

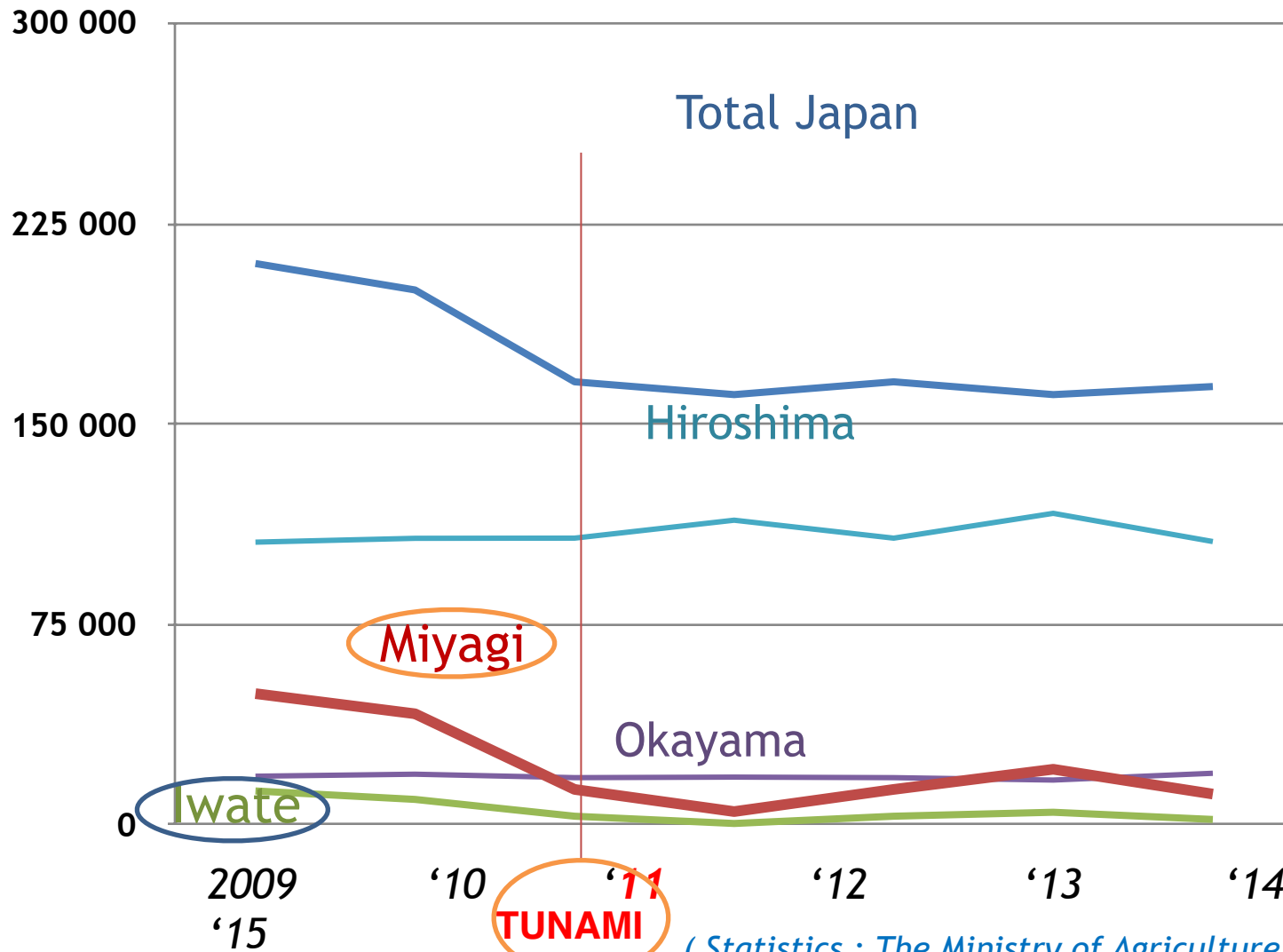
# The innovation and adaptation of culture technique on the recent oyster-culture in Japan



*Yasuyuki KOTKE ( Ex. TUMSAT )*  
*Tetsuo SEKI ( Japan Fisheries Science & Technology Association )*



## Oyster production(tons), before and after the disaster



( Statistics : The Ministry of Agriculture, forestry & Fisheries )

# Objects in 10 years on the restoration of Miyagi Prefecture

First 3 years : 2011 ~ 2013 → Period of Recovery (復旧期)

Second 4 years : 2014 ~ 2017 → Period of Rebirth (再生期)

Third 3 years: 2018 ~ 2020 → Period of Progress (発展期)  
Problem... Subsidence of sea shores: 70 to 100 cm after The Earthquake

Immerged Yamada  
port , Iwate Pref.



2012-10-22 (1 year  
7month)

Immerged Ogatsu port near to Onagawa



2013-6-11 (2 years 3 months)





Research project was carried out by  
Government + Prefecture + Assesment Co.,LTD  
to establish Stability, Labor-saving, Efficiency on shellfish culture.

Period: 5 years (2013 – 2017)

By the cooperation of:

*FRA (Fisheries Research Agency)*

*Miyagi Prefecture Fisheries Technology Institute*

*Kaiyo Engineering CO., LTD,:*

*Sanyo Techno Marine CO., LTD*

*National Inst. Of Advanced Industrial Science and Technology*

Objects of the research project

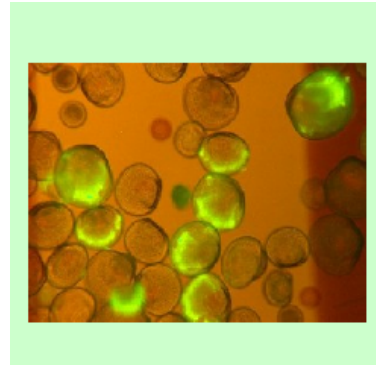
- 1) *Wild spats collection*
- 2) *Single seed and Virgin oyster*
- 3) *Intertidal (medio-littoral) zone culture*
- 4) *Consumer evaluation*
- 5) *Marketing revolution*



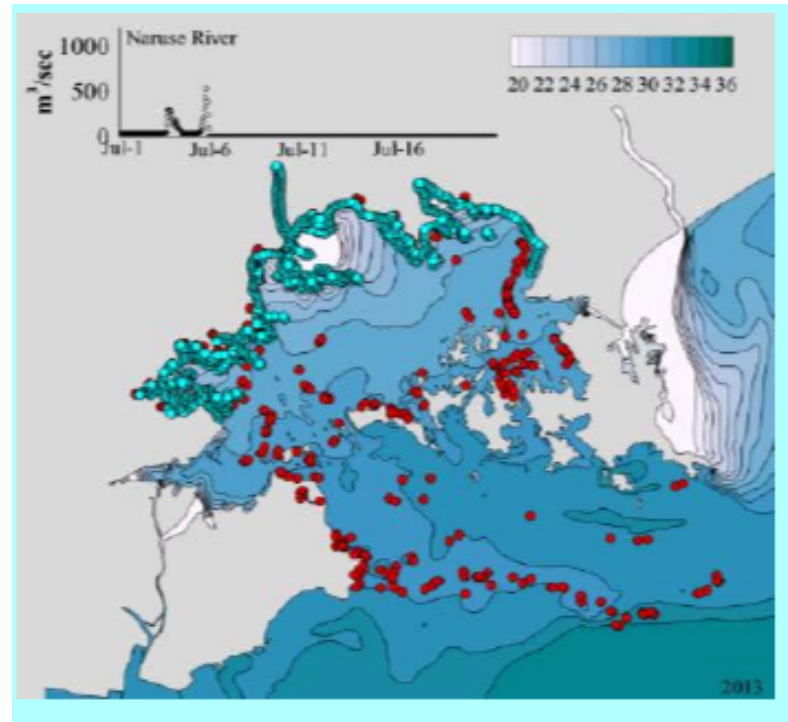
*Intertidal zone culture*

## 1) Wild spats collection

Promotion of spats detection: species, development, density etc.



Modelling research on the current movement to estimate the collection points of Spats



## 2) Virgin oyster, AMAKORO-GAI

### Characteristics:

Single oyster before spawning

Age: around 12 months

Selling with shells

Small size

Tasty

Product of *Shizugawa bay*



天然種苗からの未産卵一粒ガキの  
生産と周年出荷





### 3) Intertidal zone culture from single seeds, ATAMAKKO-KAKI,

Matsushima bay



#### Characteristics:

- Small size single oyster
- Selling with shells
- Hard shells and Resistant
- Strong texture
- Product of *Matsushima bay*

Tetso SEKI on the culture site



Intertidal culture at *Normandie, France*

# Intertidal zone culture from the single seeds



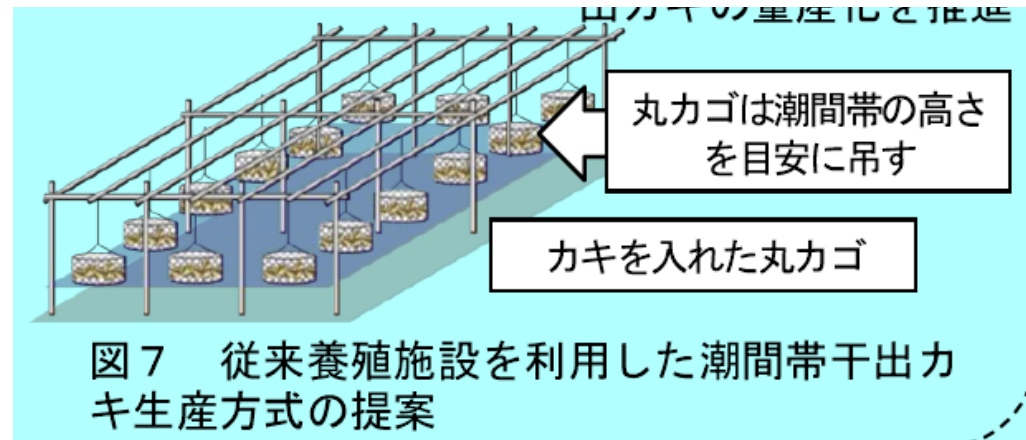
Imported equipment from France



Culture bed at intertidal zone, Marenne, France



Suspended bags at Medio littoral zone, Matsushima bay





# Characteristic products of the intertidal zone culture

Atamakko from Matsushima



Shikame from Kyushu



Specialty of Normandie



Kumamoto from USA





#### 4) Consumer evaluation Tasting event of new products

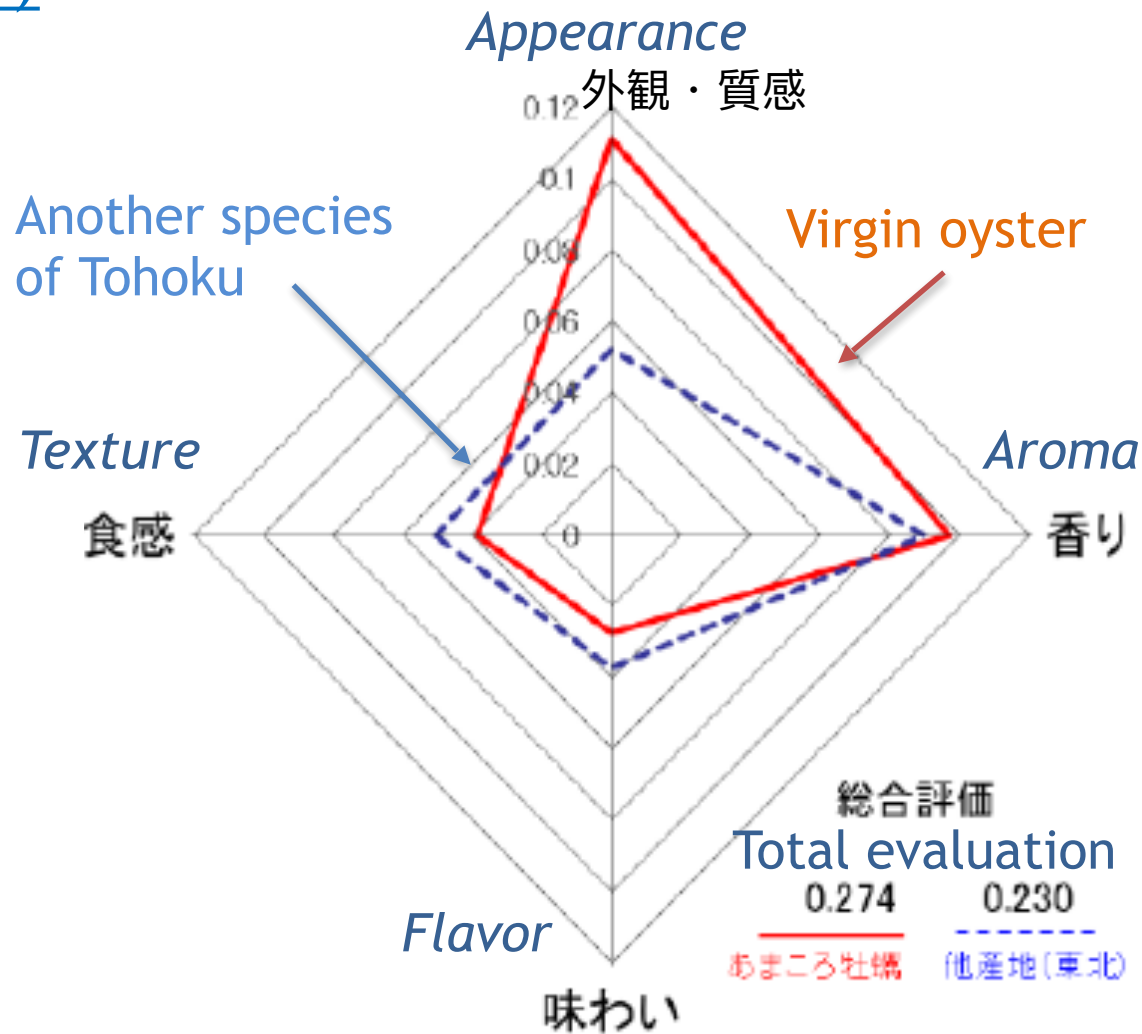


Virgin oyster(AMAKORO-GAKI) ↑,  
↓ Intertidal zone cultured

oyster(ATAMAKKO-KAKI)



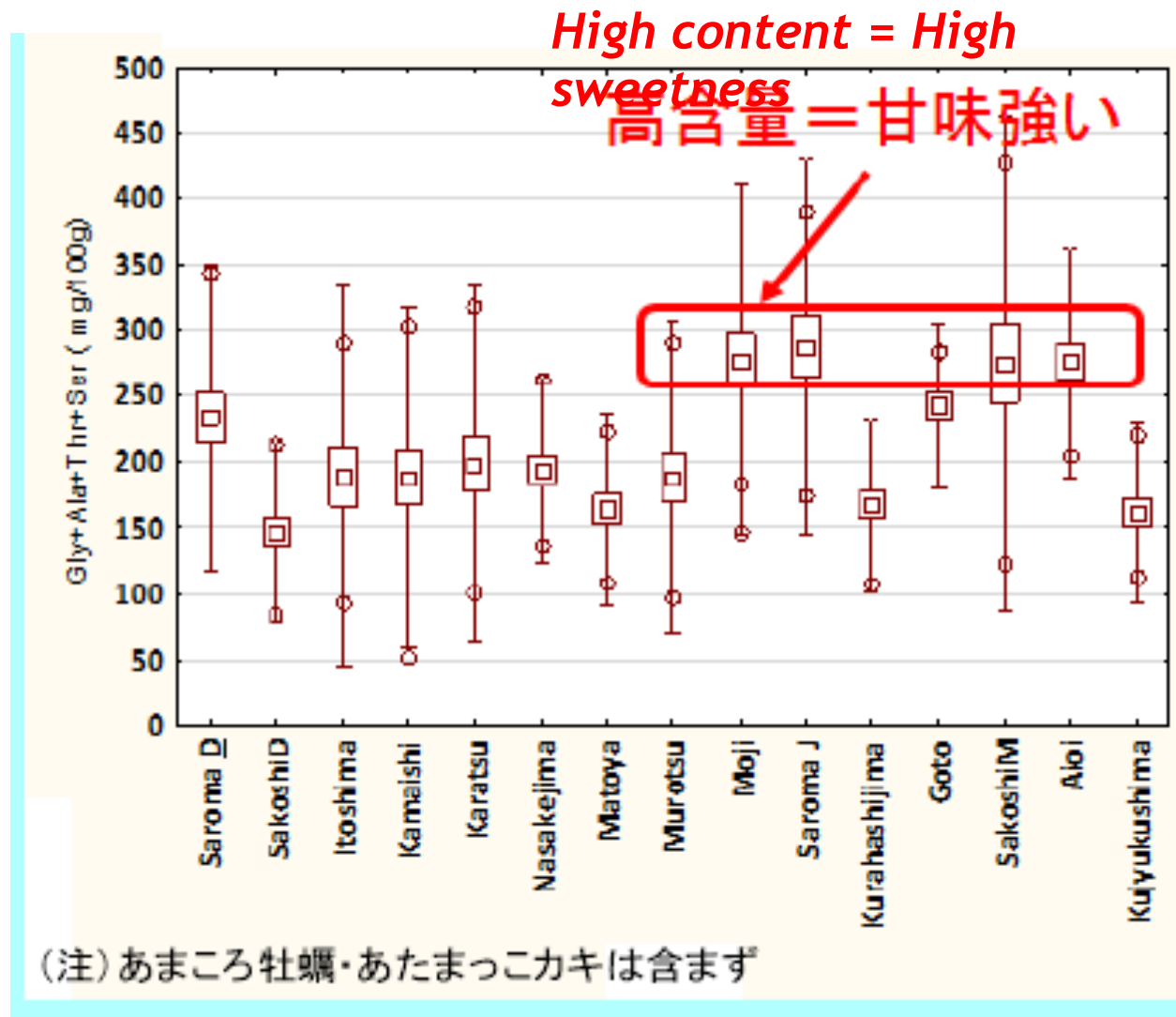
# Consumer evaluation for Virgin oyster(AMAKORO-GAKI)





## Consumer evaluation for regional products

Total amount of Amino acid: Glycine, Alanine, Threonine, Serine



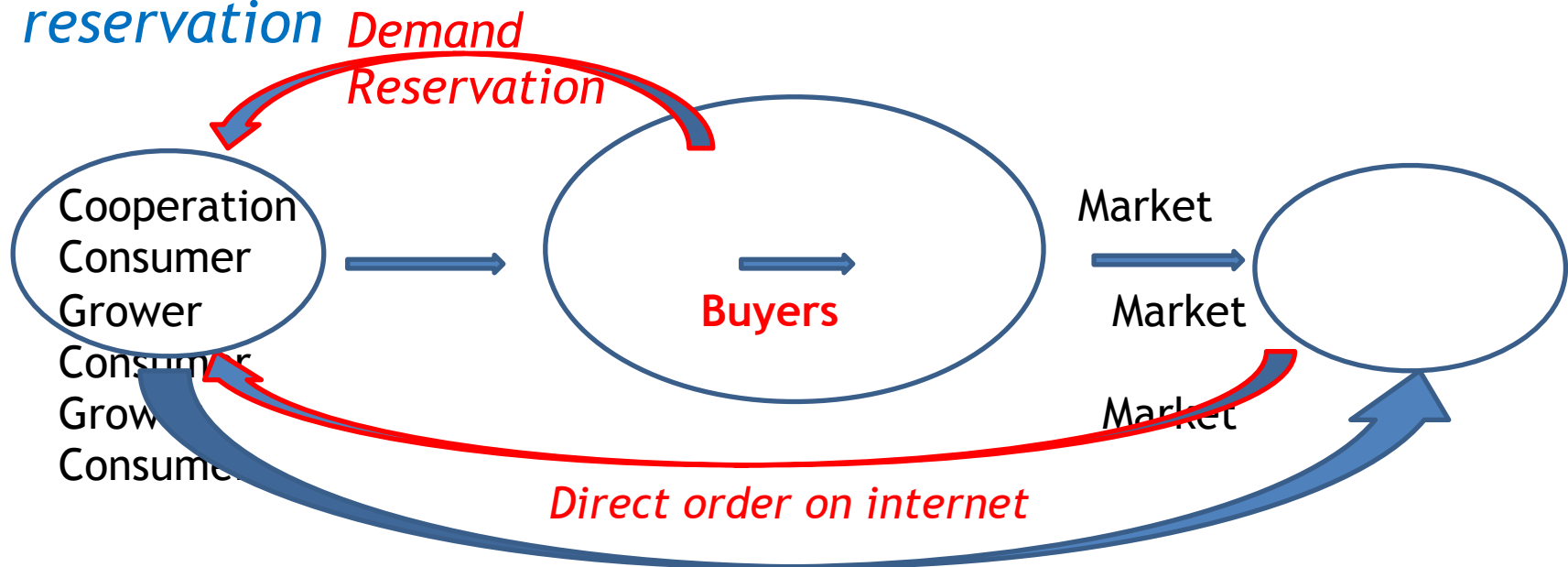
## 5) Marketing revolution



*Old System : up today*

Grower → Cooperation → Broker → Market → Consumer

*New System of landing and distribution on demand & reservation*

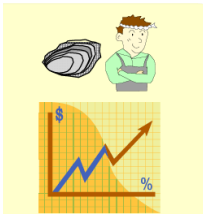


# Marketing revolution

Up to now

Estimate annual income of the oyster

one piece of ~~oyster~~ <sup>growing</sup> oyster: 28 to 30 yens  
annual production, (X 100,000 ind.), Income →



Broker



Coop.

From now to future

@ oyster with shells : 100 yens  
annual income → 9,000,000 yens

Market( Store ) to  
family



Grower + Coop.



Buyers

Order by net. from consumer



Oyster bar,  
Restaurant



# Brand Oysters

Ooita



Yatsushiro



Hiroshima



Saroma



Noto

Akkeshi



Karakuwa  
Hatakeyama



Matsushima



Matoya





# Claire culture at Ohsaki-Kamishima, Hiroshima Pref. Seto-Inland Sea

## F a r m   S u z u k i



Old Claires in Seto Inland Sea



Culture in Claire



Spats from Labo



Striped Oyster (Bland of the region)



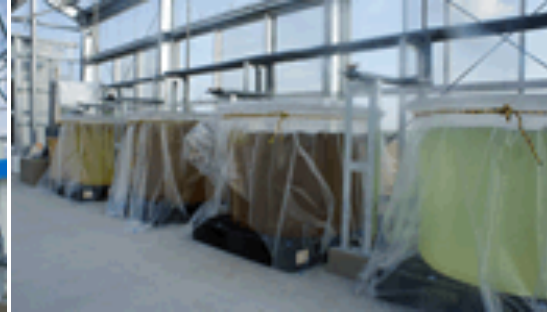
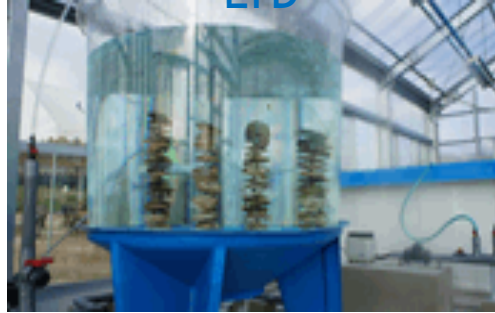
Japanes Green Oyster



Green Oyster of  
Marrene, France

# *Abyssal sea water treatment and culture*

General Oyster Group, Human Web Co.,  
LTD



Abyssal sea water Culture, Kumejima,  
Okinawa



Abyssal sea water purification, Toyama Prefecture



# Gastronomic Tendency, up to now



From Coop.

*Shucked oyster from Coop. to market and families  
For cooked dishes*



Pack of fresh piece

Markets, Stores



Pack of freezed  
piece



Most popular

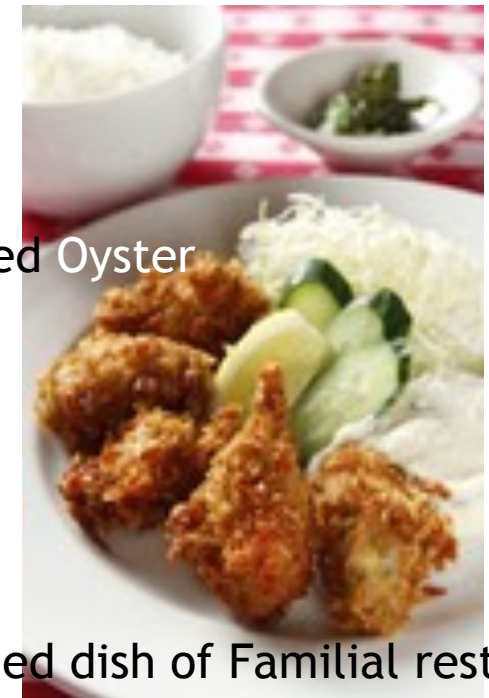
Fried Oyster



Hot pot, NABE



Spaghetti dish



Fried dish of Familial restaura



# Gastronomic Tendency, From now

*Hole oysters from Coop. to market, restaurant and families*



From Coop.



Buyer and Order by internet



Steamed oyster at  
Sea shore Cabin



Oyster Bar-Restaurant in Big  
City



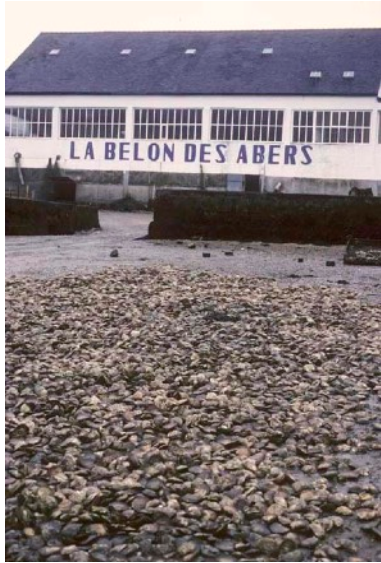
Deluxe dishes





# Persons who lead me to Exciting Oyster gourmet in France

44 years ago in Bretagne = **Belon**: *Ostrea edulis*



5 year ago in Marennes & Arcachon = **La fine de Claire verte**: *Crassostrea gigas*,  
**Olivier Labin** **Jean ProuGerald Viaud**





## Conclusion

- + The restauration after the disaster in Tohoku is not completed even after 6 years, but the new technique and methods are adapted and realized.
  - + After the *Tsunami*, the number of grower decreased about 75 %, but annual products of Miyagi prefecture is getting back slowly to almost the half of previous years.
  - + The research project is considered to be well succeeded.
  - + We can find the technical progress in every where, especially for the density of facilities on the sea surface.
  - + To change or increase the quality of the products, the taste of consumers must be well reflected.
  - + Many technical progress are found, it's due to the foreign countries.
- Attention  
especially to *France*. Merci!

Merci de votre Attention

