

South Pacific Regional Fisheries Management Organisation

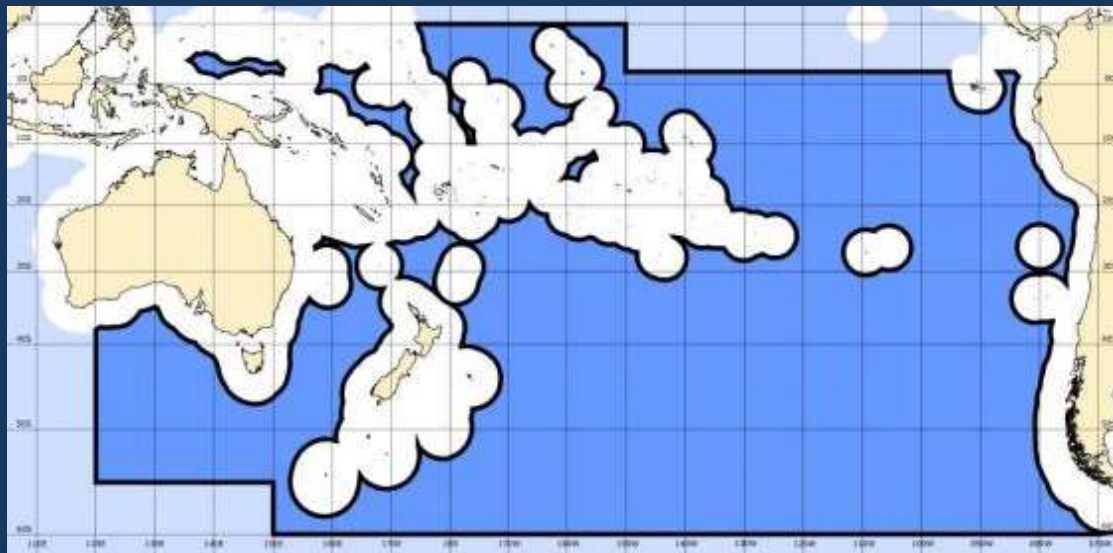
1st Meeting of the Scientific Committee

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SC-01-INF-17

Bibliographical synopsis on the main traits of life of
Trachurus murphyi in the South Pacific Ocean

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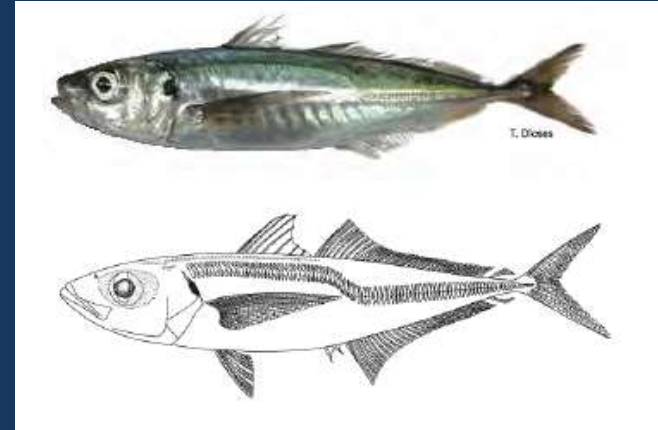
Five chapters and a (hopefully) exhaustive bibliography

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Terms of Reference EU Project: a general synthesis on *Trachurus murphyi* will be produced and submitted as a working document to SPRFMO at the next meeting of the Scientific Working group (autumn 2013). It will be then published in a national journal (e.g. the journal of IMARPE, Peru).

CHAPTER 1-A TAXONOMY

CHAPTER 1-B MORPHOMETRY



Taxonomic position

| | |
|------------|----------------------------------|
| Kingdom | Animalia |
| Phylum | Chordata |
| Subphylum | Vertebrata |
| Superclass | Osteichthyes |
| Class | Actinopterygii |
| Subclass | Neoptergii |
| Infraclass | Teleostei |
| Superorder | Acanthoptergii |
| Order | Perciformes |
| Suborder | Percoidei |
| Family | Carangidae |
| Genus | <i>Trachurus</i> Rafinesque 1810 |
| Species | <i>murphyi</i> |

Binomial name

Trachurus murphyi Nichols, 1920

CHAPTER 2

BIOLOGY



- 2-A **REPRODUCTION**
 - Spawning behaviour
 - Eggs and larvae
 - Spawning areas
- 2-B **MIGRATIONS**
- 2-C **BEHAVIOUR**

Alimentation and growth are missing;
Detailed information on southern spawning area are missing



CHAPTER 3

ECOLOGY

3-A HYDROLOGY

3-B TROPHIC ECOLOGY AND INTERACTIONS

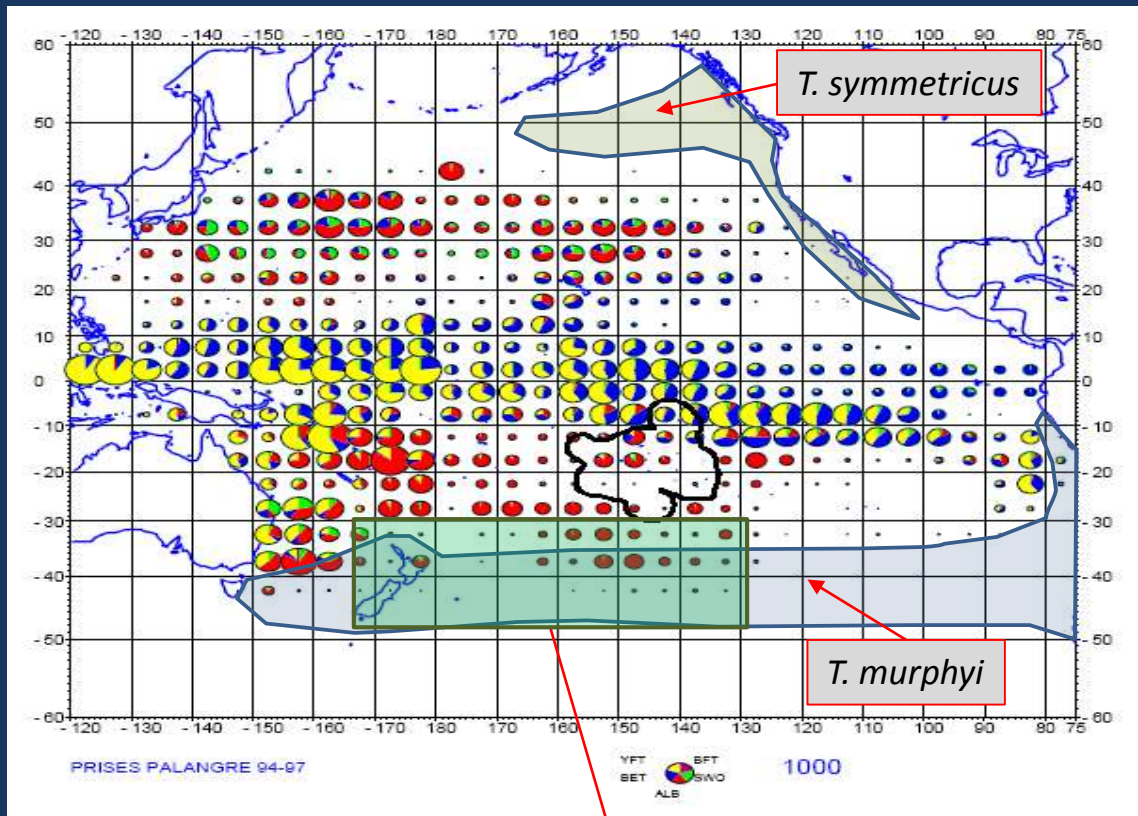
3-C HABITAT

CHAPTER 3-B

Trophic ecology and interactions

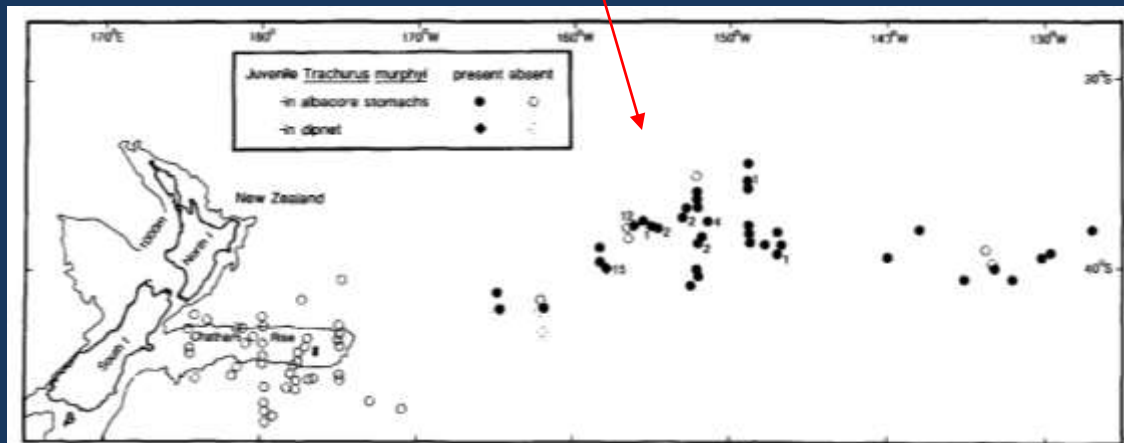


1. Interactions with other pelagic species
 - Tunas
 - Small pelagics
2. Trophic interactions
3. Predation
4. Conclusion



Interactions with tunas

Map of the CJM belt and longline catches in 1994-1997



CJM in albacore stomach contents in New Zealand in the 80s

CHAPTER 3-C

Habitat



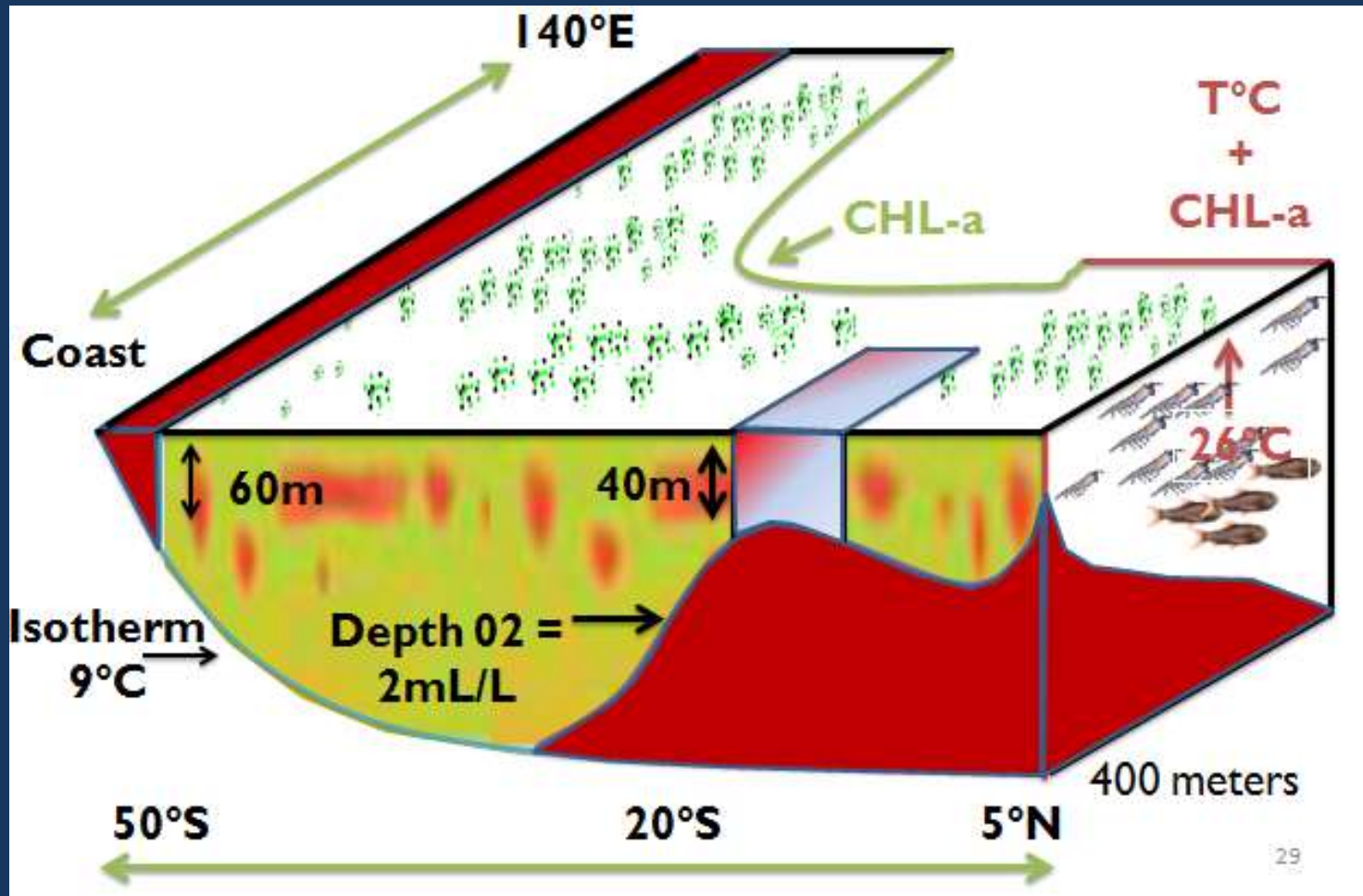
Introduction

C-1 General study of the habitat and its relations with the environment

C-2 The main environmental factors affecting the habitat

Conclusion: the habitat of the CJM

Conclusion chapter 3. The habitat of the Chilean Jack mackerel



A conceptual model of habitat: Habasque and Bertrand, pers. comm)

CHAPTER 4

Fisheries



- A. History**
- B. Fisheries regulations**
- C. Monitoring**

Fishing methods, part of Fisheries regulations and Assessment models are missing

CHAPTER 4-A

History of the fisheries



1. General description
2. History by fishery
3. Conclusion

CHAPTER 4-C

Monitoring

Introduction



1. Monitoring by acoustic surveys

- Chile
- Peru
- USSR-Russia
- Advantages and limitations of acoustic surveys

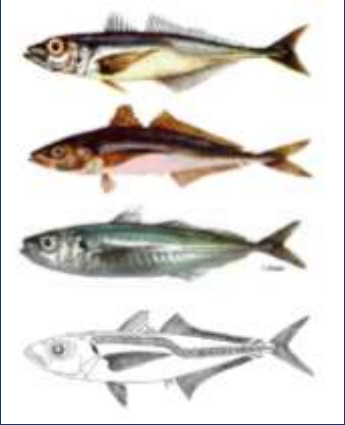
2. Monitoring survey with fishing vessel

- Eureka and Rastrillo surveys
- Acoustic data from fishing vessels in operation
- Other information obtained through monitoring with fishing vessels

Conclusion

CHAPTER 5

POPULATIONS



- A. Evolution in distribution and abundance
- B. Biological markers
- C. Demographic structure
- D. Population structure

CHAPTER 5-B

Biological markers



Introduction

1. Genetic discrimination of populations
2. Otoliths
 - Morphology
 - Biogeochemistry
3. Parasites
4. Conclusion

Conclusion CHAPTER 5

Demographic structure and Population structure

Among the four hypotheses that have been listed by the SPRFMO, the recent results in studies of biological markers and demographic dynamics allow to reject two of them. The question then remains on whether the global population is organized into a metapopulation or a superpopulation (figure 3).

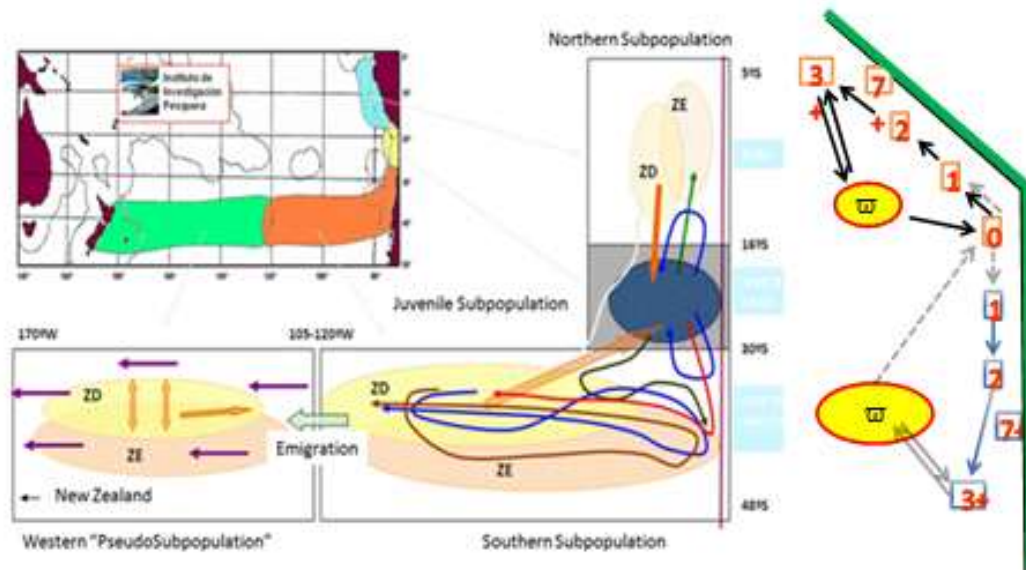


Figure 3. Left: the hypothesis of "superpopulation" (or patchy population); right: schema of the metapopulation hypothesis, limited to the eastern part of the distribution area (ω = spawning area; squares numbered 1 to 7: location of the age classes).

Great convergence between the two hypotheses (only difference in terms of management?)

Next step?

Is there any interest to get a more complete and corrected final version?

Plan to submit it to an Institute journal (e.g. Boletín del IMARPE)

Any volunteer for co-authorship?

Call for collaboration for preparing a scientific paper To be submitted (e.g. Fish&Fisheries) in October, 2014

Suggested title:

Spatial strategies of CJM and consequences on its exploitation

Proposed plan

(1. Similarities and specificities of CJM compared to other *Trachurus spp* and especially *T. trachurus* and *T. symmetricus*) (?)

1. The main patterns of the CJM biology related to spatial strategies
 - a) Plasticity, tolerance and preferenda
 - b) Trophic
 - c) Spawning
 - d) Recruitment?
2. The CJM habitat
3. The spatial structure : Metapopulations?
4. Ecosystem-based and population-based Management of *T. murphyi*

Authors ?