Satoumi Development and EMECS Mission

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Satoumi

- Coastal sea with high biodiversity and productivity under the human interaction

Yanagi (1998)
Biodiversity (species) = Variety of Habitat

Habitat = spawning ground
        nursery ground
        shelter
        feeding ground

Human interaction to satoumi

1: Creation of new habitat for marine biota
2: Stopping the transfer to extreme stage (climax)
   Habitat in climax flora is very simple and has low biodiversity.
1 : Creation of new habitat

Ishihimi = a kind of fish trap

Fig. 1(a) Plan view of Ishihimi

Fig. 1(b) Vertical view of Ishihimi.

at tidal flats or coral reefs
2: Stopping the transfer to the extreme stage (climax)

Fish do not use the central part of sea-grass bed but use the boundary between sea-grass bed and open space. It is useful for human to create the space (gap) in sea-grass bed in order to increase the fish use of sea-grass bed.
Biodiversity and human interaction

Creation of new habitat

Ishihimi Sea-grass bed in Japan

Satoumi Sea-grass bed in Japan

High biodiversity

Stop transfer to climax stage

under-use

over-use

1.b. low biodiversity

l.b. low biodiversity
International Workshop on Satoumi

- 1st Workshop in 2008 at Shanghai
- 2nd Workshop in 2009 at Manila
- 3rd Workshop in 2010 at Kanazawa
- 4th Workshop in 2011 at Jakarta and Baltimore
- 5th Workshop in 2012 at Hawaii
- 6th Workshop in 2013 at Pekalongan and Marmaris (Turkey)
- 7th Workshop in 2014 at Tokyo
- 8th Workshop in 2015 at Jakarta and Danang
- 9th Workshop in 2016 at Saint-Petersburg
Special session in EMECS 11 (2016) 
EMECS (Environmental Management of Enclosed Coastal Seas)

- Transdisciplinary Study for successful ICM in Japan (Satoumi)
- Theme 1: Seto Inland Sea
- Theme 2: Sanriku coastal area
- Theme 3: Japan Sea
- Theme 4: Social and Human Sciences
- Theme 5: Integrated Numerical Model

- Comments from foreign viewpoints
  Menasveta, Ducroty, Eric,........
1st Workshop Report

Invited: 7
Oral: 6
Poster: 12
EAS Congress 2009
International Conference
Habitat Protection, Restoration and Management (T3)

T3:2
SATO-UMI WORKSHOP

Indigenous Approaches to Habitat Protection and Restoration: Experiences in Sato-umi and Other Community Initiatives

24 November, 2009
Philippine International Convention Center, Manila, Philippines
Summit Hall D

Convener:
Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)

Co-Convener:
International EMECS Center, Japan

Oyster Beds (Hiroshima Pref., Japan)
Nature and Human in western and eastern countries

Preserved zone is impossible in East Asia due to high population density
EBM (Ecosystem Based Management)

- Water quality (COD, TP, TN..) control
- TAC (Total Allowable Catch) for single species
  →
- EBM : conservation of total ecosystem
Primary production (mgC/m²/day)

Clean and rich coastal sea

High low

Primary production

Nutrient

Low high

Eutrophic

Transparency

Low high

Oligotrophic

Low high

(m)
Primary production and fish catch
CBM (Community Based Management)

• Top-down management from the government →

• Bottom up management from the local community →

• Limit Sasi in Indonesia is kept by local community but violated by other communities

• Interaction by local and central government is necessary to keep Sasi system
Satoumi Governance

- Administration
- NPO
- Local community

Total macro management
Communication among local communities
Daily micro management

Hitaka (2011)
Satoumi as ICM
(Integrated Coastal Management)

Integration

Discipline: natural, social and human sciences
Space: mountain, field, estuary and coastal sea
Stakeholder: fishermen, farmer, woodmen and citizen
Government: local, regional and central government
One example of ICM related to Satoumi in Japan

Fushino River Conservation Committee including 10 organizations from mountain to estuary.
Sato-Umi
— A new concept for coastal sea management —
1. Introduction
2. Mankind and coastal sea
   2.1 Richness of the coastal sea
   2.2 Crisis of the coastal sea
3. Mankind and the forest
   3.1 Sato-Yama
4. Sato-Umi
   4.1 Concept of Sato-Umi
   4.2 Harvest of sea-glass bed
   4.3 New technology
   4.4 Stock enhancement and fish culture
   4.5 Sea farming
   4.6 Fish resources management
5. Environmental ethics
   5.1 Environmental ethics and Commons
   5.2 Preservation and Conservation
   5.3 Environmental education
6. Concluding remarks
Satoumi: Japanese Commons in the Coastal Seas

12 examples of satoumi creation by Japanese fishermen and international activities on Satoumi creation are introduced.

published in 2012 from Springer
New book on Japanese estuaries including Satoumi creation movement

Eutrophication and Oligotrophication in Japanese Estuaries
The present status and future tasks

September in 2015
General Discussion on “Creation of Satoumi”

- **Science and Technology**
  Habitat for marine biota: Artificial reef, Ishihimi (Tidal stone weir), Tidal flats, Sea-grass beds, Coral reef
  Local (indigenous) wisdom – heterogeneity of environment + Scientific knowledge

  Resilient ecosystem

- **Management**
  Commons; fishermen, stakeholders, managers, scientists - agreement

  Local (indigenous) wisdom – heterogeneity of culture
  local community, local government, central government – compensatory