CCSBT-CPUE/0705/04

Preparation and outline of the Japanese longline data for the CPUE Modeling Workshop.

CPUE モデリング作業部会のためのデータ準備とその概要

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Summary

Japan provides the CPUE Modeling Workshop with opportunities to analyze the Japanese longline fisheries fine scale data and the scientific observer data. Both data are daily fishing records disaggregated to individual vessel in 1 degree of latitude and longitude resolution with the catches of major tunas (southern bluefin tuna, albacore, bigeye tuna, and yellowfin tuna) in addition to the number of hooks used and number of hooks per baskets.

Introduction

The Japanese longline CPUE is the primary indicator of stock abundance of the Southern Bluefin Tuna (SBT). Japan prepared the shot by shot data (logbook data) of the Japanese longline fishery in order to analyze in the CPUE Modeling Workshop. Furthermore, Japan prepared the scientific observer data which is prepared in the same format as the shot by shot fisheries data. In this document, we explain the format of the shot by shot fisheries data which the Japan prepared for this workshop.

Shot by shot data

Japanese tuna longliners larger than 10 GT submit logbooks to the Japanese government at the end of each cruise. Resolution of the logbooks is shot by shot and 1 degree of latitude and longitude. Due to the long cruises they are taking in recent years, it takes more than a year to complete data processing for one calendar year after the end of that calendar year. When we provide the fisheries data to CCSBT, we simply aggregate logbook data which is available at that time and raise it to represent total amount of catch and effort in month and by 5 degree square of latitude and longitude. Until the logbook data became available, the RTMP data are used supplementary. The data provided to CCSBT is based on the fisheries data of which operated in the CCSBT statistical area 1-10, or of the operations in which SBT are caught in the other area.

The logbook data which we prepared for the analysis in this workshop is all the data operated in the south of 20S, for the years of 1986-2006, and included all longliners operated in the CCSBT statistical area

1-9. This shot by shot data has vessel ID, size class of the boat, date of operation (year, month, day), latitude, longitude, CCSBT statistical area code, total number of the hooks set, total catch number of the tunas by species (SBT, albacore, bigeye, yellowfin), hooks per baskets, and CPUE of the SBT. The detail of each data is explained in Appendix 1. The data for 1986-2004 are extracted from the logbook data, while the data for 2005-2006 are taken from the RTMP data.

Scientific observer data

Since 1992, the scientific observers were conducted to collect scientific data on the Japanese longline vessels. The scientific observers generally observe short time for gear setting and most of gear hauling, and make an independent report from the fisherman. The scientific observer don't monitor all the hauling, therefore, the total daily catches in number are estimated by the correction factor (total hauling time divided by the total observed hauling time).

The scientific observer data which we prepared for the analysis in this workshop is all shot by shot data observed in the CCSBT statistical areas 2-9 in 1992-2005. This shot by shot data has cruise ID, observed date (year, month, day), latitude, longitude, CCSBT statistical area code, total number of the hooks reported by the observer, estimated catch number of tunas (SBT, albacore, bigeye, yellowfin), hooks per baskets reported by the observer, and CPUE of the SBT. The detail of each data is explicated in Appendix 2.

Access to the data

In order to secure the confidentiality, the staff members of the NRIFSF (National Research Institute of Far Seas Fisheries, Japan) will conduct the calculation by using these data, and results of the calculation will be provided to the workshop. We are not able to provide these data to the other CCSBT members. Also, we can not allow foreign scientists to directly access to the detailed data.

Translated by Secretariat

Appendix 1

[Logbook data format]

The logbook data are kept in the following two formats:

1. An MS-ACCESS database (**LL_SbySdata86-06.mdb**)
2. A comma delimited csv file (**LL_SbySdata86-06.csv**)

Both formats have the following 15 fields (vessel ID, size class of the ship, year, month, day, latitude, longitude, CCSBT statistical area code, total number of the hooks set, catch number of SBT, catch number of albacore, catch number of bigeye, catch number of yellowfin, hooks per baskets, and CPUE of the SBT).

Column	Field	Comments
1	"vesID"	ID of the each fishing vessel.
2	"shipsize_rank"	Gross registered tonnage class of the each fishing vessel. 50-99t = "50", 100-149t = "100", 150-199t = "150", 200-249t = "200", 250-299t = "250", 300-349t = "300", 350-399t = "350", 400-449t = "400", 450-499t = "450", 500-549t = "500"
3	"year"	Operated date (year). (e.g. 1986)
4	"month"	Operated date (month). (1-12)
5	"day"	Operated date (day). (1-31)
6	"lat1n"	Latitude of the position. South latitude is minus value. Position is registered as the degree of northern border of any grid. (e.g. 20S - 21 S is expressed as "-20", 45 – 46S as "-45")
7	"lon1w"	Longitude of the position. East longitude is plus value, and West longitude is minus value. Position is registered as the degree of western border of any grid. (e.g. 100E - 101E is expressed as "100", 0E – 1E as "0" and 1W – 0 as "-1")
8	"Area"	The CCSBT statistical area in which fishing was conducted. (2-15)
9	"Hook"	Total number of hooks set.
10	"N_SBT"	Catch number of southern bluefin tuna.
11	"N_ALB"	Catch number of albacore.
12	"N_BET"	Catch number of bigeye tuna.
13	"N_YFT"	Catch number of yellowfin tuna.
14	"HPB"	Number of hooks per baskets.
15	"CPUE_SBT"	CPUE of southern bluefin tuna. Calculated as the catch number per 1000 hooks.

Appendix 2

[Scientific observer data format]

The scientific observer data are kept in the following two formats:

1. An MS-ACCESS database (**LL_OBdata92-05.mdb**)
2. A comma delimited csv file (**LL_OBdata92-05.csv**)

Both of the formats has the following 14 fields (cruse ID, year, month, day, latitude, longitude, CCSBT statistical area code, total number of the hooks, catch number of SBT, catch number of albacore, catch number of bigeye, catch number of yellowfin, hooks per baskets, and CPUE of the SBT).

Column	Field	Comments
1	"OB_legID"	ID of the each cruise which was observed.
2	"OB_year"	Observed date (year). (e.g. 1992)
3	"OB_month"	Observed date (month). (1-12)
4	"OB_day"	Observed date (day). (1-31)
5	"OB_lat1n"	Latitude of the position which was reported by the observer. South latitude is minus value. Position is registered as the degree of northern border of any grid. (e.g. 20S - 21 S is expressed as "-20", 45 – 46S as "-45")
6	"OB_lon1w"	Longitude of the position which was reported by the observer. East longitude is plus value, and West longitude is minus value. Position is registered as the degree of western border of any grid. (e.g. 100E - 101E is expressed as "100", 0E – 1E as "0" and 1W – 0 as "-1")
7	"Area"	The CCSBT statistical area in which fishing was conducted. (2-15)
8	"OB_Hook"	Reported total number of the hooks by the observer.
9	"OB_N_SBT"	Estimated catch number of southern bluefin tuna which was adjusted by the ratio between observed and un-observed time.
10	"OB_N_ALB"	Estimated catch number of albacore which was adjusted by the ratio between observed and un-observed time.
11	"OB_N_BET"	Estimated catch number of bigeye which was adjusted by the ratio between observed and un-observed time.
12	"OB_N_YFT"	Estimated catch number of yellowfin which was adjusted by the ratio between observed and un-observed time.
13	"OB_HPB"	Reported number of hooks per basket by the observer.
14	"OB_CPUE_SBT"	CPUE of southern bluefin tuna. Calculated as the estimated catch number per 1000 hooks.

Appendix 3

[Example data]

Example of Logbook data format. Data value is dummy.

vesID	shipsize_ rank	year	Mon th	day	lat1n	lon1w	Area	hook	N_ SBT	N_ ALB	N_ BET	N_ YFT	HPB	CPUE _SBT
3650	250	1926	8	19	-52	14	9	3306	10	55	11	1	10	3.02
3650	250	1926	8	18	-52	14	9	3306	0	22	10	2	10	0
3650	250	1926	8	17	-52	14	9	2886	16	29	10	8	10	5.54
3650	250	1926	8	16	-52	14	9	2465	8	69	8	2	10	3.25
3650	250	1926	8	30	-52	14	9	2071	10	31	8	4	10	4.83
3650	250	1926	8	21	-52	14	9	2461	8	69	8	2	10	3.25
3650	250	1926	8	22	-50	15	9	2115	16	97	17	1	10	7.57
3650	250	1926	8	23	-52	14	9	2758	16	64	14	4	10	5.8
3650	250	1926	8	24	-52	14	9	3463	19	96	18	3	10	5.49

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Example of Scientific observer data format. Data value is dummy.

OB_legID	OB_ year	OB_ month	OB_ day	OB_ lat1n	OB_ lon1w	Area	OB_ Hook	OB_ N_ SBT	OB_ N_ ALB	OB_ N_ BET	OB_ N_ YFT	OB_ HPB	OB_ CPUE_ SBT
RT193201	1932	4	25	-47	82	8	5079	13	6	16	1	10	2.56
RT193201	1932	4	26	-48	87	8	5220	10	3	12	0	10	1.916
RT193201	1932	4	27	-48	88	8	4560	10	7	8	4	10	2.193
RT193201	1932	4	28	-48	83	8	5260	16	9	14	1	10	3.042
RT193201	1932	4	29	-48	83	8	4507	23	9	19	4	10	5.103
RT193201	1932	4	30	-49	79	8	4458	23	1	17	3	10	5.159
RT193201	1932	5	1	-49	97	8	4417	8	4	8	9	10	1.811
RT193201	1932	5	2	-49	81	8	5282	15	7	10	2	10	2.84
RT193201	1932	5	3	-49	93	8	5259	19	1	26	4	10	3.613

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