

Proposal for Number2 Taikai-maru spawning ground survey (Japan)

Fisheries Agency of Japan
Government of Japan

2003年度豪州水域におけるみなみまぐろ資源調査の概要

【第二大慶丸（198ト）】

産卵場調査

(1) 調査目的

インドネシアはみなみまぐろの産卵場において漁業を行っているが、その不透明さゆえこれら漁獲量から産卵親魚の資源量を得ることは難しい。近年の豪・印による共同調査から、産卵場において大型の成熟度の高い魚ほど表層に分布するという仮説が提唱された。そこで、魚体サイズ・産卵活性・環境要因に基づくみなみまぐろの分布特性を把握することを本調査の目的とする。

(2) 調査方法

- ①浅縄及び深縄による延縄漁獲調査
- ②漁具水深及び水温のモニタリング
- ③標識放流調査（アーカイバルタグ、ポップアップアーカイバルタグ、通常タグ）
- ⑤海洋環境調査

※SBT 産卵場調査後、延縄を用いてのメバチ・キハダの標識調査をインド洋で行う。

(3) 調査日程

2003年12月15日～2004年4月10日

(4) 調査海域

南緯20°より北で、東経100～130°間、豪州EEZを含む（別添2参照）

(5) 調査期間

独立行政法人水産総合研究センター遠洋水産研究所

REQUEST FOR FOREIGN RESEARCH VESSEL TO CONDUCT MARINE SCIENTIFIC RESEARCH IN AUSTRALIAN WATERS

List of the abbreviations used in the text:

CCSBT	Commission for the Conservation of Southern Bluefin Tuna
IOTC	Indian Ocean Tuna Commission
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
CTD	Conductivity -Temperature Depth meter
FAJ	Fisheries Agency of Japan
JAMARC	Japan Marine Fishery Resources Research Center (Japan)
NRIFSF	National Research Institute of Far Seas Fisheries (Japan)
SBT	Southern Bluefin Tuna
WA	Western Australia
WAFIC	Western Australia Fishing Industry Council

The Fisheries Agency of Japan wishes to request permission for the Japanese vessel, *R/V DAINI (No.2) TAIKEI-MARU*, which will conduct one marine scientific research as one of components within Scientific Research Program under CCSBT in Australian waters.

We provide the following information in support of this request. The information is listed in accordance with the format of the Guideline provided.

In addition, this information is subject to change in part. The plan of the whole cruise proposed and discussed at the Scientific Committee of the CCSBT which will be held in September 2003. In case of change, a revised version will be delivered.

NOTE:

1. SBT stock has been managed under the CCSBT. At the 7th CCSBT commission meeting (held in Sydney from 18 to 21 April 2001), the draft Scientific Research Program (SRP) developed at the 5th Scientific Committee meeting (held in Tokyo from 19 to 24 March 2001) was approved. *Development of a spawning biomass index* are one of the 9 components within SRP. This survey will take place as one of components within Scientific Research Program under CCSBT.

2. Regarding these surveys, Japan will present cruise proposals at the 2003 Scientific Committee meeting of CCSBT, and Japan advises that it is ready to conduct a supplemental spawning survey using *R/V SHOYO-MARU*, another research vessel.

**INFORMATION IN SUPPORT OF A REQUEST BY A FOREIGN RESEARCH
VESSEL TO CONDUCT MARINE SCIENTIFIC RESEARCH WITHIN THE
AUSTRALIAN TERRITORIAL WATERS, EXCLUSIVE ECONOMIC
ZONE, AND ON THE AUSTRALIAN CONTINENTAL SHELF**

(a) Full Description of the Marine Scientific Research Project

Nature:

The Southern Bluefin Tuna (SBT) is a highly migratory pelagic species and is considered to broadly distribute across the oceans of the South hemisphere. The only known spawning ground is located in an area of the south of Java, Indonesia and the northwest Australia during summer, mainly from September to April. This stock has been managed under the CCSBT.

The CCSBT developed an overall Scientific Research Program (SRP) and *Development of a spawning biomass index* is classified as one of the nine components within SRP. This survey is developed as a part of the program '*Development of a spawning biomass index*' focusing on collection of basic information on relationship of maturity and vertical behavior of large SBT, and research proposals and results have been presented and discussed at the CCSBT scientific forum.

Objectives:

Although Indonesian domestic fisheries are operating within the SBT spawning area, large uncertainties on their fishing practices, targeting, and reliability of fishery statistics make it difficult to derive a reasonable index of spawning biomass from those fisheries. Lack of detailed understandings on spatial and vertical distribution of spawners as well as a by-catch nature of SBT in the Indonesian fisheries are recognized as additional problems to treat Indonesian catches as an representative sample from spawners.

Recently, the analysis of results of the Australian-Indonesian collaborative monitoring program suggest surface aggregation of large fish and/or reproductively active fish estimated from the higher catch rate of large SBT with operations targeting shallower water (operating depth are estimated from the proportion of yellowfin tuna to bigeye tuna catch). It has been also noted that size distribution of Indonesian domestic catch is significantly larger than those of historical longline catch by Japan in the same area.

Then, we are trying to investigate the characteristics of SBT distribution with a special focus on a relationship of vertical distribution and migration corresponding to fish size and reproductive activities and various environmental factors using various procedures including a depth disaggregating sampling, pinger-tracking, and archival and pop-up tagging. This is the third year of the project with this proposed survey.

Proposed methods and equipment to be used:

- **Longline operations with two different configurations:** In order to examine the influence of different configuration of gears, longline operations with two different configurations will be conducted. Targeting depth of longline operations are usually determined with number of hooks per basket. Longline gears to be used in this survey will have two sets of baskets with 5 hooks (shallow setting: similar to Indonesian domestic operations) and one set of basket with 15 hooks (deep set: similar to Japanese historical operations) alternatively in sequence. Total number of hooks will be about 1000. All SBT caught will be measured and weighted and reproductive organs, stomachs, and otoliths will be sampled for biological examination. Detailed catch information of other species will be recorded.
- **Monitoring of depths and environments for hooks set:** A certain number of time-depth-recorder will be deployed to branch lines of some hooks. This device will record time, depth, and water temperature every 10 seconds to monitor gear depth and behavior from the gear setting to retrieval. When fish is caught by hooks in the vicinity of these recorders, the time of fish hooked and fish died can be obtained together with depth and temperature data.
- **Tagging of large pelagic fish:** When yellowfin tuna, bigeye tuna, billfish, swordfish and sharks are caught in vigorous condition, those fish will be released with conventional tags. Tagging to bigeye tunas will be conducted as a collaborative activity with the IOTC Tagging Program. If a large number of SBT is caught, some SBT may be released with archival tags or pop-up archival tags.
- **Oceanographic Observation:** XBT will be cast at the end of the longline setting to monitor general environmental conditions of operating areas. Additional XBT and XCTD will be cast at the stations indicated as a collaborative activity with the Observation Frontier Project.
- **IOTC tagging activities:** After conclusion of SBT spawning ground survey, the vessels will conduct the survey of feasibility of the IOTC tagging of bigeye and yellowfin tunas with pole-and-line. This activity will be held in the high sea area of Indian Ocean and will not occur within the Australian EEZ.

(b)Vessel Information

Vessel Name	<i>“Daini (No.2) Taikei-maru”</i> (Owned by Taikei fishing Inc., Ishinomaki-city, Miyagi, Japan)
Means of Propulsion	Engine: (860kw)
Configuration/Dimensions:	LOA (37.31 m) Breadth (7.80 m) Depth (3.40 m) Gross tonnage (198 t :IGT 312 t) Compartment (20 persons)

(c) Frequencies of Devices (See Appendix 1)

(d) Deployment of Equipment

No deployment of equipment will be planned during this cruise except daily deployment and retrieval of fishing gears.

(e) Proposed Itinerary (tentative)

Yr	Mo	Day	Schedule
2003	12	15	Lv. Ishinomaki-city, Miyagi, Japan (via Lombok Strait)
		12/30 to 1/9	Spawning Ground Survey (including longline operations within AFZ)
2004	1	13	Ar. Fremantle
		16	Lv. Fremantle
		1/21 to 2/15	Spawning Ground Survey (including longline operations within AFZ)
	2	17	Ar. Bali (Indonesia)
		20	Lv. Bali
			IOTC tagging activities (high sea in the Indian Ocean, outside AFZ)
	3	20	Ar. Singapore
	4	10	Ar. Ishinomaki (Japan)

(f) Scientific Research Areas (Map: Appendix 2)

Spawning Ground Survey:

The area encompassed by the line of 20°S, lines of 100°E and 130°E, and Indonesian EEZ border.

IOTC tagging activities:

Area for activities to be decided later, but constrained within the high sea in the Indian Ocean.

(g) Sponsoring Institutions and Related Information

Sponsor Agency	Fisheries Agency of Japan (FAJ) Director General: Fumio TAHARA
Supervisors on Scientific Project	Fisheries Research Agency (FRA) Director :Hiroshi HATANAKA National Research Institute of Far Seas Fisheries (NRIFSF), Chief Scientists : Sachiko TSUJI (SBT spawning survey) Chief Scientists : Tom NISHIDA (IOTC tagging activities)
Operator Agency	Fisheries Research Agency (FRA)
Contact Persons	SBT spawning survey : S. TSUJI (NRIFSF) IOTC tagging activities : T. NISHIDA (NRIFSF)
Master of the vessel	Fishing master : Hidehiko ABE Captain : Osamu ASANO
Owner of the vessel	Taikei Fishing Inc., Ishinomaki-city, Miyagi, Japan Director : Keietsu OGATA

(h)-i Australian Scientists/Participants

No participation of Australian scientists is planned.

(h)-ii Results of the Survey

Preliminary and final results of the survey and relevant researches will be reported to the scientific forum of the CCSBT and the annual workshops of the Recruitment Monitoring Program. Report of IOTC tagging activities will be made to the appropriate scientific forum of the IOTC.

Data and samples collected during the SBT spawning survey can be shared with Australian scientists on request following to the agreement of appropriate arrangements on use of those data and samples as well as rules relating to publication. Interested scientists are requested to contact the Chief Scientist.

(i) Relationship & Agreements between Australia and Japan

The SBT spawning survey will be conducted as one component of the Scientific Research Program (SRP) under the CCSBT. Australia is one of the most active members of the CCSBT and has participated in all discussions reviewing proposals and results of this survey.

Contact points within Australia relating to CCSBT scientific issues are John KALISH and James FINDLEY of the BRS.

SBT mortalities caused through this survey will be covered with the Research Mortality Allowance (RMA) of the CCSBT. Government of Japan is responsible for securing appropriate RMA with CCSBT's approval before the initiation of this proposed cruise.

(j) Sharing the Benefits

Neither commercial nor financial benefits are expected from this survey. However, when such benefits are recognized, Japan is happy to develop ways to share those benefits to satisfy both sides.

(k) Manipulation on the Australian Continental Shelf

Only biological samples will be taken from the Australian waters. This Survey include catch of SBT and other pelagic species. SBT mortalities caused through this survey will be covered with the Research Mortality Allowance (RMA) of the CCSBT as mentioned above.

No manipulation on continental shelf is planned in this survey.

(l) Radio Active/Hazardous Materials On-board:

No radioactive or hazardous substances are on board.

Part I (A)

(a) Itinerary for Australian Port Visits :

- Fremantle 13-16 January, 2004

Maximum period staying within the Australian waters:
20 December, 2003 – 16 February, 2004

(b) Radio Frequencies:

Attached as **Appendix 1**

(c) Australian Scientific Organization or Contact Persons:

John KALISH, or James FINDLEY (BRS).

(d) Onboard Crew and Investigators

-Crews

Positions	Name	Birth Date	Birth Place
Fishing Master	Hidehiko ABE	Jan. 29, 1939	Japan
Captain	Osamu ASANO	Nov.19, 1967	Japan
Chief engineer	Hidetoshi ABE	Apr. 1, 1946	Japan
Radio operator	Shunichi HENMI	Mar. 6, 1935	Japan
1st Officer	Toshimitsu HINO	Jun. 7, 1970	Japan
1st Engineer	Katsunori SATOMI	May 29, 1960	Japan
2nd Engineer	Yuji KONDO	Feb. 25, 1971	Japan
Boatswain	Kenichi ABE	Nov. 22, 1947	Japan
Deck hand	Tatsuo SATO	Aug. 10, 1946	Japan
Deck hand	Sadao YAMAMOTO	Jul. 6, 1942	Japan
Deck hand	Kotaro ABE	Jan. 8, 1965	Japan
Deck hand	Tsukushi KOYAMA	Aug. 15, 1942	Japan
Oilier	Eiji ONODERA	Sep. 17, 1955	Japan
Oilier	Chihiro ENDO	Apr. 5, 1952	Japan
Cook	Seichiro HONDA	Sep. 23, 1949	Japan

-Scientists and Field Technicians

To be decided later.

Frequency List of DAINI (No. 2) TAIKEI-MARU

1. Compulsory Equipment

	Type	Frequency(kHz)			Power(W)	Note
MF/HF	F1B	2169	2187.5		100	
		2177	2189.5			
	F1B	4207.5	6313	4180.5	250	
		6312	8415.5	6275.5		
		8414.5	12578	8391.5		
		12577	16805.5	12521		
		16804.5	18899	16721		
		4208	22375	16872		
		6312.5	4209	22318		
		8415	6313.5			
		12577.5	8416			
		16805	12578.5			
		18898.5	16806			
		22374.5	18899.5			
		4208.5	22375.5			
	A1A	2047.5	2070	2075	100	
		2091	2297.5	2350		
		2745	3235	3317.5		
	A1A	4-16, 22MHz			200	32, 40, 48, 51
	J3E	1705	1715	1738.5	100	
		2182	2235	2394.5		
		2785	2832	3302		
	J3E	4125	6215	8291	200	
		12290	16420			
	J3E	4, 8-16, 22MHz			200	72
	J3E	4-22MHz			200	65
	J3E	4, 12-16, 22MHz			200	96
VHF	F2B	150MHz			25	CH70
	F3E	150MHz			25	CH6, CH8, CH10, CH12-CH14 CH16, CH18, CH20, CH22
	F3E	158.17MHz	158.57MHz		25	
		159.21MHz				

2. Other Equipment

Type	Frequency(kHz)	Power(W)	Note	
VHF	F3E 158.17, 158.57, 159.21MHz	25		
HF	J3E 27054.5 27058.5 27166.5	25		
	27174.5 27210.5 27234.5			
	27274.5 27334.5 27362.5			
	27410.5			
H3E	27524	6		
MF/HF	A1A 2047.5 2070 2075	250		
	2297.5 2350 2745			
	3235 3317.5			
	A1A	4-16, 22MHz	250	U1, 32, 40, 48, 51, 55, 56
	J3E	1705 1715 1738.5	50	
		2182 2235 2394.5		
		2785 2832 3302		
	J3E	4, 8-16, 22MHz	200	72
	J3E	4-16, 22MHz	200	65
	J3E	4, 12-16, 22MHz	200	96
MF	A2B 2331.5	3		
Radar	P0N 9410MHz	25KW		

3. Wireless Telephone

Type	Frequency(kHz)	Note
Wireless Telephone (1)	JRC/JSB-28 (27MHz)	
Wireless Telephone (2)	JRC/NTD-1011 (27MHz)	
Wireless Telephone (3)	JRC/JHV-1151 (150MHz)	
Wireless Telephone (4)	JRC/JHV-234 (150MHz FM)	

4. Sonar

Type	Frequency(kHz)	Note
FURUNO CSH-23	40L kHz	
FURUNO FSU-24	26L kHz	

**Proposed Survey Area (R/V DAINI (No.2) TAIKEI-Maru
The Spawning Ground Survey**

