Comments for DOCUMENT SAC-05-10a

National Research Institute of Far Seas Fisheries,
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Contents

1. Points for objection and reasons

1.1 “The current spawning biomass could be less than 10,000t” (p4, 4.4 Management advice line4)

The calculation was conducted based on below assumptions

1) the Japanese CPUE-based index of abundance represents the single cohort (p3, 3. Estimating spawning biomass, line3)

2) all spawning Pacific bluefin, essentially one cohort, are fully vulnerable to the longline fishery (p3, 3. Estimating spawning biomass, line9)

We disagree these assumptions

1. Points for objection and reasons

1) the Japanese CPUE-based index of abundance represents the single cohort (p3, 3. Estimating spawning biomass, line3)

- It is plausible that all JPN LL catch have never been composed of only one cohort, as it is clearly shown in Fig. 5 of “SAC-05-10a”
- Age composition should be based on the information of direct age determination from otoliths for older PBF

→ 2. Supplemental explanation
2.1 Preliminary results from direct ageing using otoliths (after ISC ageing WS in Nov. 2013)

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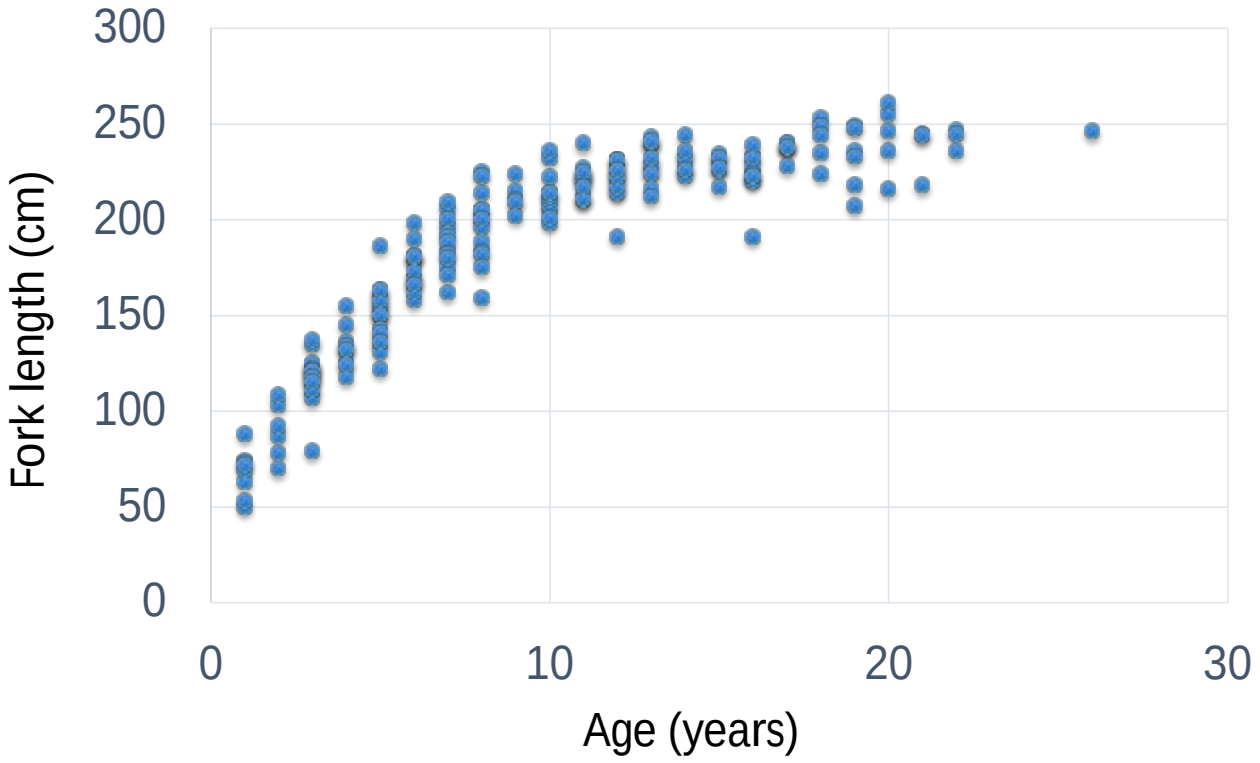
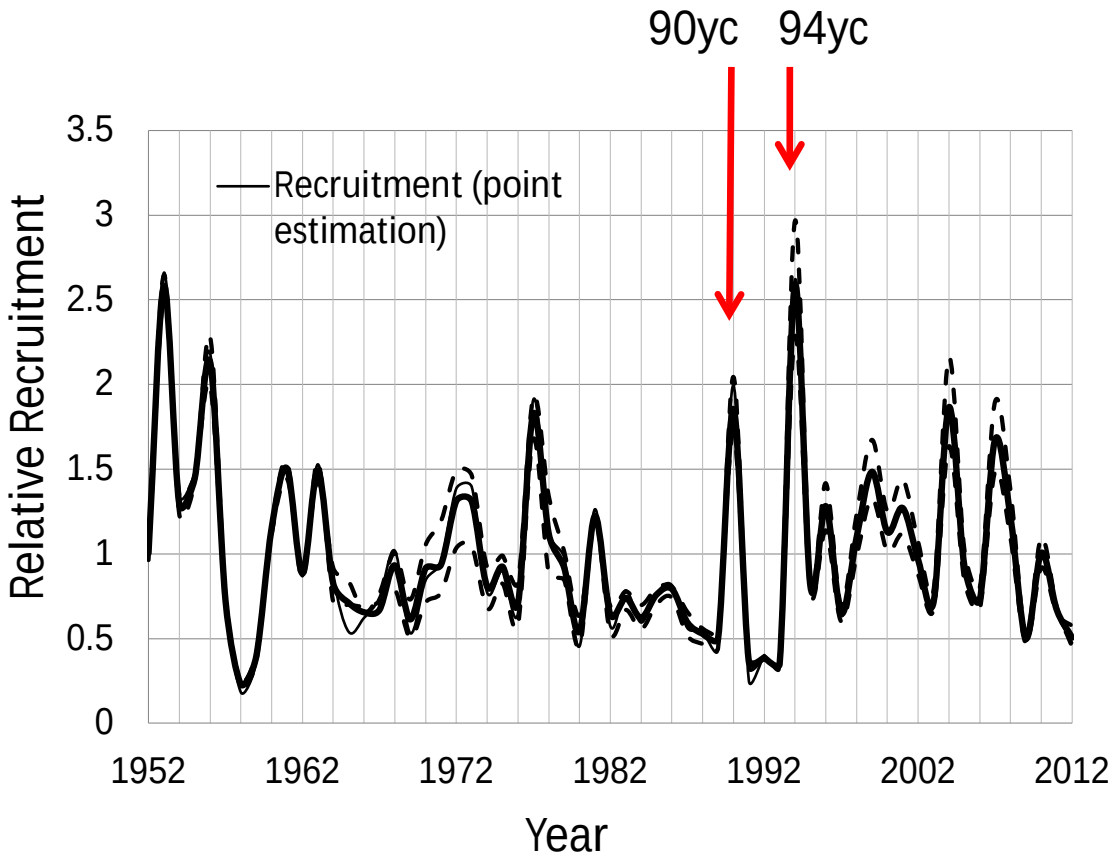
2.1 Preliminary results from direct ageing using otolith (after ISC ageing WS in Nov. 2013)

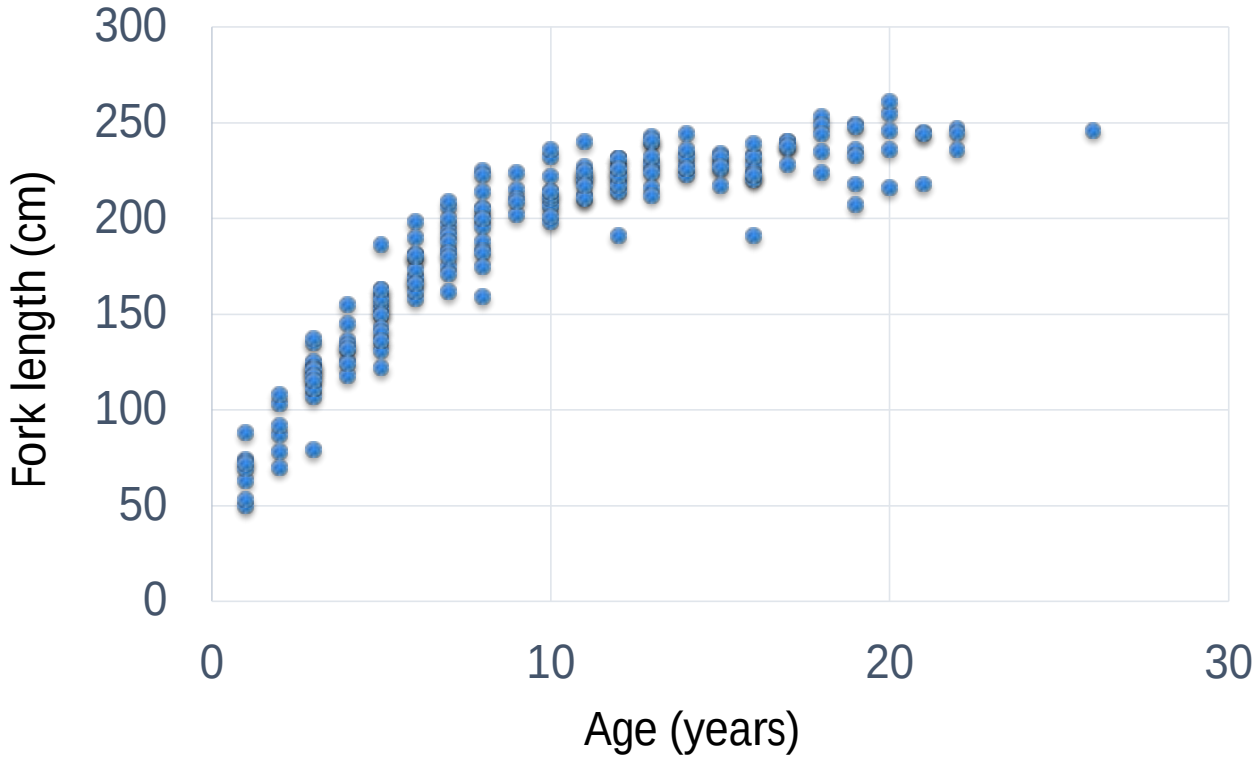


In general, the size of PBF caught by longline is larger than 150 cm FL and dominant size is over 180 cm.
Large PBF (>180 cm FL) have already decreased the growth rate, it suggests that the several year classes are possible to consist a single peak of length composition

- This results provided based on the shared method in the ageing workshop in last year
- Correction of catch timing was not conduct

After 2004 (90yc>=14 years old ; 94yc>=10 years old), 90yc and 94yc would compose one peak in the length composition



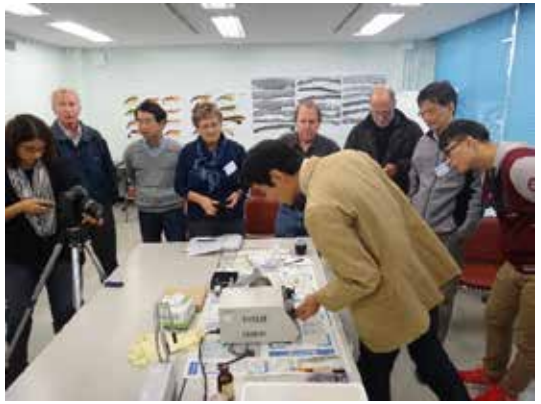


1. Points for objection and reasons

1) the Japanese CPUE-based index of abundance represents the single cohort (p3, 3. Estimating spawning biomass, line3)

- CCSBT started to include direct ageing data in their operating model (CCSBT, 2012) .

- Ageing WS under the ISC held in last November, the accuracy for age determination of PBF is improving.



- Age composition should be based on the information of direct age determination from otoliths for older PBF

1. Points for objection and reasons

2) all spawning Pacific bluefin, essentially one cohort, are fully vulnerable to the longline fishery (p3, 3. Estimating spawning biomass, line9)

- As explained previous slide, spawning Pacific Bluefin should consist of several year classes
- Longline fishery mainly catch adult PBF over 7 years old. In addition, spawning PBF also consists of younger spawner (starting from age 3)
- All spawning PBF *never* been one cohort
- *Not* all spawning PBF are fully vulnerable to the longline fishery

1. Points for objection and reasons

1.1 “The current spawning biomass could be less than 10,000t”

- We disagree the assumptions below

1) the Japanese CPUE-based index of abundance represents the single cohort

2) all spawning Pacific bluefin, essentially one cohort, are fully vulnerable to the longline fishery

The estimation based on an *unrealistic single cohort assumption* should be *unreliable*

The single cohort assumption did not consider the younger spawners which could not be caught by longline fishery, thus the current spawning stock biomass estimated in “SAC-05-10a” was *underestimate.*

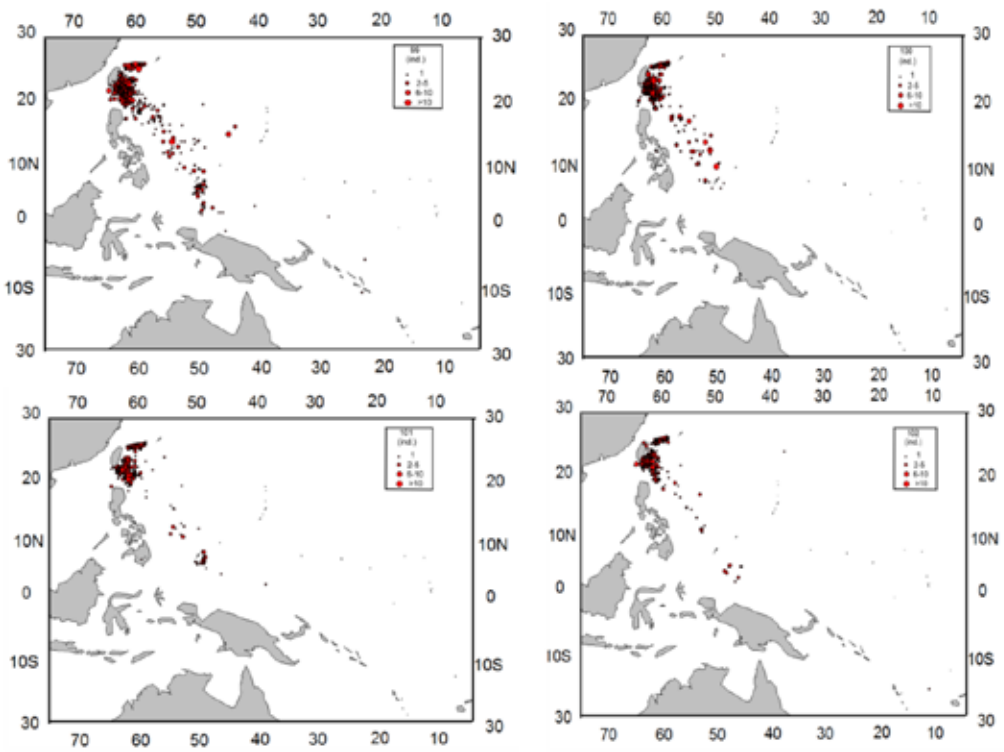
1. Points for objection and reasons

1.2 “The CPUE data for the Chinese Taipei longline fishery do not appear to be consistent with its composition data or with the Japanese longline CPUE data, which is considered a more reliable index of abundance, and therefore should be omitted from the analysis until the reason for the inconsistencies are identified.” (p4, 4.3. Future research, line4)

Why TWN LL composition or CPUE did not consistent with JPN LL ?

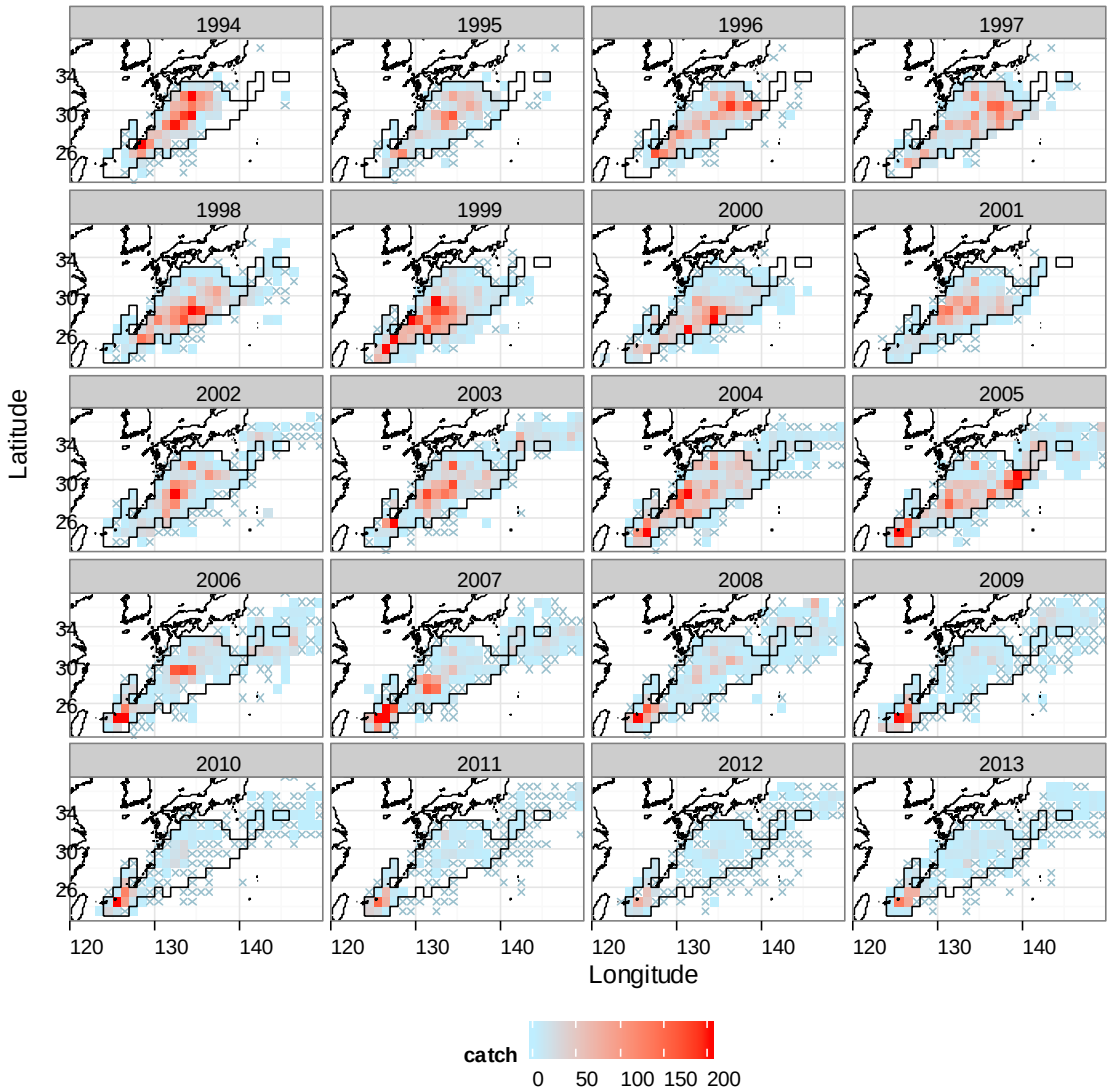
Comparison of fishing ground

TWN LL



Location of positive catch operation for Taiwanese small-scale longline fleet in 2010-2013 (ISC/14-1/PBFWG/01)

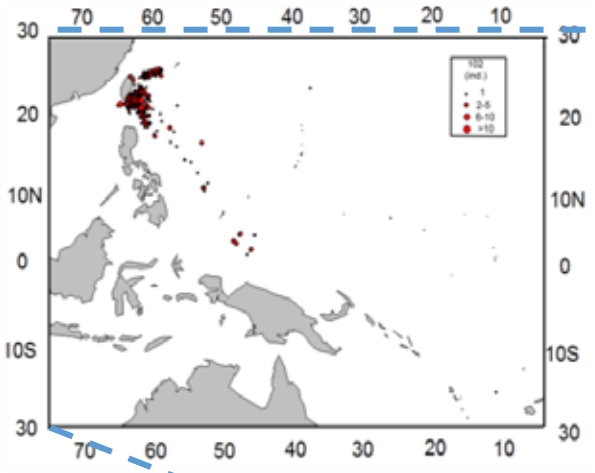
JPN LL



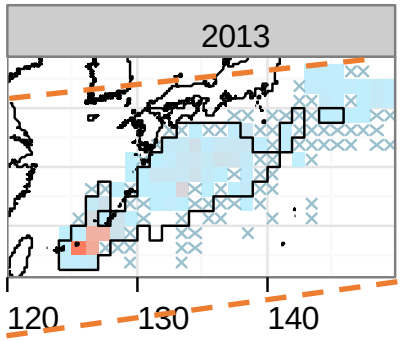
CPUE distribution of Japanese coastal longline fleet in 1994-2013 (ISC/14-1/PBFWG/02)

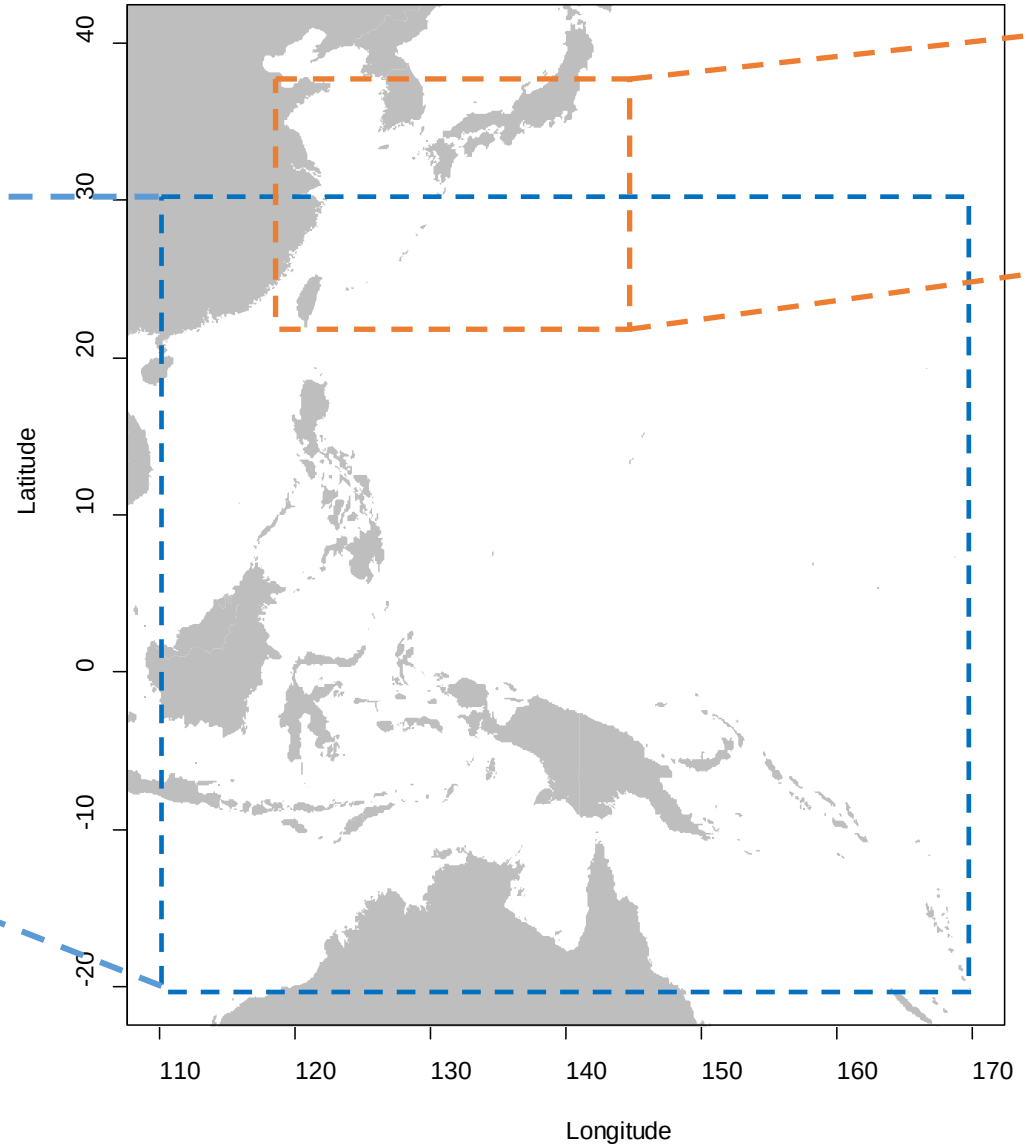
Comparison of fishing ground

TWN LL



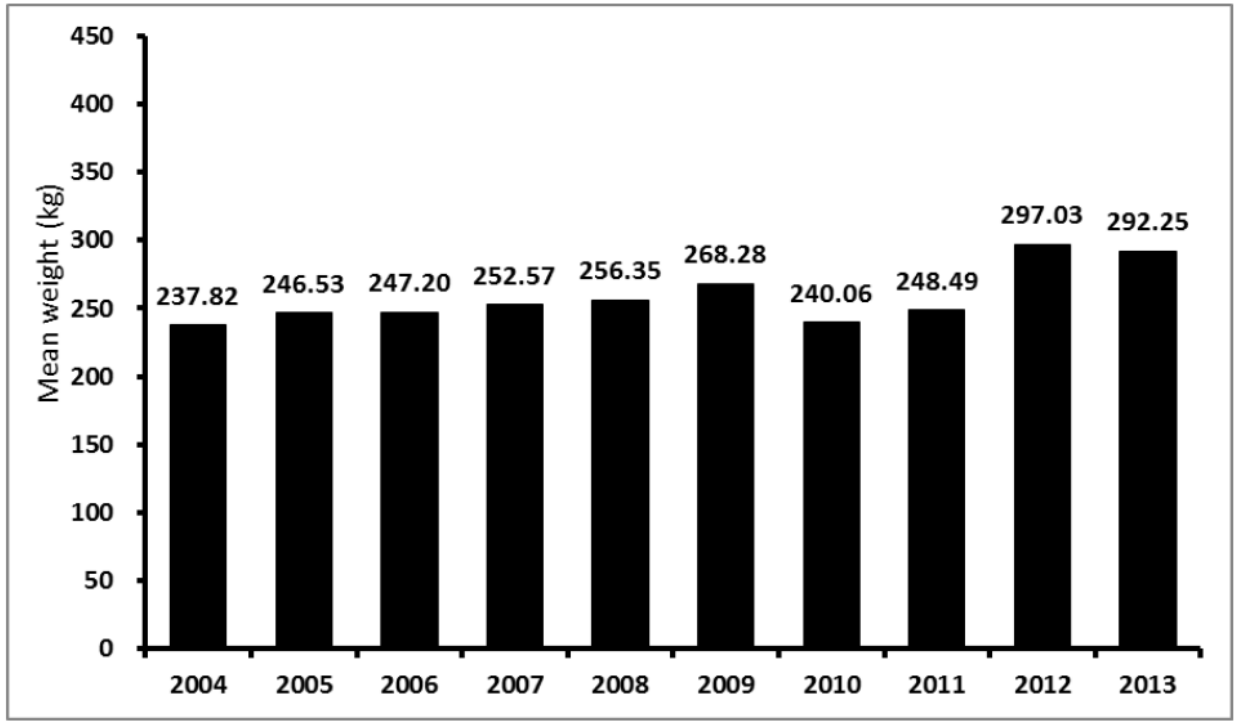
JPN LL





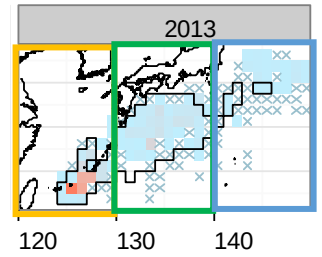
Comparison of Average weight

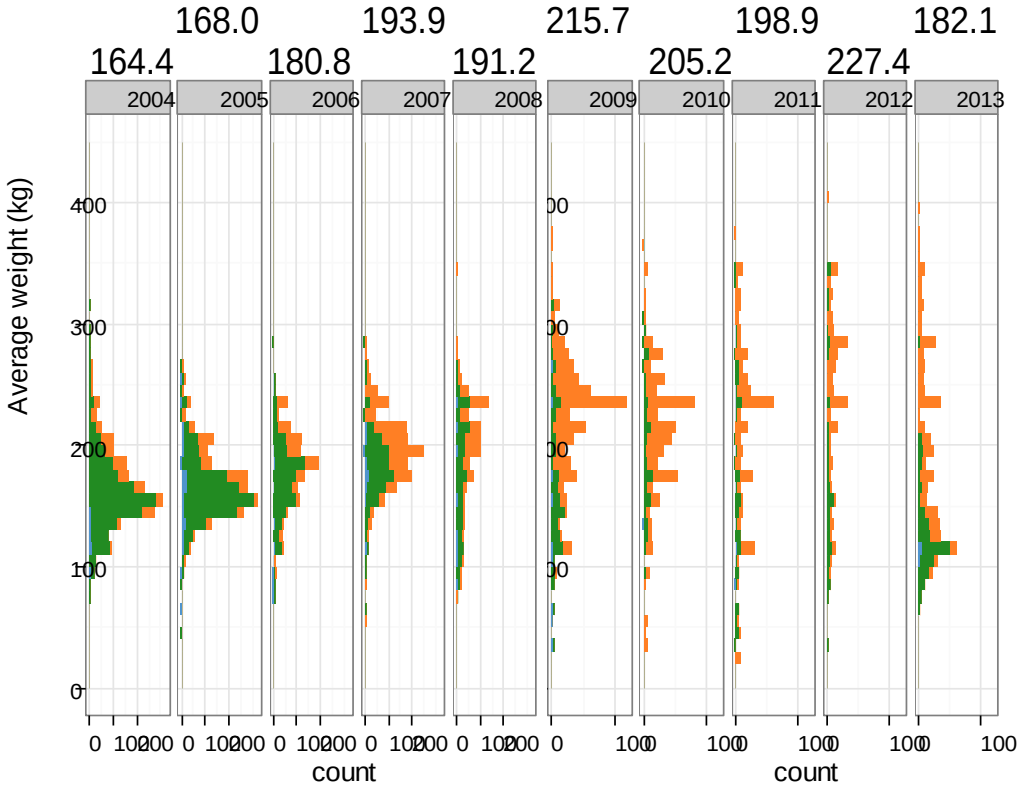
TWN LL

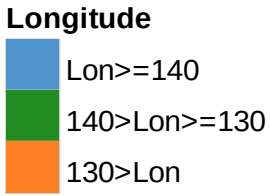


Average weight (kg) of PBF caught by Taiwanese small scale longline in 2004-2013 (ISC/14-1/PBFWG/01)

JPN LL







Average weight (kg) of PBF estimated by logbook for Japanese castal longline in 2004-2013

1. Points for objection and reasons

1.2 “The CPUE data for the Chinese Taipei longline fishery do not appear to be consistent with its composition data or with the Japanese longline CPUE data, which is considered a more reliable index of abundance, and therefore should be omitted from the analysis until the reason for the inconsistencies are identified.” (p4, 4.3. Future research, line4)

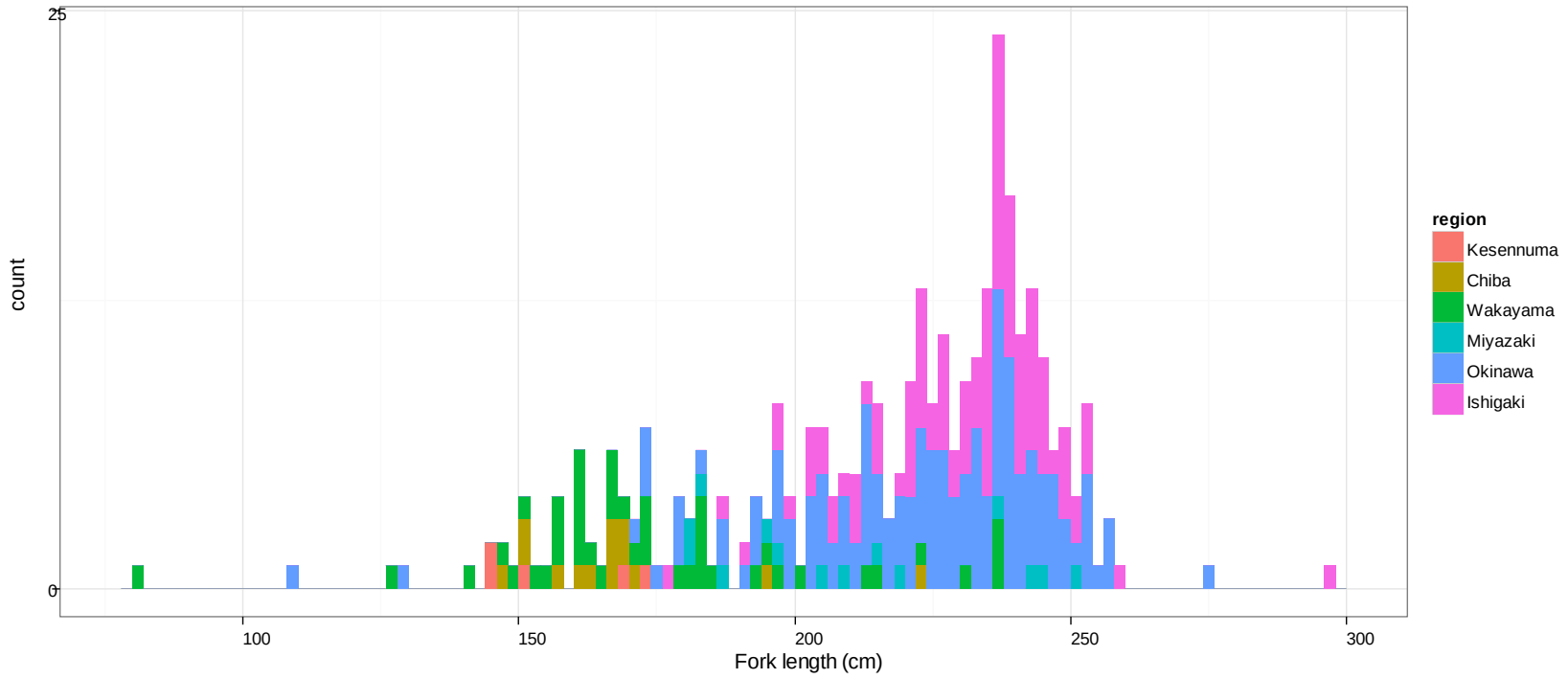
- It was considered a nature of these fisheries that there were some differences in CPUE and body size composition between Japanese and Taiwanese longline fisheries data
- Both Japanese and Chinese Taipei data could be improved by further analysis

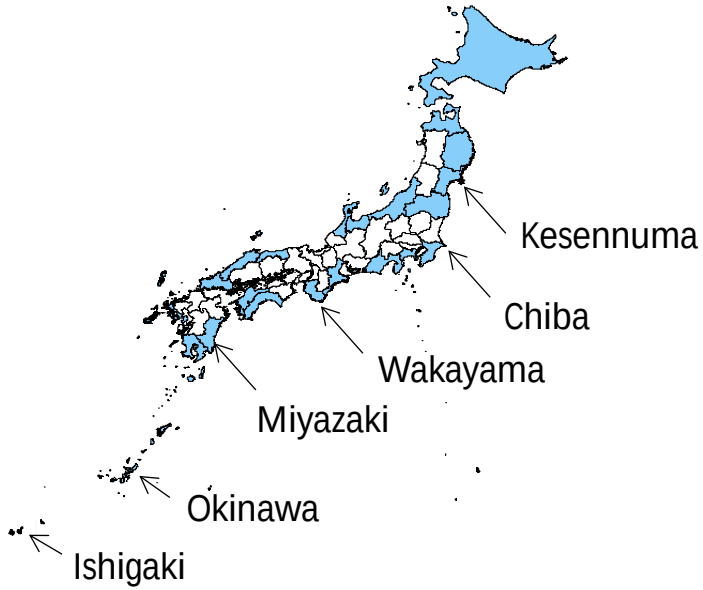
2. Supplemental explanation
2.2 Problems for the estimation method of length composition

2.2 Problems for the estimation method of length composition

Monthly length composition was estimated by pooling all sampling port without accounting for the regional effort difference ,
then it was extended by the cover rate of measured number to estimated total number in certain month

Example : May 2012





2.2 Problems for the estimation method of length composition

- The cover rate of sampling port are different

ü Japan increased sampling efforts of size measurement recently
ex. Tomari port (Okinawa main Island) from 2007
Yaeyama port (Ishigaki Island) from 2008

ü Coverage rate of these two ports are extremely high (Tomari: over 60%, Yaeyama: over 90%). These coverage rate is higher than those of existing sampling port

ü As SAC-05-10a pointed, size of PBF caught in South region is generally larger than those in North (Itoh, 2006; Ichinokawa, 2007)

- The results of length composition must account regional heterogeneities
- At least, these heterogeneities will be corrected in the next full stock assessment

1. Points for objection and reasons

1.2 “The CPUE data for the Chinese Taipei longline fishery do not appear to be consistent with its composition data or with the Japanese longline CPUE data, which is considered a more reliable index of abundance, and therefore should be omitted from the analysis until the reason for the inconsistencies are identified.”

- For the TWN LL, ISC PBF WG already recognized the problems of their CPUE, the last ISC PBF WG in this February already recommended to work to resolve the problems
- It is too early to make any decision to use or not
- If one need to be omitted, it should be discussed at ISC PBFWG and IATTC is member of PBFWG

3. Research plan

1. The regional bias in the estimation of JPN LL length composition will be corrected by the next full stock assessment

2. Japan is very eager to collaborate with Chinese Taipei to analyze the longline size data and CPUE of both Chinese Taipei and Japan through ISC PBFWG

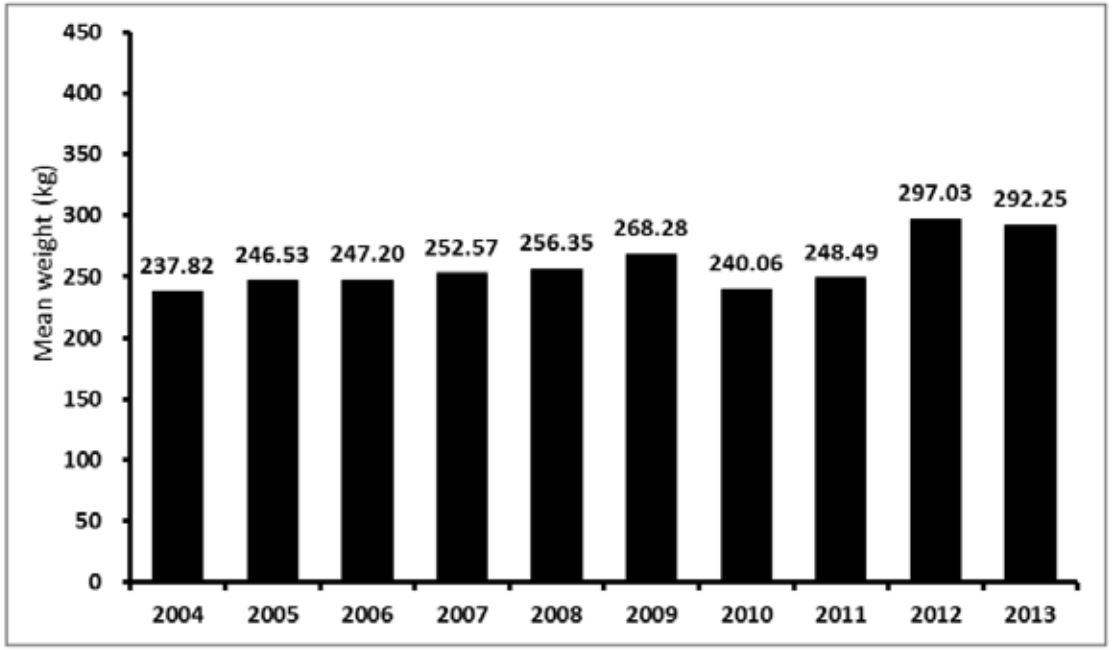
3. The improved data from direct age determination from otoliths should be included in the stock assessment model in the future

Thank you for your attention!

Appendix 1

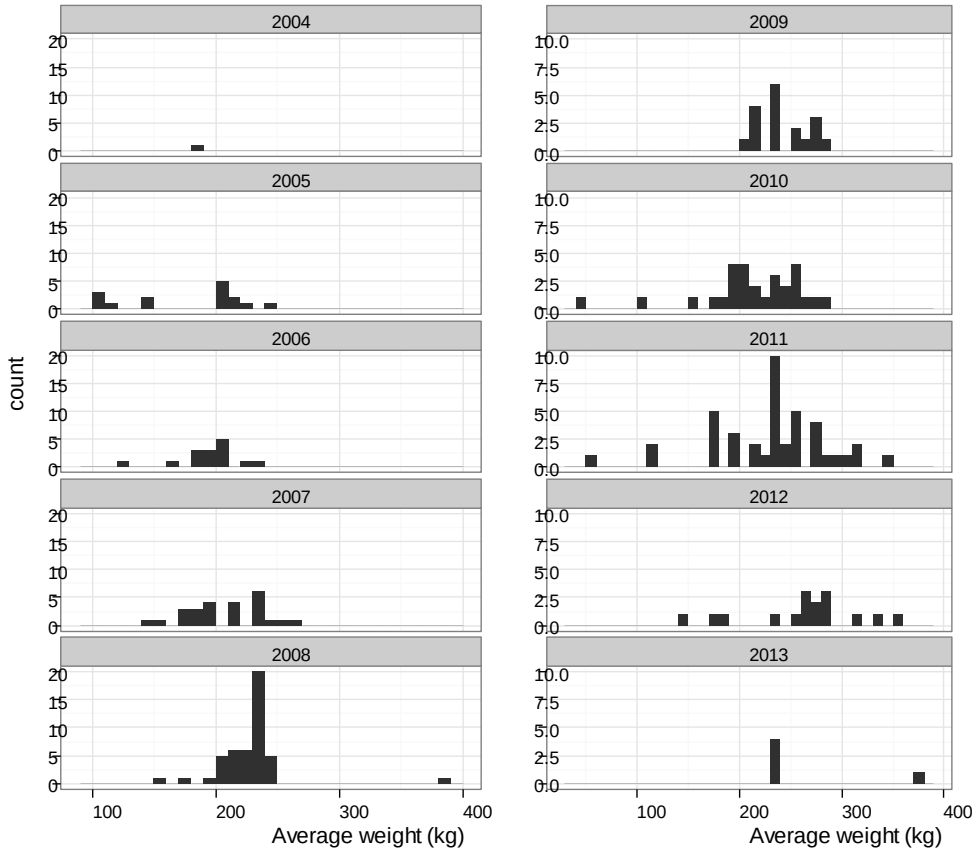
Comparison of Average weight

TWN LL



JPN LL

2x2 block of Nearest TWN fishing ground



Appendix 2

Method for estimation of length composition for JPNLL

Data sources

1. Nation wide census program (SD report , Annual Report of Catch Statistics on Fishery and Aquaculture by the government)
2. Data from quasi nation wide sampling program (RJB)

Available since 1994; 22 main prefectures

- RJB catch data

  Sales slips information

  Catch in weight by day and size category

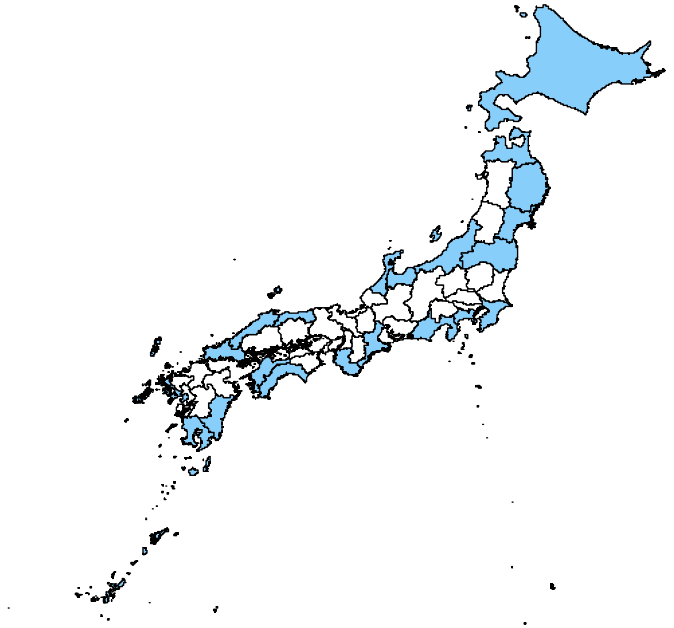
- RJB size measurement data

  Fork length by 1cm intervals

  Body weight with product code (processed or round)

3. Additional port sampling data

Tomari port (from 2007) and Yaeyama port (from 2008)



*colored prefecture area the member of RJB

Method for estimation of length composition for JPNLL

Example : May 2012

1. Monthly catch weight was estimated by dividing SD report by monthly observation number of RJB catch data pooled all sampling port

2012
SD report
total

594,000 kg

×

2012 RJB catch		
	Number of observation	Mothly percentage
Jan	44	10%
Feb	15	3%
Mar	19	4%
Apr	34	8%
May	**100**	**23%**
Jun	114	26%
Jul	34	8%
Aug	11	3%
Sep	20	5%
Oct	20	5%
Nov	13	3%
Dec	10	2%

= 156027kg

(1.) Estimated monthly catch weight in May 2012

Method for estimation of length composition for JPNLL

Example : May 2012

2. The total catch number in May was estimated by dividing monthly total catch weight (1.) by monthly average weight of one PBF

156027kg
(1.) Estimated monthly catch weight in May 2012

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2012 RJB measure	
	Average weitght (kg)
Jan	57.2
Feb	24.5
Mar	64.2
Apr	163.7
May	**190.1**
Jun	219.8
Jul	230.7
Aug	
Sep	239.6
Oct	125.4
Nov	39.1
Dec	75.0

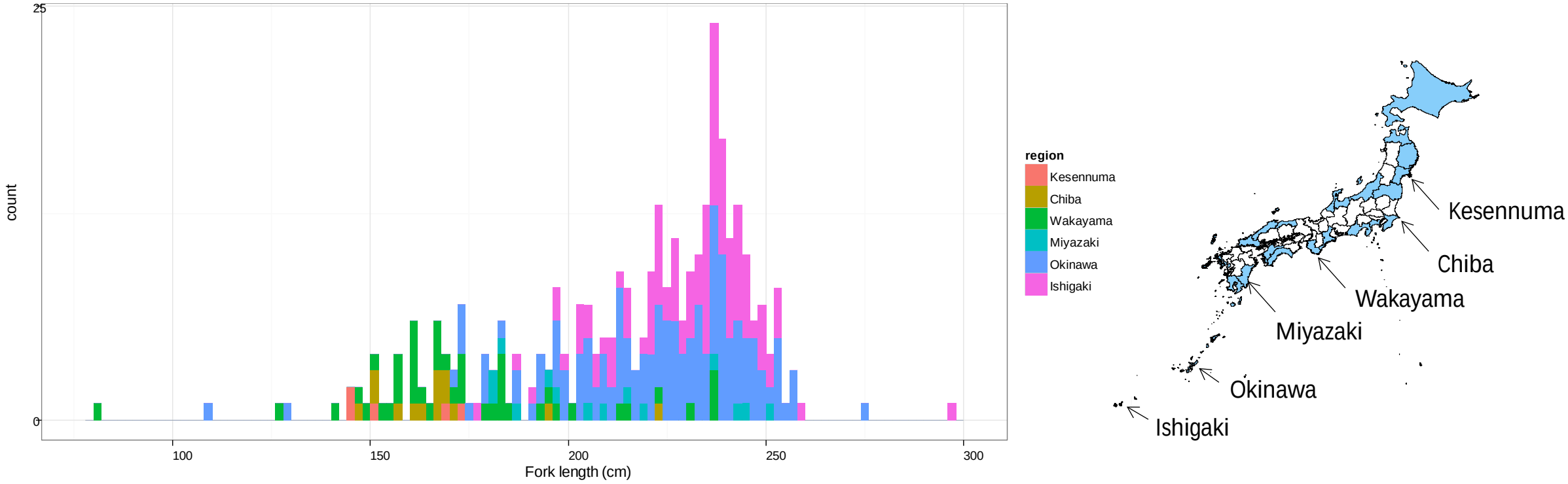
= 827.8 ind.

(2.) Estimated total catch number in May 2012

Method for estimation of length composition for JPNLL

Example : May 2012

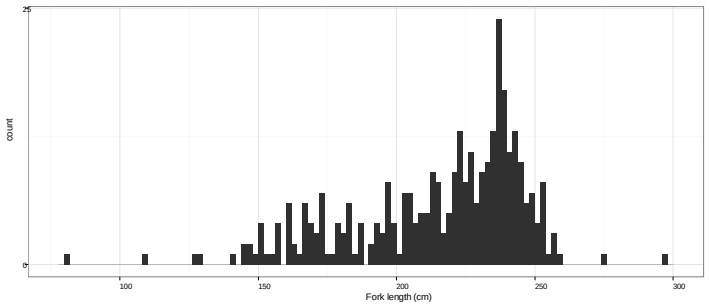
3. Monthly length composition was estimated by pooling all sampling port without accounting for the regional effort difference



Method for estimation of length composition for JPNLL

Example : May 2012

4. Monthly length composition (3.) was divided by the cover rate (measure number in May /estimated total catch number in May(2.))



(3.) Catch composition in May

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Cover rate

Total measurement number in May: 100

(2.) Estimated total catch in May: 827.8

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Estimated length composition