

**Annex 8: Photography methods of fish specimens and collection building  
at the Hokkaido University Museum**

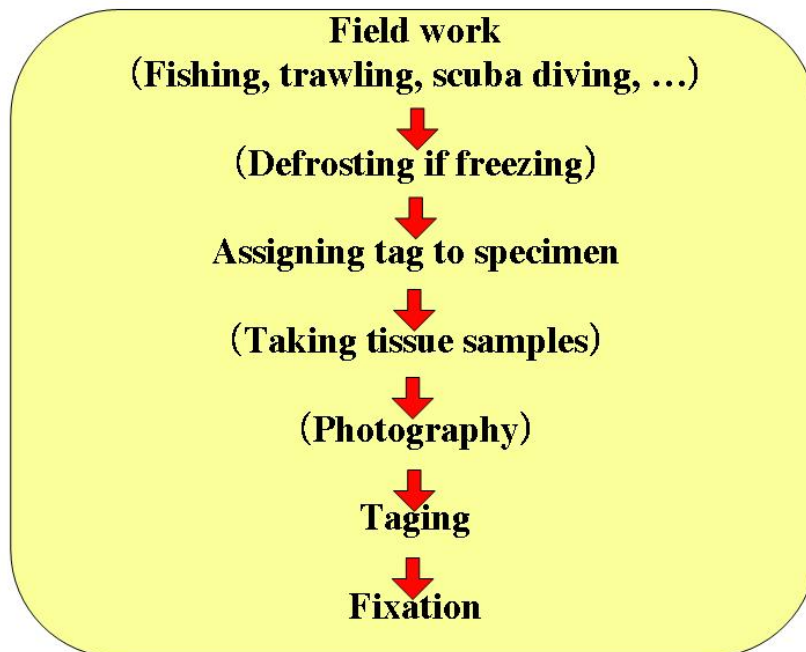
By Dr. Toshio Kawai

## Collection Building in Hokkaido University Museum, Hakodate, Japan

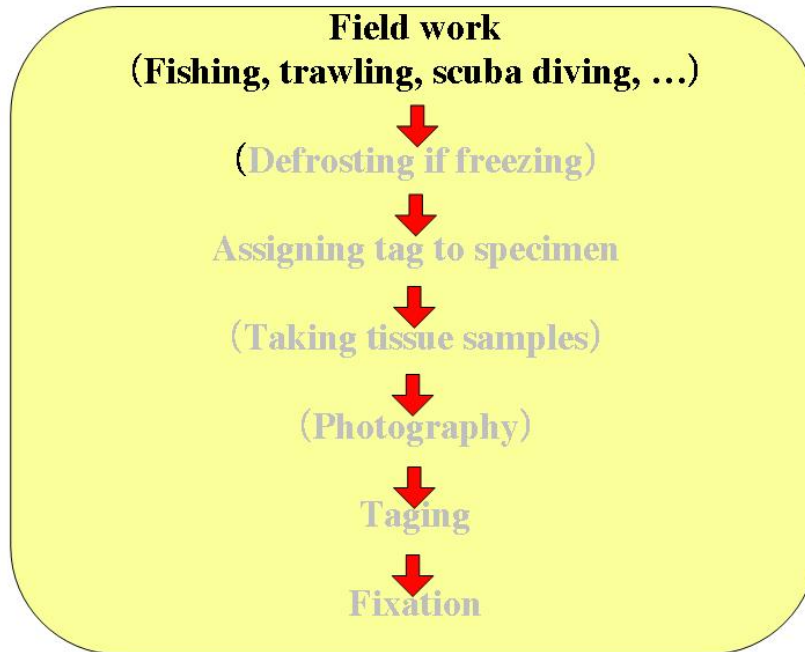


Toshio KAWAI

### Methods of making fish specimens



**Methods of making fish specimens**



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**Scuba diving**



**Photo by T. Abe**

### **Seine fishing**



**Photo by H. Imamura**

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### **Gill net**



**Photo by O. Tsuruoka**

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### **Dredge**



**Photo by O. Tsuruoka**

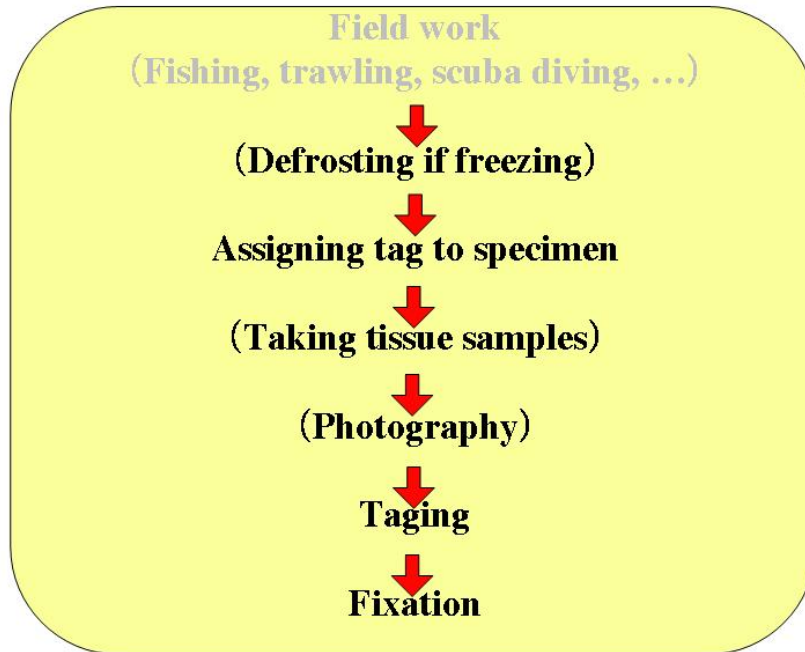
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### **Otter trawl (R/V Oshoro-maru, Hokkaido Univ)**



**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

### Defrosting



Not to mistake captured data

### Rinse



Cleaning mucosal  
Fin membrane  
Scales



Internal organ spoils easily

### 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



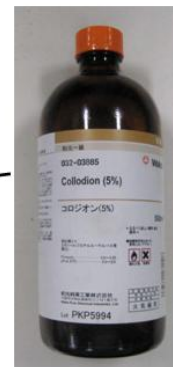
↓  
Dry up

↓  
Collodion

• Cutting easily

↓  
Storing

• 100-150 tags





### Taking tissue samples



Cut out body muscles on right body

- 1cm<sup>3</sup>
- No formalin



Put in 99.5% ethyl alcohol

- Small bottle 20 cc
- Waterproof paper with specimen number



Exchange ethyl alcohol

- Dehydration



Exchange bottle to 6 cc for storing

- Saving space



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### Pre-fixation for photography (1)



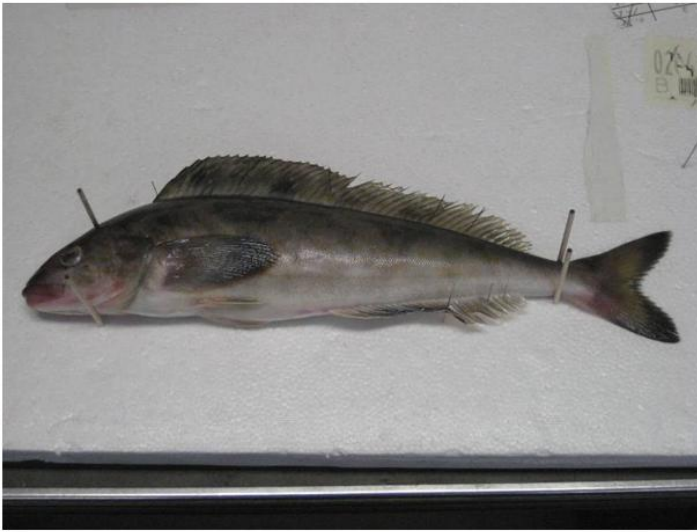
**Left side body**



**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

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## Pre-fixation for photography (3)



**Completion !!  
(Rising fins)**

## Pre-fixation for photography (4)

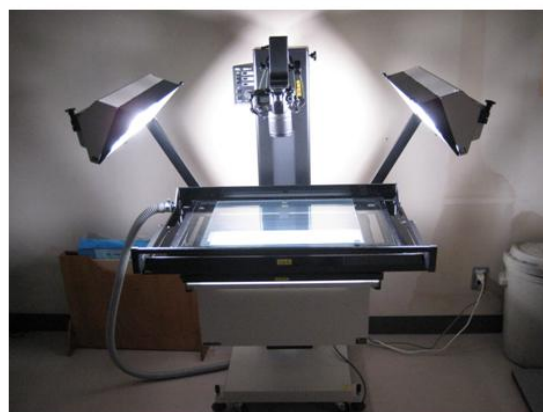


### Putting formalin

- ink brush
- waiting fixation of fins

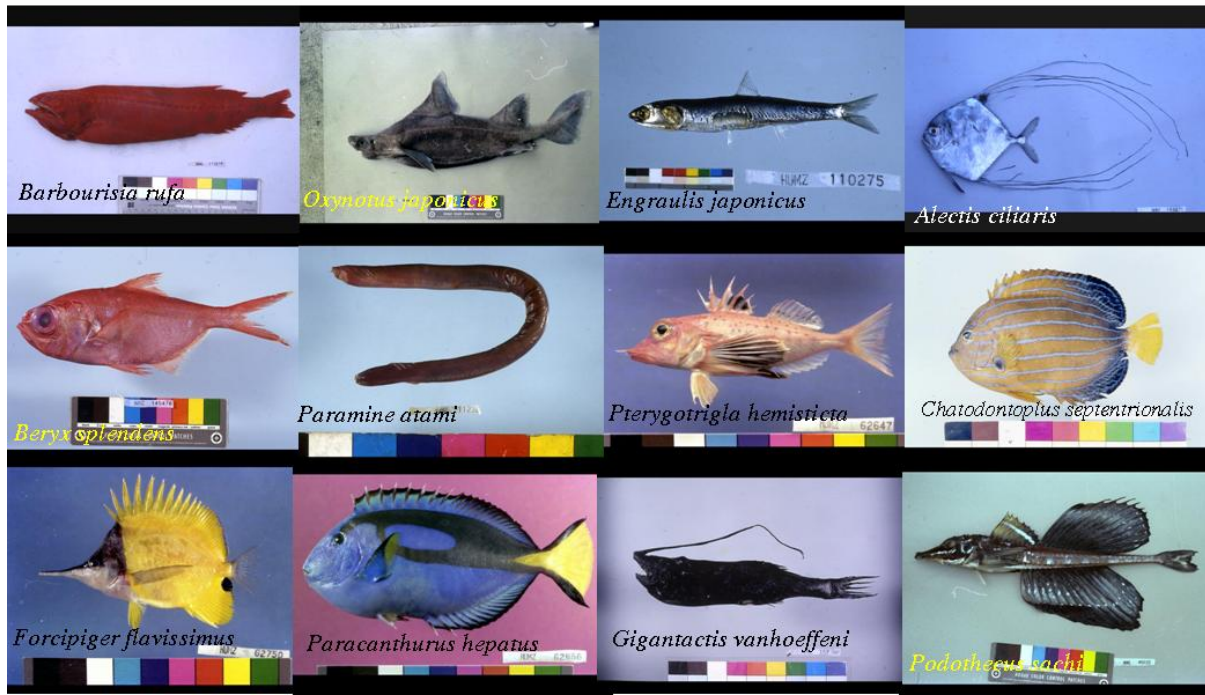
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## Photography



- Shed light from the same angle and distance

## Fish photos deposited in Hokkaido University Museum



## 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)

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## **Specimen building (at Hakodate Campus)**

About 210,000 fish specimens



North Pacific  
• cold water fishes

Peru

Indonesia

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- 
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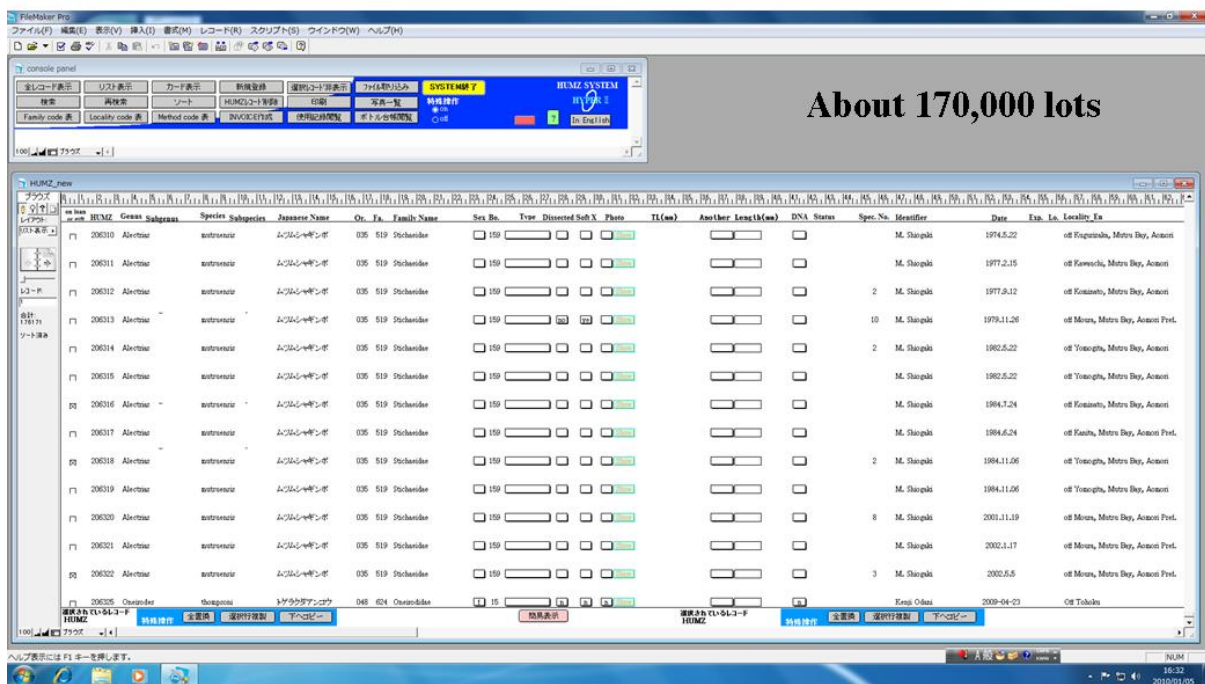
# Fish specimens



About 900 type specimens

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

# Database



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

## **Main building (at Hakodate Campus)**



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## **Exhibition at Hakodate**



## **Exhibition at Hakodate (2)**



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## **Main building (at Sapporo Campus)**





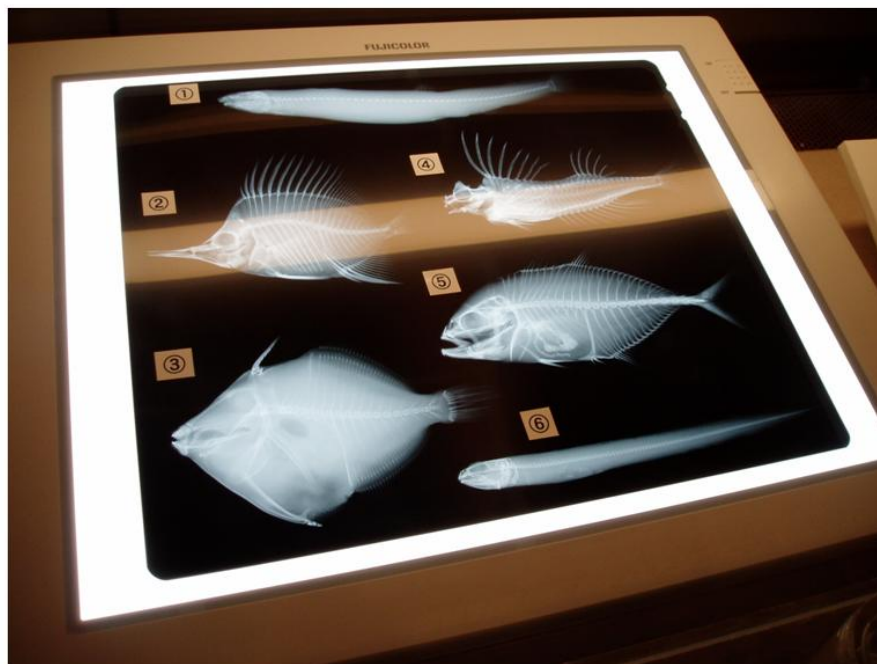
## Exhibition at Sapporo



## Clear & stain specimens at Sapporo



### **X-ray film for exhibition**



January 2010

**Thank you very much for your attention !!**