

Report of the On-Site Training on Identification of Deep-Sea Fishes

18-21 July 2011, Kuala Terengganu, Malaysia

PART II

Presentations and results of deep-sea fishes identification

Annex 4: Introduction to the Workshop

By Mrs. Penchan Laongmanee, Project manager

Deep-Sea Resource Exploration in the Southeast Asian Region

Capture Fishery Technology Division



SEAFDEC/TA



Background

- Depletion of the inshore/coastal fisheries resources in the Southeast Asian Countries
- Search new fishing ground targeting at **deep-sea area**

In serving Member Countries, SEAFDEC /TA, with the active financial and technical support of Japanese Government start the



“Deep Sea Fisheries Resources Exploration in the Southeast Asia”
since 2008

Objectives

1. Provide technical support of exploration of deep-sea resources in the Southeast Asian waters by using M.V. SEAFDEC2 to member countries and/or by other research vessels in collaboration with the member countries;
2. Increase number and capacity of researcher in Member Countries to explore deep-sea fisheries resources as well as its ecosystem (recognized that deep-sea ecosystems are vulnerable to damage)

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Activities

- Activity 1: Meeting/workshop
- Activity 2: Development/Improvement of sampling gear and exploration methodology
- Activity 3: Supporting deep-sea fisheries resources survey of Member Countries
- Activity 4: HRD programs on deep-sea fisheries resources exploration
- Activity 5: Information dissemination

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Activity 1: Meeting/workshop

1. Workshop on the Standard Operating Procedure (SOP) and Development of Sampling Gears for Deep-Sea Resource Exploration,

26-28 May 2009 at SEAFDEC/Training Department,

22 Participants: SEAFDEC/TD and MFRDMD, Brunei, Japan, Indonesia, Philippine, Malaysia, Myanmar Thailand and Vietnam

- Output
- SOP for Deep-Sea Resources Exploration in Southeast Asian Region
- Suggestion for deep-sea fisheries resource sampling gear
- Network of scientist



Activity 1: Meeting/workshop

2. Expert meeting on deep-sea fishing and its impact on ecosystem

31 August - 2 September 2010, Bangkok, Thailand

21 participants: SEAFDEC/TD, NOAA, Brunei, Japan, Indonesia, Philippine, Malaysia, Myanmar, Thailand and Vietnam

Output : topic and priority of data/info that should be collected for implementing the precautionary approach for deep-sea fisheries

Full report can be download at

<http://map.seafdec.org/DeepSea/index.html>



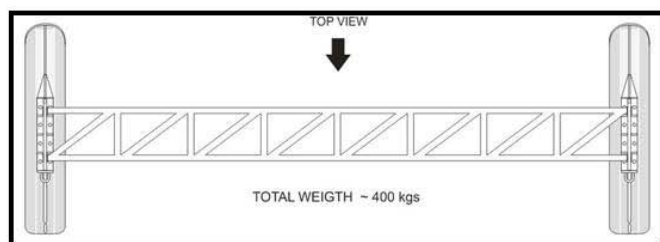
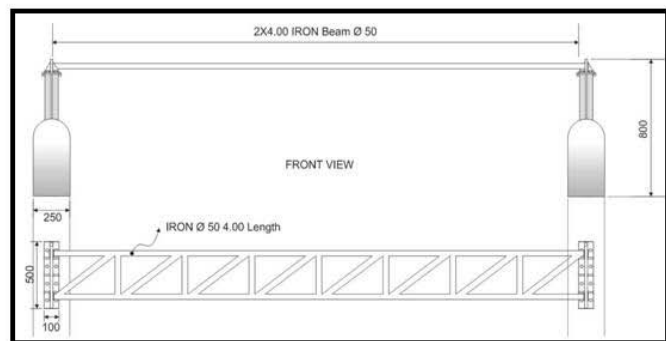
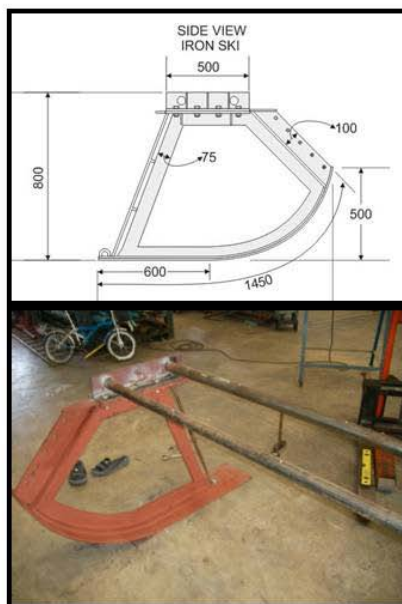
Activity 2: Development/Improvement of sampling gear and exploration methodology

- Beam trawl
- Agassiz trawl (Beam trawl)
- Deep sea trap
- Isaccks-Kidd Midwater trawl (IKMT)
- Under water VDO camera

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Beam trawl

Beam / Frame diagram



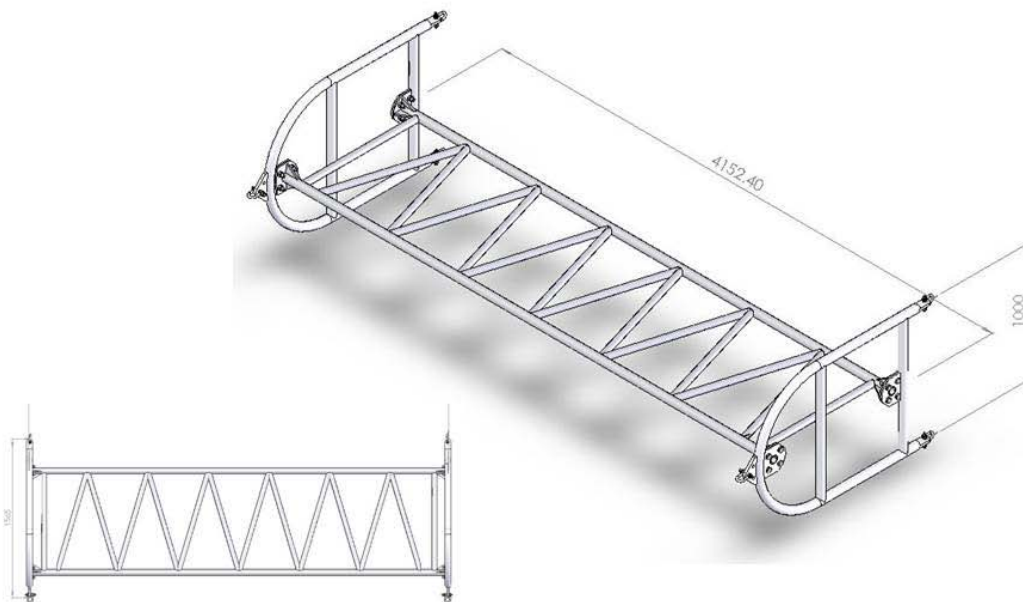
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**Sample from
beam trawl**



Agassiz trawl diagram



Agassiz trawl operation



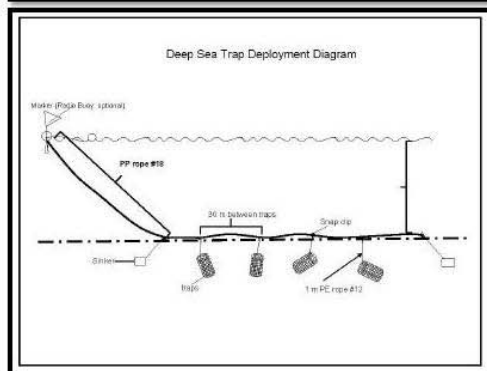
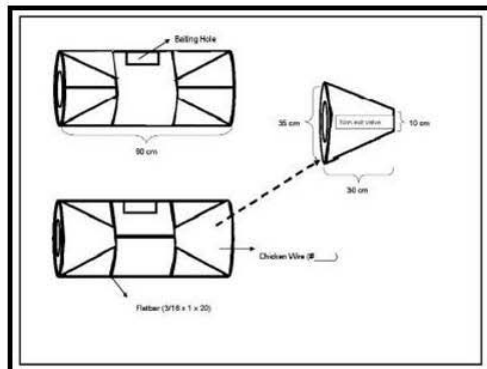
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Sorting of Agassiz trawl catch



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Deep Sea Trap



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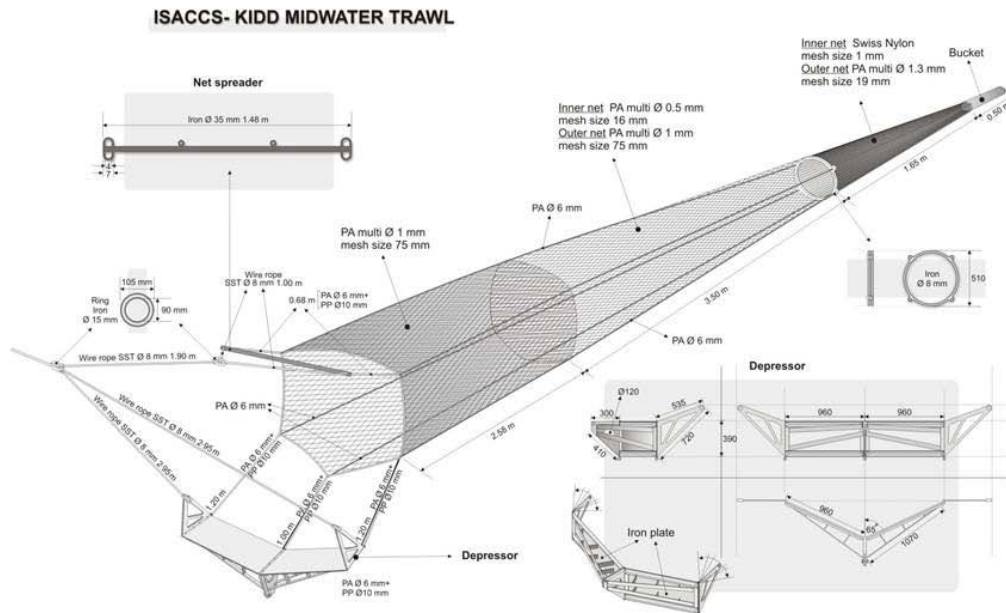


Operation and sample

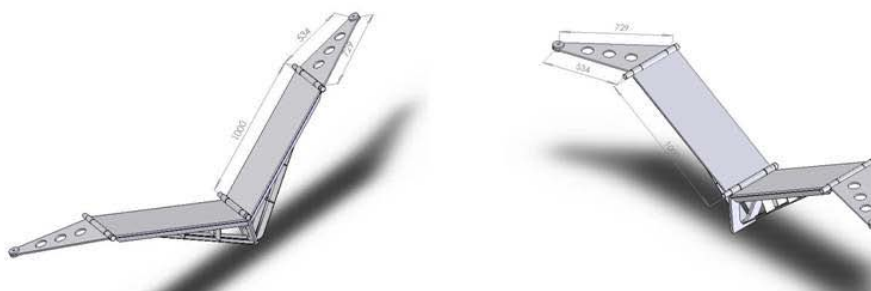


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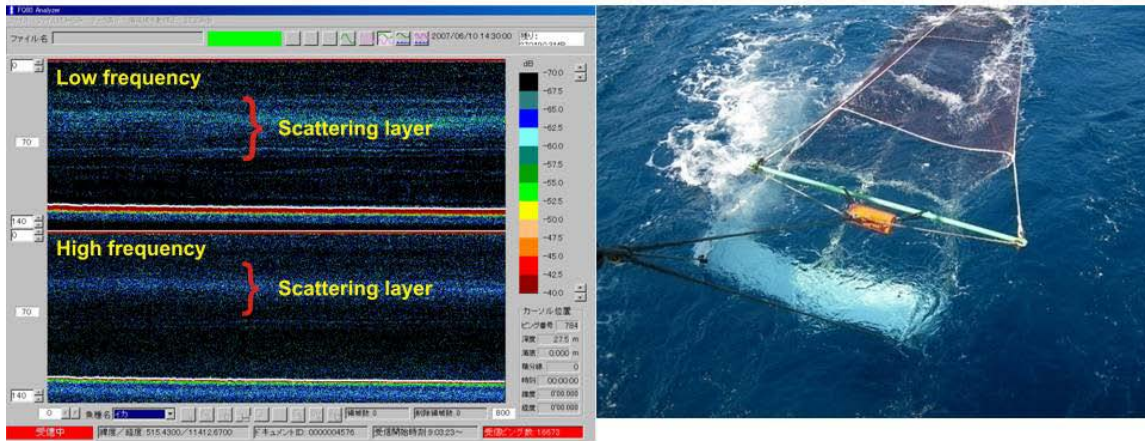
Isaccs-Kidd Midwater Trawl



Construction of IKMT at SEAFDEC's workshop



IKMT Operation



Using scientific echo-sounder (Furuno FQ80 onboard M.V. SEAFDEC2) provide a target area

Sample from IKMT



Mesopelagic fishes, mostly Myctophidae

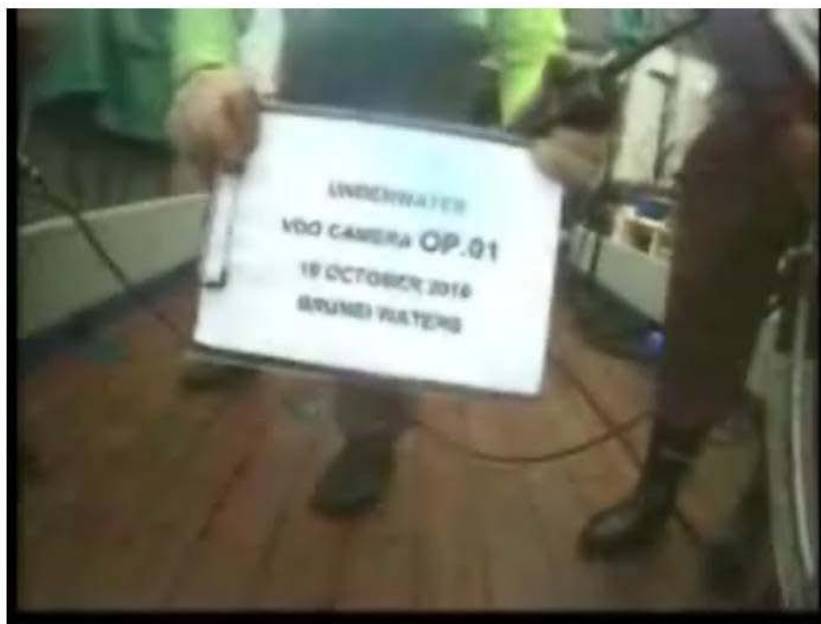


Under water VDO camera



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Under water VDO camera clip from Brunei water



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Activity 3: Support deep-sea fisheries resources survey

Support technical staff of SEAFDEC/TD to join the actual survey on M.V.SEAFDEC2 and national research vessel

- 2008 Brunei and Philippine
- 2009 Brunei
- 2010 Brunei and Malaysia
- 2011 Brunei



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M.V.SEAFDEC 2 Cr29-2/2008, Brunei water, 4 June-5 July 2008



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**M.V.SEAFDEC 2 Cr31-1/2009,
Brunei water, 6 March-11 April 2009**



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**M.V.SEAFDEC 2 Cr35-3/2010,
Sabah-Sarawak water, Malaysia,
28 June-11 August 2010**



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Activity4: HRD programs on Deep-sea fisheries resources exploration

- 16-20 October 2010, Training on research methodologies for study on impact of fishing on deep-sea ecosystem, Brunei
- 11-15 July 2011, Training/workshop on identification of deep-sea benthic macroinvertebrate vulnerable to fishing gear, SEAFDEC/TD
- 18-21 July 2011, On-site training on Identification of Deep-sea Fish, Malaysia

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Ship board training on deep sea exploration on M.V.DA-BFAR (Co -organize by Bureau of Fisheries and Aquatic Resources, the Philippine)

Objective: to enhance the human resources capacity on the deep sea resources exploration including

- Methodology for samplings of deep sea fisheries resources,
- Identification of deep-sea fish and larvae

Participants from Member Countries : Brunei (1) , Indonesia (1), Malaysia (2), Philippine (5), Thailand (1) , Vietnam (1) and SEAFDEC staffs (5)

Resource person:

Fish taxonomist : Mr. Montri Sumontha

Invertebrate zoology: Associate Professor Kotaro Tsuchiya, Tokyo University of Marine Science and Technology

Read full report : <http://map.seafdec.org/DeepSea/pub03.html>

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Ship board training on deep sea exploration on M.V.DA-BFAR



Training Workshop on Identification of Deep-sea Fish

Objective:

- To enhance the human resources capacity on deep-sea fish species identification;
- To encourage the SEAFDEC Member Countries to initiate deep-sea resources exploration ensuring the accurate deep-sea fishes identification

Participants from Member Countries : Brunei (2), Indonesia (1), Malaysia (1), Philippine (1), Thailand (2) , Vietnam (1) and SEAFDEC staffs (2)

Resource persons:

1. Dr. Yoshinobu Konishi, Retire researcher of Fishery Agency, Japan
2. Dr. Fayakun Satria, Research Center for Capture Fisheries, Indonesia
3. Assistant Professor Dr. Toshio Kawai, Fisheries Science Center, The Hokkaido University Museum

Watch: Summary activities VDO at <http://map.seafdec.org/DeepSea/>

Read: Training report at <http://map.seafdec.org/DeepSea/pub01.html>

Training Workshop on Identification of Deep-sea Fish



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Training Workshop on Identification of Deep-sea Fish



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Training Workshop on Research Methodologies for the Study on Impact of Fishing to Deep-Sea Ecosystem (co-organize by Department of Fishery, Brunei Darussalam)

Objective:

- To enhance participants' knowledge on research methodologies on impact of fishing to deep-sea ecosystem
- To build human resources capacity through actual practices on: research planning, topographic survey; sampling gears operating methods; sampling methods (quantitative and qualitative); and data collection methodology from the actual survey.

Participants from Member Countries : Brunei (4), Indonesia (1), Malaysia (1), Philippine (1), Thailand (1) , Vietnam (1)

Resource persons:

1. Dr. Yoshinobu Konishi, Retire researcher of Fishery Agency, Japan
2. Dr. Chittima Aryuthaka, Associate Professor , Kasetsart University
3. Dr. Sumaitt Putchakarn, Senior Scientist, Institute of Marine Science, Burapha University

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Training Workshop on Research Methodologies for the Study on Impact of Fishing to Deep-Sea Ecosystem

Read: Training report at

<http://map.seafdec.org/DeepSea/pub01.html>

MIPR HOSTS WORKSHOP ON IMPACT OF FISHING ON ECOSYSTEM



Participants in a group photo

THE Department of Fisheries, Ministry of Industry and Primary Resources is hosting a training workshop on Research Methodology for Study on Impact of Fishing on Deep-Sea Ecosystem beginning from October 16 to 20.

The workshop is jointly organised by the Southeast Asian Fisheries Development Centre (SEAFDEC) at SEAMEO VOTTECH, Gadong.

The workshop was officially opened by the Guest of Honour, Dr Churnnam Pongsri, SEAFDEC Secretary General and Training Department Chief.

Among the objectives of the workshop are to enhance the human resources capacity for improvement of in-depth knowledge on research methodologies to study the impact of fishing on the deep-sea ecosystem, to encourage the SEAFDEC's member countries on the initiation of deep-sea resources exploration to improve quality of data and to support fisheries resources survey and exploration of the deep-sea trawling impacts on sea-bottom ecosystem through the human resources development programme.

The workshop is attended by SEAFDEC member countries namely Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam and host country Brunei Darussalam.

It is anticipated that the training workshop will enhance the participants' knowledge on research methodologies on the impact of fishing to deep-sea ecosystem and to build human resources capacity through actual practices on research planning, topographic survey, sampling gears operating methods, sampling methods (quantitative and qualitative) and data collection methodology from the actual survey.



Training Workshop on Identification of Benthic Macro invertebrate vulnerable to fishing gear 11-15 July 2011, SEAFDEC/TD

Objectives

- Participants' ability on deep-sea benthic macroinvertebrate identification will be enhanced through practical works.
- Deep-sea benthic macroinvertebrate specimen collected from fisheries resource survey by MV.SEAFDEC 2 will be identified to the lowest taxa.

Participants from Member Countries : Brunei (2), Indonesia (2), Malaysia (2), Philippine (2), Thailand (5) , Vietnam (2)

Resource persons:

- 1.Dr. Mike Kendal, Senior expert, England
- 2.Dr. Chittima Aryuthaka, Associate Professor , Kasetsart University
- 3.Dr.Suriyan , Kasetsart University
- 4.Ms.Punthip “
- 5.Mr. Teerapong “
- 6.Dr. Sumaitt Putchakarn, Senior Scientist, Institute of Marine Science, Burapha University

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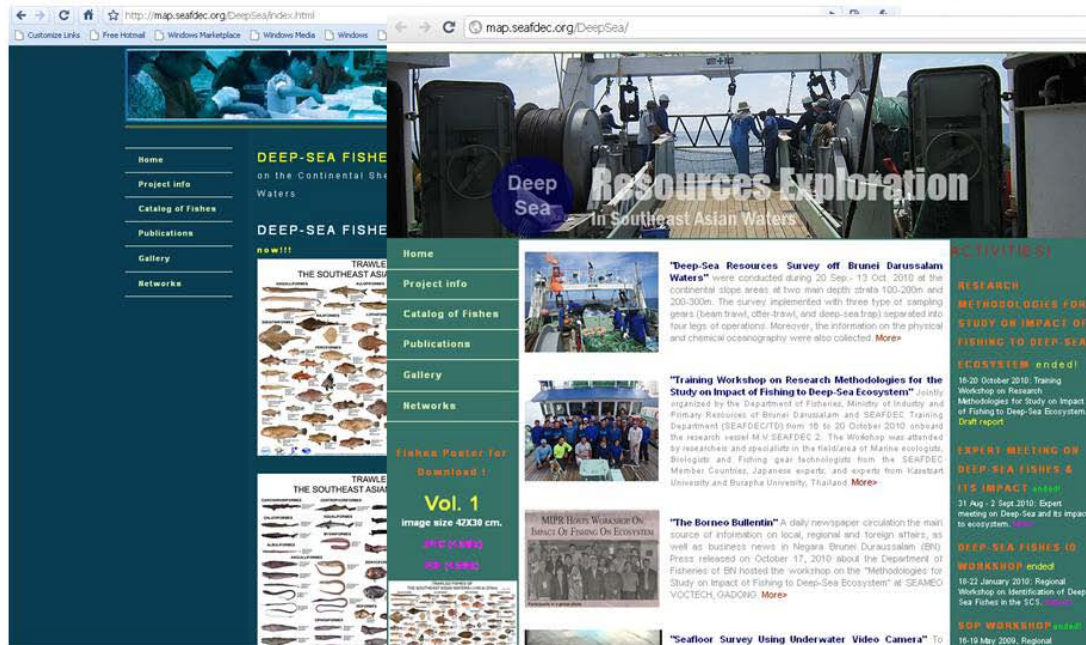
Training Workshop on Identification of Benthic Macro invertebrate vulnerable to fishing gear ,11-15 July 2011



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Activity5: Information Dissemination

- Project Website: <http://map.seafdec.org/DeepSea/>



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Activity5: Information Dissemination

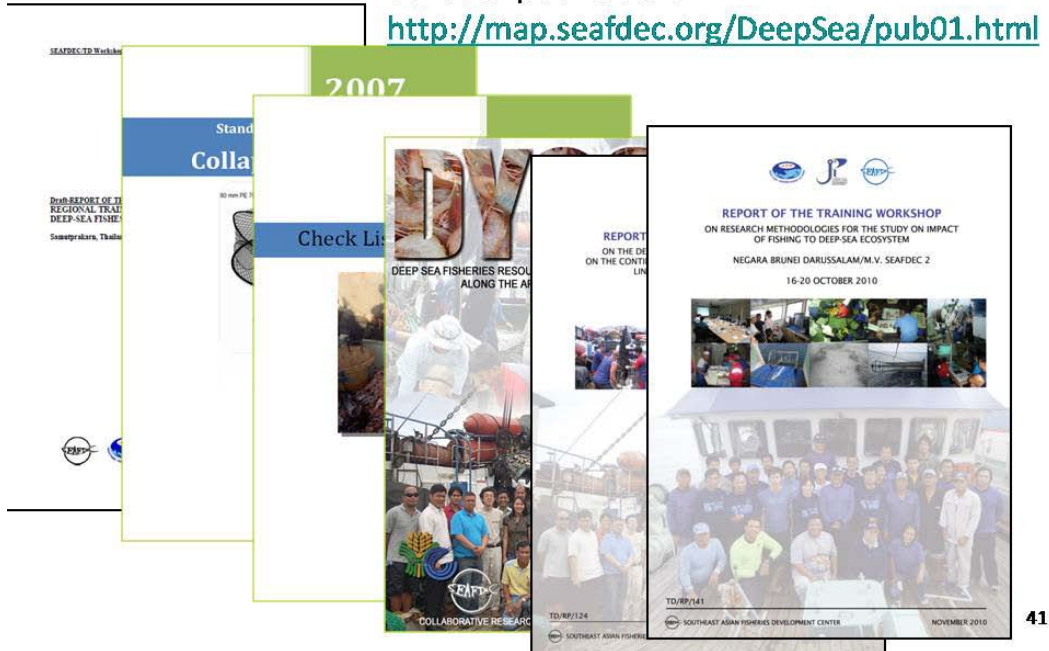
- Guide for Deep-Sea Trap Operation
- Guide for Beam Trawl Operation
- Guide for Isaacs-Kid Mid-water Trawl
- Check lists of the deep-sea fishes in the South China Sea and Adjacent Waters
- Report of Training Workshop on the Deep Sea Fishery Resources Exploration on the Continental Slopes in Southeast Asian Waters, 11-25 May 2008, M/V DA-BFAR, Philippines
- Report of the Regional Training/Workshop on Identification of Deep-Sea Fishes, SEAFDEC/TD, Thailand, 18-22 January 2010
- Report of the Expert Meeting on Deep-Sea Fishing and Its Impact on Ecosystem, 31 August - 2 September 2010, Bangkok, Thailand
- Report of the Training Workshop on Research Methodologies for the Study on Impact of Fishing to Deep-Sea Ecosystem 16-20 October 2010, Brunei Darussalam

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Activity5: Information Dissemination

Series of publication:

<http://map.seafdec.org/DeepSea/pub01.html>



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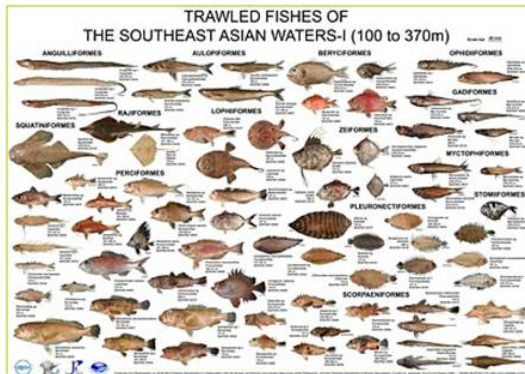
Activity5: Information Dissemination



Poster presentation in
 Marine Science Seminar,
 Phuket, Thailand
 28-30 June 2010

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Activity5: Information Dissemination



Poster of trawled fish of the Southeast Asian Water:
I- 100 - 370 m
II - 300- 1,200 m



- 500 pcs./type distribute through networks
- Download at <http://map.seafdec.org/DeepSea/>

Activity5: Information Dissemination

Database of Deep-sea fish in SEAFDEC collection at http://map.seafdec.org/deep_sea/search.php

Search result: You searched for Family Keyword 'Zadac'
Retrieved 2 of 81 records in databases

Catalog No.	Family	Genus	Species	Standard length	Locality	Sampling date	Vessel name	Cruise no.	Fishing gear	Depth	Specimens	Picture
SEAFDEC00043	Zadac	Zenopsis	nebular	14.5 cm	Brunei Waters	2008-06-12	M.V. SEAFDEC 2	25-2/2008	BOTTOM TRAWL	121	1	
SEAFDEC00042	Zadac	Cryptot	rossi	10.1 cm	Brunei Waters	2010-03-29	M.V. SEAFDEC 2	31-12/2009	BEAM TRAWL	206	1	

Catalog Data

Catalog Number: SEAFDEC00043
 Family: Zadac
 Genus: Zenopsis
 Species: nebular
 Standard Length: 14.5 cm
 Locality: Brunei Waters
 Sampling date: 2008-06-12
 Vessel name: M.V. SEAFDEC 2
 Cruise number: 25-2/2008
 Fishing gear: BOTTOM TRAWL
 Sampling depth (meter): 121
 Number of specimens: 1
 Remark:

Search result: You searched for Family Keyword 'Trachichthyidae'
Retrieved 2 of 81 records in databases

Catalog No.	Family	Genus	Species	Standard length	Locality	Sampling date	Vessel name	Cruise no.	Fishing gear	Depth	Specimens	Picture
SEAFDEC00002	Trachichthyidae	Ophryotrocha	sp	16.8 cm	Brunei Waters	2008-06-10	M.V. SEAFDEC 2	25-2/2008	BEAM TRAWL	374	1	
SEAFDEC00001	Trachichthyidae	Trachichthyidae	sp	10.5 cm	Brunei Waters	2008-06-10	M.V. SEAFDEC 2	25-2/2008	BEAM TRAWL	374	1	

Potential fisheries resources

- Deep-sea shrimp : pandalid shrimp species (*Heterocarpus woodmasoni*, *H. hayashi*, *H. dorsalis*) found in Brunei ,Philippine, Malaysia and Thailand (Andaman sea)



Philippine : A pilot deep-sea shrimp trap fishery

- Improve efficiency of fishing gear
- Study impact to deep-sea ecosystem
- Cost-benefit study

Aim: to formulate a management plan/policy on deep-sea shrimp trap fishery

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Thank you

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**Annex 5: General procedure for sampling, identification and
collection management of deep-sea fishes**

By Dr. Yoshinobu Konishi

**General procedure for sampling,
Identification and collection management of
deep-sea fishes**

KONISHI Yoshinobu



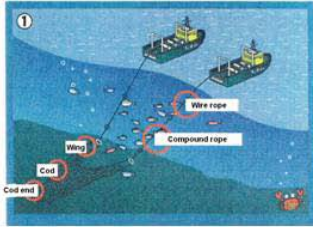
Blackedge greeneye
Chlorophthalmus acutifrons

Procedure of fish collection

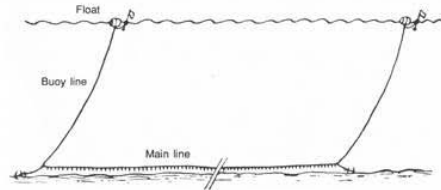
- 1 Sampling of deep-sea fishes**
 - onboard sampling with sampling gears
 - fish-market sampling
 - 2 Handling of fish specimens**
 - freezing
 - cold storage with ice
 - preservation in 10% formalin solution
 - 3 Identification**
 - photography
 - muscle sampling for DNA analysis
 - 4 Collection management**
 - registration of specimens in database
 - storage of registered specimens in the dark and cool space, and the tissues in refrigerator
- © Request of identification for unknown specimens**

1. Sampling of deep-sea fishes (gears)

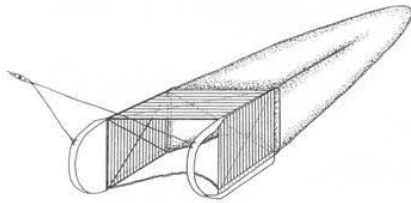
Demersal fishes



Bottom trawl



Bottom horizontal longline



Beam trawl



Trap

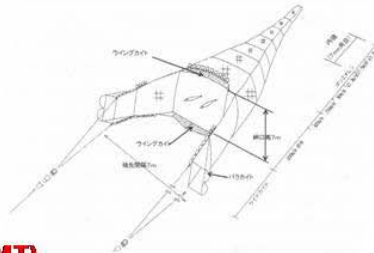
Note: gear(s) to be used is depending on sea bed topography, and has fish-size and species selectivity

1. Sampling of deep-sea fishes (gears)

Bathypelagic fishes



Isaacs Kidd Midwater Trawl (IKMT)



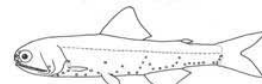
LC net



Hatchetfish (Stenopterygiidae)



Bristlemouth (Gonostomatidae)



Lantern fish (Myctophidae)



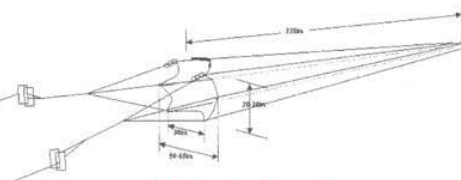
Snaggletooth (Astronesthidae)



Bigscale fish (Melamphidae)

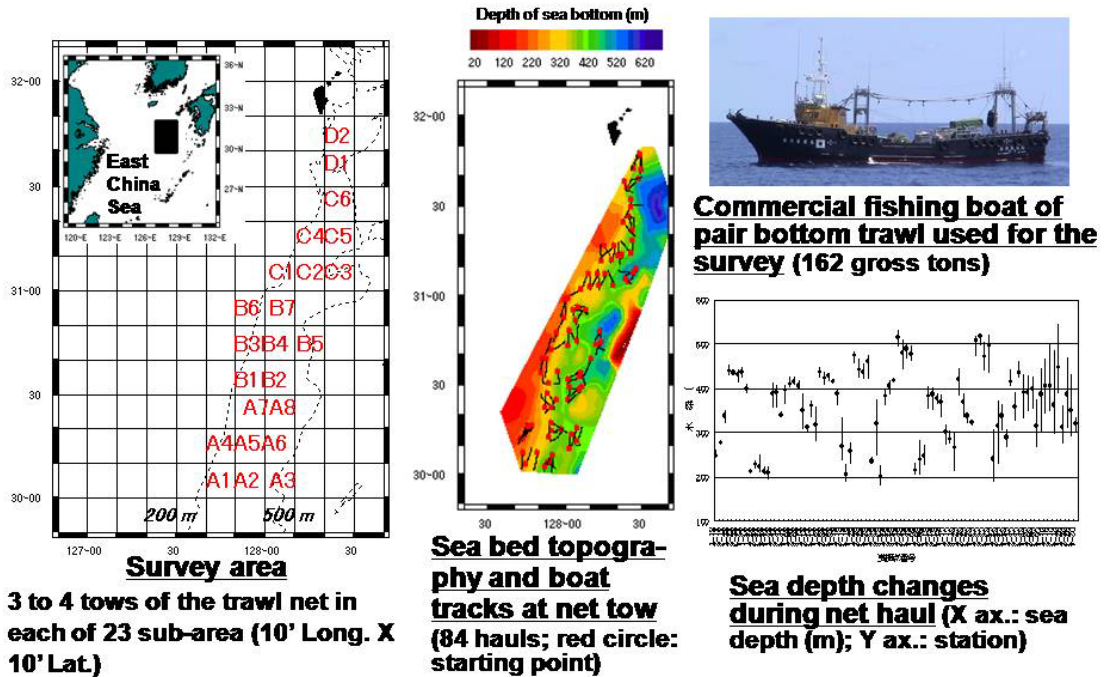


Rectangular Midwater Trawl (RMT)

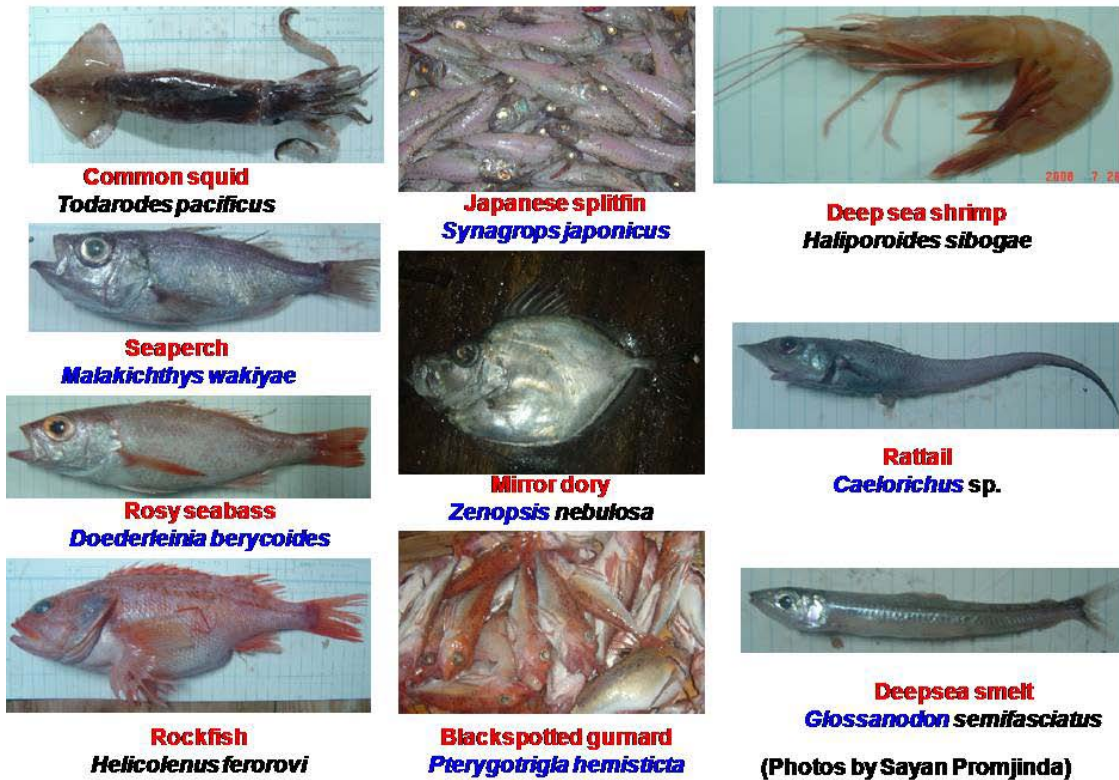


Midwater Trawl

Bottom trawl survey at the continental slope in the northern East China Sea (July-August 2008)



Landed fishes (1)



Landed fishes – (2)



Silver chimaera
Chimaera phantasma



Coffinfish
Chaunax abei



Japanese lobster
Cervimunida princeps



Gnomefish
Scombrops boops



Deepwater scorpionfish
Setarches guentheri



Scorpionfish
Scorpaena neglecta



Silver eye
Polymixia japonica



Japanese lobster
Metanephrops sagamiensis



Blackeye greeneye
Chlorophthalmus acutifrons



Stargazer
Xenoccephalus elongatus



Chananel scabbardfish
Evoxymetopon taeniatus



Armoured cusk
Hoplobrotula armata

(Photos by Sayan Promjinda)

Landed fishes – (3)



Yellow sea bream
Dentex tumifrons



Japanese armorhead
Pentaceros japonicus



Goosefish
Lophius litulon



Daggertooth conger pike
Muraenesox cinereus



Longfinned bullseye
Cookeolus japonicus



Japanese gissu
Pterothrissus gissu

(Photos by Sayan Promjinda)

1. Sampling of deep-sea fishes (in markets)



Ranong Fish Market (Thailand)

- Most of landed fishes were demersal and coral-reef fishes (12 Dec 2009)
- Fishes landed were captured by Thai and Myanmar fisher

Epinephelus flavocaeruleus

- Geographical Distribution: Indian Ocean from South Africa and eastward to the Andaman Sea
- Adults (max. size 80 cm) are deep reefs, to depth of 150 m



(Photos by Sayan Promjinda)

2. Handling of fish specimens

Freezing (on board)

- Specimens are kept frozen until identification in laboratory
- To avoid drying the specimens, each of them is better to be kept into a plastic bag or be covered with wrap

Cold storage with ice (on board, at fish market)

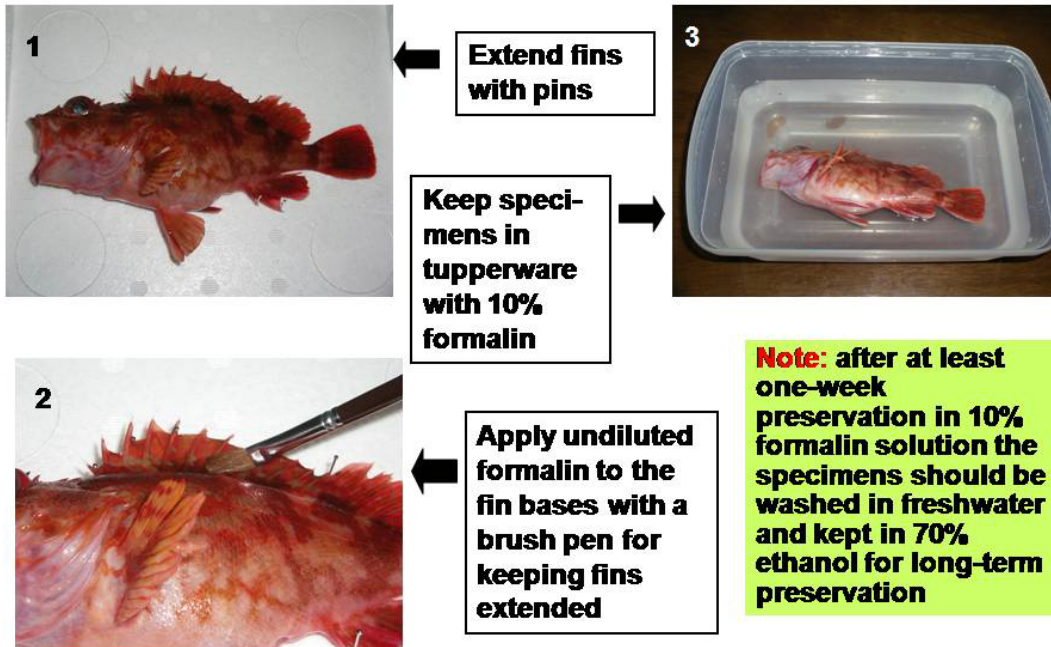
- Specimens are kept in a cooler with ice until identification in laboratory

Preservation in 10% formalin solution (on board, at fish market)

- Under no freezer or limit of capacity of the freezer at specimen sampling/handling, the specimens should be preserved in 10% formalin solution
- Muscle tissues in right-side body of specimen to be registered in database should be sampled before preservation with formalin

Note: specimens which have characteristic body color and/or pigment patterns on the fin membranes are better to be taken photo prior to the handling above

Preservation of specimens in 10% formalin solution

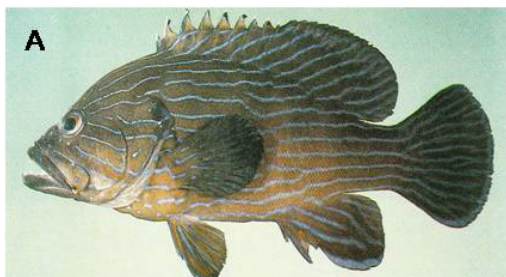


Example of characteristic body color and pigment on body and fins

A part of key to Indo-Pacific species of *Cephalopholis* (from FAO species catalogue, vol. 16)

7a. Pectoral fins short, their length contained 1.5 to 1.8 times in head length; **color generally brown or yellowish brown, with dark blue lines on head, body and fins** (Fig. A)*C. formosa*

7b. Pectoral fins 1.3 to 1.6 in head length; **body brown, usually with 7 or 8 dark bars; no blue lines on head or body; fins dark brown, with a pale blue line at corners of caudal** (Fig. B)*C. boenak*



3. Identification (laboratory work)

Identification

- Defrosting of frozen specimens prior to identification (sometimes from one-day before)
- Identification of specimens with references

Photography

- Taking pictures of important specimens scientifically

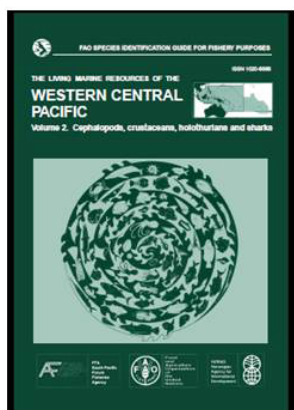
Tissues sampling for DNA analysis

- Sampling of muscle in the right-side body for specimens to be registered in database
- * DNA analysis is useful for verification of the original identification and larval fish identification

Preservation of specimens

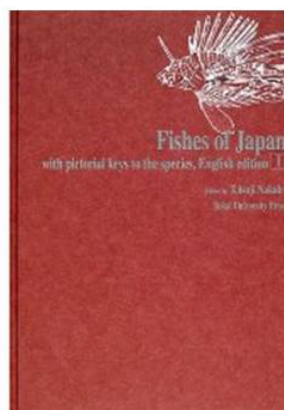
- Preservation of fresh specimens in 10% formalin solution for collection (the specimens should be transferred into 70% ethanol 1 week to 1 month later)

Some useful references for identification of fishes in the Southeast Asian region

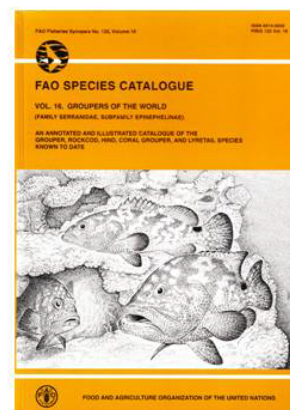


<http://www.fao.org/docrep/009/x2400e/x2400e00.HTM>

FishBase:
<http://www.fishbase.org/>

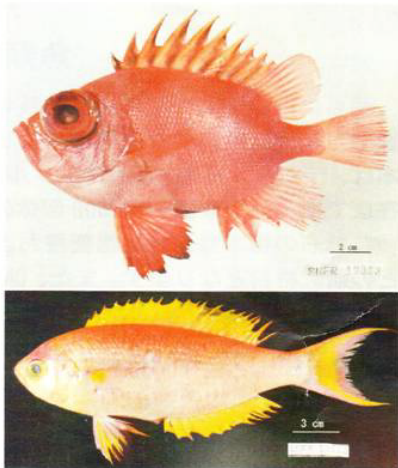


Nakabo, T. (ed.) 2002: Fishes of Japan with pictorial keys to the species (English edition). Tokai University Press, Tokyo, 1749pp.

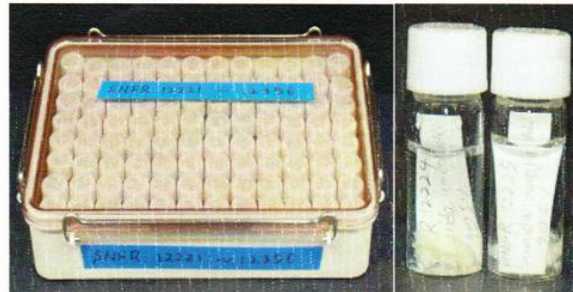


Heemstra, P. C. and J. E. Randall. 1993: Groupers of the world (family Serranidae, subfamily Epinephelinae). FAO Fisheries Synopsis, no. 125, vol.16, 382pp.

Photography and tissues sampling



Photos:
Pristigenys nipponia (upper)
Callanthis japonicus (lower)



Tissues samples in 90% ethanol

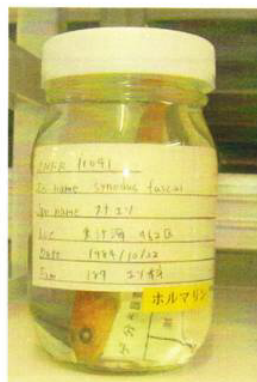
- Cut a small piece of muscle in the right-side body (two pieces/specimen)
- Put the piece and a label into a vial with 90% ethanol
- Keep a tupperware with vials in a refrigerator as tissues collection

4. Collection management

- registration of specimens into database
- storage of the registered specimens in the dark and cool space, and the tissues samples in refrigerator

Input items of database

- catalogue (bottle) number
- genus name
- species name
- no. of individuals
- min. body length (mm)
- max. body length (mm)
- TL/FL/SL
- body weight (g)
- family name
- order name
- sampling position/place
- sampling date
- sampling gear/method
- sampling person
- identification person
- vial no. of tissues



Preserved specimen and a water-proof label (catalogue no., species, sampling position, sampling date, family)



Storage shelf

Package of specimens for request of identification



Fig. 1



Fig. 2

1. Roll a specimen by wet gauze with the preserved solution (Fig. 1)
2. Put the specimen into a reinforced plastic bag (Fig. 2)
3. Seal the opening portion of the plastic bag by impulse sealer
4. Put the plastic bag with the specimen into another plastic bag and seal the outside plastic bag

Impulse sealer



Package of specimens for request of identification



Fig. 3



Fig. 4

5. Roll the double plastic bag with the specimen by plastic sheet with air cells
6. Put the specimen rolled by plastic sheet into a box (Fig. 3)
7. Cover the box with hard paper and stick a sticker of "Scientific specimen of fish preserved" (Fig. 4)
8. Send the parcel (or EMS) with the specimen and its data to an expert

**Annex 6: Fish morphology and general characters for identification of deep-sea fishes
in the Southeast Asian Region**

By Dr. Toshio Kawai

**Fish morphology and general characters
for identification of deep-sea fishes
in the Southeast Asian region**

- **Methods of measurements and counts**
- **How to identify deep-sea fishes**
- **Deep-sea fishes from Southeast Asia**

Toshio Kawai (Hokkaido University Museum, Japan)

- **Methods of measurements and counts**
 - How to identify deep-sea fishes
 - Deep-sea fishes from Southeast Asia
-

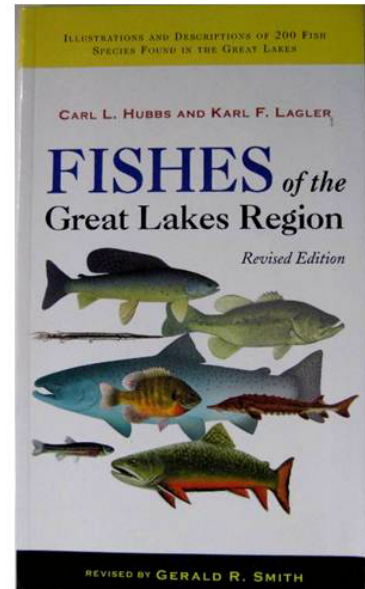
Methods of measurements and counts

Hubbs, C. L. and K. F. Lagler (1947) *Fishes of the Great Lakes region.*

Hubbs, C. L. and K. F. Lagler (1958) *Fishes of the Great Lakes region.*

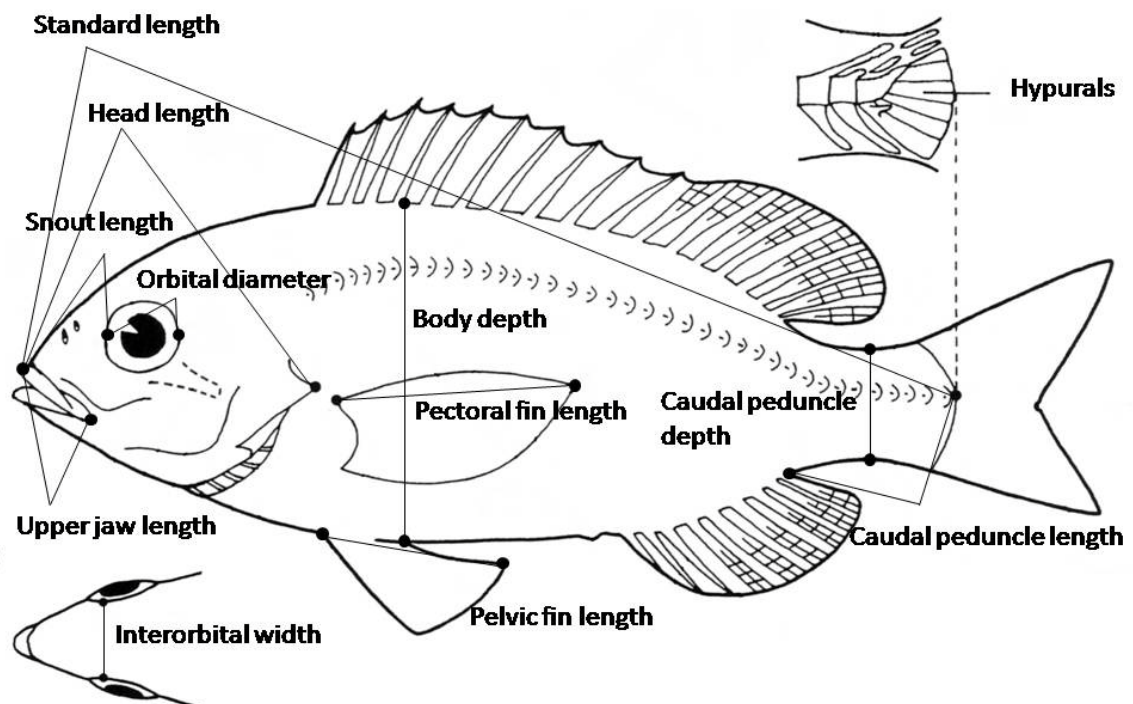
Hubbs, C. L. and K. F. Lagler (1964) *Fishes of the Great Lakes region.*

Hubbs, C. L. and K. F. Lagler (2004) *Fishes of the Great Lakes region. Revised edition.*

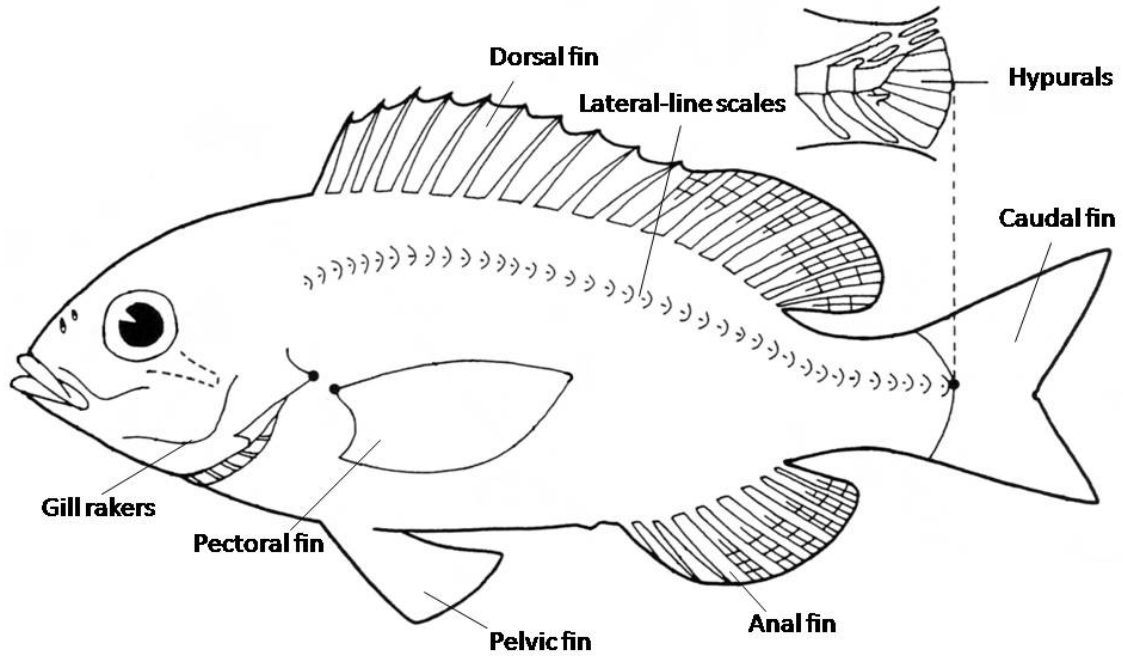


Hubbs and Lagler (2004)

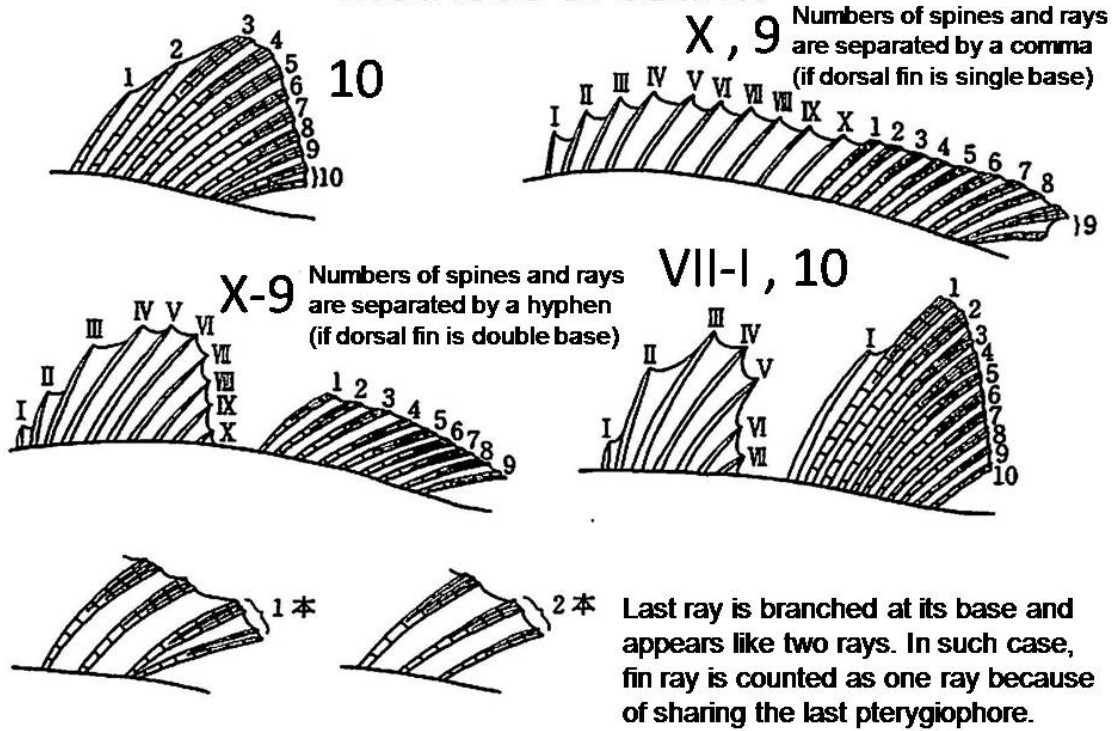
Methods of measurements



Methods of counts

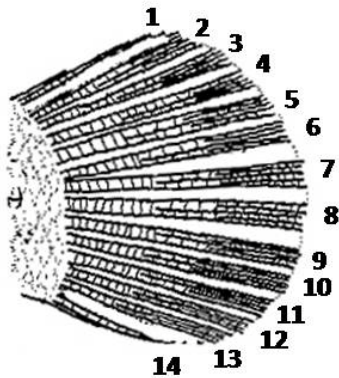


Methods of counts



Spines: Roman numerals Soft rays: Arabic numerals

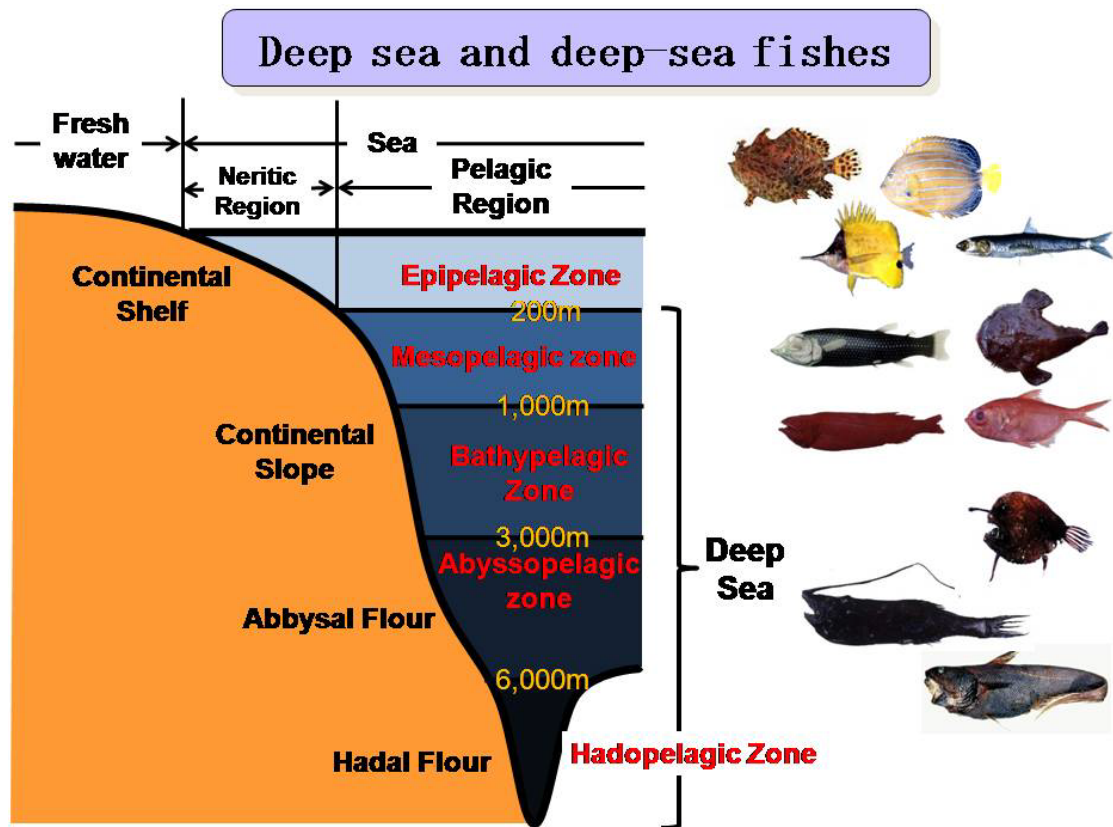
Principal caudal fin counts



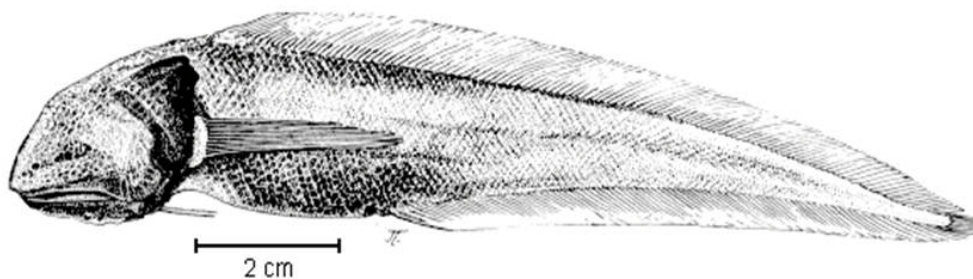
Branched rays + Two unbranched rays

$$12+2=14$$

-
- Methods of measurements and counts
 - How to identify deep-sea fishes
 - Deep-sea fishes from Southeast Asia
-



Record of deepest fish



Abyssobrotula galathea (Ophidiidae)

★ 8,370 m depth from the Caribbean Sea, Puerto Rico
Nielsen (1977)

Pseudoliparis amblystomopsis



Japan Trench
7,703 m depth



By Takashi P. Satoh (National Museum of Nature and Science, Tokyo) **Put cut fish in the case**

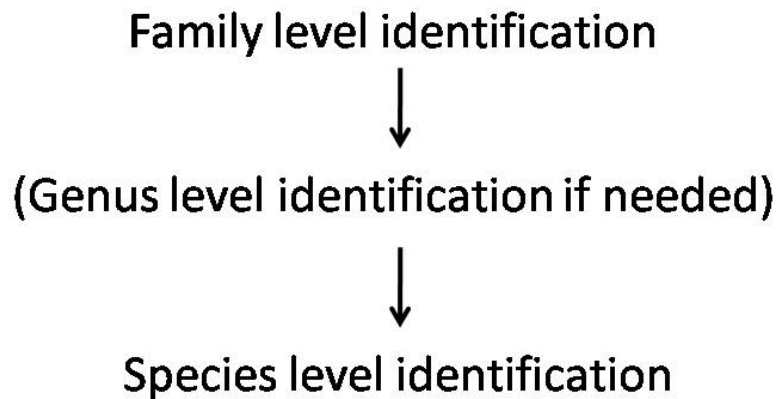


Pseudoliparis amblystomopsis

By Ocean Research Center, University of Tokyo

How to identify deep sea fishes?

Method : Deep Sea Fishes = Shallow Water Fishes



Family level identification

Nakabo (2002)

Fishes of Japan with pictorial keys to the species

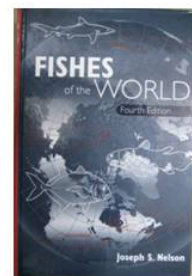
Most fish families around western North Pacific
are included in this book

Not found ↓

Nelson (2006) Fishes of the World. Fourth Edition

No Identification Key

e.g. Hispidoberycidae



Remember fish faces

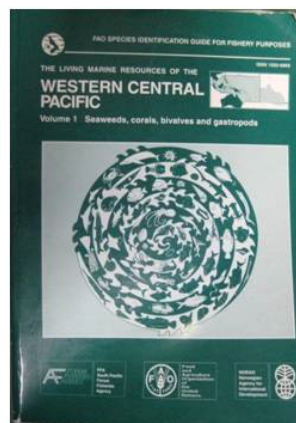
Picture books

1. Shen S.-C. (ed.). 1984
Coastal fishes of Taiwan. Department of Zoology, National Taiwan University, Taipei, 189pp.
2. Masuda, H., K. Amaoka, C. Araga, T. Uyeno & T. Yoshino. (eds.). 1984
The fishes of the Japanese Archipelago. Tokai Univ. Press, Tokyo, 437pp.
3. Gloerfelt-Tarp, T. & P. J. Kailola. 1984
Trawled fishes of southern Indonesia and northwestern Australia. Australia Develop. Assist. Bureau, Direct. Gener. Fish., Indonesia, German Agency Tech. Coop., 406pp.
4. Shen S.-C. (ed.). 1993
Fishes of Taiwan. Department of Zoology, National Taiwan University, Taipei, 961pp. (in Chinese)
5. OFCF, Japan & AMFR, Indonesia. 2006
The Japan-Indonesia deep sea fishery resources joint exploration project (photo album)



Genus level identification (if needed)

Carpenter & Niem (1999) FAO species identification field guide for fishery purposes. The living marine resources of the western central Pacific.



Species level identification

Carpenter & Niem (1999) FAO species identification field guide for fishery purposes. The living marine resources of the western central Pacific.

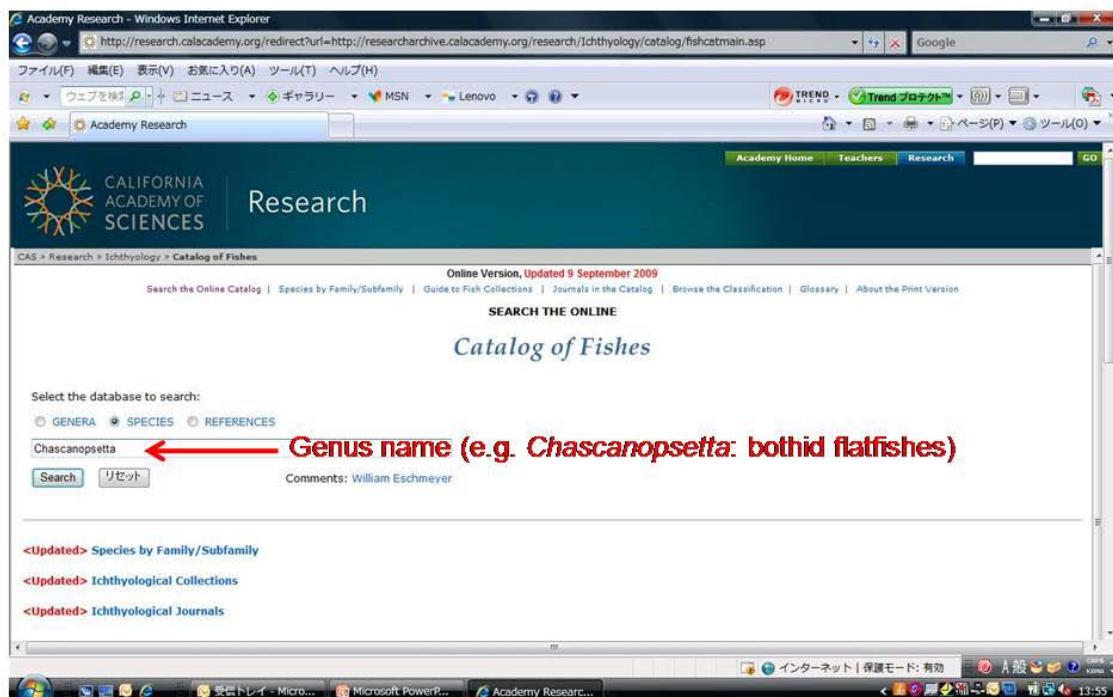
No key ↓

Eschmeyer (on line version) Catalog of Fishes, California Academy of Science



Find manuscripts

Eschmeyer (on line version) Catalog of Fishes



Eschmeyer (on line virsion) Catalog of Fishes

Species that contain: Chascanopsetta **171** records ← **Number of nominal species in the genus**

blumenilla, Chascanopsetta Shen 1967:187, Figs. 66-70 [Quarterly Journal of the Taiwan Museum (Taipei) v. 20 (nos. 1-2): ref. 20549] Off Hong Kong, 16°22.2'N, 114°24.5'E, depth 200-210 fathoms. Holotype (unique): NTUM. *Synonym of Chascanopsetta lugubris Alcock 1894 -- (Amaoka & Yamamoto 1984:210 [ref. 5632], Li & Wang 1995:219 [ref. 16193]). **Current status:** Synonym of Chascanopsetta lugubris Alcock 1894 Bothidae.

crumenalis, Pelecianichthys Gilbert & Cramer 1897:433, Pl. 47 [Proceedings of the United States National Museum v. 19 (no. 1114): ref. 1635] Off Hawaiian Islands, U.S.A., Kaiwai Channel, 21°09'N, 157°53'W, Albatross station 3476, depth 295-298 fathoms. Holotype: USNM 47738 (not 48738). Paratypes: BMNH 1930.9.2.7 [ex SU] (1), SU 4933 (1). Type catalog: Bohike 1953:140 [ref. 12291]. *Valid as *Pelecianichthys crumenalis* Gilbert & Cramer 1897 -- (Pequeño 1989:76 [ref. 14125]). *Valid as *Chascanopsetta crumenalis* (Gilbert & Cramer 1897) -- (Amaoka & Yamamoto 1984:210 [ref. 5632], **Click**, Foroshchuk 1991:81 [ref. 20137], Hensley & Smale 1998:13 [ref. 23483], Fukui et al. 2001:101 [ref. 25289] as *crumenalis*, Mundy 2005:518 [ref. 28379]). **Current status:** Valid as *Chascanopsetta crumenalis* (Gilbert & Cramer 1897) Bothidae. Distribution: Central Pacific, possibly Indian Ocean. Habitat: marine.

danae, Chascanopsetta lugubris Bruun 1937:126, Pl. 1 (fig. 1) [Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening, Kjobenhavn. v. 101; ref. 15271] Atlantic, 8°26'N, 15°11'W, Dana station 4003, 3000 meters wire out, estimated depth 1500 meters, over 3210 meters. Holotype (unique): ZMUC P853319. Type catalog: Nielsen 1974:83 [ref. 9588]. *Synonym of *Chascanopsetta lugubris* Alcock 1894 -- (Amaoka 1969:222 [ref. 105], Aldebert et al. 1990:1033 [ref. 19526], Foroshchuk 1991:81 [ref. 20137], Hensley & Smale 1997: [ref. 23483]). *Synonym of *Chascanopsetta lugubris* Alcock 1894, but a valid subspecies as described -- (Amaoka & Yamamoto 1984:214 [ref. 5632], Fukui et al. 2001:101 [ref. 25289]). *Valid as *Chascanopsetta danae* Bruun 1937 -- (Munroe 2003:1892 [ref. 27118], Menezes & Figueiredo in Menezes et al. 2003:105 [ref. 27192]). **Current status:** Valid as *Chascanopsetta danae* Bruun 1937 Bothidae. Distribution: Western Atlantic.

elski, Chascanopsetta Foroshchuk 1991:4 [76]. Fig. [Voprosy Ikhtologii v. 31 (no. 1); ref. 20137] Saya de Malha Bank, northern Indian Ocean, 11°20'01"S, 62°12'00"E, depth 250-255 meters. Holotype: ZIN 49164. Paratypes: ZIN 49165 (1); plus additional material (16). On p. 76 of English translation. *Valid as *Chascanopsetta elski* Foroshchuk 1991 -- (Fukui et al. 2001:101 [ref. 25289]). **Current status:** Valid as *Chascanopsetta elski* Foroshchuk 1991 Bothidae. Distribution: Indian Ocean. Habitat: marine.

galathea, Chascanopsetta Nielsen 1961:220. Fig. 1; Pl. 14 [Galathea Report v. 4; ref. 93691] Off Natal, South Africa, 25°20'S, 35°17'E, depth 575-595 meters. Holotype: ZMUC

List of nominal species

Look for a manuscript which quote many species.

Eschmeyer (on line virsion) Catalog of Fishes

Online Version, Updated 9 September 2009

SEARCH RESULTS FROM THE
Catalog of Fishes

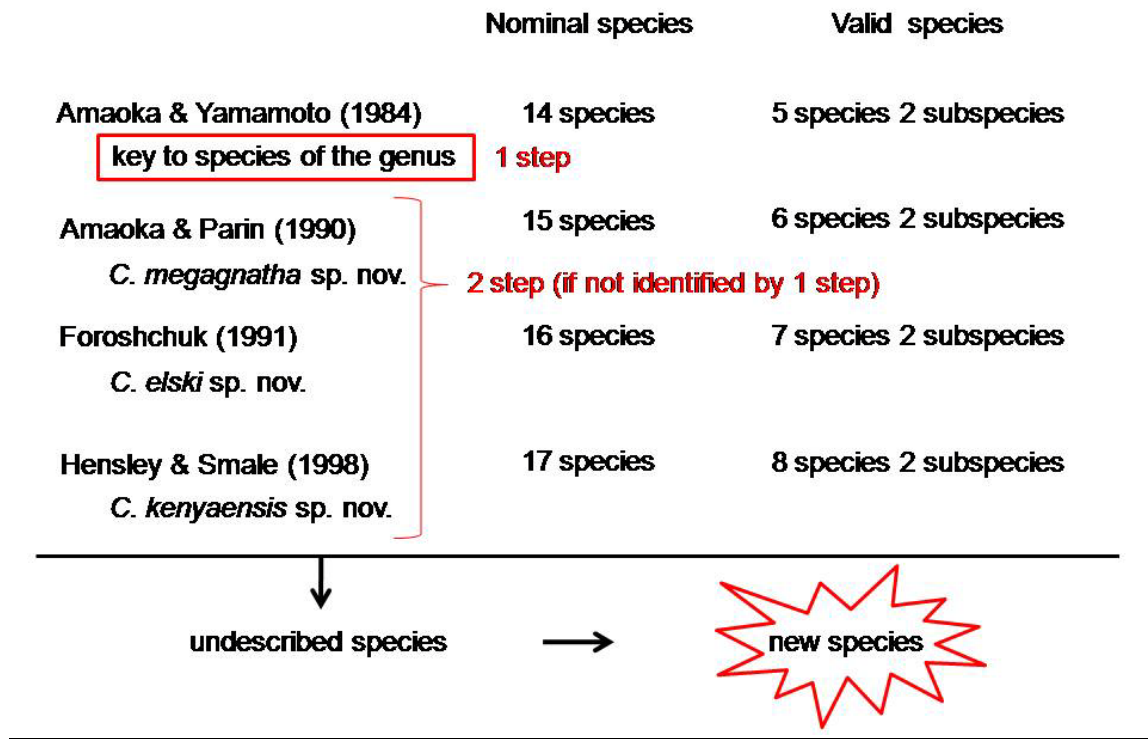
Select the database to search:
 GENERA SPECIES REFERENCES

Search [リセット] Comments: weschmeyer@calacademy.org

Catalog of Fishes Reference Record:

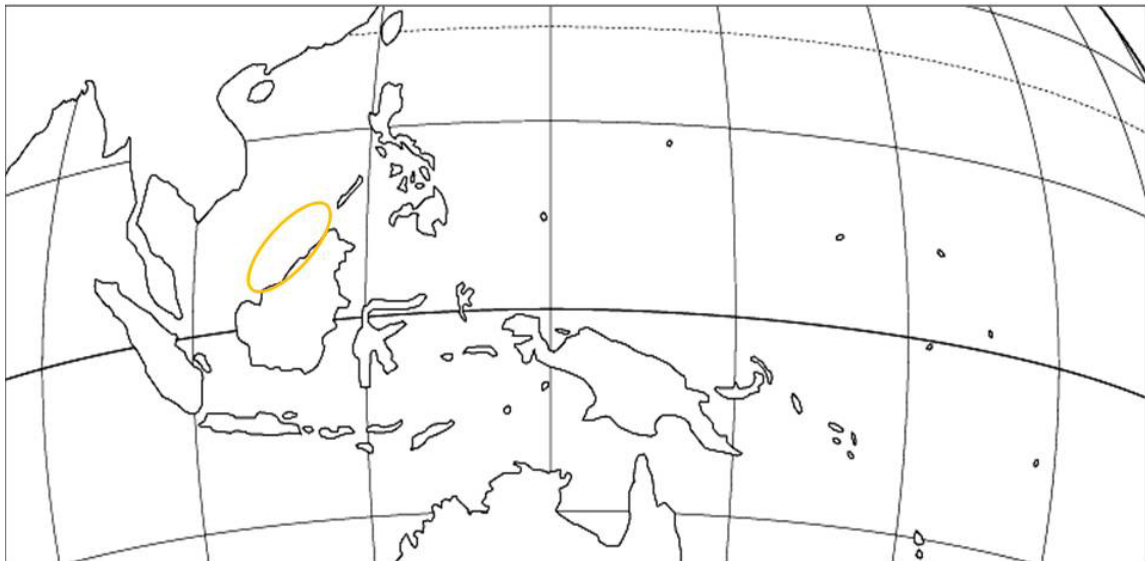
Amaoka, K. and E. Yamamoto 1984 (Nov.) [ref. 5632]
 Review of the genus *Chascanopsetta*, with the description of a new species. Bulletin of the Faculty of Fisheries Hokkaido University v. 35 (no. 4): 201-224.

Genus *Chascanopsetta*



- Methods of measurements and counts
- How to identify deep-sea fishes
- Deep-sea fishes from Southeast Asia

Deep-sea fishes from Southeast Asia



Malaysia: 130-513 m depth

Other deepsea fishes from Southeast Asia

Myxiniformes

Myxinidae



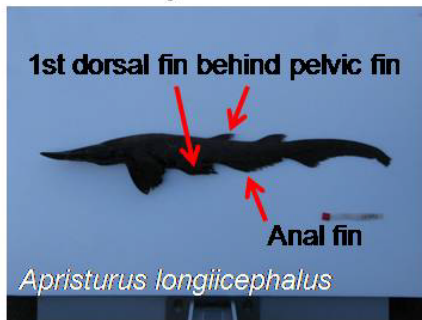
Eptatretus sp.

HMZ 194273

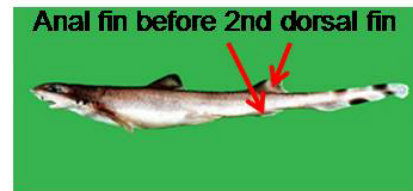
**Mouth without jaws, a simple hole beneath snout
3 pairs of barbels**

Elasmobranchii 1

Scyliorhinidae

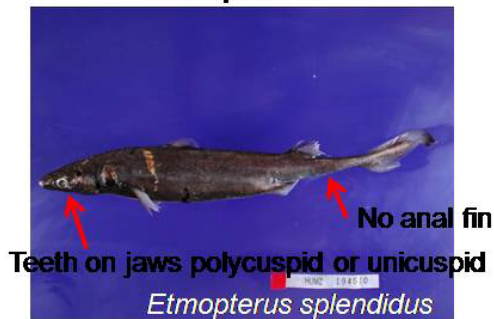


Proscyllidae (Not deepsea fishes)

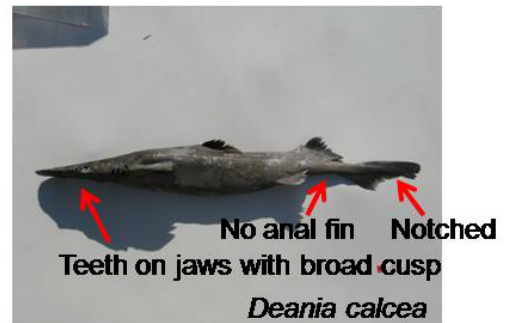


Eridacnis radcliffei

Etmopteridae

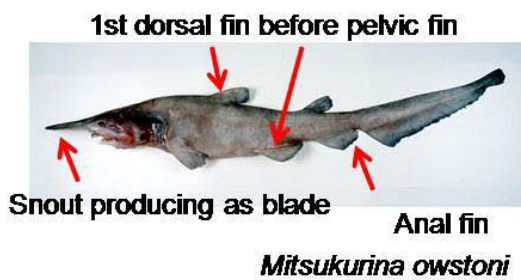


Centrophoridae

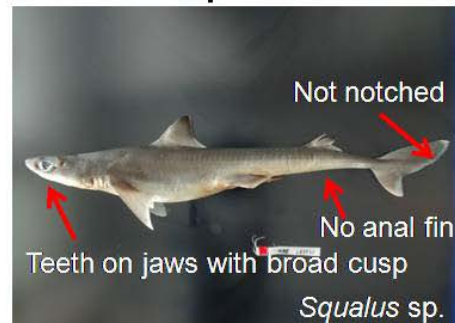


Elasmobranchii 2

Mitsukurinidae



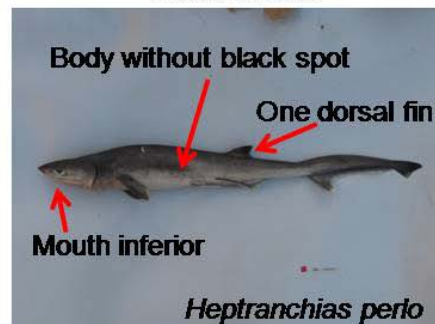
Squalidae



Triakidae



Hexanchidae



Elasmobranchii 3

Rhinobatidae



Pectoral fin small

Rhinobatos schlegelii

Rajidae



Raja sp.

Narcinidae



Snout not pointed

Stout tail

Squatinaidae



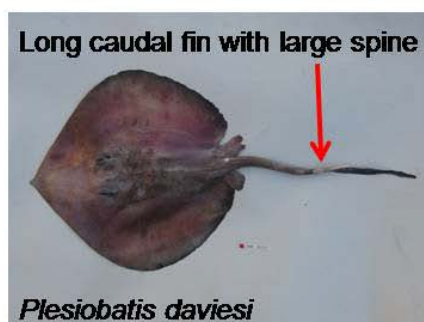
Broad pectoral fin

No anal fin

Squatina nebulosa

Elasmobranchii 4

Plesiobatididae



Long caudal fin with large spine

Plesiobatis daviesi

Hexatrygonidae

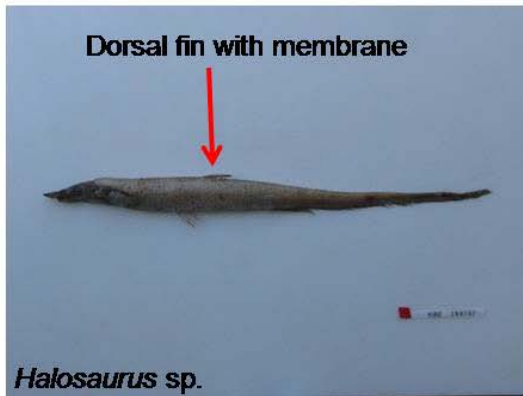


6 pairs gill openings

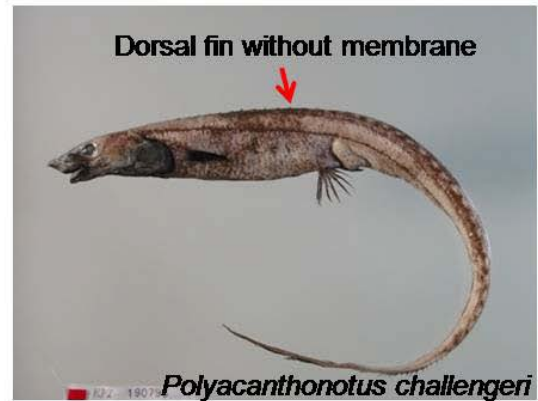
Hexatrygon longirostra

Notacanthiformes

Halosauridae



Notacanthidae



Anguilliformes 1

Synphobranchidae



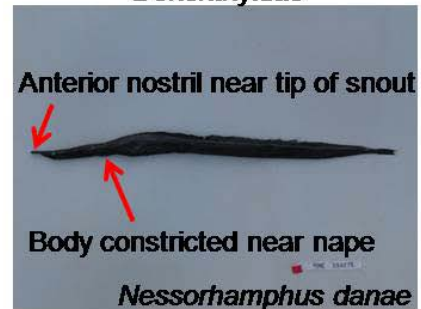
Colocongridae



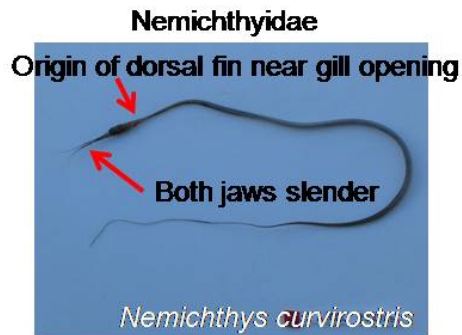
Congridae



Derichthyidae

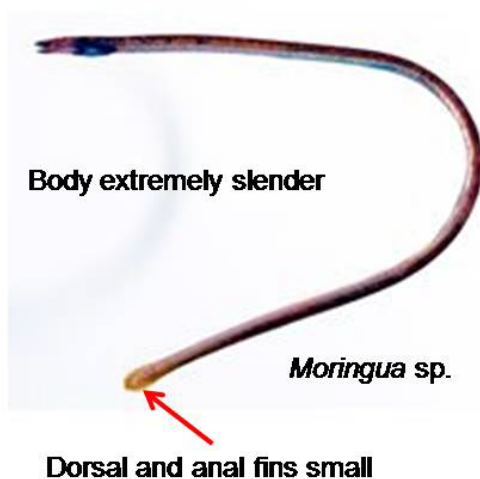


Anguilliformes 2



Anguilliformes 3

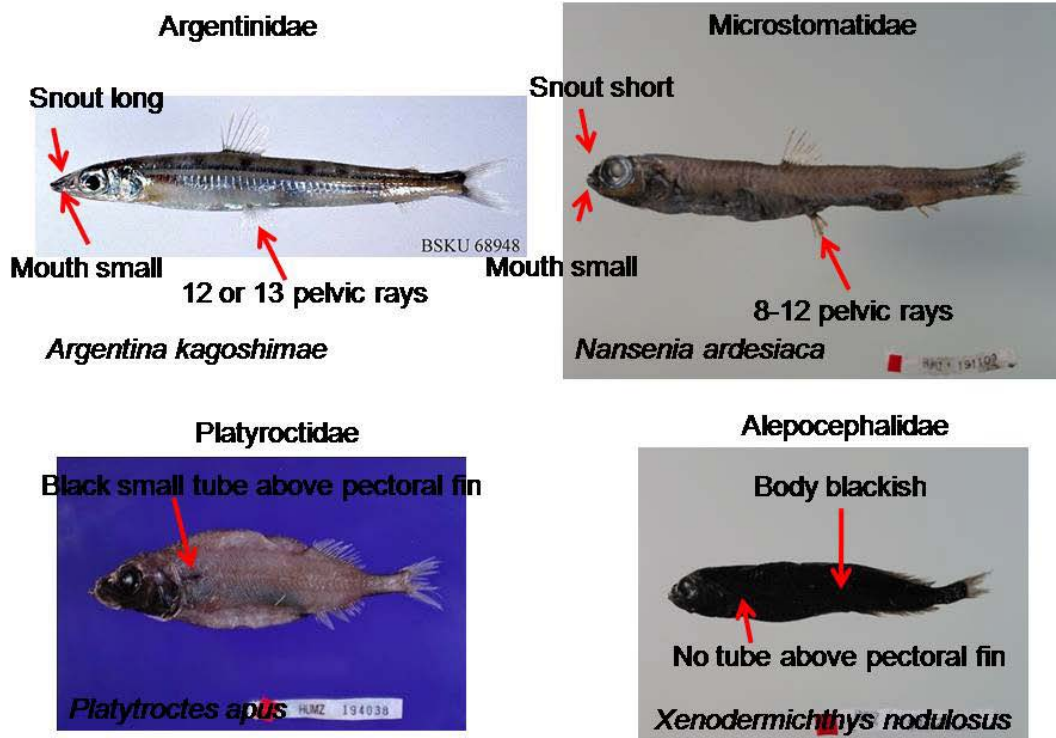
Moringuidae
(Not deepsea fishes)



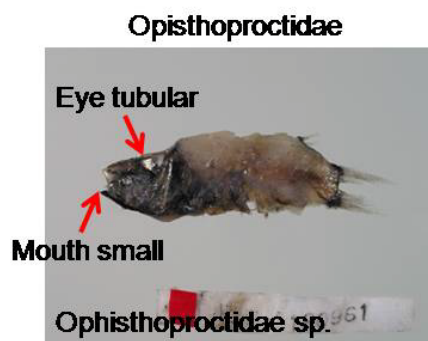
Ophichthidae
(Not deepsea fishes)



Argentiniformes



Argentiniformes 2



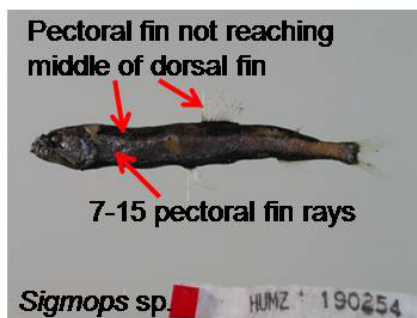
Macropinna microstoma



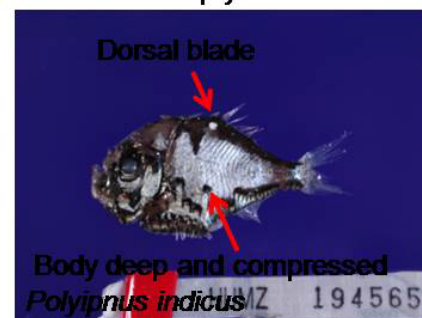
From Monterey Bay Aquarium

Stomiiformes 1

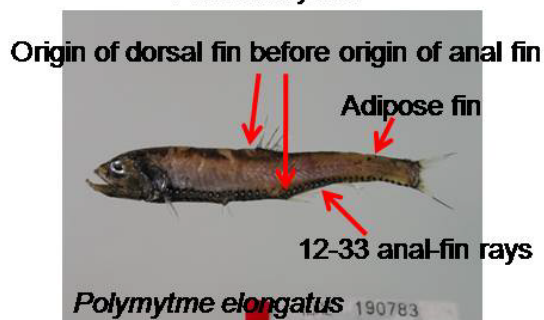
Gonostomatidae



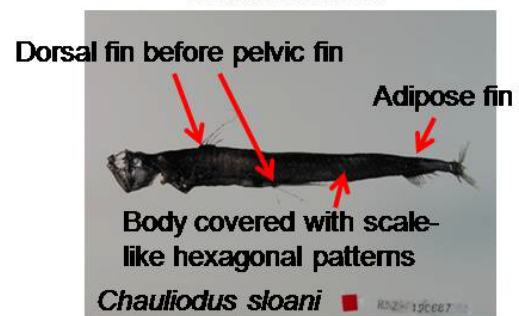
Stemoptychidae



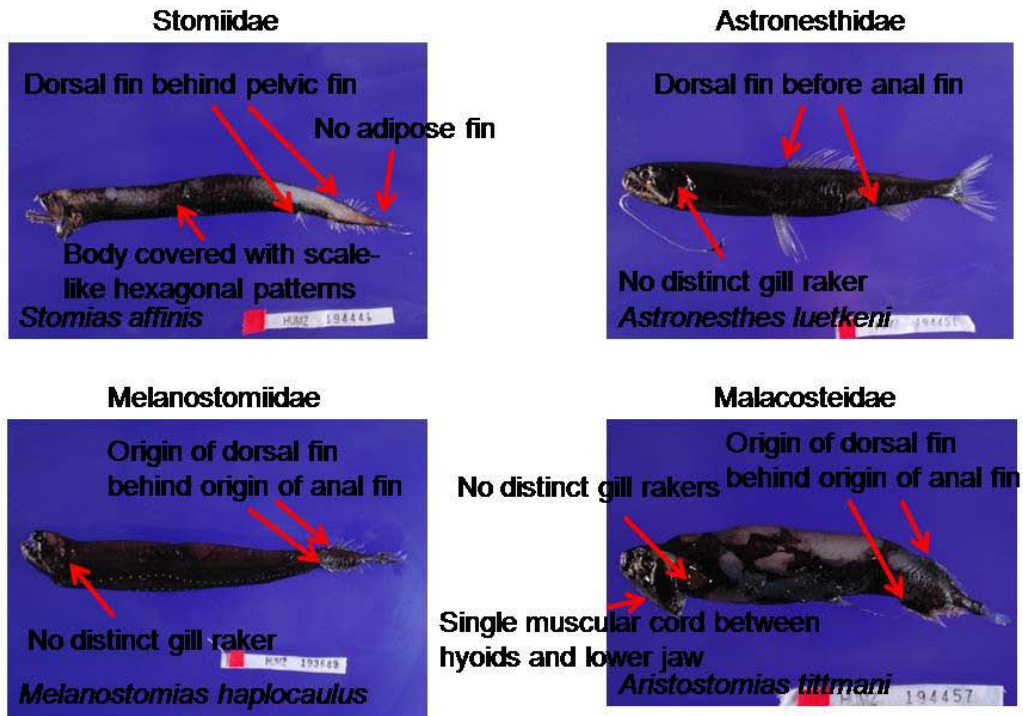
Phosichthyidae



Chauliodontidae



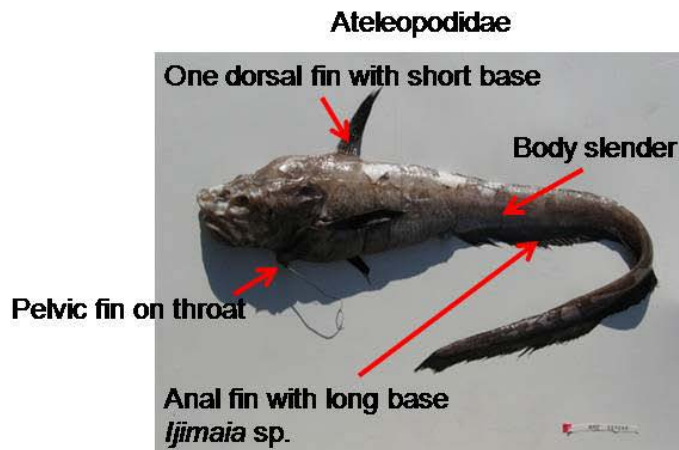
Stomiiformes 2



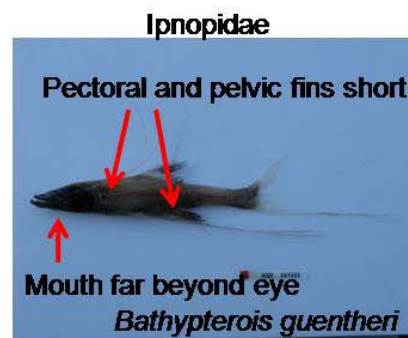
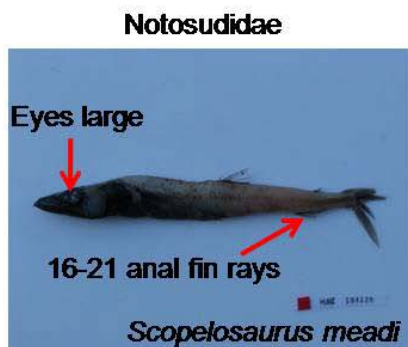
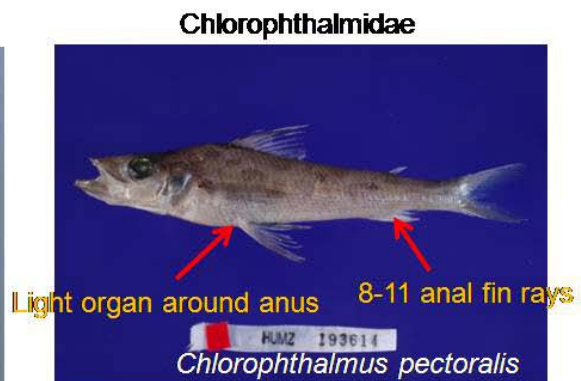
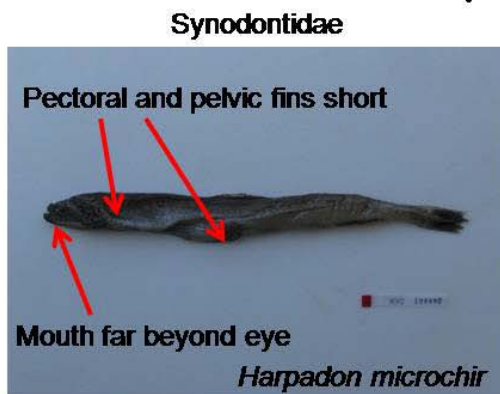
Stomiiformes 3



Ateleopodiformes



Aulopiformes 1

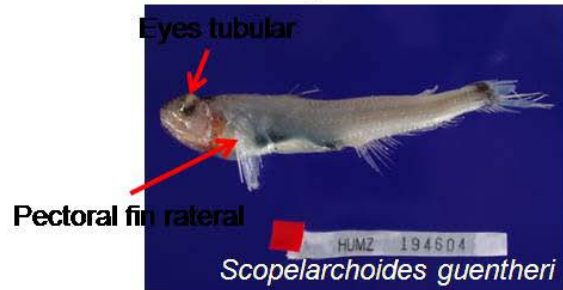


Aulopiformes 2

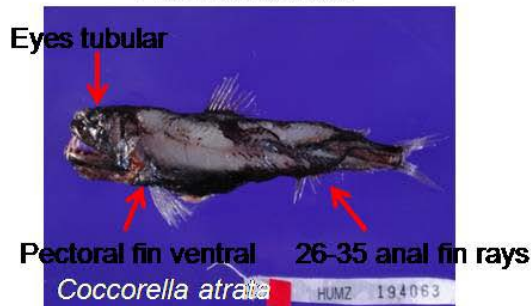
Paralepididae



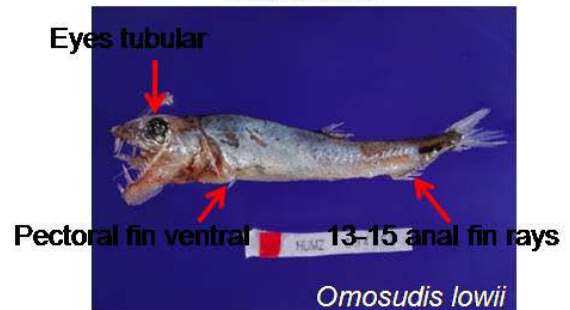
Scopelarchidae



Evermannellidae



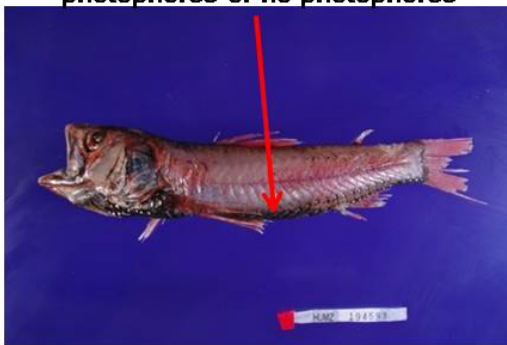
Omosudidae



Myctophiformes

Neoscopelidae

Body with longitudinal row of photophores or no photophores



Myctophidae

Body with not longitudinal row of photophores



Neoscopelidae

Neoscopelus microchir

Lateral series of photophores extending beyond origin of anal fin



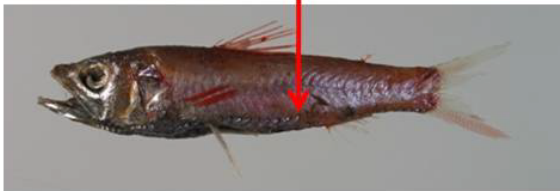
Scopelengys tristis

No photophores



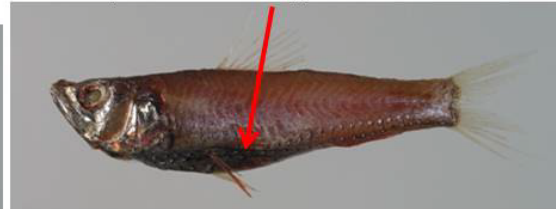
Neoscopelus macrolepidotus

Lateral series of photophores not extending beyond origin of anal fin



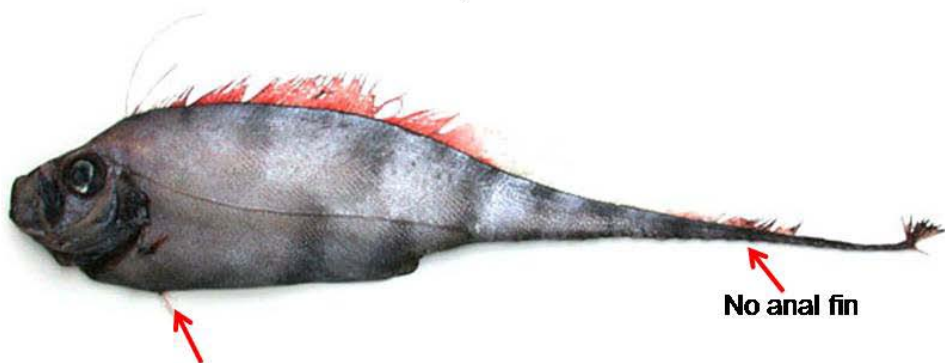
Neoscopelus porosus

3 series of photophores behind pelvic fin to origin of anal fin



Lampridiformes

Trachipteridae



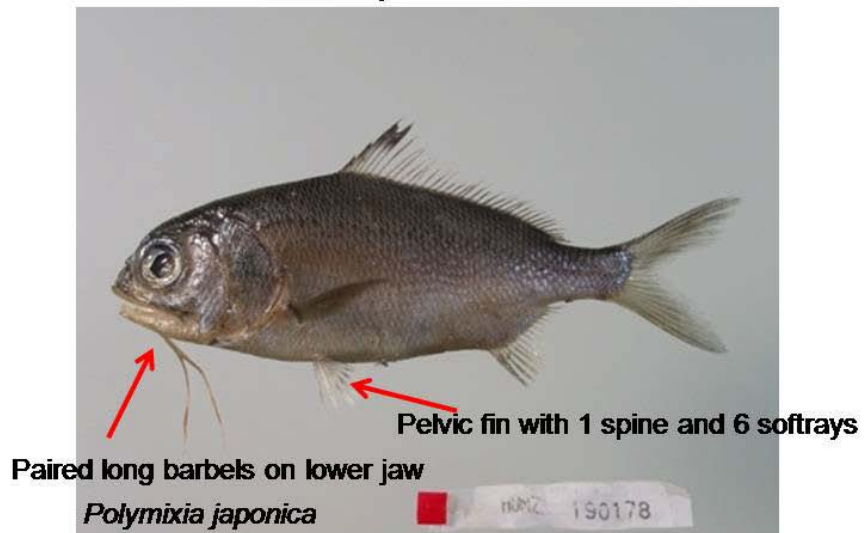
Small pelvic fin in juveniles, disappearing in adults

No anal fin

Zu cristatus

Polymixiiformes

Polymixiidae



Gadiformes

Moridae



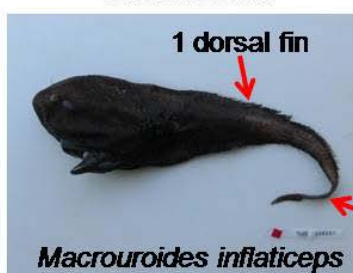
Melanonidae



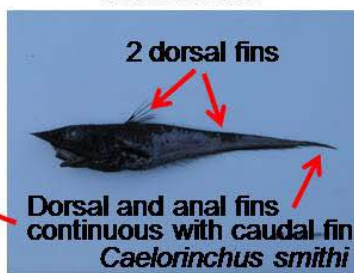
Bregmacerotidae



Macrouroidae



Macrouridae



Macrouridae (1)

Caelorinchus



Snout long, pointed

Abyssicola



Second dorsal spine smooth

Snout blunt

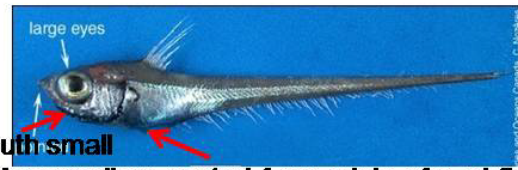
Coryphaenoides

Second dorsal spine serrated



Snout blunt 6 branchiostegal rays

Nezumia



large eyes
Mouth small
Anus well separated from origin of anal fin

Ventrifossa



Mouth large
Anus well separated from origin of anal fin

Cetonurus

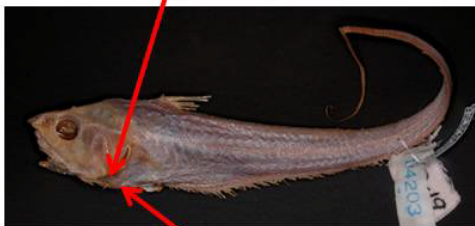


Head large
Anus close to origin of anal fin

Macrouridae (2)

Pseudonezumia

Scales absent on branchiostegal membrane



6 pelvic rays

Hymenogadus

Body cylindrical



Anus close to origin of anal fin

Malacocephalus

First dorsal fin II, 10-14



Scales present on branchiostegal membrane

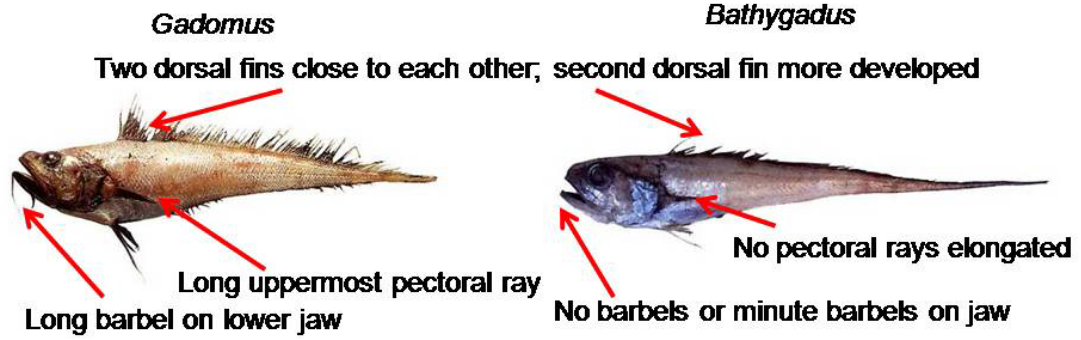
Hymenocephalus

Body compressed

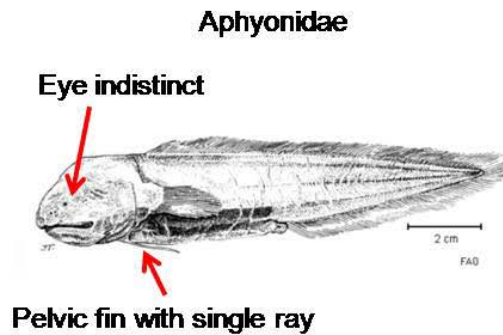
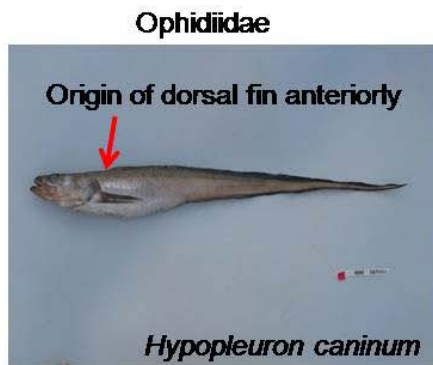


Anus close to origin of anal fin

Macrouridae (3)

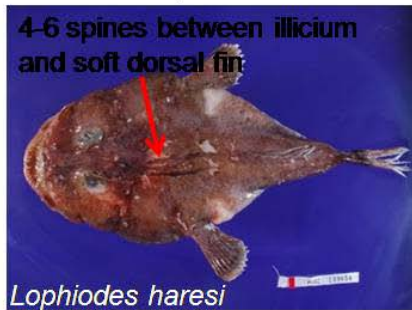


Ophidiiformes

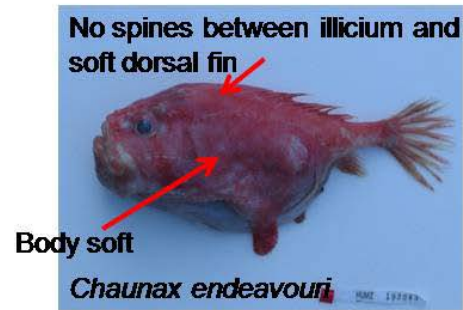


Lophiiformes 1

Lophiidae



Chaunacidae



Ogcocephalidae



Ceratiidae



Lophiiformes 2

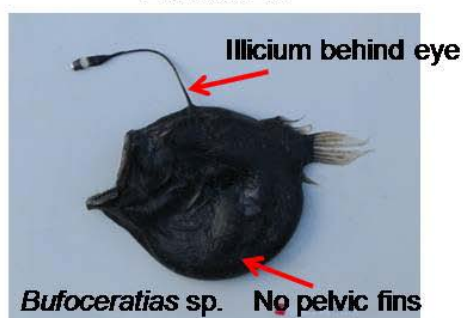
Linophrynidae



Oneirodidae



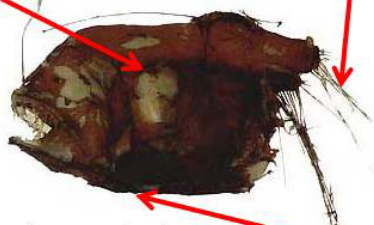

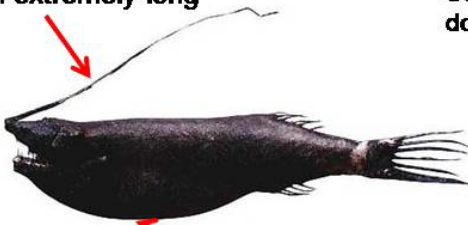

Diceratiidae



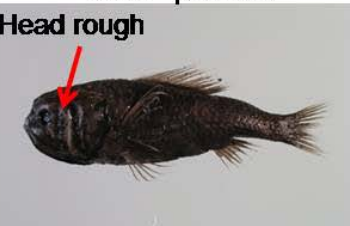
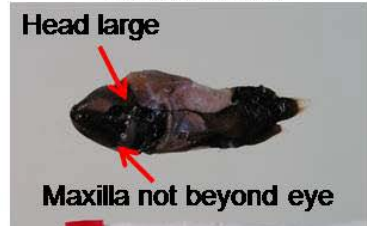

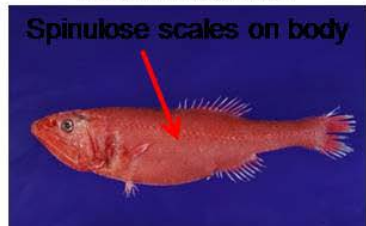

Himantolophidae



Lophiiformes 3

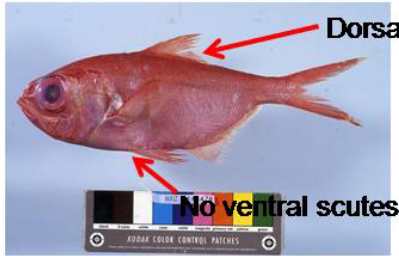
<p>Caulophrynidae</p> <p>Body with cirri Long filamentous rays</p>  <p><i>Caulophryne pelagica</i></p>	<p>Melanocetidae</p> <p>Body without bony plates or cirri</p>  <p>No long rays</p> <p><i>Melanocetus sp.</i></p>
No pelvic fin	
<p>Gigantactinidae</p> <p>Illicium extremely long</p>  <p><i>Gigantactis vanhoeffeni</i></p>	<p>Antennariidae</p> <p>(Not deepsea fishes)</p> <p>Second and third dorsal spines stout</p>  <p><i>Antennarius sp.</i></p>
Pelvic fin present	

Stephanoberyciformes

<p>Melamphaidae</p> <p>Head rough</p>  <p><i>Melamphaes sp.</i></p>	<p>Rondeletiidae</p> <p>Head large</p>  <p>Maxilla not beyond eye</p> <p><i>Rondeletia loricata</i></p>	<p>Barbourisiidae</p>  <p>Maxilla far beyond eye</p> <p><i>Barbourisia rufa</i></p>
<p>Hispidoberycidae</p> <p>Spinulose scales on body</p>  <p><i>Hispidoberyx ambagiosus</i></p>	<p>Cetomimidae</p> <p>Bases of dorsal and anal fins almost equal in length</p>  <p><i>Cetomimus sp.</i></p>	

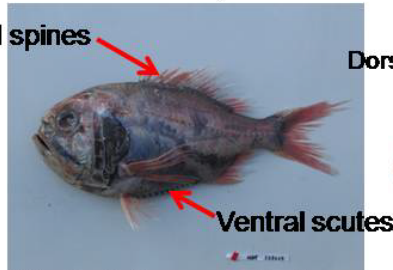
Beryciformes

Berycidae



Beryx splendens

Trachichthyidae



Hoplostethus crassispinus

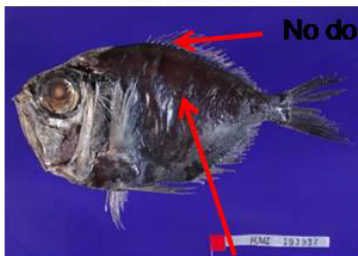
Holocentridae

(Not deepsea fishes)

Dorsal fin with 11-13 hard spines

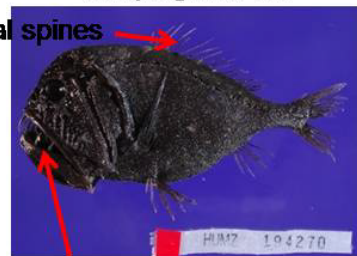


Diretmidae



Diretmoides pauciradiatus

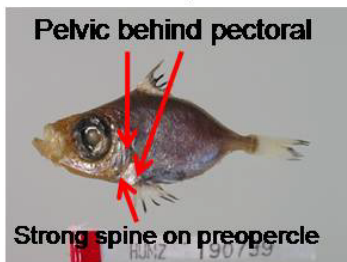
Anoplogastridae



Anoplogaster cornuta

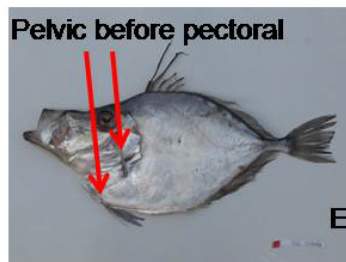
Zeiformes

Macrurocyttidae



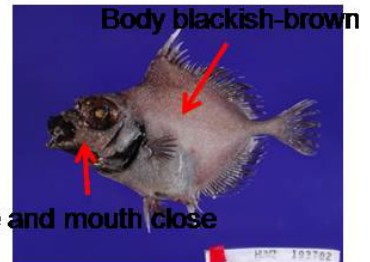
Zenion japonicum

Zeidae



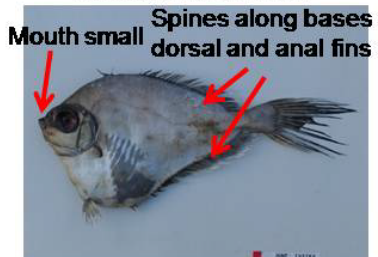
Zenopsis conchifer

Oresomatidae



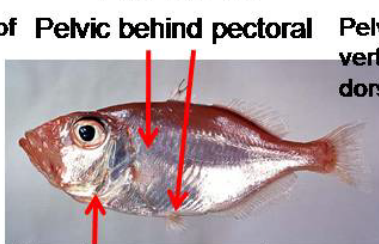
Neocyttus acanthorhynchus

Grammicolepididae



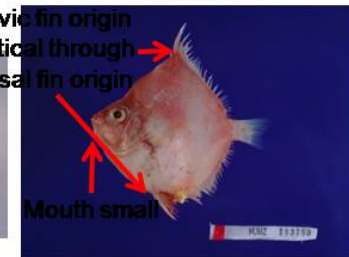
Grammicolepis brachiusculus

Parazenidae



Parazen pacificus

Caproidae



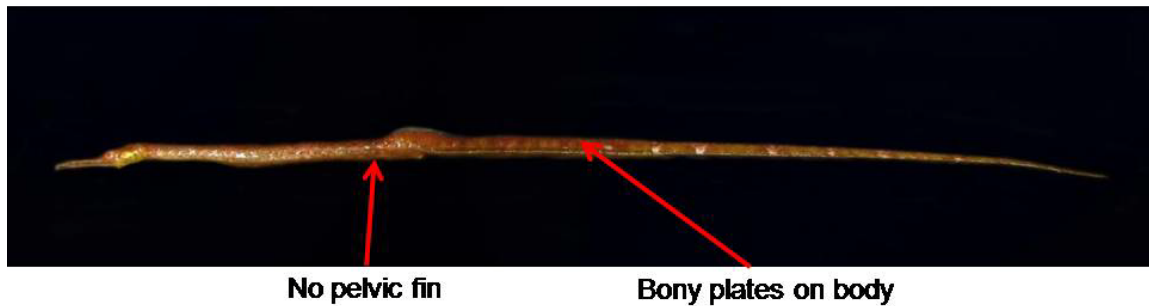
Antigonia rubicunda

Gasterosteiformes

Fistulariidae
(Not deepsea fishes)

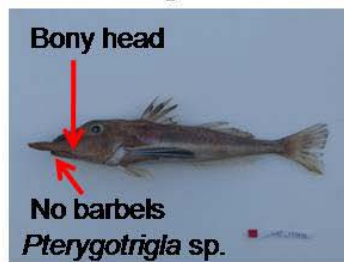


Syngnathidae
(Not deepsea fishes)

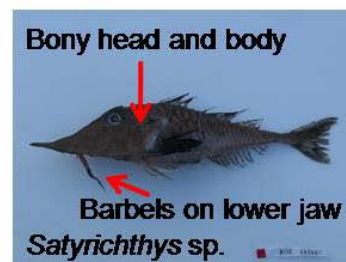


Scorpaeniformes1

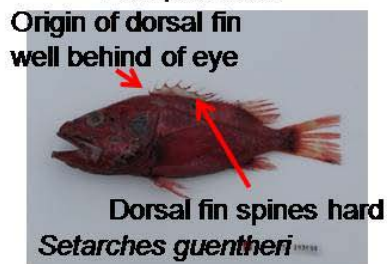
Triglidae



Peristediidae



Scorpaenidae

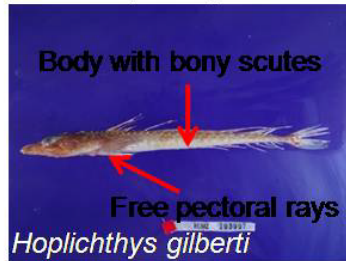


Hoplichthyidae

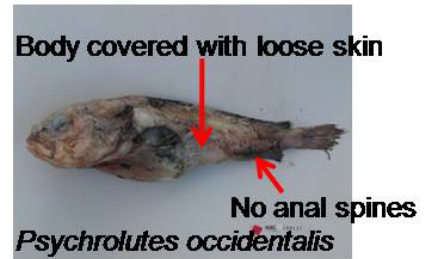


Scorpaeniformes2

Hoplichthyidae



Psychrolutidae

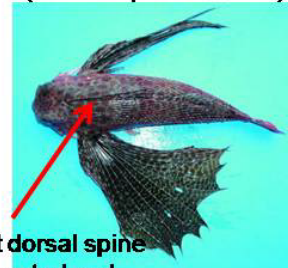


Platycephalidae (Not deepsea fishes)



Anal fin without spines

Dactylopteridae (Not deepsea fishes)



First dorsal spine separated and elongated

Perciformes 1

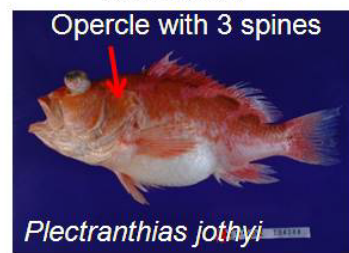
Acropomatidae



Howellidae



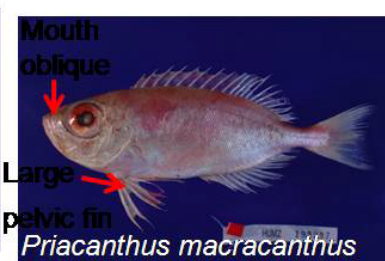
Serranidae



Ostracoberycidae



Priacanthidae



Apogonidae



Anal fin with 2 spines and 8-18 rays

Perciformes 2

Epigonidae



Nemipteridae



Malacanthidae



Cepolidae



Centrolophidae

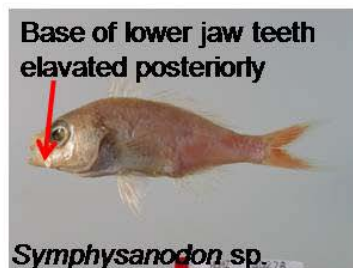


Nomeidae



Perciformes 2

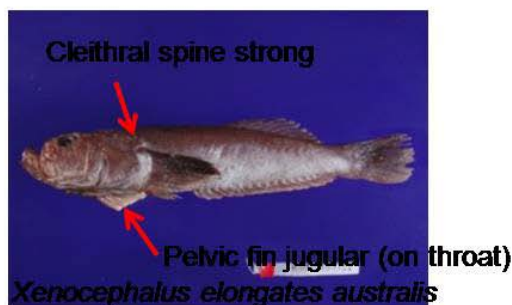
Symphysanodontidae



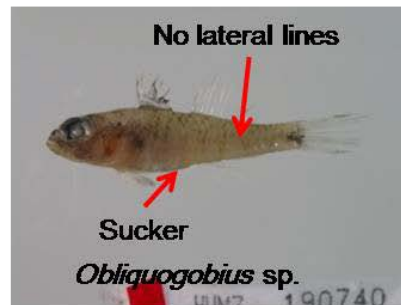
Sciaenidae



Uranoscopidae



Gobiidae



Perciformes 3

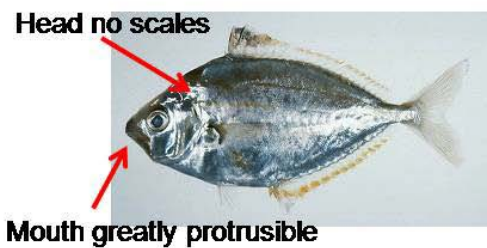
Percophidae



Chiasmodontidae



Leiognathidae
(Not deepsea fishes)

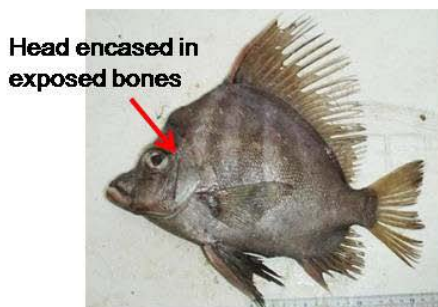


Mullidae
(Not deepsea fishes)

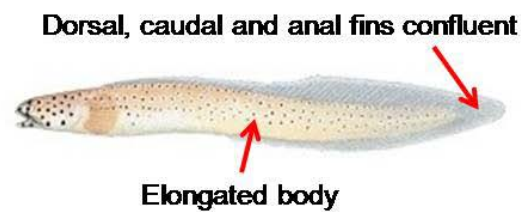


Perciformes 4

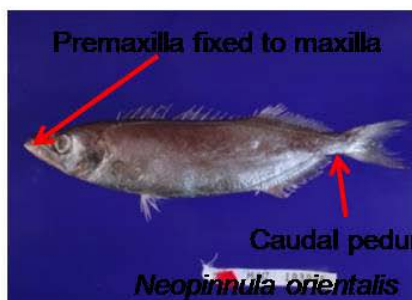
Pentacerotidae



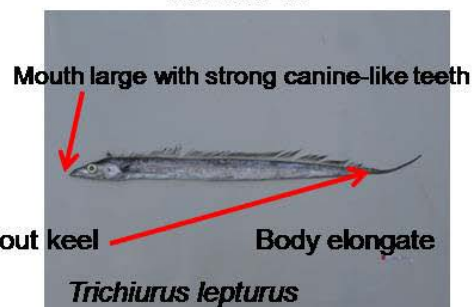
Notograptidae



Gempylidae

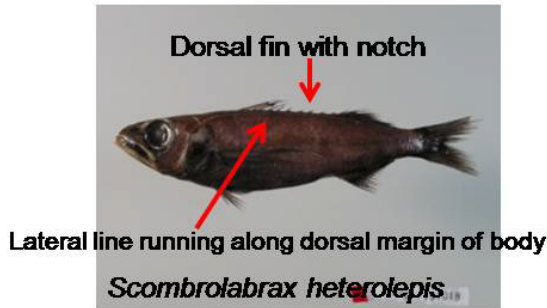


Trichiuridae

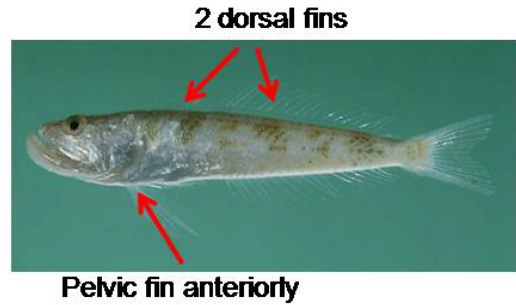


Perciformes 5

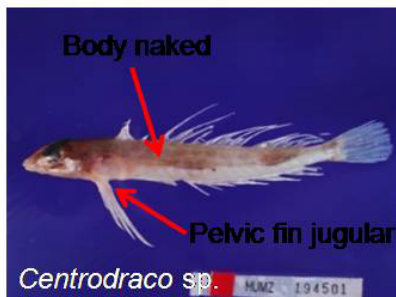
Scombrolabracidae



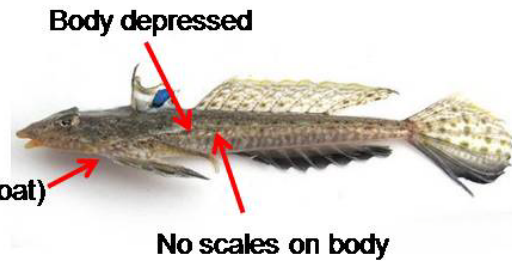
Champsodontidae



Draconettidae



Callionymidae (Not deepsea fishes)

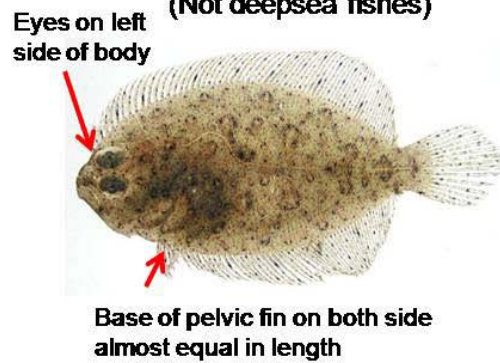


Pleuronectiformes 1

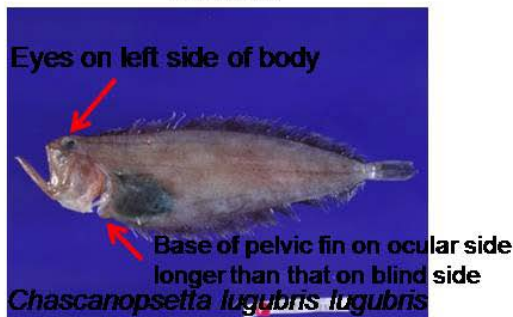
Citharidae



Paralichthyidae (Not deepsea fishes)

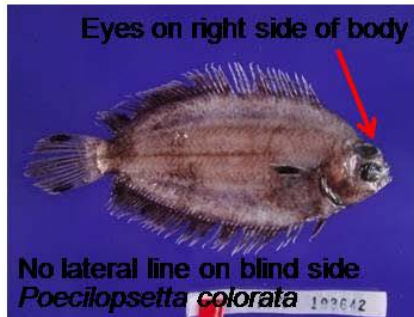


Bothidae

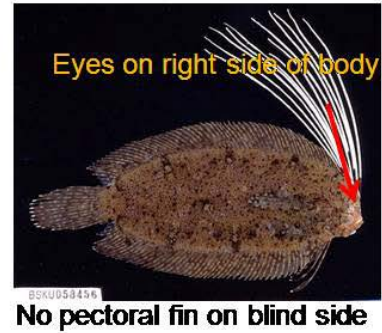


Pleuronectiformes 2

Poecilopsettidae



Samaridae



Soleidae

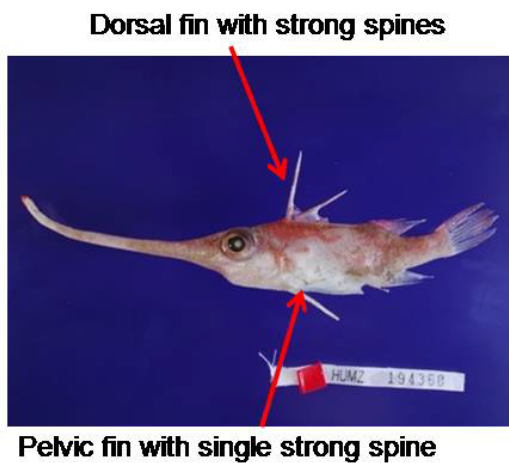


Cynoglossidae

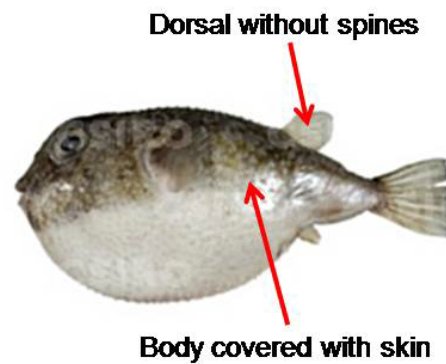


Tetraodontiformes

Triacanthodidae



Tetraodontidae (Not deepsea fishes)





Peristedion from NOAA

Thank you so much for your attention

Annex 7: Collection building at the Hokkaido University museum, Hakodate, Japan

By Dr. Toshio Kawai

Collection Building at the Hokkaido University Museum, Hakodate, Japan

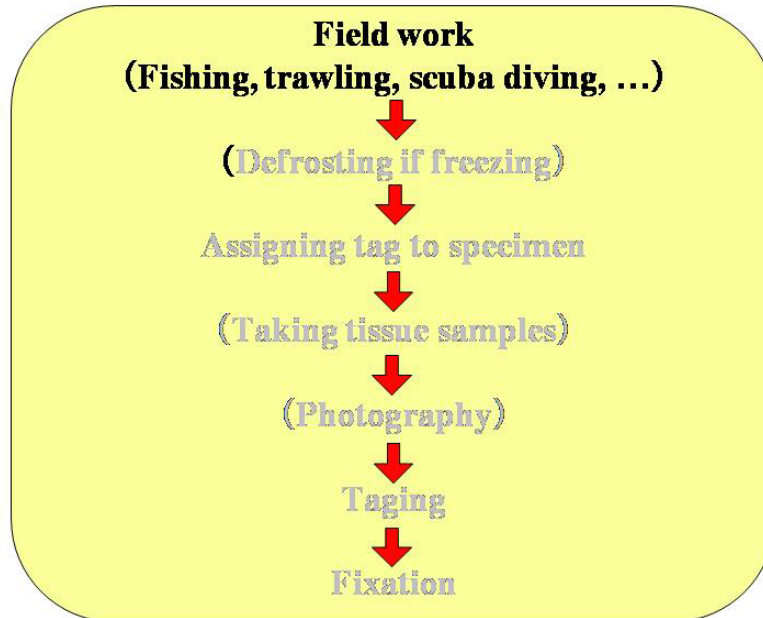


Toshio KAWAI

Methods of making fish specimens



Methods of making fish specimens



Scuba diving



Photo by T. Abe

Seine net



Photo by H. Imamura

Gill net



Photo by O. Tsuruoka

Dredge

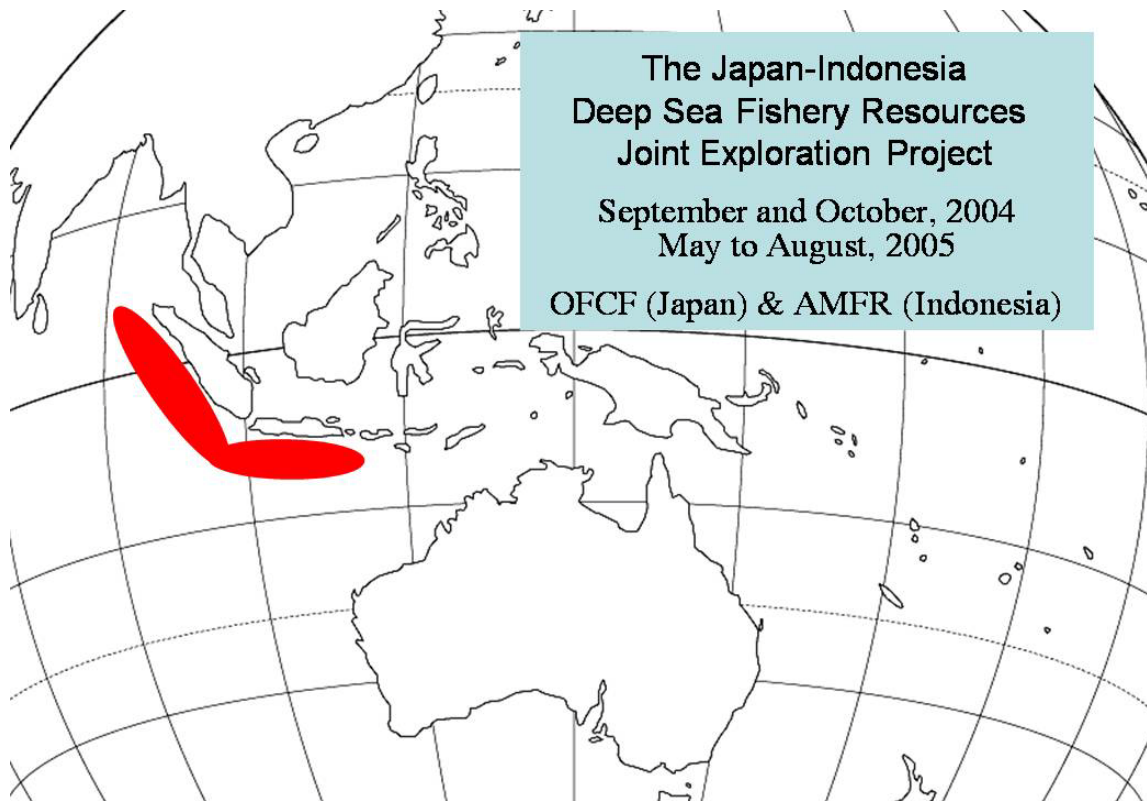


Photo by O. Tsuruoka

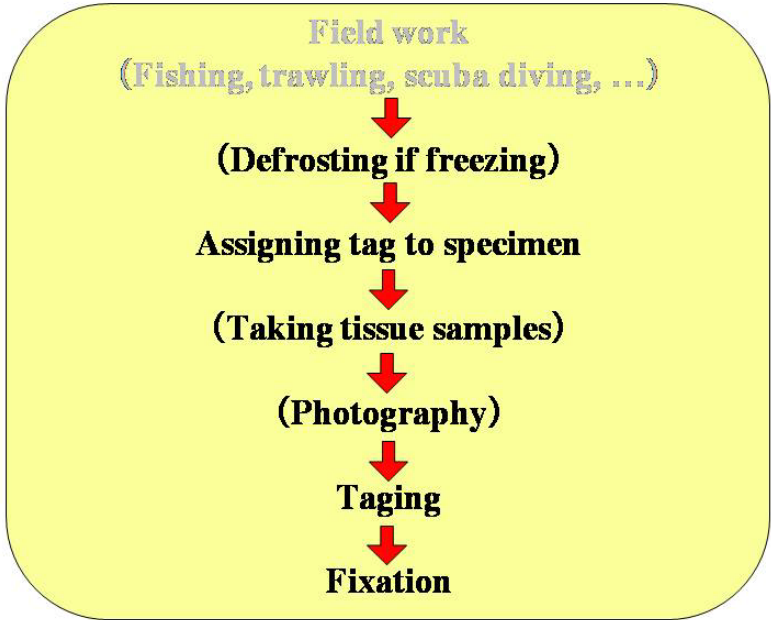
Otter trawl (R/V Oshoro-maru, Hokkaido Univ)



Photo by J. Yamamoto



Methods of making fish specimens

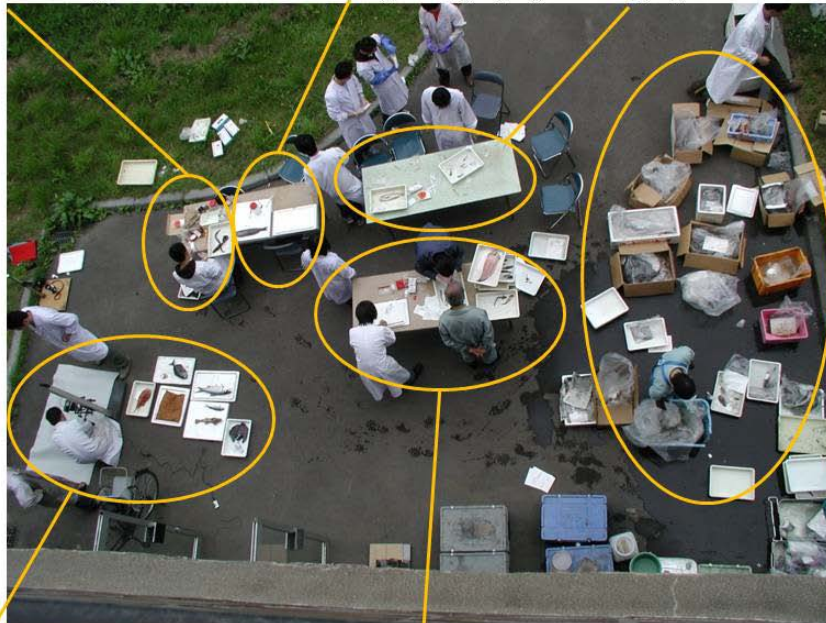


Work for making fish specimens

Taking tissue samples

Pre-fixation for photography

Taging

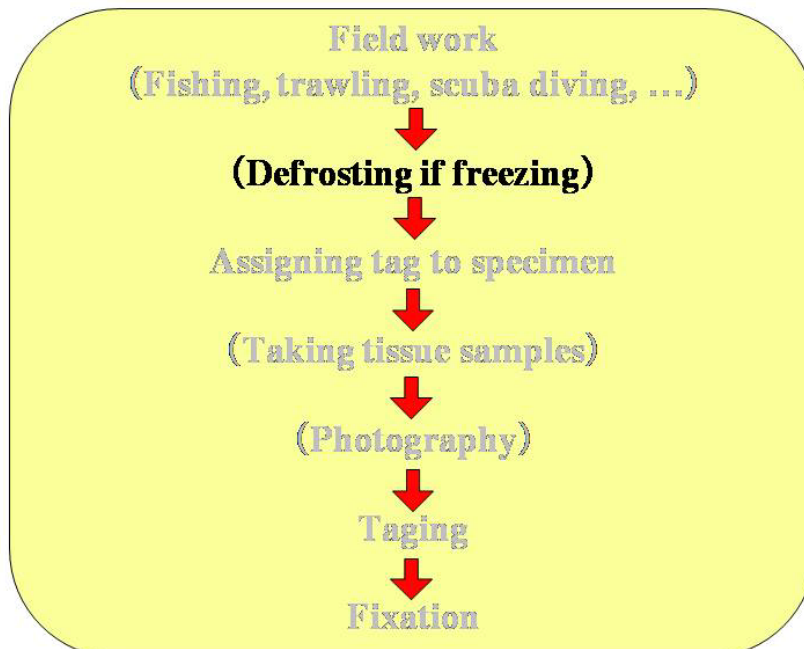


Defrosting

Photography

Assigning tag to specimen

Methods of making fish specimens



Defrosting

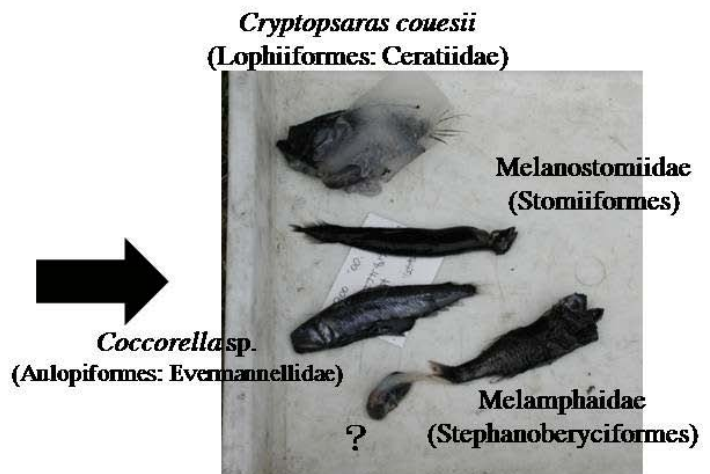


Not to mistake captured data

Rinse

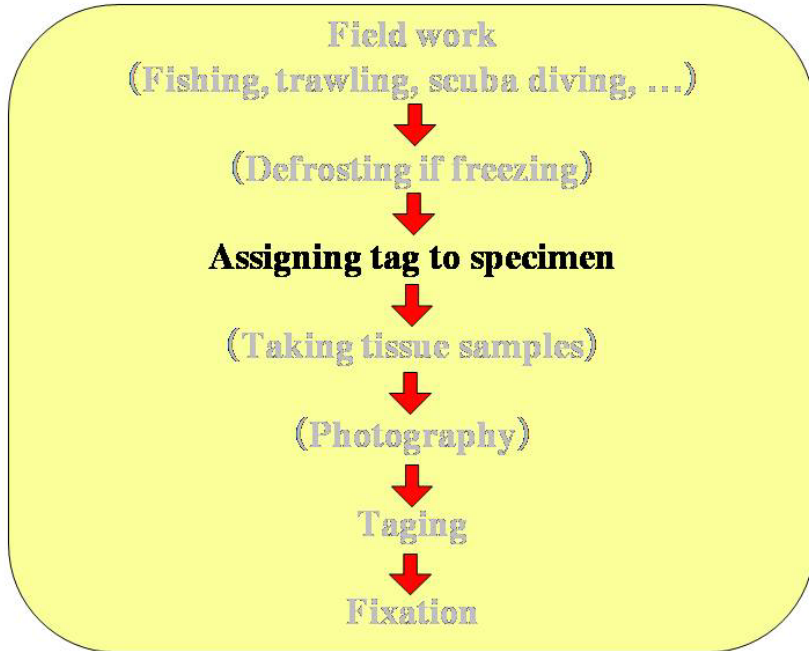


Cleaning mucosal
Fin membrane
Scales



Internal organ spoils easily

Methods of making fish specimens



Assigning tag to specimen



- Captured data**
- Locality (Latitude, longitude, depth, ...)
 - Date
 - Methods (Fishing, set net, ...)
 - Ship name
- etc

- Specimen data**
- Fish name (*Clupea pallasii*, *Cottus* sp., ...)
 - Number of specimens
- etc

Methods of making tag



Printing numbers on cloth

HUMZ (Hokkaido University Marine Zoology)
+ specimen number



Dry up

Collodion

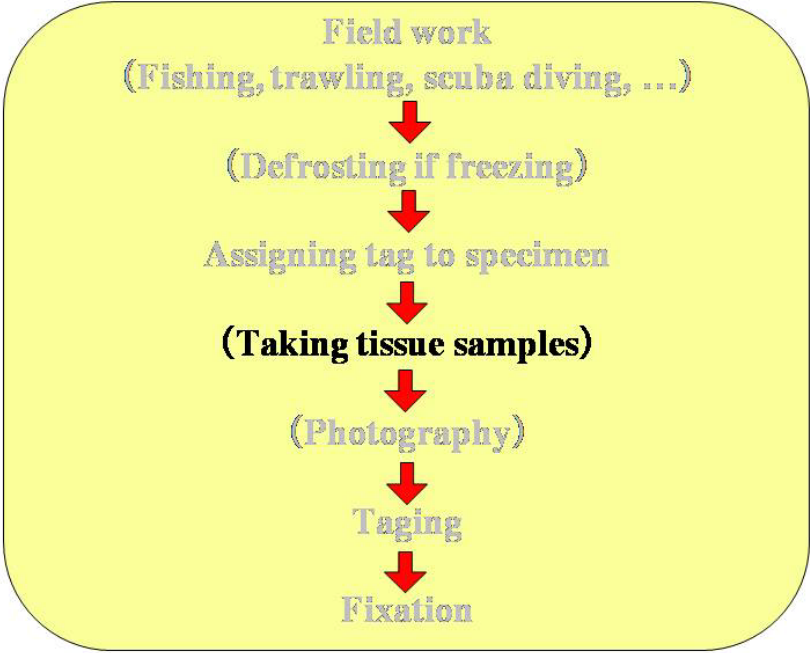
• Cutting easily

Storing

• 100-150 tags



Methods of making fish specimens



Taking tissue samples



Cut out body muscles on right body

- 1cm³
- No formalin



Put in 99.5% ethyl alcohol

- Small bottle 13.5 cc
- Waterproof paper with specimen number



Exchange ethyl alcohol

- Dehydration

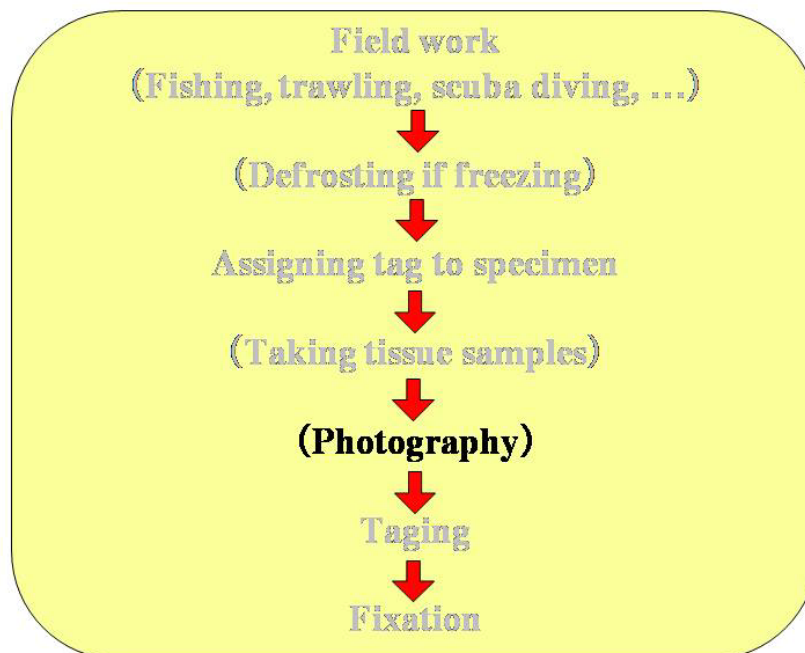


Exchange bottle to 6 cc for storing

- Saving space



Methods of making fish specimens



Pre-fixation for photography (1)



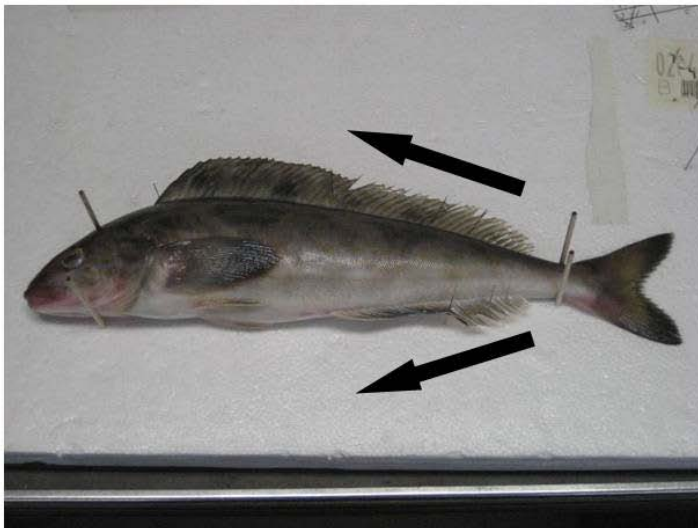
Left side body



Fixing body

- foamed styrol
- toothpick
- needle

Pre-fixation for photography (2)



Rising fins

- minimum damage to fin membrane
- thin needle
- along fin ray
- sting needles from posterior to anterior dorsal- or anal-fin rays
- not to dry up fish

Pre-fixation for photography (3)



Putting formalin

- ink brush
- waiting fixation of fins about 5 min

Pre-fixation for photography (4)



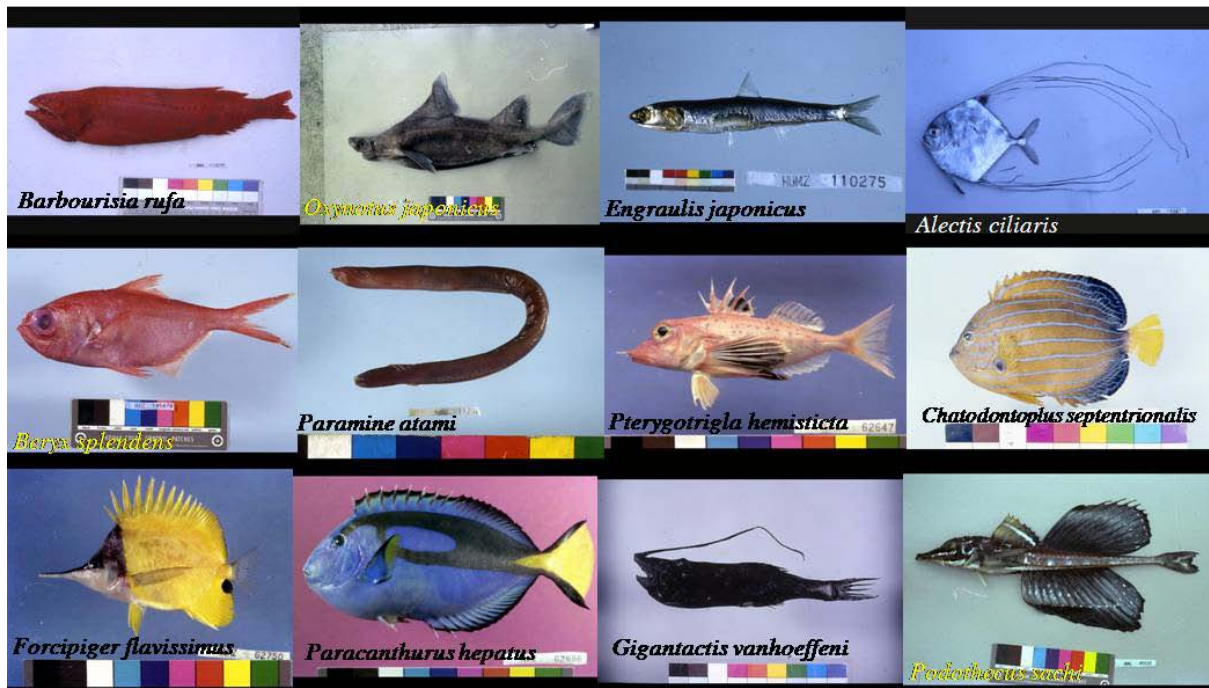
**Completion !!
(Rising fins)**

Photography

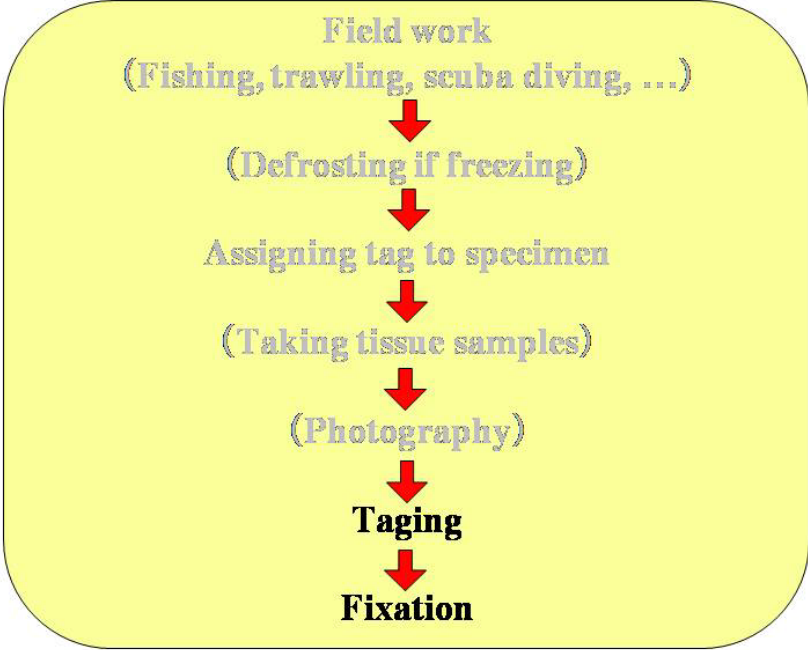


- Shed light from the same angle and distance

Fish photos deposited in Hokkaido University Museum



Methods of making fish specimens



Taging



Pay attention to damage of body

- Surgical needle
- Gill opening to mouth on right body
- Jaw
- Caudal peduncle

etc



Fixation

10 % formalin (10 days to 3 weeks)
Big size specimen: cut abdominal area
to avoid spoiling fish

Replacing with alcohol

Pure water (a few days)
To remove formalin



Alcohol (storing)
50 % isopropyl alcohol: dehydration mild (reasonable)
70 % ethyl alcohol: dehydration effective (expensive)

Specimen building (at Hakodate Campus)

About 210,000 fish specimens



About 3,000 specimens / year

- North Pacific
- cold water fishes
- Peru
- Indonesia
-
-
-

Fish specimens



About 1,050 type specimens

Plastic jar:
500 cc, 1 L, 2 L, 20 L, 30 L, 60 L

Database

About 170,000 lots

HUMZ	Genus	Subgenus	Species	Subspecies	Japanese Name	Or. No.	Fa.	Family Name	Set No.	Type	Dissected	Sub X	Photo	TL(mm)	Amphib	Length(mm)	DNA	Status	Spec. No.	Identifier	Date	Est. No.	Locality	Est. No.	
200310	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						M. Shogaki	1974.5.22		of Kagasaki, Mitou Bay, Asanoh			
200311	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						M. Shogaki	1977.2.15		of Kawachi, Mitou Bay, Asanoh			
200312	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						2	M. Shogaki	1977.5.12		of Kasanoh, Mitou Bay, Asanoh		
200313	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						10	M. Shogaki	1979.11.26		of Misou, Mitou Bay, Asanoh Pref.		
200314	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						2	M. Shogaki	1982.5.22		of Yosogata, Mitou Bay, Asanoh		
200315	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							M. Shogaki	1982.5.22		of Yosogata, Mitou Bay, Asanoh		
200316	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							M. Shogaki	1984.7.24		of Kasanoh, Mitou Bay, Asanoh		
200317	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							M. Shogaki	1984.6.24		of Kaishi, Mitou Bay, Asanoh Pref.		
200318	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							2	M. Shogaki	1984.11.06		of Yosogata, Mitou Bay, Asanoh	
200319	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							M. Shogaki	1984.11.06		of Yosogata, Mitou Bay, Asanoh		
200320	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							8	M. Shogaki	2001.11.19		of Misou, Mitou Bay, Asanoh Pref.	
200321	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							M. Shogaki	2002.1.17		of Misou, Mitou Bay, Asanoh Pref.		
200322	Alburnus		astronotus		アブラシヤキンギョ	005	519	Stichaeidae	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							3	M. Shogaki	2002.5.5		of Misou, Mitou Bay, Asanoh Pref.	
200325	Oreochromis		niloticus		ニホシロギョ	048	624	Oreochromidae	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Emu Otsu	2009-04-23		Of Tokyo		

HUMZ number, Family name, Genus name, Species name, Japanese name, Locality, Date,

Main building (at Hakodate Campus)



Exhibition at Hakodate



Exhibition at Hakodate (2)



Main building (at Sapporo Campus)



Exhibition at Sapporo



Clear & stain specimens at Sapporo



(continued)

Annex 7

X-ray film for exhibition



January 2010

Thank you very much for your attention !!

Annex 8/1: Identification results

By Encik Ahmad bin Ali

Mr. Binjimin Martin

Encik Nor Azman bin Zakaria

Puan Nik Zuraini

Technique Taking Photo of Fishes

Prepared by

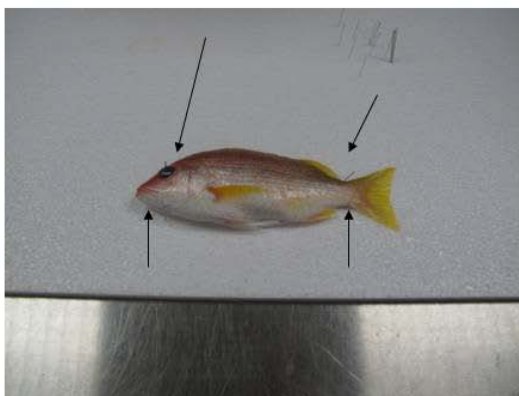
Ahmad Ali
Binjamin Martin
Nor Azman Zakaria
Nik Zuraini



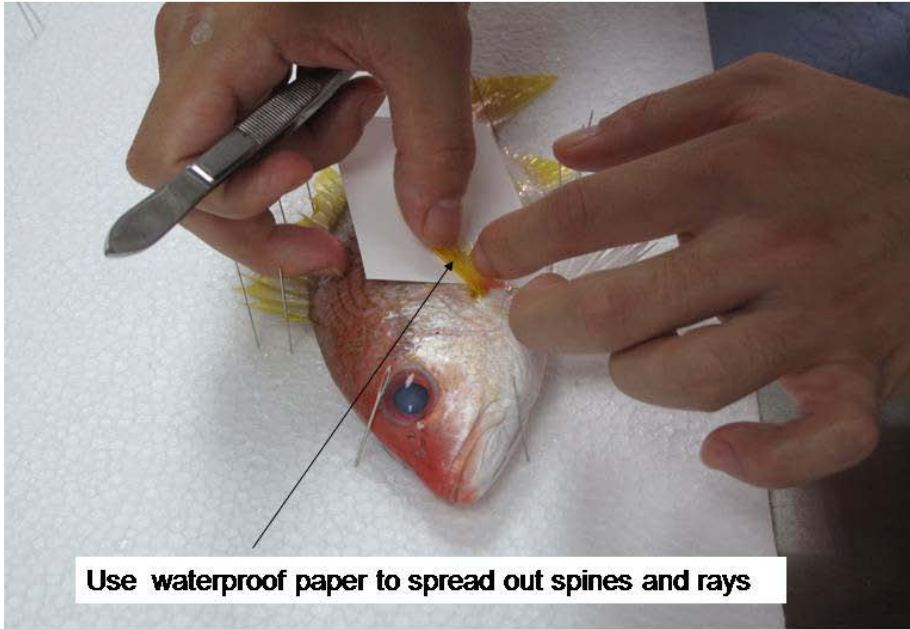
**On-Site Training on Identification of Deep-Sea Fishes
18-21 July 2011 SEAFDEC-MFRDMD**

Position of sample (Fish)

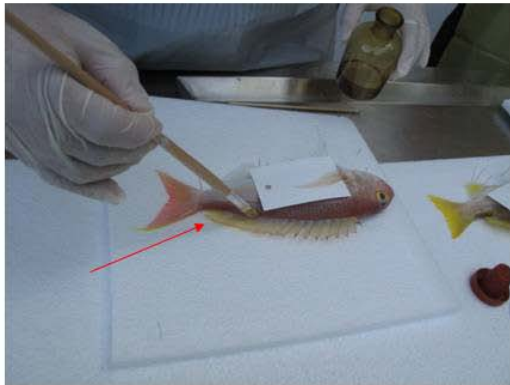
1. Left side body
2. Fixing body - styrofoam
-needle



For Pectoral Fin



Put formalin using ink brush



Wait for 5 minutes to fix the fin



Take Photo



Wonderful results from our group



Identification of Deep Water Specimens



Identification of Deep sea Fishes

- 4 orders
- 4 families
- 4 genus
- 4 species



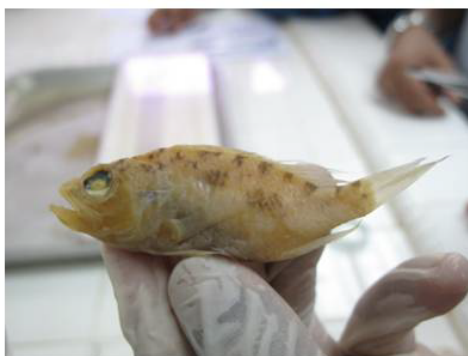
Bottle No: 4-1

Order: Perciformes

Family: Serranidae

Sub-Family: Anthiinae

Genera: ?



Remarks

1. Specimen heavily damaged i.e. caudal fin, pectoral fin, scale
2. Filamentous caudal ray
3. 10 dusky spots along the dorsal surface of body from head to caudal peduncle
4. Anal fin long and reaching base of caudal fin when depressed

MEASUREMENTS (MM)

Standard length: 60

Head length: 26.6

Body depth: 23.3

Snout length: 6.3

Orbit diameter: 6.0

Eye diameter: 5.6

Inter-orbital width: 2.9

Upper jaw length: 12.6

Pectoral fin length: 20.6

Pelvic fin length: 14.6

Deep of caudal peduncle: 7.5

Length of caudal peduncle: 7.8

COUNTS

Dorsal fin: D X, 14

Anal fin: A III, 6

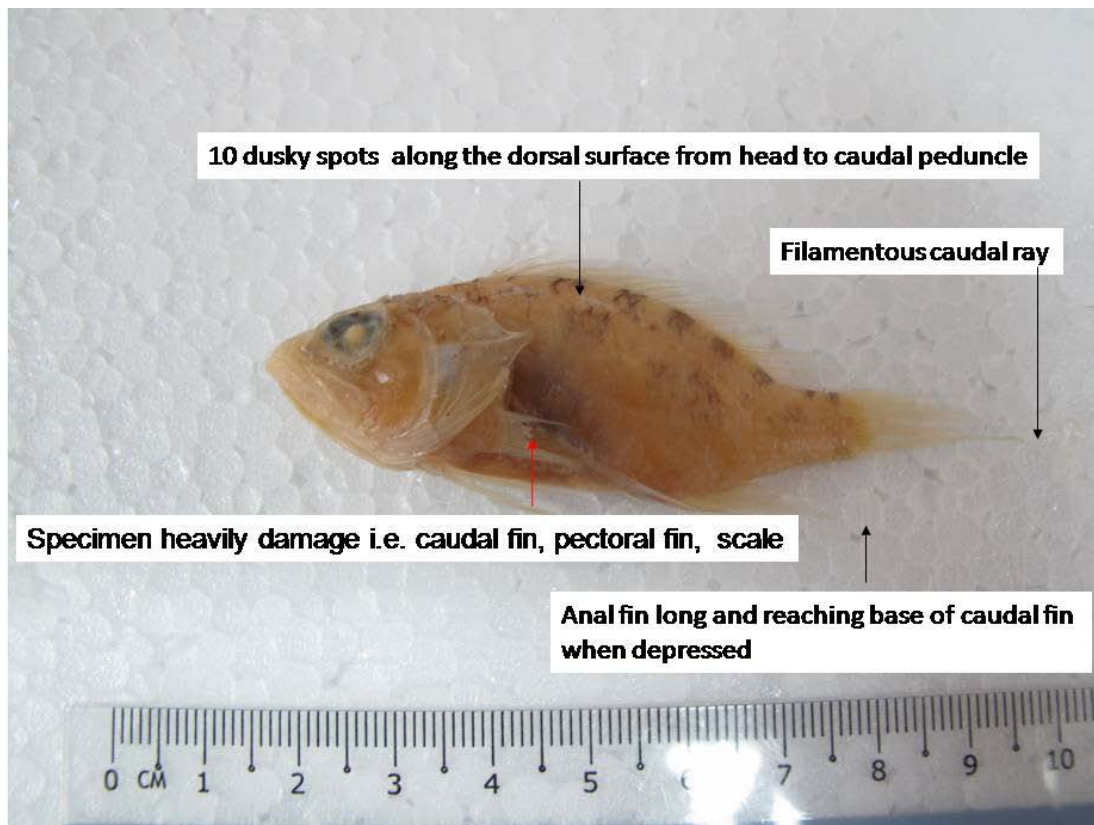
Pectoral fin: 13

Pelvic fin: P I, 5

Principle caudal fin rays: 13

Lateral line scale: 29

Gill rakers: 17 (12+5)



Bottle No: 7

Order: Carcharhiniformes

Family: Proscylliidae

Genera: ?



Remarks

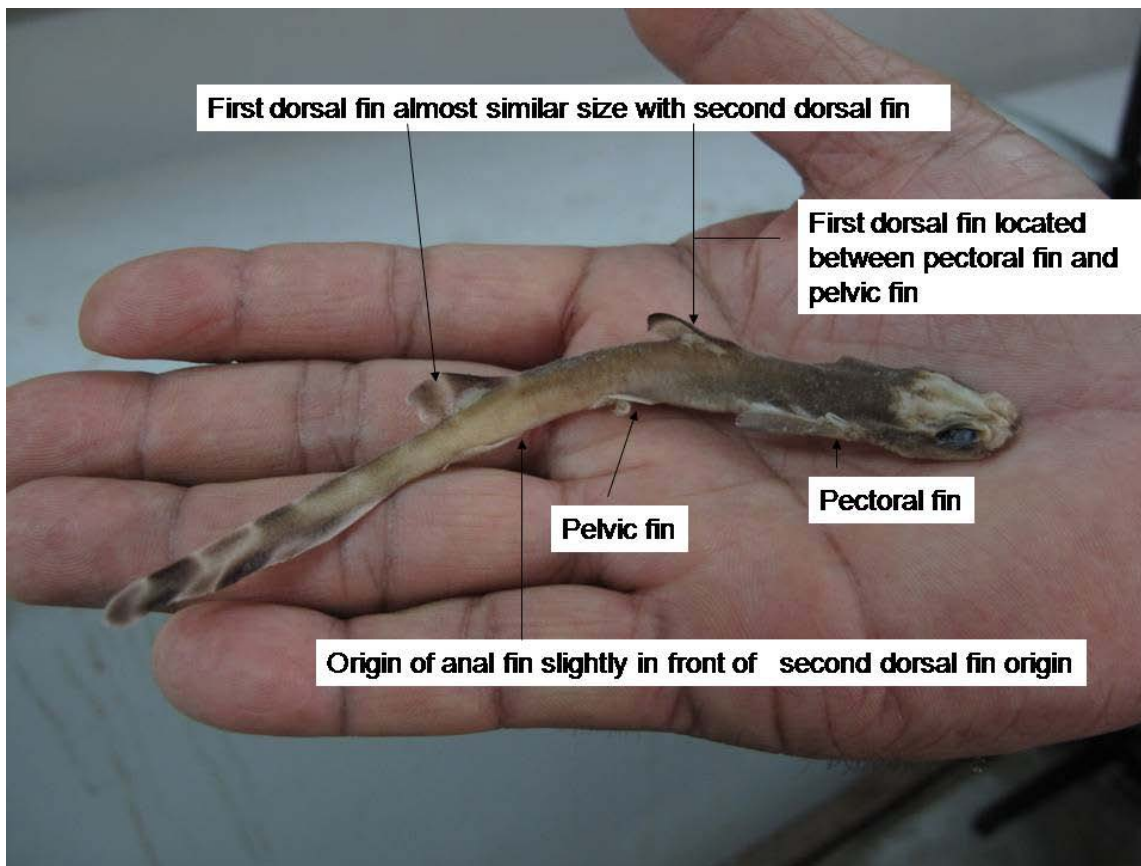
1. Specimen very small and heavily damage i.e. pectoral fin, anal fin, mouth,
2. Second dorsal fin almost similar size as compared to first dorsal fin
3. First dorsal fin located between pectoral fin and pelvic fin
4. Origin of anal fin slightly in front of second dorsal fin origin

MEASUREMENTS (MM)

- Total length: 130
- Pre caudal length: 90
- Head length: 21.9
- Body depth: 7.93
- Snout length: 7.29
- Orbit diameter: 6.15
- Eye diameter: 4.92
- Inter-orbital width: 6.45
- Upper jaw length: 3
- Pectoral fin length: 15.42
- Pelvic fin length: 11.1
- Depth of caudal peduncle: 5.20
- Length of caudal peduncle: 8.9

COUNTS

- Dorsal fin: 2
- Anal fin: Yes



Bottle No: 18

Order: Scorpaeniformes

Family: Hoplichthyidae

Genera: *Hoplichthys* sp



Remarks

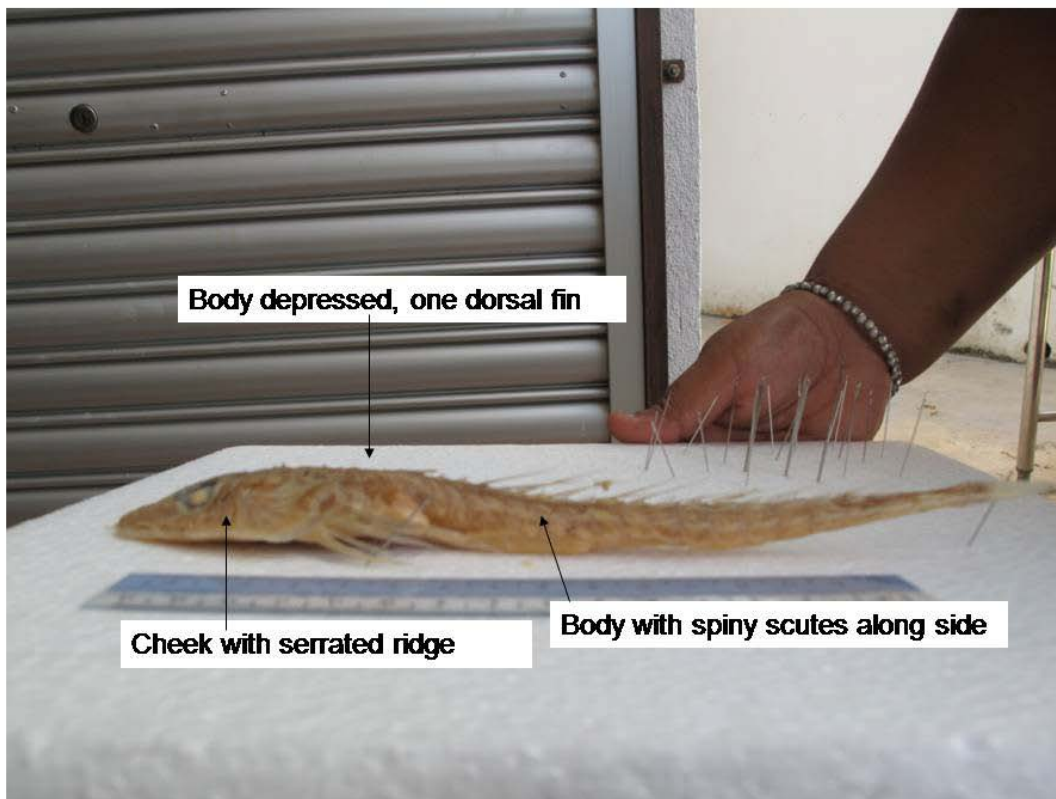
1. Body depressed, one dorsal fin
2. Cheek with serrated ridge
3. Body with spiny scutes along side
4. Small specimens

MEASUREMENTS (MM)

- Standard length: 21.4
- Head length: 65.5
- Body depth: 18.3
- Snout length: 20.2
- Orbit diameter: 17.5
- Eye diameter: 14.1
- Inter-orbital width: 4.2
- Upper jaw length: 23.7
- Pectoral fin length: 45.9
- Pelvic fin length: 23
- Deep of caudal peduncle: 4.6
- Length of caudal peduncle: 11.6

COUNTS

- Dorsal fin: VI, 15
- Anal fin: 16
- Pectoral fin: 13
- Pelvic fin: I, 5
- Principle caudal fin rays: 11
- Lateral line scale: 26
- Gill rakers: 13 (2+11)



Bottle No: 2-1

Order: Lophiiformes

Family: Ogcocephalidae

Genera: *Malthopsis* sp



Remarks

- 1.Suboperculum with one antrorse spine
- 2.Tip of snout pointed
- 3.Dorsal fin present
- 4.Specimen small and difficult to find important organ for identification of this species such as tubercles and minute spines

MEASUREMENTS (MM)

Standard length:55

Head length: 30.3

Body depth:6.6

Snout length: 7.4

Orbit diameter: 5.3

Eye diameter: 5.1

Inter-orbital width: 4.0

Upper jaw length: 2.9

Pectoral fin length: 9.8

Pelvic fin length: 9.1

Deep of caudal peduncle: 3.1

Length of caudal peduncle: 2.0

COUNTS

Dorsal fin: 4

Anal fin: 4

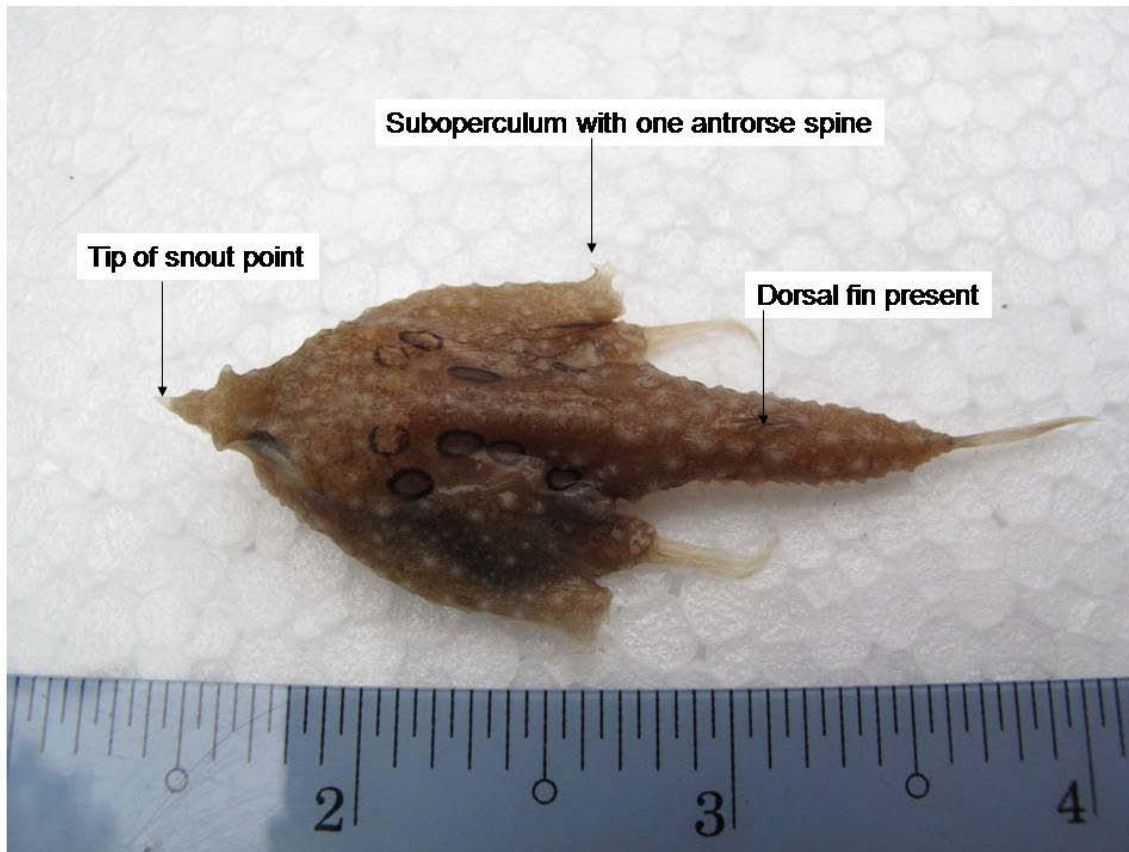
Pectoral fin: 11

Pelvic fin: 1,5

Principle caudal fin rays: 9

Lateral line scale: not recorded

Gill rakers: not recorded



Thank you so much for all our expert sensei to Dr. Yoshinobu Konishi, Dr. Toshio Kawai, Dr. Natinee Sukramongkol and Mrs. Penchan Laongmanee.



Annex 8/2: Identification results

By Cik Noorul Azliana binti Jamaludin

Encik Osman bin Muda

Encik Norfaizal Azli bin Mat Nor

Encik Mohd Sukri bin Muda

IDENTIFICATION OF FISHES

Noorul Azliana binti Jamaludin
Osman bin Muda
Norfaizal Azli bin Mat Nor
Mohd Sukri bin Muda

PRESENTED ON THE REGIONAL TRAINING/ WORKSHOP ON
IDENTIFICATION OF DEEP SEA FISHES
18-21 July 2011
SEAFDEC-MFRDMD , Malaysia



Standard length = 76 mm
Head length = 37 mm
Body depth = 8.9 mm
Snout length = 6.2 mm
Orbit diameter = 7.7 mm
Eye diameter = 2.6 mm
Interorbital width = 4.1 mm
Upper jaw length = 5.1 mm
Pectoral fin length = 15.2 mm
Pelvic fin length = 12.3 mm
Depth of caudal peduncle = 4 mm
Dorsal fin = 4
Anal fin = 4
Pectoral fin = 12
Pelvic fin = 5
Principal caudal fin rays = 9

ID : 2-2
Family name : Ogcocephalidae - batfishes
Scientific name : *Malthopsis annulifera*

Remarks :

1. Body strongly depressed, forming disc, triangular with suboperculum protruded laterally.
2. Tip of snout pointed, suboperculum with 0 or 1 antrorse spine.
3. Bony tubercles sparsely distributed between pelvis, fin and anus.
4. Posterior tip of anal fin not reaching base of caudal fin when depressed.



Standard length = 61.1 mm
Head length = 28.4 mm
Body depth = 20.7 mm
Snout length = 8.9 mm
Orbit diameter = 7.9 mm
Eye diameter = 4.5 mm
Interorbital width = 5.2 mm
Upper jaw length = 14.5 mm
Pectoral fin length = 21.8 mm
Pelvic fin length = 14.8 mm
Depth of caudal peduncle = 4.6 mm
Length of caudal peduncle = 1.7 mm
Dorsal fin = XI, 11
Anal fin = III, 6
Pectoral fin = 18
Pelvic fin = I, 5
Principal caudal fin rays = 14
Lateral line scales = 28
Gill rakers = 14

ID : 9-1

Family name : Scorpaenidae -scorpion fishes

Scientific name : *Setarches guentheri*

Remarks :

1. Lateral line as continuous through, covered with large, thin, cycloid, deciduous scales.
2. Anal fin with 3 spines.
3. Maxilla without keel, second preopercular spine well developed.



Standard length = 235 mm
Head length = 76.7 mm
Body depth = 22.6 mm
Snout length = 25.9 mm
Orbit diameter = 18.7 mm
Eye diameter = 13.3 mm
Interorbital width = 3 mm
Upper jaw length = 29.6 mm
Pectoral fin length = 37.5 mm
Pelvic fin length = 30.1 mm
Depth of caudal peduncle = 12.6 mm
Length of caudal peduncle = 23.1 mm
Dorsal fin = VI, 14
Anal fin = 16
Pectoral fin = 26
Pelvic fin = 6
Principal caudal fin rays = 14
Lateral line scales = 49
Gill rakers = 18

ID SEAFDEC : 12-2

Family name : Percophidae

Scientific name : *Bembrops filifera*

Remarks :

1. No spine at snout. head depressed, posterior and of upper jaw with dermal flap. Lateral line gradually descending above pectoral fin.
2. First dorsal spine elongated into filament and first dorsal fin black on anterior most part
3. Lower margin of caudal fin blackfish.



Standard length = 190 mm
Head length = 77 mm
Body depth = 66 mm
Snout length = 19 mm
Orbit diameter = 20.7 mm
Eye diameter = 10.6 mm
Interorbital width = 9.1 mm
Upper jaw length = 38.1 mm
Pectoral fin length = 64.4 mm
Pelvic fin length = 43.6 mm
Depth of caudal peduncle = 22.9 mm
Length of caudal peduncle = 37.4 mm
Dorsal fin = X, 18
Anal fin = III, 7
Pectoral fin = 12
Pelvic fin = I, 5
Principal caudal fin rays = 19
Lateral line scales = 33
Gill rakers = 18

ID : 15
Family name : Seranadae
Scientific name : *Plectranthias kamii*

Remarks :

1. Operculum 3 spines, third dorsal spine longest, pectoral fin rays branched.
2. Maxilla scaleless, lateral line complete, anal fin with 6-8 soft rays, pectoral fin with 12-17 soft rays, dorsal fin with 13-18 soft rays.



Annex 8/3: Identification results

By Encik Mohammad Faisal bin Md Saleh

Puan Kamariah binti Ismail

Encik Rosdi bin Mohd Nor

IDENTIFICATION OF FISHES

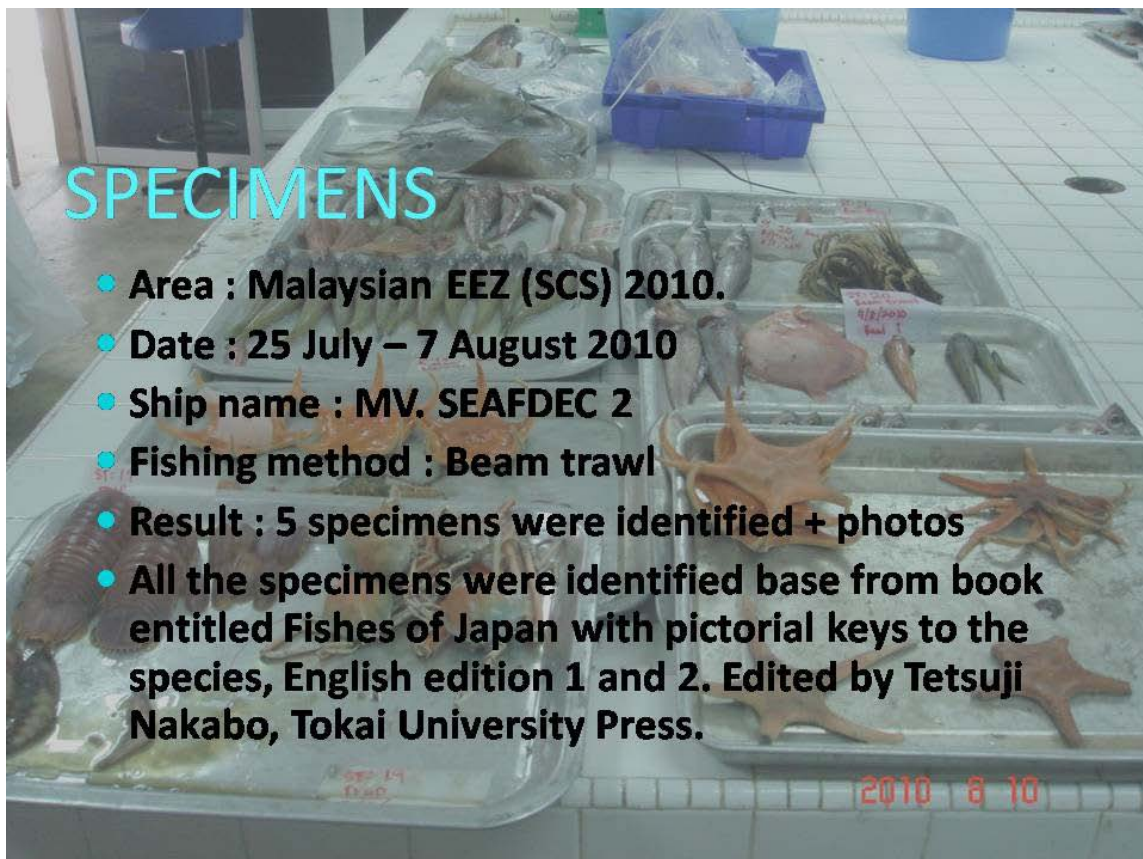
Group: Tiger shark

**Mohammad Faisal Md. Saleh
Kamariah Ismail
Rosdi Mohd Nor**

**PRESENTED ON THE REGIONAL TRAINING/ WORKSHOP ON
IDENTIFICATION OF DEEP SEA FISHES**

18 - 21 July 2011

**SEAFDEC/MFRDMD
MALAYSIA**





Bottle no: 20-1

Identifier name: Tiger shark

Date of entry: 20/7/2011

Family name: Acropomatidae

Scientific name: *Malakichthys* sp.

Locality : Malaysian EEZ (SCS)

Remarks :

- Anal fin with 3 spines.
- Anterior margin of pelvic fin spine smooth
- Anus closer to origin of anal fin than origin of pelvic fin
- Anterior tip of lower jaw with spine.

Family name: Acropomatidae

Scientific name: *Malakichthys* sp.

Measurements (mm)

- Standard length: 100.11
- Head length : 34.64
- Body Depth : 37.38
- Snout length : 8.85
- Orbit diameter: 13.61
- Eye diameter :
- Interorbital width : 8.90
- Upper jaw length : 14.74
- Pectoral fin length : 27.42
- Pelvic fin length : 14.93
- Depth of caudal peduncle : 11.79
- Length of caudal peduncle : 19.88

Counts

- Dorsal fin : D X,9
- Anal fin : A III,9
- Pectoral fin : 12
- Pelvic fin : I,5
- Principal caudal fin rays: 17
- Lateral line scales : 61
- Gill rakers (upper + lower) : 29



Bottle no: 13-2

Identifier name: Tiger shark

Date of entry: 19/7/2011

Family name: Moridae

Scientific name: *Physiculus rhodopinnis*

Locality : Malaysian EEZ (SCS)

Remarks :

- 2nd dorsal fin without notch.
- Scaly patch on gular portion.
- Lower halves of 1st and 2nd dorsal fin black.
- Light organ closer to pelvic fin base than to anus.

Family name: Moridae

Scientific name: *Physiculus rhodopinnis*

Measurements (mm)

- Standard length: 197.63
- Head length : 50.62
- Body Depth : 44.98
- Snout length : 17.07
- Orbit diameter: 13.96
- Eye diameter :
- Interorbital width : 13.32
- Upper jaw length : 20.40
- Pectoral fin length : 31.99
- Pelvic fin length : 31.66
- Depth of caudal peduncle : 4.65
- Length of caudal peduncle : 13.13

Counts

- Dorsal fin : D 6 – 69
- Anal fin : A 75
- Pectoral fin : 29
- Pelvic fin : 5
- Principal caudal fin rays: 23
- Lateral line scales :
- Gill rakers (upper + lower) :



Bottle no: 14

Identifier name: Tiger shark

Date of entry: 19/7/2011

Family name: Peristediidae

Scientific name: *Satyrichthys rieffeli*

English name: armored searobins

Locality : Malaysian EEZ (SCS)

Remarks :

- Lower 2 pectoral rays free.
- 4 pairs of barbel present on lower jaw; two pairs in the lip part and another two pairs in chin part.
- Small black spot densely distributed on head and body dorsally
- Rostral projection more than 2 times distance between bases

Family name: Peristediidae

Scientific name: *Satyrichthys rieffeli* (armored searobins)

Measurements (mm)

- Standard length: 186.24
- Head length : 61.88
- Body Depth : 35.23
- Snout length : 33.36
- Orbit diameter: 15.59
- Eye diameter :
- Interorbital width : 14.73
- Upper jaw length : 30.30
- Pectoral fin length : 30.22
- Pelvic fin length : 37.29
- Depth of caudal peduncle : 5.29
- Length of caudal peduncle : 24.87

Counts

- Dorsal fin : D VII, 15
- Anal fin : A 15
- Pectoral fin : 14
- Pelvic fin : I, 5
- Principal caudal fin rays: 14
- Lateral line scales : 30
- Gill rakers (upper + lower) : 22



Bottle no: 2-3

Identifier name: Tiger shark

Date of entry: 19/7/2011

Family name: Ogcocephalidae
(batfishes)

Scientific name: *Malthopsis
annulifera*

Locality : Malaysian EEZ (SCS)

Remarks:

- Body strong depressed, or moderately depressed.
- Body tough, sparsely covered with bony tubercles or strong spines.
- Bony tubercles sparsely distributed between pelvic fin and anus or no tubercles there.
- Posterior tip of anal fin not reaching base of caudal fin when depressed.

Family name: Ogcocephalidae (batfishes)

Scientific name: *Malthopsis annulifera*

Measurements (mm)

- Standard length: 60.02
- Head length : 25.50
- Body Depth : 10.89
- Snout length : 4.63
- Orbit diameter: 7.60
- Eye diameter :
- Interorbital width : 4.52
- Upper jaw length : 4.84
- Pectoral fin length : 13.41
- Pelvic fin length : 10.23
- Depth of caudal peduncle : 4.07
- Length of caudal peduncle : 8.35

Counts

- Dorsal fin : D 5
- Anal fin : A 4
- Pectoral fin : 12
- Pelvic fin : I,5
- Principal caudal fin rays: 9
- Lateral line scales :
- Gill rakers (upper + lower) :



Picture by The Fish Database of Taiwan

Bottle no: 12-1

Identifier name: Tiger shark

Date of entry: 20/07/2011

Family name: Percophidae /
duckbills

Scientific name: *Bembrops
caudimacula*

Locality: Malaysian EEZ (SCS)

Remarks :

- 1st dorsal spine not elongated into filament.
- 1st dorsal fin uniformly dark or dark with irregular white marking.
- Body moderately slender.
- 2 dorsal fin completely separated.

Family name: Percophidae / duckbills

Scientific name: *Bembrops caudimacula*

Measurements (mm)

- Standard length: 280.19
- Head length : 76.51
- Body Depth : 25.27
- Snout length : 25.31
- Orbit diameter: 19.56
- Eye diameter :
- Interorbital width : 3.23
- Upper jaw length : 27.71
- Pectoral fin length : 39.18
- Pelvic fin length : 30.78
- Depth of caudal peduncle : 13.07
- Length of caudal peduncle : 23.20

Counts

- Dorsal fin : D VI – 14
- Anal fin : A 16
- Pectoral fin : 23
- Pelvic fin : I,5
- Principal caudal fin rays: 15
- Lateral line scales :
- Gill rakers (upper + lower) :



Annex 8/4: Identification results

By Encik Mohd Tamimi bin Ali Ahmad

Encik Nadzri bin Seman

Encik Nik Ab Rahman bin Nik Ismail

Encik Nik Nasrudin bin Nik Ismail

Encik Rosdi bin Mohd Nor

IDENTIFICATION OF FISHES

MOHD TAMIMI BIN ALI AHMAD	-	MFRDMD
NADZRI BIN SEMAN	-	MFRDMD
NIK RAHMAN BIN NIK ISMAIL	-	MFRDMD
NIK NASRUDIN BIN NIK ISMAIL	-	FRIRA
ROZALI BIN MUHAMAD	-	FRIRA

PRESENTATION FOR TRAINING WORKSHOP ON
IDENTIFICATION OF DEEP SEA FISHES
18 – 21 JULY 2011

SEAFDEC - MFRDMD
TERENGGANU, MALAYSIA

DETAIL INFORMATION FOR SPECIMENS

- Area :
- Date :
- Ship name :
- Fishing method :
- Lat :
- Long :
- Depth :

INTRODUCTION

- 10 SPECIMENS OF DEEP SEA FISHES.
- 7 SPECIMENS MANAGE TO IDENTIFIED.
- 6 FAMILY HAVE IDENTIFIED.
 - 2 FAMILY SCORPAENIDAE,
 - 1 FAMILY PERCOPHIDAE,
 - 1 FAMILY LOPHIIDAE,
 - 1 FAMILY OGCOCEPHALIDAE,
 - 1 FAMILY POLYMIXIIDAE,
 - 1 FAMILY ACROPOMATIDAE.

Bottle No. : 17
Family name : Scorpaenidae
Scientific name : *Pontinus rhodochrous*

Measurements.

Standard length = 245 mm
Head length = 102.23 mm
Body depth = 83.79 mm
Snout length = 43.98 mm
Orbit diameter = 25.68 mm
Eye diameter = 23.11 mm
Interorbital width = 11.68 mm
Upper jaw length = 50.37 mm
Pectoral fin length = 68.81 mm
Pelvic fin length = 59.00 mm
Depth of caudal peduncle = 24.85 mm
Length of caudal peduncle = 44.24 mm

Counts.

Dorsal fin = XII, 10
Anal fin = III, 5
Pectoral fin = 16
Pelvic fin = I, 5
Principal caudal fin rays = 14
Lateral line scale = 27
Gill rakers (upper + lower) = 6 + 14



Remarks :

1. All pectoral-fin rays simple
2. Head large; snout long
3. This species very close with *Pontinus macrocephalus*.
4. Reference from Book Fishes of Japan Ed.1 p577.

(continued)

Annex 8/4

Bottle No. : 5 - 1
Family name : Scorpaenidae
Scientific name : *Lioscorpius trifasciatus*

Measurements.

Standard length = 78 mm
Head length = 13.57 mm
Body depth = 12.86 mm
Snout length = 10.18 mm
Orbit diameter = 7.55 mm
Eye diameter = 5.26 mm
Interorbital width = 3.10 mm
Upper jaw length = 12.26 mm
Pectoral fin length = 11.81 mm
Pelvic fin length = 10.95 mm
Depth of caudal peduncle = 16.57 mm
Length of caudal peduncle = 5.40 mm

Counts.

Dorsal fin = X, 11
Anal fin = III, 7
Pectoral fin = 23
Pelvic fin = I, 5
Principal caudal fin rays = 21
Lateral line scale = n.a.
Gill rakers (upper + lower) = 3 + 8



Remarks :

1. This fish have anal fin with 3 spine, very difficult to identified.
2. The real color are red with spotted.
3. Looks like *Lioscorpius longiceps* but it have anal fin with 2 spines.
4. Important specimen in the region.
5. Reference from book Fishes of Japan Ed.1 p566.

Bottle No. : 5 - 1
Family name : Scorpaenidae
Scientific name : *Lioscorpius trifasciatus*



(continued)

Annex 8/4

Bottle No. : 12 - 3
Family name : Percophidae
Scientific name : *Chrionema chlorotaenia*

Measurements.

Standard length = 194 mm
Head length = 66.73 mm
Body depth = 24.59 mm
Snout length = 22.00 mm
Orbit diameter = 17.39 mm
Eye diameter = 13.54 mm
Interorbital width = 3.24 mm
Upper jaw length = 26.73 mm
Pectoral fin length = 31.58 mm
Pelvic fin length = 29.24 mm
Depth of caudal peduncle = 10.19 mm
Length of caudal peduncle = 21.94 mm

Counts.

Dorsal fin = VI, 16
Anal fin = 26
Pectoral fin = 24
Pelvic fin = I, 5
Principal caudal fin rays = 13
Lateral line scale = 83
Gill rakers (upper + lower) = 6 + 14



Remarks :

1. Teeth and upper lip black
2. Reference from book Fishes of Japan Ed.II p 1067.

Bottle No. : 1
Family name : Lophiidae
Scientific name : *Lophiodes mutilus*

Measurements.

Standard length = 63.75 mm
Head length = 25.16 mm
Body depth = 6.87 mm
Snout length = 9.78 mm
Orbit diameter = 7.62 mm
Eye diameter = 3.92 mm
Interorbital width = 6.43 mm
Upper jaw length = 16.69 mm
Pectoral fin length = 19.59 mm
Pelvic fin length = 10.92 mm
Depth of caudal peduncle = 4.56 mm
Length of caudal peduncle = 7.77 mm

Counts.

Dorsal fin = II-IV, 7
Anal fin = 5
Pectoral fin = 16
Pelvic fin = 5
Principal caudal fin rays = n.a.
Lateral line scale = n.a.
Gill rakers (upper + lower) = n.a.



Remarks :

1. 3rd dorsal-fin spine longer than head length, reaching middle of soft-rayed portion of dorsal fin when depressed.
2. Reference from Book Fish of Japan Ed.1 - Page 453.

(continued)

Annex 8/4

Bottle No. : 2 - 4
Family name : Ogcocephalidae
Scientific name : *Malthopsis* sp.

Measurements.

Standard length = 73 mm
Head length = 15 mm
Body depth = 32.63 mm
Snout length = 9.56 mm
Orbit diameter = 8.53 mm
Eye diameter = 6.78 mm
Interorbital width = 5.17 mm
Upper jaw length = 6.20 mm
Pectoral fin length = 17.61 mm
Pelvic fin length = 15.33 mm
Depth of caudal peduncle = 3.57 mm
Length of caudal peduncle = 11.56 mm

Counts.

Dorsal fin = 5
Anal fin = 4
Pectoral fin = 9
Pelvic fin = I, 5
Principal caudal fin rays = n.a
Lateral line scale = n.a
Gill rakers (upper + lower) = n.a



Remarks :

1. Bony tubercles densely distributed between pelvic fin and anus
2. Posterior tip of anal fin reaching base of caudal fin when depressed.
3. Reference from Book Fish of Japan Ed.1 - Page 453.

Bottle No. : 10-2
Family name : Polymixiidae
Scientific name : *Polymixia longispina*

Measurements.

Standard length = 63 mm
Head length = 16.04 mm
Body depth = 22.73 mm
Snout length = 5.3 mm
Orbit diameter = 7.08 mm
Eye diameter = 5.3 mm
Interorbital width = 6.11 mm
Upper jaw length = 9.63 mm
Pectoral fin length = 11.66 mm
Pelvic fin length = 6.68 mm
Depth of caudal peduncle = 7.04 mm
Length of caudal peduncle = 12.09 mm

Counts.

Dorsal fin = V, 35
Anal fin = IV
Pectoral fin = VI
Pelvic fin = VII
Principal caudal fin rays = 28
Lateral line scale = 34
Gill rakers (upper + lower) = 13



Remarks :

1. 4th spine of anal fin snout and long, more than 38% head length.
2. Dorsal contour of head strongly curved.
3. Body depth more than 37% standard length.
4. Reference from Book Fish of Japan Ed.1 - Page 407.

Bottle No. : 20 - 2
Family name : Acropomatidae
Scientific name : *Malakichthys sp.*



Measurements.

Standard length = 100.11 mm
Head length = 34.64 mm
Body depth = 37.38 mm
Snout length = 8.35 mm
Orbit diameter = 13.61 mm
Eye diameter = - mm
Interorbital width = 8.90 mm
Upper jaw length 14.74 mm
Pectoral fin length = 27.42 mm
Pelvic fin length 14.93 mm
Depth of caudal peduncle = 11.79 mm
Length of caudal peduncle = 19.88 mm

Counts.

Dorsal fin = X, 9
Anal fin = III, 9
Pectoral fin = 12
Pelvic fin = I, 5
Principal caudal fin rays = 17
Lateral line scale = 61
Gill rakers (upper + lower) = 29

Remarks :

1. Anal fin with 3 spines
2. Reference from Book Fish of Japan Ed.1 - Page 686.

REFERENCE

- Nakabo T. 2002. FISHES OF JAPAN, with pictorial keys to species, English edition I. Tokai University Press.
- Nakabo T. 2002. FISHES OF JAPAN, with pictorial keys to species, English edition II. Tokai University Press.

RESOURCE PERSON

- Dr. Yoshinobu Konishi - Expert from Nagasaki, Japan.
- Dr. Toshio Kawai - Assistant Professor from Hokkaido University museum, Japan.
- Mrs. Penchan Laongmanee - SEAFDEC TD, Thailand.
- Dr. Natinee Sukramongkol - SEAFDEC TD, Thailand.



Annex 9: Fish collection and online database

By Dr. Natinee Sukramongkol



Fish Collection & Online Database

Under the program “Deep-Sea Fisheries Resources Exploration in the Southeast Asia” (2007 to 2012)



On-Site Training on Identification of Deep-Sea Fishes, 18-21 July 2011
SEAFDEC/MFRDMD, Kuala Terengganu, Malaysia

Objectives

- ❖ Sharing information and dissemination the results of the deep-sea survey on the website and database
- ❖ Establish the network/expert for deep-sea fish taxonomy through coordination and collaboration among the participants/experts of the workshop and also other initiatives in the region



<http://www.seafdec.or.th/>

TD News

TD PROMOTES SEAFDEC VISIBILITY DURING NATIONAL FISHERY EXHIBITION IN THAILAND
 The Training Department co-organized with the Department of Fisheries of Thailand a fishery exhibition at the Future Park Department Store, Patumthani Province, Thailand. From 1 to 10 July 2011,....
[Read More >>](#)

TD ORCHESTRATED EXHIBITION AT ASEAN-SEAFDEC CONFERENCE
 Seen and appreciated efforts of the great variety of exhibitions staged at the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security Towards 2020 "Fish for the People 2020: Adaptation to a Changing Environment"....
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Upcoming Events in 2011

JULY	
28 June – 2 July	Experiment on Forging Habitat on Sea Turtle
1-10 July 2011	National Fisheries Exhibition "Pramongnokhoa #23"
3-27 July 2011	Survey by M.V.SEAFFDEC2 Cruise No. 37-1/2011
6-8 July 2011	Regional Workshop on HRD Programs for Sustainable Fisheries and Related Counter Measures to Combat IUU Fishing in Southeast Asia Download Prospectus >>>
11-15 July 2011	Training Workshop on Identification of Deep-sea Benthic Macroinvertebrate Vulnerable to Fishing Gear, Southeast Asian Fisheries Development Center, Samut Prakan, Thailand Download Prospectus >>>
17-22 July 2011	On-site Training on Identification of Deep-sea Fishes
AUGUST	
23-25 August 2011	The 4 th Working Group Meeting of Information Collection of Highly Migratory Species in Southeast (Th, Vi, Ph, In)

Fisheries Statistic of Southeast Asia

Fisheries Clips

Deep-Sea Project

Capture Fishery Technology Division

Fish Species

SEAFDEC

Online Information

Deep Sea Resources Exploration In Southeast Asian Waters

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Project info

Catalog of Fishes

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Fishes Poster for Download!

Vol. 1
 image size 42X30 cm.
[PDF \(4.5Mb\)](#)
[PDE \(4.2Mb\)](#)

ACTIVITIES!

RESEARCH METHODOLOGIES FOR STUDY ON IMPACT OF FISHING TO DEEP-SEA ECOSYSTEM ended!
 16-20 October 2010: Training Workshop on Research Methodologies for Study on Impact of Fishing to Deep-Sea Ecosystem. [Draft report](#)

EXPERT MEETING ON DEEP-SEA FISHES & ITS IMPACT ended!
 31 Aug - 2 Sept. 2010: Expert meeting on Deep-Sea and its impact to

"Deep-Sea Resources Survey off Brunei Darussalam Waters" were conducted during 20 Sep.- 13 Oct. 2010 at the continental slope areas at two main depth strata 100-200m and 200-300m. The survey implemented with three type of sampling gears (beam trawl, otter-trawl, and deep-sea trap) separated into four legs of operations. Moreover, the information on the physical and chemical oceanography were also collected. [More>](#)

"Training Workshop on Research Methodologies for the Study on Impact of Fishing to Deep-Sea Ecosystem" Jointly organized by the Department of Fisheries, Ministry of Industry and Primary Resources of Brunei Darussalam and SEAFDEC Training Department (SEAFDEC/TD) from 16 to 20 October 2010 onboard the research vessel M.V.SEAFFDEC 2. The Workshop was attended by researchers and specialists in the field/area of Marine ecologists, Biologists and Fishing gear technologists from the SEAFDEC Member Countries, Japanese experts, and experts from Kasetsart University and Burapha University, Thailand. [More>](#)

MIPR HOSTS WORKSHOP ON IMPACT OF FISHING ON ECOSYSTEM


"The Borneo Bullentin" A daily newspaper circulation the main source of information on local, regional and foreign affairs, as well as business news in Negara Brunei Darussalam (BN). Press released on October 17, 2010 about the Department of

Fish collection in TD

19 Fish Order
56 Fish Family
>96 Fish species
More than 200 specimens



Catalog Data



Catalog Number SEAFDEC00010
Family Lophioidei
Species Genus Lophiomus
Species setigerus
Standard Length 18.5 cm
Locality Brunei Waters
Sampling date 2008-06-13
Vessel name M.V. SEAFDEC 2
Cruise number 29-2/2008
Sampling gear BOTTOM TRAWL
Sampling Depth (meter) 162
Number of specimens 1
Remark





User: [natinee]



Catalog of Fishes

Search result - Windows Internet Explorer

http://imap.seafdec.org/deep_sea/search_action.php?for1=

Catalog No.	Family	Genus	Species	Standard Length	Locality	Sampling date	Vessel name	Cruise no.	Fishing gear	Depth	Specimens	Picture
SEAFDEC00003	Trachichthyidae	Trachichthyidae	sp	10.5 cm	Brunei Waters	2008-06-18	M.V. SEAFDEC 2	29-2/2008	BEAM TRAWL	374	1	
SEAFDEC00002	Trachichthyidae	Gephyroberyx	sp	16.8 cm	Brunei Waters	2008-06-18	M.V. SEAFDEC 2	29-2/2008	BEAM TRAWL	374	1	
SEAFDEC00001	Holocentridae	Myripristis	sp	7.5 cm	Brunei Waters	2008-06-18	M.V. SEAFDEC 2	29-2/2008	BEAM TRAWL	101	1	
SEAFDEC00004	Chlorophthalmid	Chlorophthalmus	sp	17.0 cm	Brunei Waters	2008-06-12	M.V. SEAFDEC 2	29-2/2008	BOTTOM TRAWL	374	1	
SEAFDEC00005	Synodontidae	Saurida	longimanus	15.0 cm	Brunei Waters	2008-06-12	M.V. SEAFDEC 2	29-2/2008	BOTTOM TRAWL	121	1	



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