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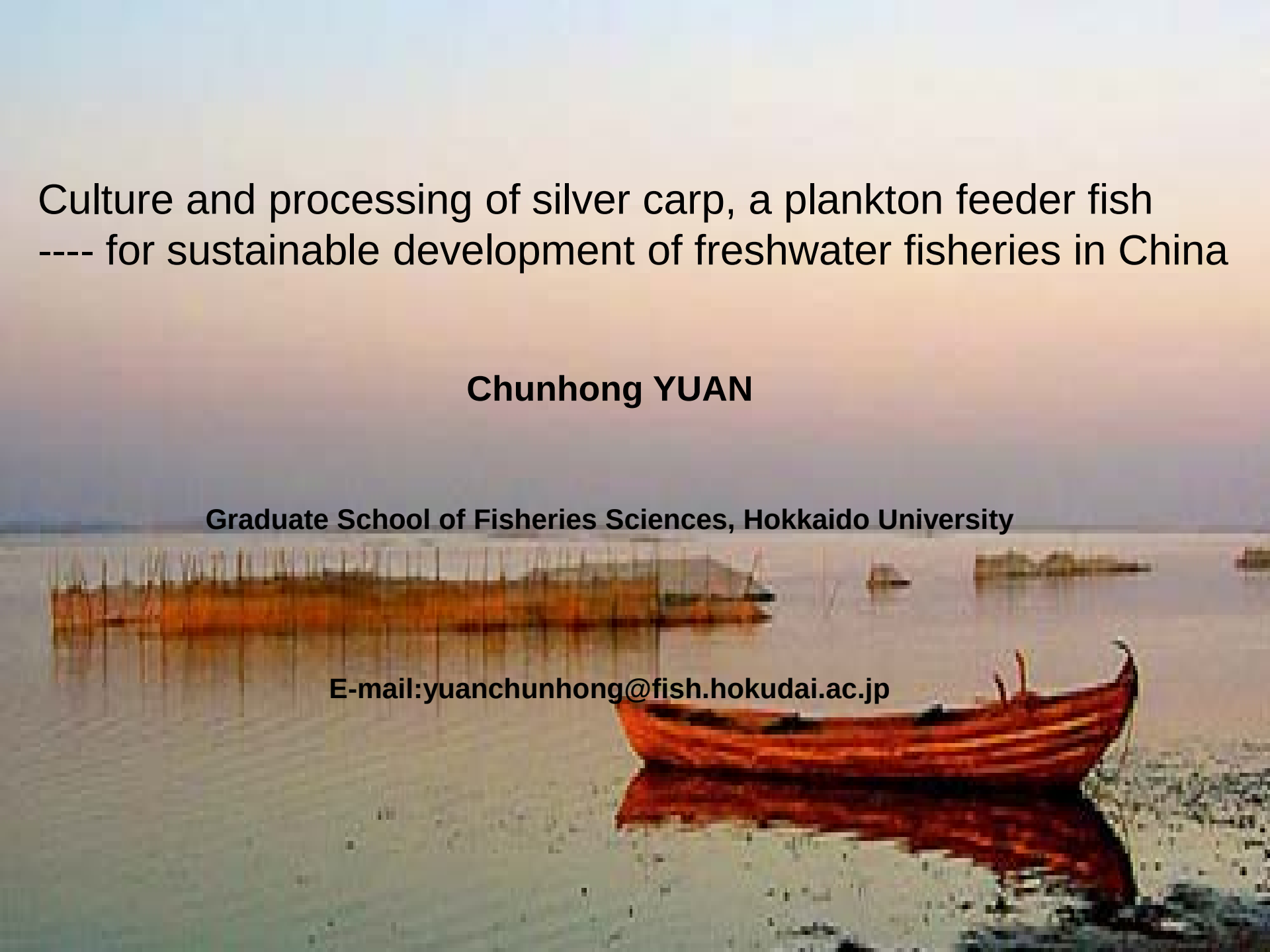


Culture and processing of silver carp, a plankton feeder fish
---- for sustainable development of freshwater fisheries in China

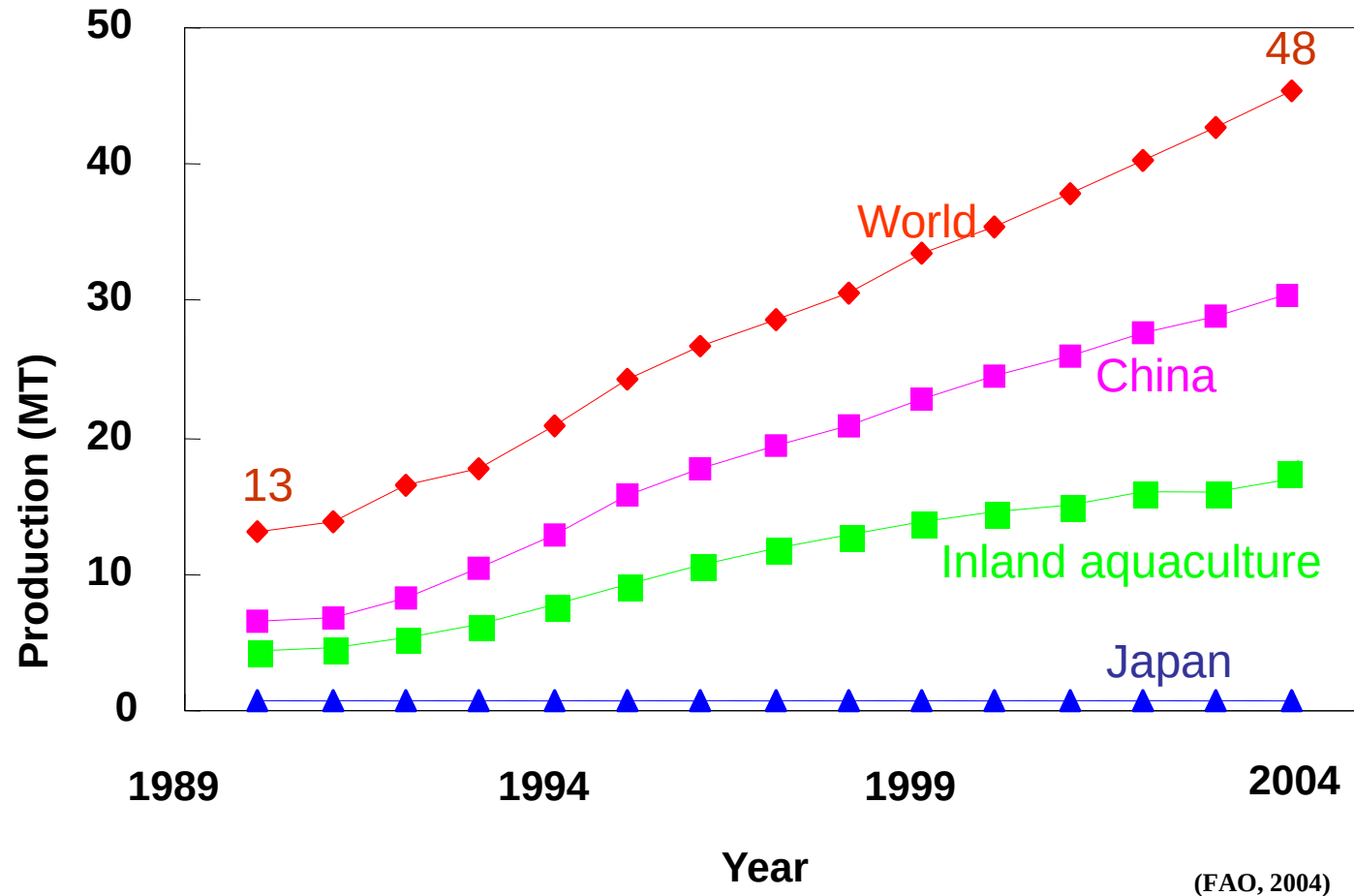
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Aquaculture in China



➤ China contributed 83.6% of the increment.

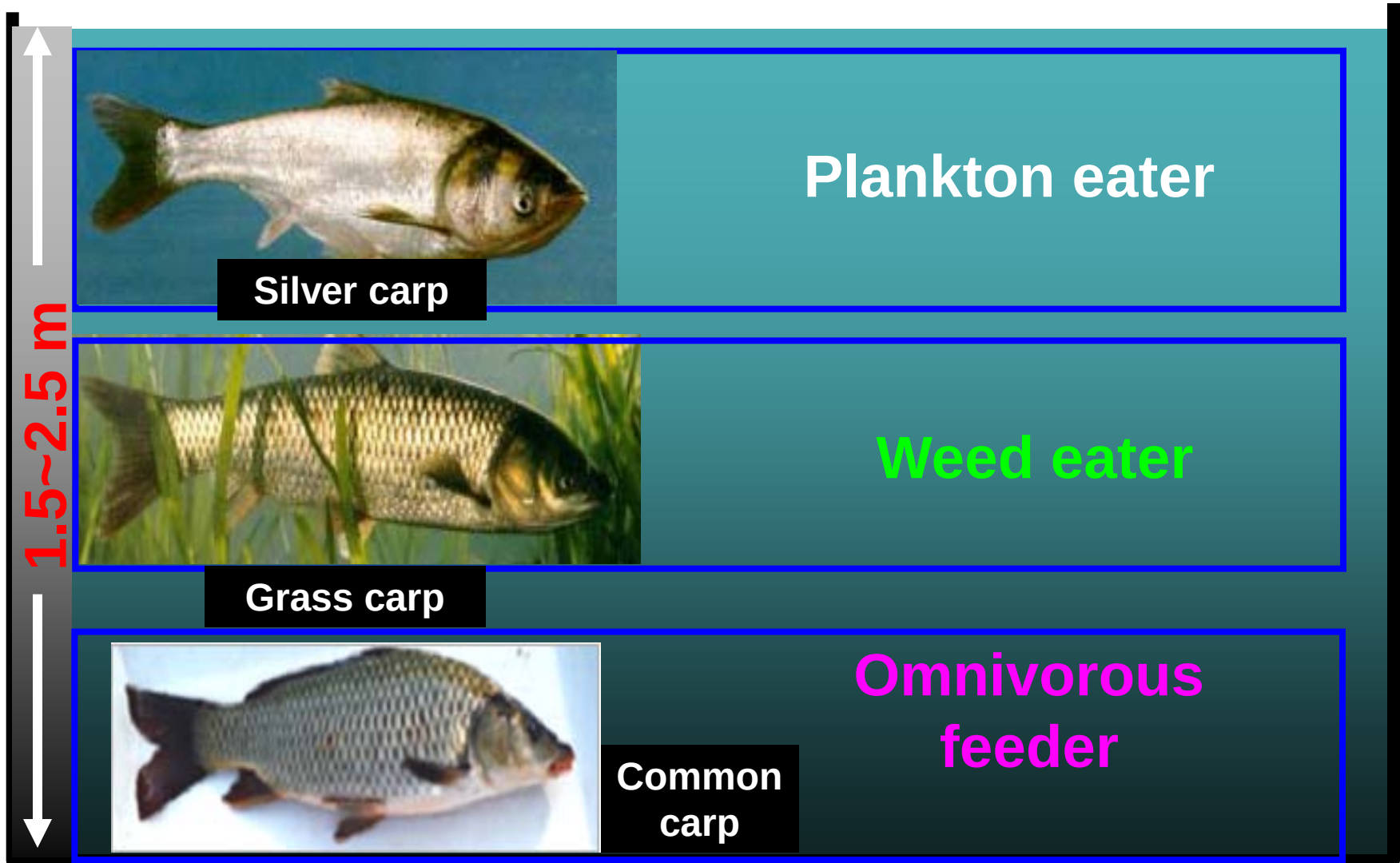
➤ Inland aquaculture contributes 60% to the total aquaculture in China

Poly eco-culture system of freshwater fish



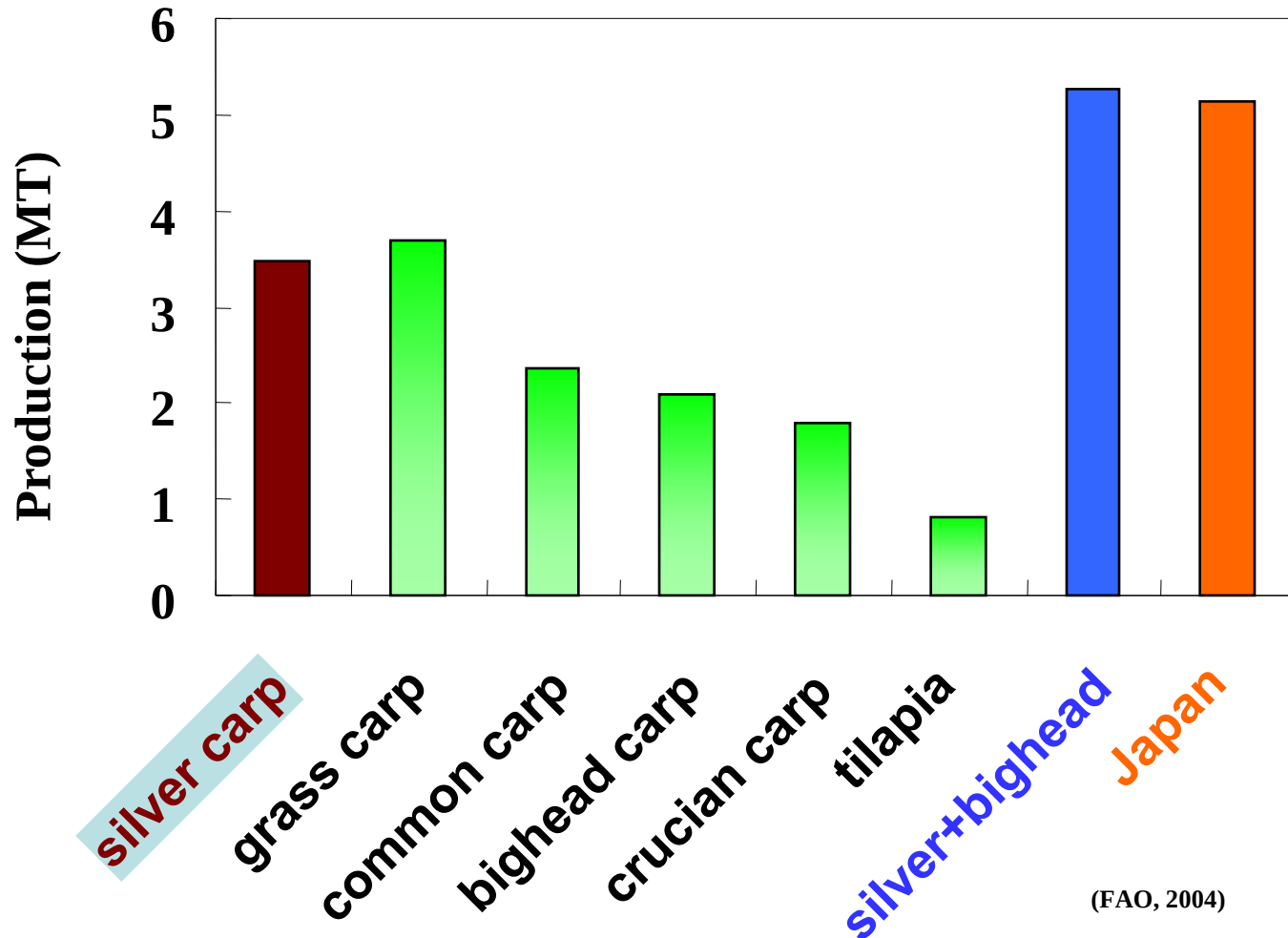
**Pond culture,
with livestock rearing and crop horticulture
accounts for 70% of inland aquaculture**

Polyculture of freshwater fish



Phyto-zooplankton control, beneficial Ecological effects, economic

Top 6 fish species cultured in China

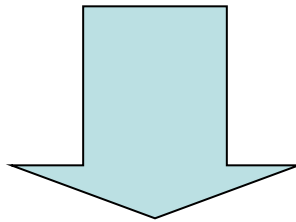


The total production of freshwater fish in China is about 19.71 MT in 2007.

The total fishery production of Japan is about 5.1 MT in 2005.

Problems of freshwater fisheries

- ✦ Sold alive
- ✦ Low processing food (less than 10%)
- ✦ Lack the diversity of consumption because of the backward transportation and processing technologies
- ✦ Over production in some season
- ✦ A lot of losses through poor handling of fish
- ✦ Low market value



- Improve the market value and diversify freshwater fisheries products
- Processing becomes the neck of the development of freshwater fisheries to develop freshwater fisheries environmental friendly and sustainably

To make...

Fish



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Delicious food

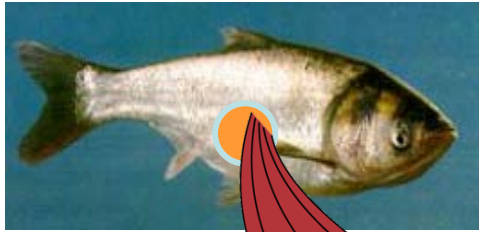


Surimi as intermediate food stuff

Long storage, diversified products, industrial processing

We need to know more about protein!

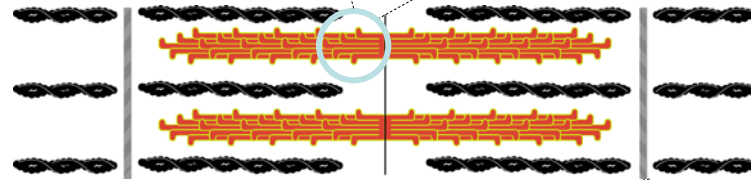
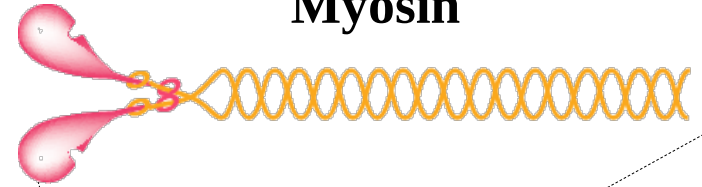
Fish muscle structure



Muscle fiber

Myosin

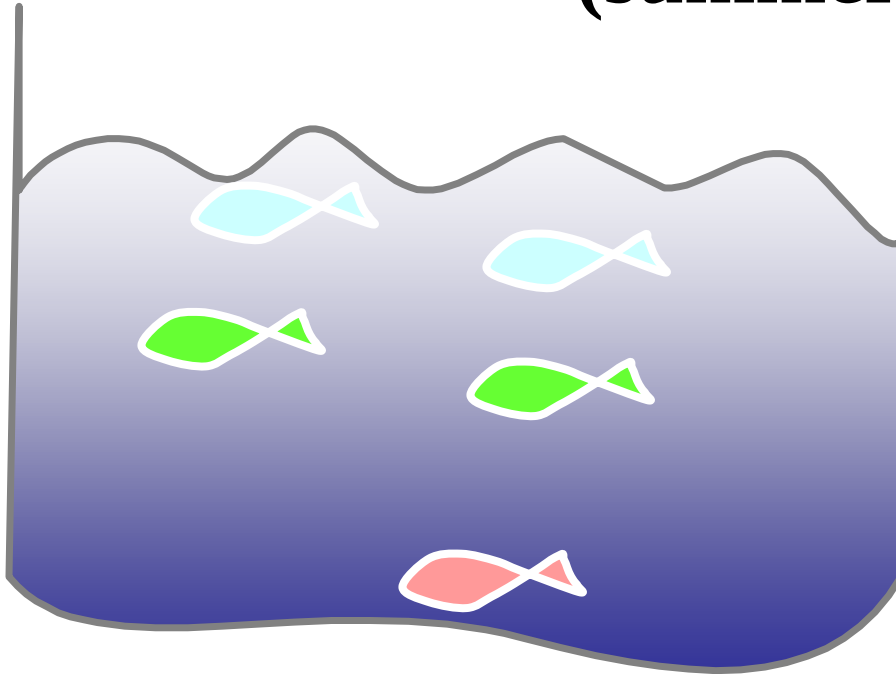
Actin



Stability is important for processing and storage

Myofibril

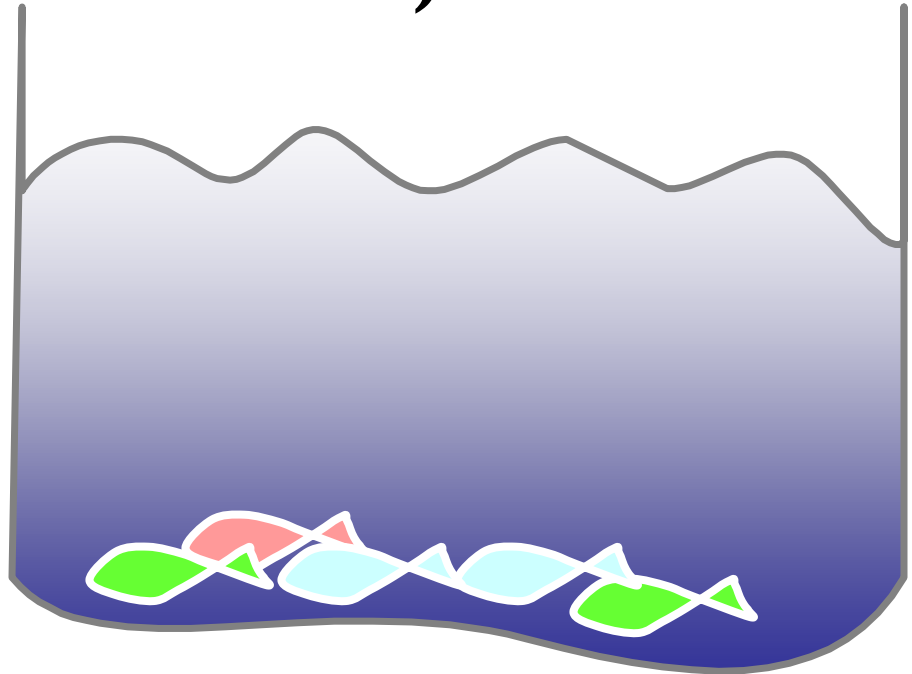
Temperature and Activity (summer and winter)



Summer

Maximum temp: **>30 °C**

High activity



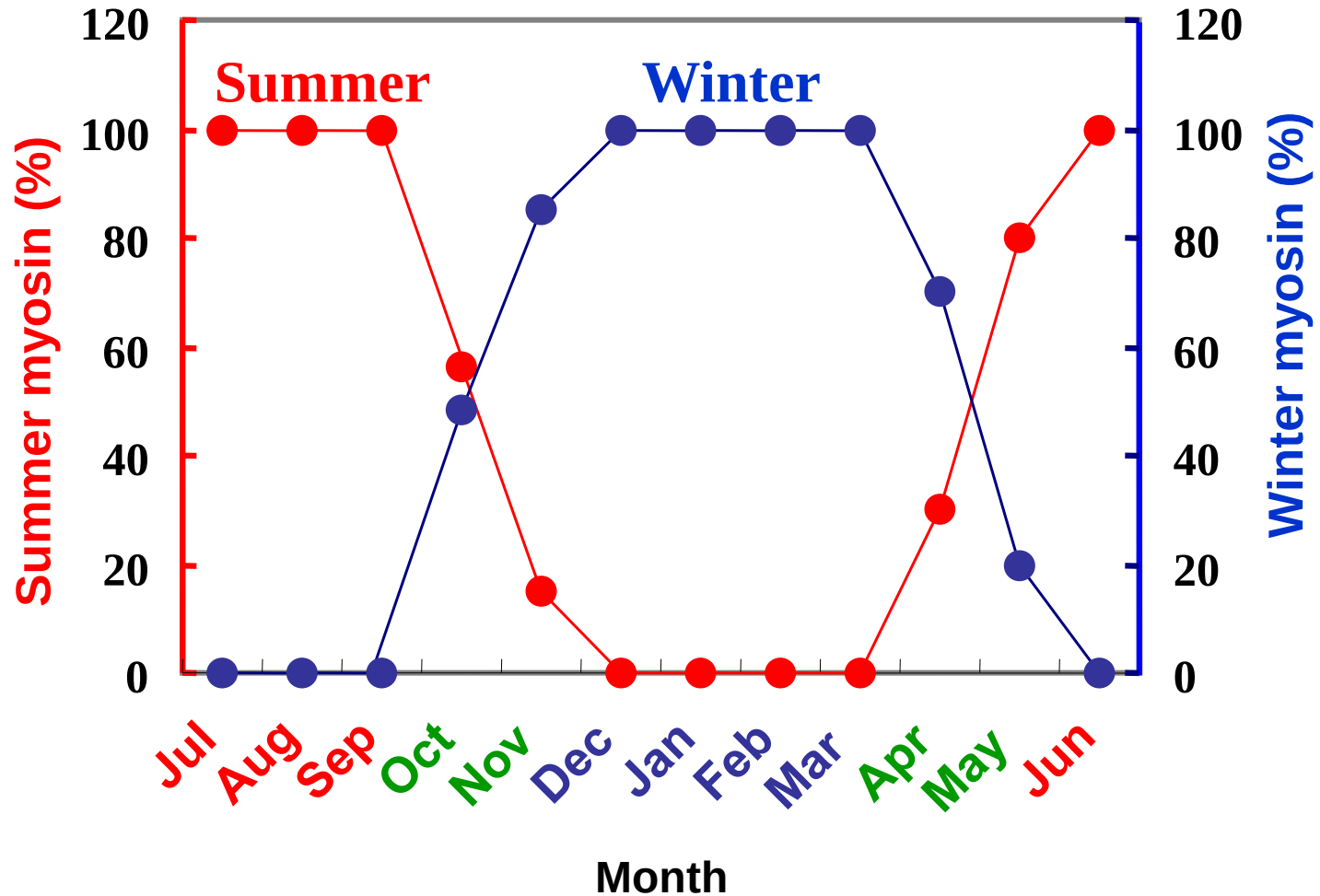
Winter

Minimum air temp: **< 5 °C**

Low activity

Fish in tolerate a large year-round temperature change

Seasonal changes in the myosin isomer



Fully utilization of silver carp

- ✓ meat for surimi and surimi based products
- ✓ Collecting water soluble proteins and utilization as pet food
- ✓ Skin for collagen used in cosmetics, healthy food, or medical materials
- ✓ Head for fish meal
- ✓ Viscera for extracting proteinase or fish oil



For sustainable freshwater fisheries

There are a lot of works to be continued

Thank you very much.