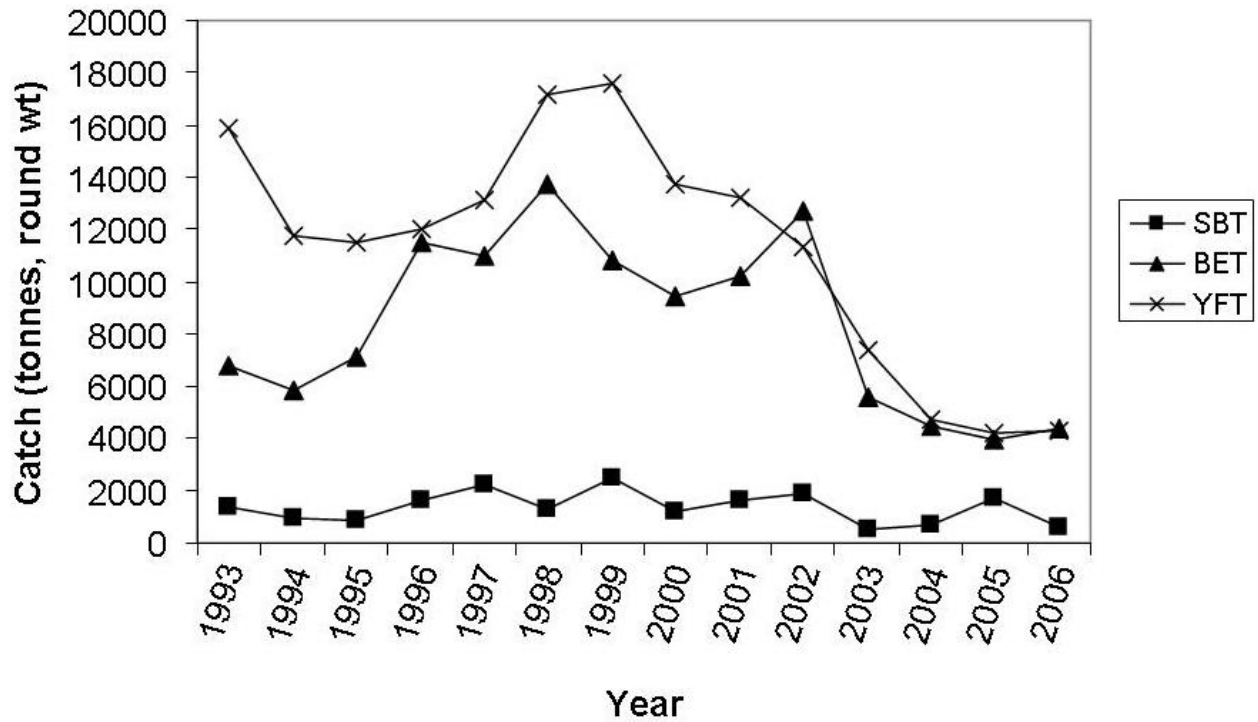


Figure 2. The estimated catch of southern bluefin, bigeye and yellowfin tunas landed at Benoa in the years 1993 to 2006.

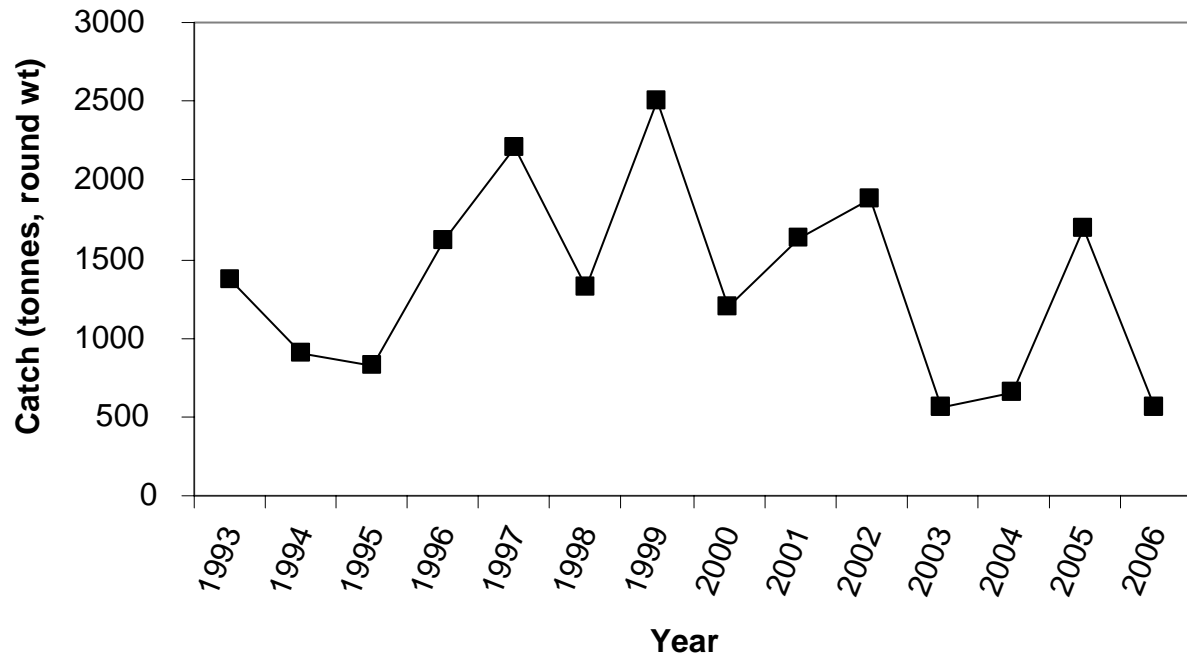


Figure 3. The estimated catch of southern bluefin tuna, landed at Benoa in the years 1993 to 2006.

Table 3. Estimates by IOTC of the total numbers of individual fish caught, total catches (tonnes), and the catches per species by month, at Bena for 2006.

Month	Dest	Catch (t)	SBT	YFT	BET	SKJ	ALB	SWO	OBIL	SKH
1	E-R	901	108	380	391	-	-	8	15	-
1	ByC	250	1	3	1	-	114	25	102	3
2	E-R	1,159	105	473	549	-	-	13	19	-
2	ByC	187	1	2	9	-	54	17	89	15
3	E-R	480	19	167	275	-	-	9	10	-
3	ByC	594	6	102	159	1	55	51	116	103
4	E-R	725	9	450	226	-	-	16	23	-
4	ByC	715	10	40	107	2	307	60	113	76
5	E-R	814	1	443	336	-	-	22	11	-
5	ByC	164	0	1	1	-	56	27	65	14
6	E-R	686	0	413	242	-	-	20	11	-
6	ByC	343	2	7	14	3	153	37	59	68
7	E-R	538	0	216	262	-	-	58	2	-
7	ByC	204	0	4	4	-	98	36	32	30
8	E-R	406	1	173	192	-	-	35	5	-
8	ByC	271	1	4	7	-	174	35	33	17
9	E-R	719	19	362	295	-	-	36	8	-
9	ByC	414	2	6	13	-	269	62	41	21
10	E-R	804	73	314	366	-	-	40	11	-
10	ByC	217	0	4	6	-	79	62	56	9
11	E-R	918	46	350	471	-	-	38	12	-
11	ByC	186	6	1	1	-	86	22	36	34
12	E-R	979	100	407	434	-	-	18	19	-
12	ByC	168	48	-	4	-	3	27	67	18
	Total	12,8422	558	4323	4366	7	1450	774	955	409

E-R = Export or Reject, **ByC** = Bycatch, **SBT** = southern bluefin tuna, **YFT** = yellowfin tuna, **BET** = bigeye tuna, **SKJ** = skipjack tuna, **ALB** = albacore, **SWO** = swordfish, **OBIL** = other billfish, **SKH** = sharks.

Table 4. IOTC estimated catch (tonnes) of tuna by species landed at ports other than Bena for Indonesian longline fleets operating in Indian Ocean, for 2004 - 2006. Note: The 2006 estimates are still under review by IOTC and should be considered preliminary.

Port / Year	Species					Total
	SBT	YFT	BET	SKJ	ALB	
Muara Baru 2004	0	10479.4	5392.2	416.4	2201.5	18489.6
Muara Baru 2005	0	6831.1	3708.9	314.8	859.6	11714.3
Muara Baru 2006	0.3	2520.6	1282.7	207.3	415.5	4426.4
Cilacap 2004	2.7	511.6	364.1	0.0	44.6	923.0
Cilacap 2005	18.8	415.9	570.2	0.5	80.2	1085.7
Cilacap 2006	25.8	442.9	713.3	0.0	106.0	1288.0
Batere & Seleko 2004	1.0	566.8	785.7	0.0	117.2	1470.6
Batere & Seleko 2005	14.9	237.1	636.8	0.0	52.3	941.1
Pelabuhanratu 2004	0.0	483.9	103.3	1.0	47.5	635.6
Pelabuhanratu 2005	0.0	1020.8	273.8	0.0	132.9	1427.5
Bat., Seleko & Pelab. 2006	14.0	1180.0	854.2	0.0	173.7	2221.9

The landings of bigeye and yellowfin tuna at Bena for 2006 (Table 2 and Figure 2) are both slightly higher than for 2005, which slightly reverses the trend of declining catches seen in those species since 2002. The 2006 landings of bigeye were estimated to be 4,366 tonnes (427 tonnes more than for 2005) and for yellowfin 4,323 tonnes (127 tonnes more than for 2005). This is somewhat surprising given the significantly lower number of landings by longliners at Bena during 2006 compared to 2005. However, the changes in fishing vessel behaviour that have occurred in the past two years (as mentioned above) explain this anomaly i.e. vessels in the fleet staying out at sea for longer periods and bringing back, on average, more fish than previously. These larger landings are the sum of fish they have caught themselves and also fish they have collected from sister fishing vessels prior to return to port (i.e. acting as surrogate carrier vessels).

The percentage of SBT in the total catch decreased significantly, from 12.9% in 2005 to 4.5% for 2006. The relatively high percentage in 2005 is recognized as unusually high and was the result of large landings of SBT caught in the region to the south of the SBT spawning ground (see Proctor et al. 2006 and Farley et al. 2006 for more detail). The 2006 percentage is consistent with the average level (2 – 5%) of SBT in tuna and billfish landings for Bena in years prior to 2005.

Preliminary Comments on 2007 SBT Landings

In previous years, IOTC have provided preliminary estimates to the CCSBT Scientific Meeting of the Indonesian SBT catch for the second half of the most recent SBT spawning season (e.g. the catch for the 2006 component of 2005/2006 spawning season).

Following the handover of responsibility by IOTC to Indonesia for the tuna monitoring programs at the end of 2006, the calculation of these preliminary estimates is now the responsibility of Indonesia. In December 2004 IOTC provided a formal training course to agencies within Indonesia's Ministry of Marine Affairs and Fisheries and Indonesia is now well placed to independently provide the estimates of annual catches for tunas and bycatch caught by the longline fishery. IOTC will continue to provide assistance where required.

Although a preliminary estimate of the SBT landings during 2007 (to date) is not yet available, we can make some preliminary comments. A combination of the raw data from the Benoa monitoring program and observations by the enumerator team suggest that the landings of SBT for 2007 may have already exceeded the level of landings for 2006. During the period December 2006 to May 2007 inclusive, an unusually large number of frozen SBT were processed in Benoa. With the closure of the markets of CCSBT member countries to Indonesian caught SBT, it appears a large number of fish had been placed and held in coldstorage. Beginning in December 2006, frozen SBT were regularly processed by two processing companies in particular, and daily processings included as many as 200 fish per day. The quality of the fish was mostly “reject” (non-sashimi grade).

The total number of SBT recorded by the Benoa monitoring program and the biological sampling during January -April'07 was 5542, with a total weight (gilled and gutted) of 435.6 tonne. A large proportion of these fish were frozen. If we use the rough raising method of a 1.1 multiplier to bring up to round fish weight, and then use the monthly average of sampling coverage for this five month period (= 46.7%) to obtain an estimate of total SBT landings/processings for the period, we arrive at a figure of 1026 tonne. This figure should be treated as a very preliminary estimate and should also be treated with some caution for two reasons. Firstly, this raising procedure assumes a similar level of processing of SBT by all the Benoa-based companies but we know that some companies process far more SBT than others. Secondly, we cannot yet be certain that all of the frozen fish processed during the 2007 period were fish caught during 2007. It is very likely some of the fish were caught during 2006 and were then placed in coldstorage and, as such, should not be included in any estimation of 2007 landings. This increased incidence of processing of frozen SBT has posed some serious issues for the Benoa monitoring program and modifications to the sampling protocols have been necessary (see below).

Market destinations of SBT catch

The distribution of SBT after landing and processing by Benoa-based companies is a difficult issue to address in the current monitoring program. Prior to the commencement of the IOTC/RCCF/RIMF/OFCE/CSIRO sampling program in 2002, the annual estimate of Indonesia's SBT landings was largely based on analysis of the export packing lists from the office that issues export certificates to the tuna processing companies for each shipment of product. The amount of whole fish and processed tuna product that appeared in the sheets was raised to produce an estimate of total catch. The annual examination of the packing lists by RIMF/CSIRO afforded the opportunity to also document the export destinations of the SBT landings. However, since mid-2002 the collection and examination of the packing lists has not been done, as the IOTC monitoring protocols were, and still are, considered a far more accurate method of obtaining estimates for not only SBT landings but also those for other species. However, without the packing list information, it has proven difficult to keep abreast of export destinations of the tuna and tuna product.

Obtaining information on marketing and distribution, direct from the fishing and processing companies has also proven to be difficult. We have generally been cautious about approaching the companies directly for such information, as doing so encroaches into a very sensitive area and could potentially compromise the relationships on which the monitoring program relies. We believe the good cooperation we have received from the companies for the daily monitoring in their processing rooms may be at put at risk if they feel the program is

more than a program for obtaining catch information for scientific purposes. Much of the success of the monitoring program over the past 6 years has relied on the understanding by the companies (with regular emphasis from us) that the program is solely for monitoring catch levels, catch trends, and the health of the fishery, and has no objectives with respect to investigating the financial or marketing side of the fishery. Our knowledge of marketing routes and destinations of the tuna product largely relies on ‘occasional’ unverifiable information obtained from contacts in the industry.

Since the closure of CCSBT member countries’ markets to imports of Indonesian caught SBT, information that we have received suggests Singapore, Hong Kong, and Malaysia have become increasingly important destinations for SBT product. Also, the importance of domestic markets, primarily Jakarta, has increased. However, verifying the accuracy of this information and quantifying the amount of export and proportions of export to the different destination countries and to domestic markets is currently beyond the scope of the monitoring program.

Issues for future monitoring

Discrimination of spawning ground and non-spawning ground SBT in future monitoring

The differences found in the size distribution of SBT caught on and south of the spawning ground (Farley et al 2007, CCSBT-ESC/0709/10) highlights the need to identify the catch location of SBT monitored, so that SBT that are not considered part of the spawning population can be confidently excluded from analysis. Data on catch locations will also allow for further investigation of the size/age distribution of SBT by latitude to determine if, for example, older and larger SBT migrate further north and/or earlier than younger and smaller fish (i.e. migration increases with size/age). In addition, targeted sampling of otoliths and gonads from SBT caught in the “southern zone” will allow us to determine if the small fish caught in this region are mature, and examine differences in length-at-age that might help determine whether sexual maturity is size or age related, both of which would contribute to improving stock assessment methods.

Obtaining good quality information on the location of catches through the port-based sampling program has always proved difficult. Two initiatives within the current RCCF/RIMF/CSIRO ACIAR-funded project (“*Capacity development to monitor, analyse and report on Indonesian tuna fisheries*”) are aimed at addressing this difficulty. In August 2005, a trial scientific observer program commenced for longline vessels operating from Benoa (see Sadiyah et al. CCSBT-ESC/0709/Info XX). The six Indonesian observers recruited to the program have each completed 6 to 7 trips to sea over the past two years, with trips ranging from 20 to 103 days in length. This trial program has received strong support from Indonesia’s Ministry of Marine Affairs and Fisheries (MMAF), the Indonesian Tuna Commission, and also from other sectors of the tuna fishing industry. There is general agreement among all participating parties and stakeholders that the trial program could and should lead to the establishment of a formal observer program with greater coverage during the next one to two years. In the meantime, the trial program has already covered several fishing trips into the ‘southern zone’ (i.e. south of the spawning ground) as well as many trips on the spawning ground. During the remainder of the trial (completion in December 2008) the observer database is likely to accrue sufficient data to complete initial analyses for the abovementioned ‘southern zone’ versus spawning ground comparisons.

The trial observer program is currently providing coverage of only a small percentage (<5%) of Indonesia's Indian Ocean longline fishery. In recognition of the need to obtain quality CPUE information from a broader coverage of the Benoa fishing companies, the ACIAR-funded project has a goal, with MMAF and industry support, to introduce a trial upgraded logsheet program for the Indian Ocean tuna longline vessels. This is a high priority objective for the next 6 – 12 months. There is a current logsheet system for longline vessels based at Benoa. However, its current design and operation does not provide useful, reliable CPUE data for stock assessment purposes. Its primary focus is not on providing detailed catch and catch location information but more on obtaining vessel specific details and ensuring vessels meet certain safety standards.

Adequate coverage of landings and processings of frozen SBT

As detailed above, during this past six months there has been an increase in the level of processing of frozen SBT by at least two Benoa processing companies. During the past year there has also been a trend of more and more vessels upgrading onboard coldstorage facilities to enable freezing of catch at sea – a change that is not unexpected given the trend for longer and longer trips to sea, and many vessels fishing further and further from home port. Although we feel confident that the IOTC/RCCF/RIMF/OFCF/CSIRO monitoring program has adequately 'captured' the full extent SBT landings during 2006, we do hold some concern that there is a possibility that landings during the first half of 2007 may not have adequately 'captured' the full extent of SBT that have been, or are currently being held, in coldstorage facilities at the port.

We have used "may" above because, although we have expended considerable effort in attempting to determine what, if any, the amount of landed SBT that has not been adequately 'captured' in the sampling of the past 6 months is, we are still not in position to state with great confidence what that amount is. On the face of it, this might appear to be a relatively easy thing to determine, but it is a very sensitive area, and if ongoing cooperation from the fishing industry is to be ensured, care has to be taken in how investigations into this issue are pursued.

Up until recently, sampling of the frozen catch was not possible at processing facilities of two companies, for three reasons:

1. The frozen catch has been transferred direct to cold storage. In the case of one company, the catch is trucked to processing facilities outside of Benoa fishing port, and hence is not available to the program for sampling;
2. The companies have limited space in their processing rooms and are reluctant to allow sampling activity; or
3. The fish buyers are concerned that sampling activity will delay processing of the catch and will somehow lead to reduction in fish quality.

However, following recent negotiations by the Monitoring Program Manager with these companies, their agreement for allowing sampling the frozen bycatch has been achieved.

All the frozen SBT landed by Benoa-based vessels are of 'reject' quality (not sashimi-grade) and are processed into loin, fillet, toro, and other tuna product.

A modification to sampling operations has now been initiated to ensure that if frozen SBT are transferred directly from vessel unloading to coldstorage, the numbers of these fish are at least 'captured' by the sampling team. Sampling at the point of landing (i.e. wharfside) has commenced, to supplement the sampling in the processing rooms. Enumerators on the wharf during unloading now record the numbers of each species unloaded, and make estimation of fish weight (within 20kg size classes). This did not require an increase the number of enumerators employed in the program, but rather a redistribution of their daily sampling effort. Since its beginnings in 2002 the IOTC/RCCF/RIMF/OFCF/CSIRO has well exceeded the target coverage of 30%, so the reduction in the monthly coverage level that is likely to be associated with this new activity is not expected to prevent the program meeting its 30% coverage target. The wharf-side monitoring of the landings should also provide a direct method of verification of logsheet data provided by vessel skippers once the upgraded logsheet program is up and running.

Processing of single landings at multiple sites

There has been an increasing incidence of individual vessels unloading catch simultaneously to more than one processing plant, and in some cases to as many as 5 different processing plants. For the enumerator team to successfully achieve total enumeration of catch from a single vessel (an IOTC sampling priority) in such cases, all the enumerators have to concentrate their efforts on tracking and sampling catch from that vessel. In doing so, there are some days when only one vessel's catch is monitored. The enumerators are now equipped with motorbikes which assist to cover several sites within the port during busy periods. As the use of carrier vessels continues to increase, so does the incidence of distribution of catch to several processing plants. This has significant implications for the biological sampling program as the enumerators generally cannot obtain length measurements for fish when they are working solo in the processing plants. This is the main reason for the significant decrease in the number of tunas and billfish measured for length by the program during the past year. The impacts have not been as significant to the SBT sampling program as the enumerator who samples the otoliths always has opportunity to take a length measurement.

Formal MoU for Benoa monitoring program

In our paper to last year's CCSBT Extended Scientific Meeting (Proctor et al. 2006), we noted the importance of developing a formal Memorandum of Understanding (MoU) between Indonesia and Australia for the Benoa monitoring program. The program has been covered to some extent by an existing, general MoU of collaboration between MMAF and CSIRO, but for some time there has been consensus among all participating parties in the Benoa monitoring that a MoU specific to the Benoa program was highly desirable. It is generally agreed that the MoU should include statements of agreement on strategy for ensuring long term continuation of the program and for the take-up of more responsibility within the program by Indonesia. A MoU developed and implemented during 2006 saw Indonesia successfully take-over full fiscal and operational responsibility from IOTC and OFCF for the monitoring of tuna landings at Muara Baru and Cilacap in January 2007.

There was no development of the suggested Benoa MoU during 2006/2007, largely because during this period, MMAF, and in particular the Agency of Marine and Fisheries Research, were progressing plans that should contribute to ensuring the longevity of monitoring at Benoa. It was, therefore, considered premature to draft the MoU until this planning phase was complete as this would allow the new arrangements to be incorporated into the MoU. A significant objective within the Agency's plan is that the building that houses the current Benoa monitoring office in the port precinct be purchased in 2008. To date this office has been rented from one of the tuna processing companies and the site itself is owned by the port. As part of this significant transition, the office has already adopted the formal title of "Benoa Tuna Monitoring Station" (Figure 4). Another important outcome will be that the enumerators (pending their passing the necessary Public Service entry requirements) will become permanent Indonesian Government staff rather than be on contract as is currently the case. These positive developments demonstrate Indonesia's continuing commitment to take up full responsibility for the monitoring program.

Another significant highlight of the past year was a visit to the Benoa Monitoring Station by Indonesia's Minister of Marine Affairs and Fisheries, Mr Freddy Numberi, and other senior staff from the Ministry (Figure 5) in early May. During his visit the Minister expressed his very strong support for the continuation of the monitoring program.

The development of a MoU for the Benoa monitoring program remains a high priority for the project and we plan to report to CCSBT on a successful completion of the process in 2008.



Figure 4. New sign outside the Benoa Tuna Monitoring Station.



Figure 5. Dr Victor Nikijuluw, Director RCCF, giving presentation to Minister of Marine Affairs and Fisheries, Mr Freddy Numberi and other guests at Benoa Monitoring Station on 3rd May 2007.

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