SATOUMI creation in the Nanao Bay, Japan

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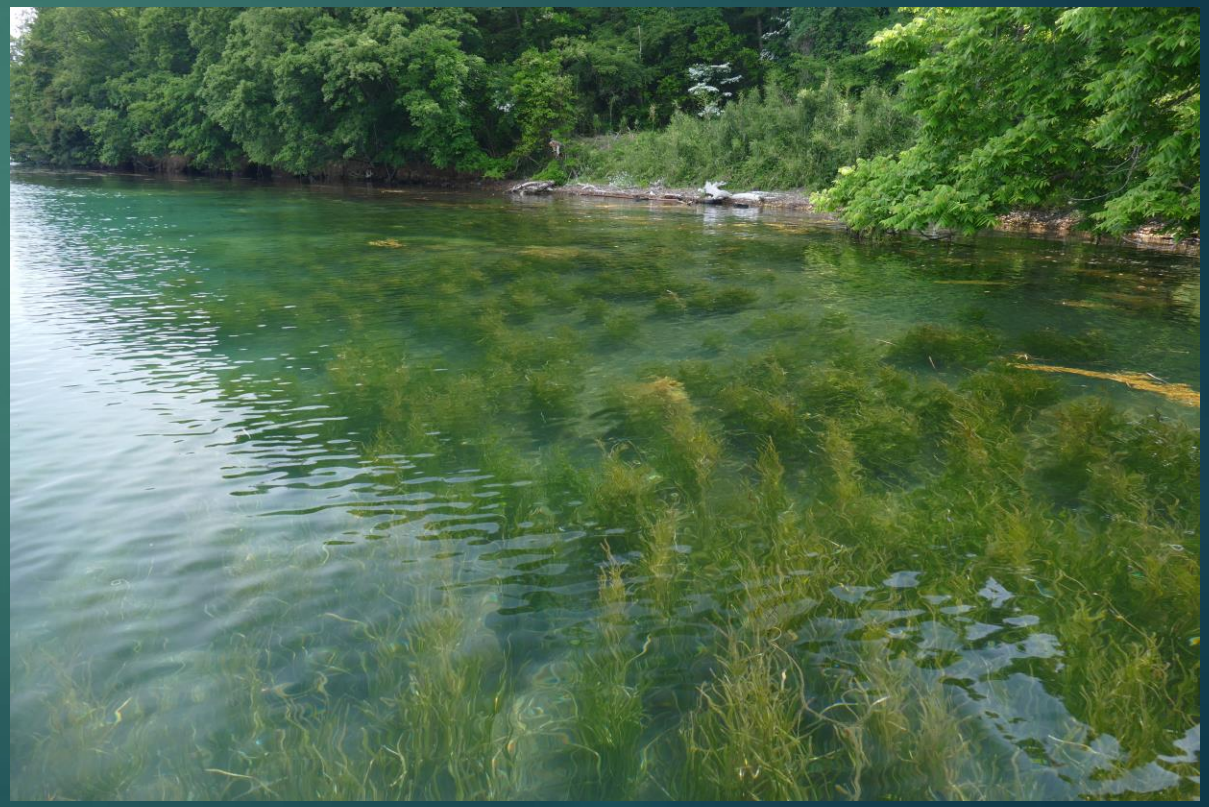
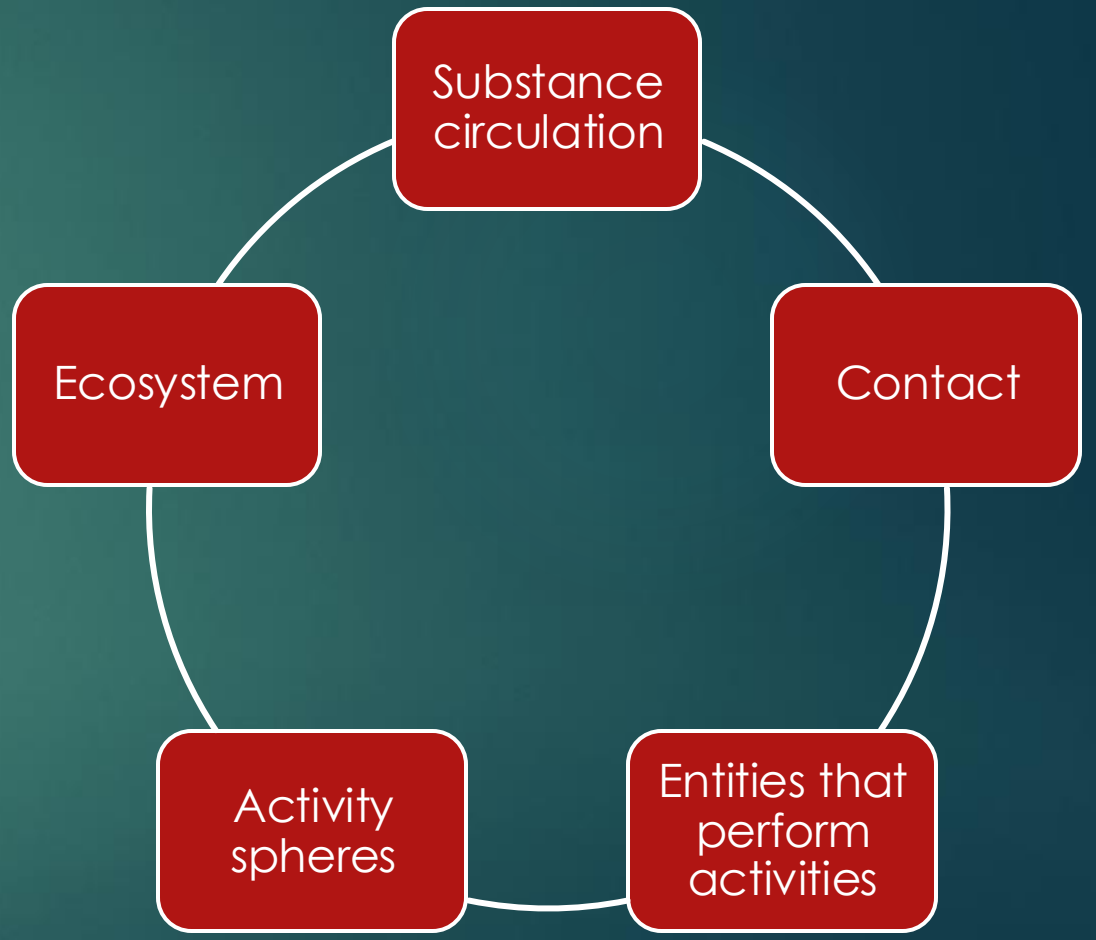


SATOUMI

"SATOUMI" is a coastal area where biological productivity and biodiversity have increased through human interaction.

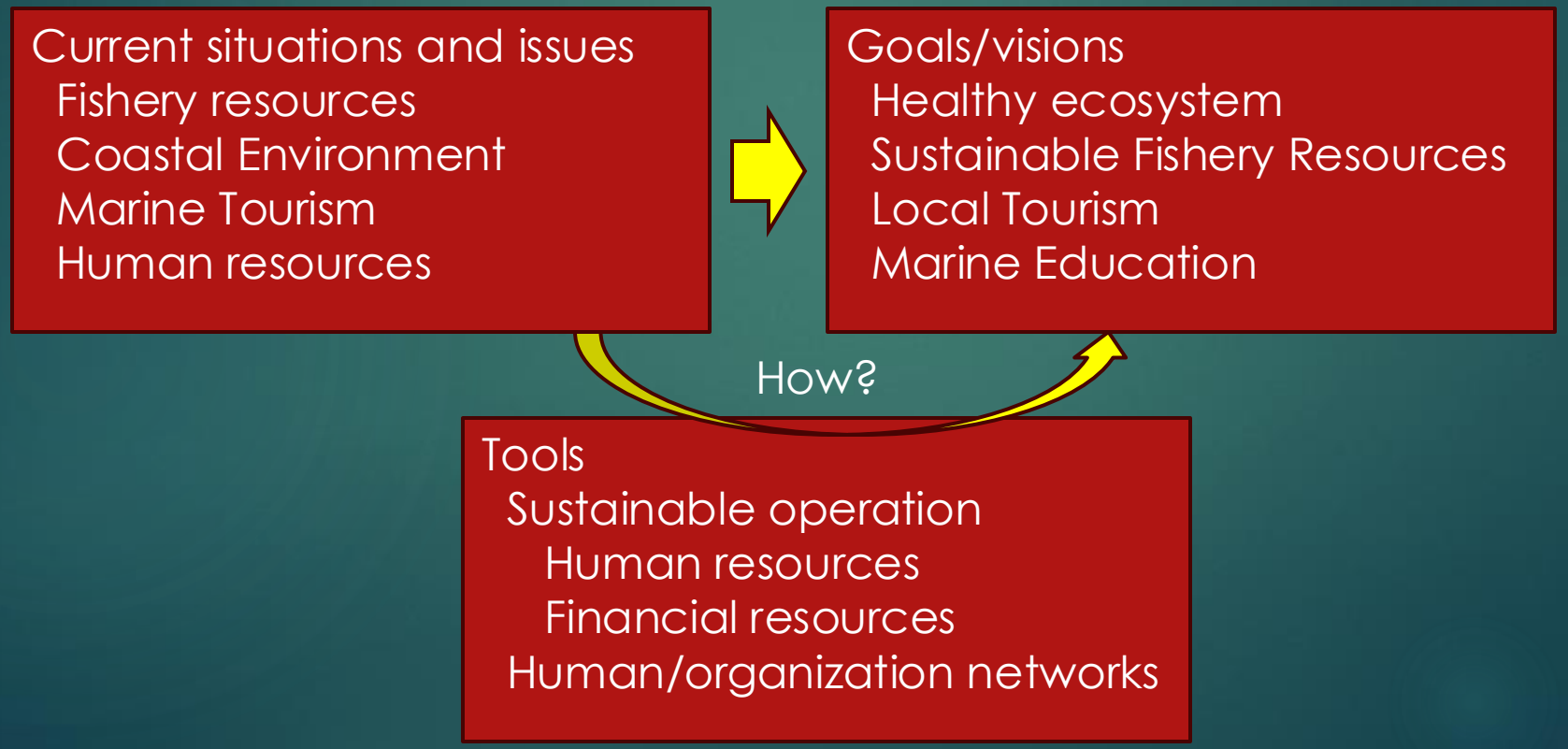
Ministry of Environment, Japan promotes "SATOUMI creation" to conserve marine environment and biodiversity, and to create human networks to maintain/continue local environments and cultures.

SATOUMI creation consists of five elements: substance circulation; ecosystem; contact with people; activity spheres; and entities that perform activities.

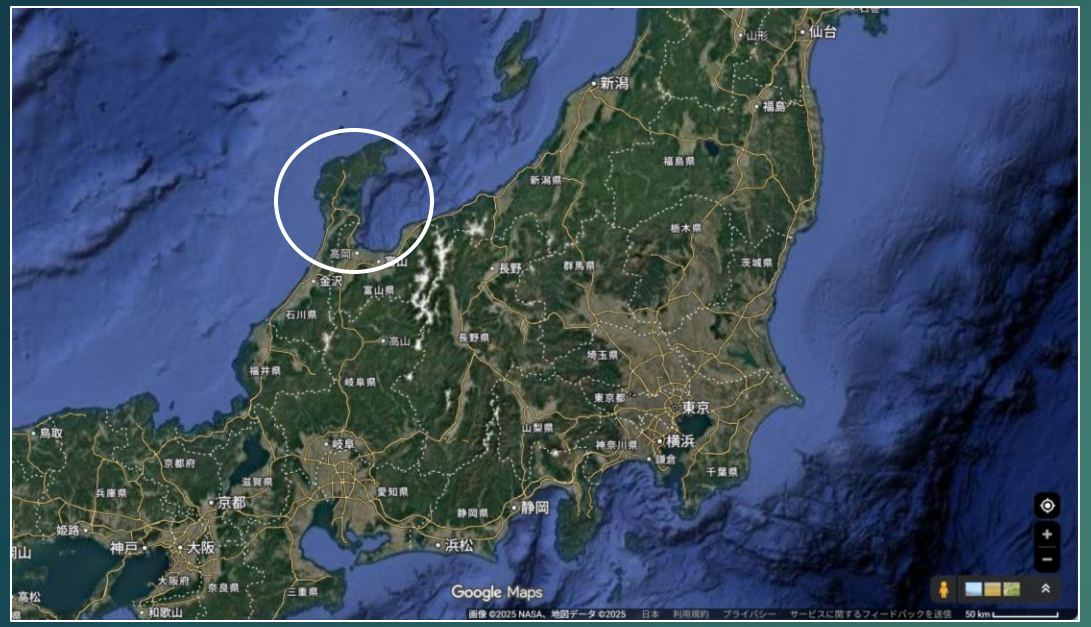


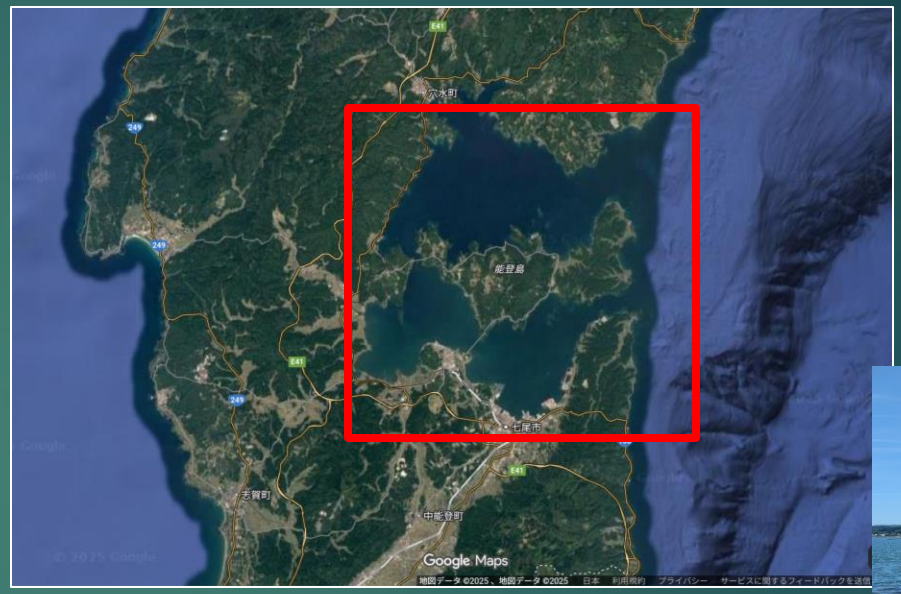
Model Study of SATOUMI Creation (from 2025 FY to 2029 FY)

To develop sustainable SATOUMI creation for conservation of marine environments/ecosystems, and for solution of local challenges



Nanao Bay SATOUMI Creation





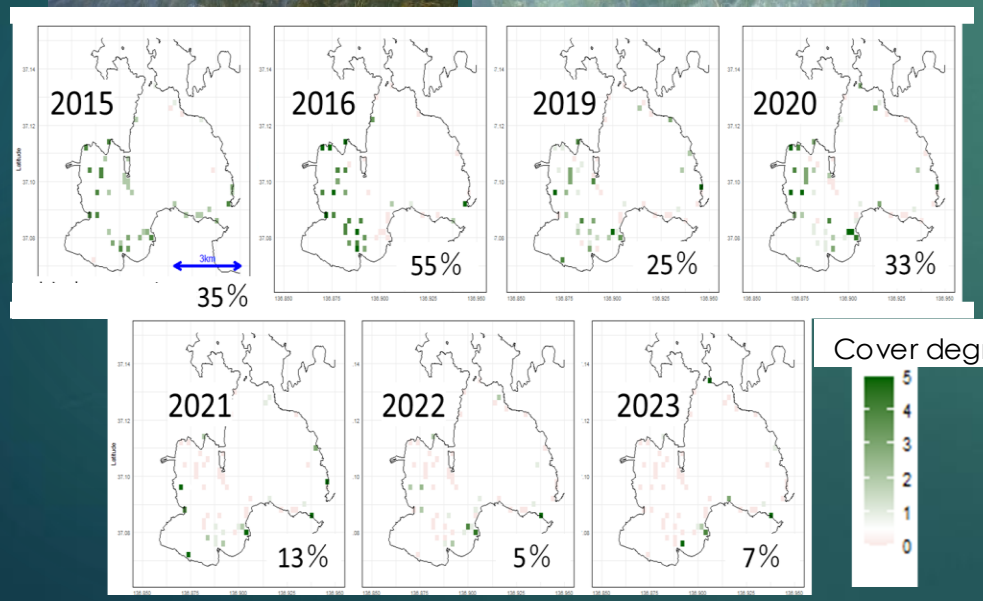
Characteristics of Nanao Bay

- Shallow enclosed bay
- Oyster farms
- Seaweed/Seagrass beds
- Big earthquake in 2024

Recovery of seagrass beds
Recovery from earthquake
Sustainable local city

Seagrass Beds in the Nanao Bay

One of the biggest seagrass beds on the Sea of Japan side
In the last decade, the area of seagrass beds dramatically decreased
(1,923ha in 1994, 768ha in 2019)
Main species: *Zostera marina, Zostera japonica*



Life cycle in the Nanao Bay

perennial → therophyte

Growing season

Spring

Growing season

Summer

Dieback

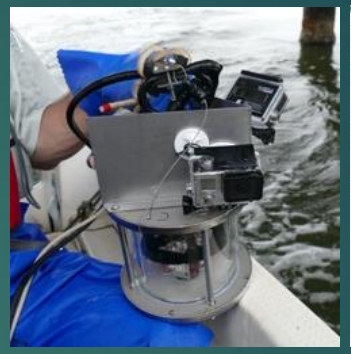
Autumn

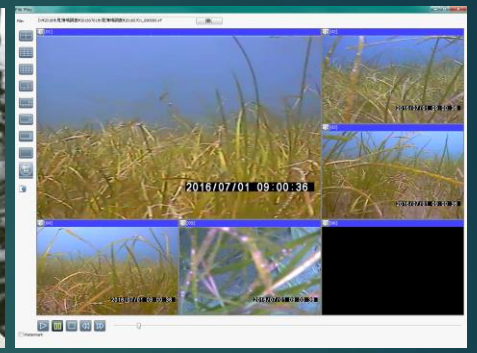
Germination

Winter

Monitoring of seagrass beds in the Nanao Bay

- Remote Sensing (satellite and drone)
- Underwater camera
- Sonar





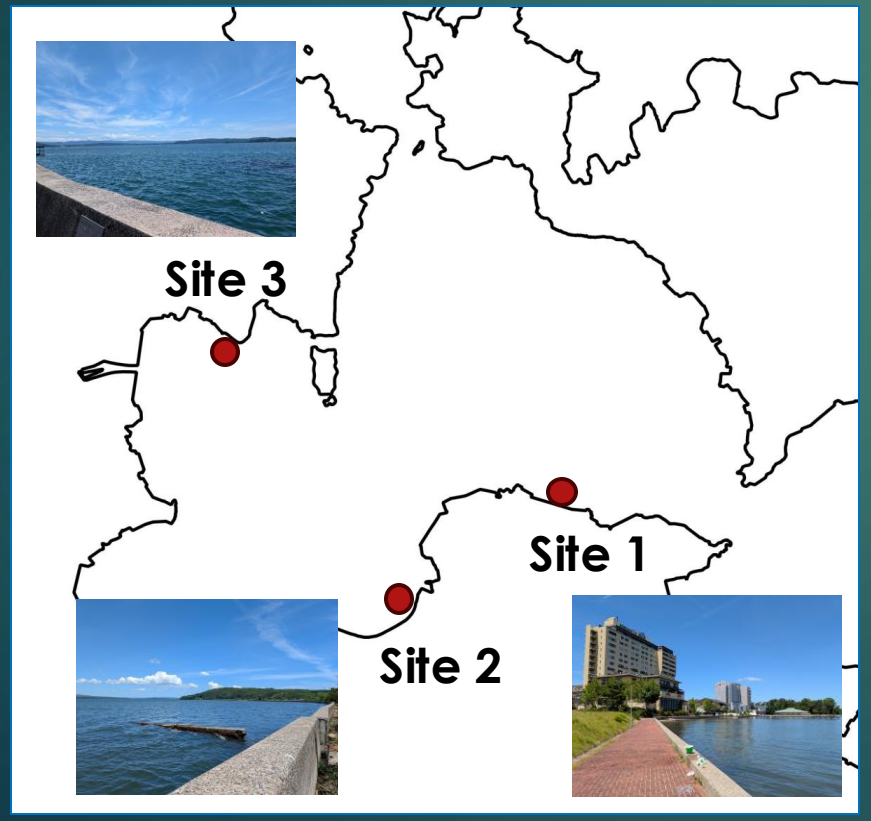
Planet Scope
(Planet Lab.)

Deeper
(BALTIC VISION)

Monitoring of seagrass bed ecosystem using eDNA analysis

Detecting multiple species by using MiFish primer (fish) and Echinos16S primer (echinoderm)

Noto Style Project



Survey sites
- Site 1: Urban area (Wakura)
- Site 2: Seagrass bed recovery site
- Site 3: Oyster farm area

Survey timing
- July, October, December, March

Sampling
- Sea water (1L)

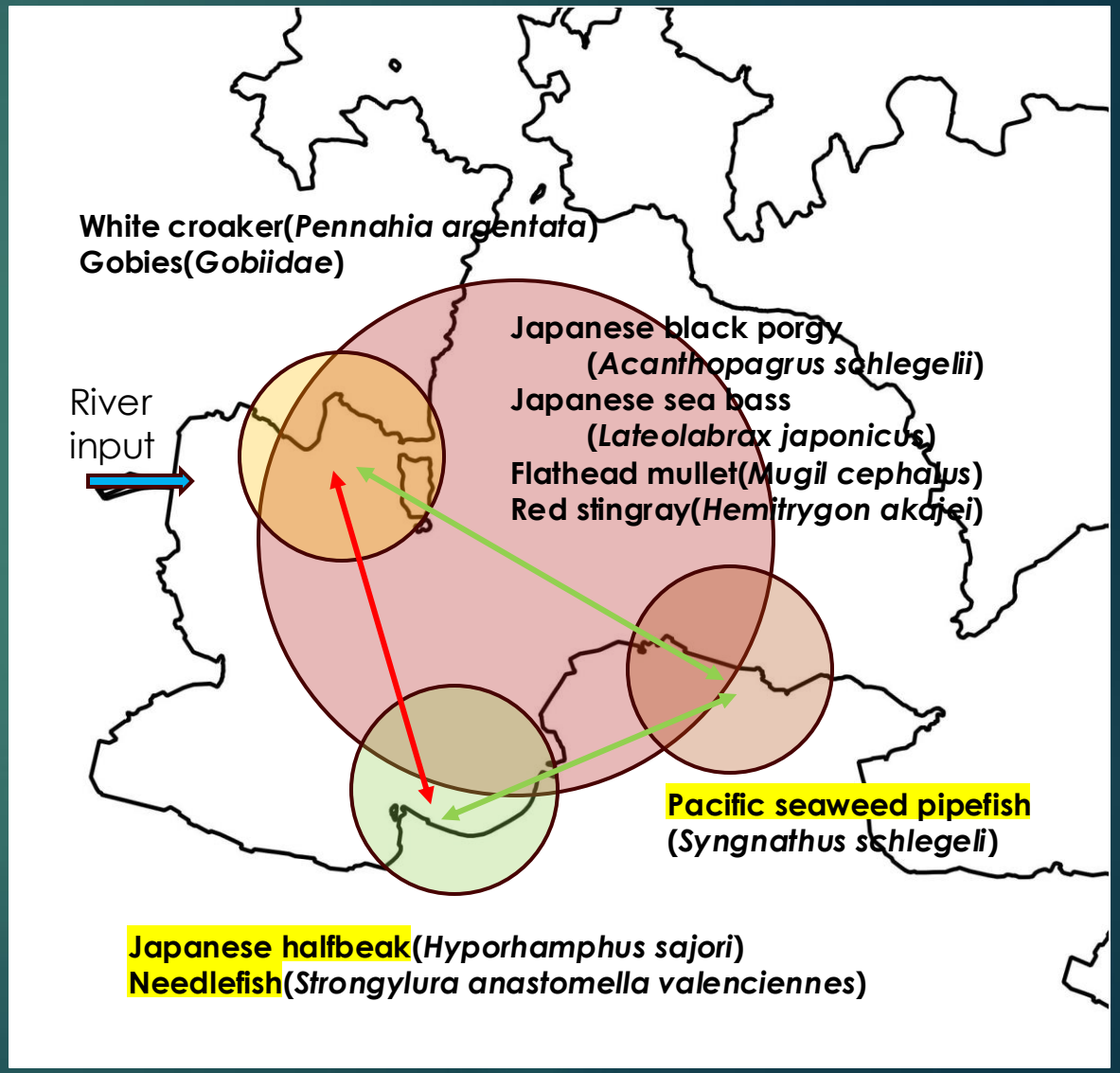
Results

Several species which are related to seagrass beds were found by eDNA analysis. It is possible that seagrass beds contribute to maintain marine biodiversity including fishery resources.

- Specific species use seagrass beds in certain stages in their life cycle
- Geographical characteristics
- Local important fishery species

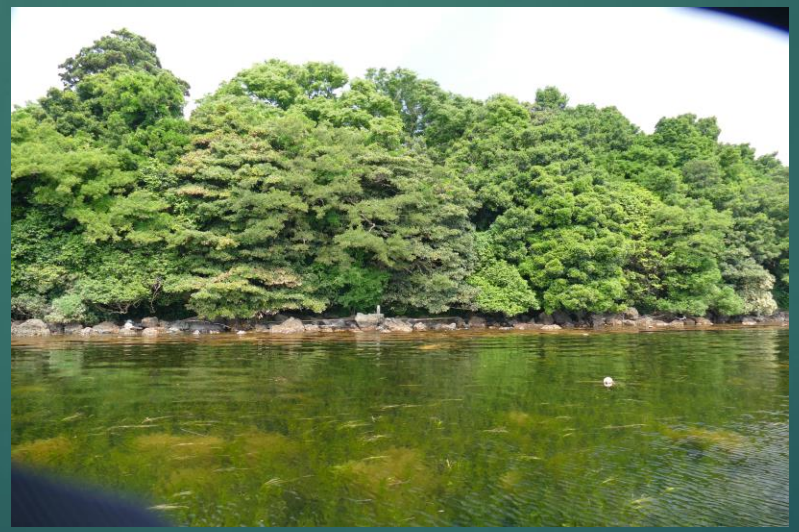
Total number of detected species

	Fish	Echinoderm
Site 1	19	4
Site 2	29	3
Site 3	35	4



Future studies

- Seasonal change of seagrass beds and marine ecosystem
- Recovery of seagrass beds
- Spatial management


Thank you for your attention