Coral Reef Conservation by Sekisei Lagoon Restoration Project
based on a comprehensive management approach with various stakeholders' participation

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Sekisei Lagoon

Area: 300 km²

363 species

Philippine marine area

Great Barrier Reef

330 species

The Number of Reef Forming Coral Species

Sekisei Lagoon
Rich Marine Biodiversity of Sekisei Lagoon

Sekisei Lagoon provides habitats for a variety of marine organisms.
Ecosystem Services from Sekisei Lagoon

Fishery
Provisioning
Tourism

Preserving
Disaster Security
Cultural

Annual divers number: 120,000
Tourists number: 700,000 in Ishigaki

God, “Miruku” coming from sea

Natural Barriers from Waves and Tsunami
Factors threatening Coral Reef

Coral reef in 1970

Suffered destructive damages by the outbreak of crown-of-thorns starfishes from the late 1970s to the beginning of 1980s.

Large scale bleaching in 1998 and 2007 damaged corals.

Pollution and sedimentation by red clay silt.
Feb. 2006  In accordance with Law for the Promotion of Nature Restoration (enforced in 2003), the committee was established in 2006.

Jul. 2007  Drew up the “Overall Plan for Sekisei Lagoon Nature Restoration Project”
General Concept for Sekisei Lagoon Nature Restoration Project

**Long-term Goal** (30 years: 2007 - 2037)
Realize a healthy interaction between man and nature, and restore to the rich coral reef ecosystem that existed at the time of national park designation in 1972.

**Short-term Goal** (10 years)
Eliminating environmental pressures, bring recovery of the coral reef ecosystem to visible.

**Main Principles:**
Comprehensive approach, Reinforcing coral regeneration itself, Scientific data collection and utilization, Project management based on monitoring and evaluation, Collaboration by various organizations and individuals, Information publication and sharing, CEPA

**Activities:**
1. Removal of threatening factors
2. Restoration of coral reef ecosystem
3. Promotion of sustainable resource use
4. Communication, Education and Public Awareness
5. Research and monitoring
6. Evaluation and improvement of the project
Mitigation of Threatening Factors

1) Control of the Crown-of-thorns Starfish

The crown-of-thorn starfish control map
Developed by MOE, Okinawa Prefecture and Ishigakki City
Mitigation of Threatening Factors
1) Control of the Crown-of-thorns starfishes


Intensive extermination of the starfishes has been done in the areas identified.

Captured starfishes were measured at a shore, then transported to a composting center to be used as fertilizer material.
2) Measure to Prevent Red Clay Run-off

Comparison of farmland area (5,500ha) in Ishigaki Is. 2008

- Cultivation & plant 1st year 15%
- Cultivation & plant 2nd year 16%
- Other farmland 64%
- Stump shooting 3%
- Spring cultivation & planting

Estimated amount of red clay run-off (%)

- Cultivation & plant 1st year 62%
- Stump shooting 1%

Support to sugarcane stump shooting by Sekisei Lagoon-syouko Coral Reef Fund

Fund to stump management machine rental fee from 2010 to 2012
18 farmers, 13.85ha, (1.42 million JPY)

Reported by Hoshikawa at the Assembly meeting January, 2014
Basic Idea: **Enhance coral communities resilience.**

1. Coral settlement devices
2. Devices set up on the sea floor.
3. Coral settled on a device was kept on the sea floor until growing enough for transplantation.
4. Transplanted coral for the regeneration

Spawning of transplanted corals first observed in 2010.
2. Restoration of coral communities

Purpose:
Enhance natural resilience of coral communities in the degraded area.

Sites for collection and Transplantation:
Coral larvae were collected in the northern area of the lagoon with high coral reef coverage, and transplanted to the southern area where coral communities were degraded.

Outputs:
Cumulative number of transplanted corals: 43,857 (area: 4,039 m²) (2004-2013)
3. Coral Reef Monitoring

Simplified methods for long-term monitoring, being conducted since 1983
Spot check: 15 minutes observation by snorkeling at a fixed site (50m x 50m)
(This survey is being conducted by “Monitoring Sites 1000 Project”, BCJ-MOE)

Observation items
  Coral: Coverage, Growth type, Recruitment, Bleaching
  Crown-of-thorns starfish: Number, Dominating size, Predation
  Other organisms: Coral eating snails, Large sized coral-dwelling fishes
  Physical factors: Topography, Substratum, Depth, SPSS

102 sites
Changes in Coral Cover and Frequency Occurrence of the Crown-of-thorns Starfish

Changes in coral coverage and frequency occurrence of the crown-of-thorns starfish *Acanthaster planci* from 1983 to 2013.
Education for Children: “Waku-Waku Sango Ishigaki-jima Project”

Excited with Coral!!

Organized by 5 organizations collaborating with NGOs, national and local governments and local communities, aiming Ishigaki to be an island in which students can learn and observe coral reef, targeting by 2014 to provide education programs for all 21 schools in Ishigaki Island.

Activities

Coral Observation
By Yaeyama Fishery Cooperation, Coral cultivation research group

Deaiwa Sango-sho Diversity
By Yaeyama Coastal Leisure Safety Council,
Fund Raising: Sekisei-syouko Coral Reef Fund

Established in July 2009, to support activities for restoration of coral reef ecosystem in Sekisei Lagoon.

Managed by:
NPO Sekisei-syouko Coral Reef Fund

http://www.strata.jp/sangokikin/

Fund raising: 5,250,000 JYN

Grants (2010-): 14 projects
4,200,000 JYN

Granted Projects:
- Crown-of-thorn starfish control
- Validation of acetic acid for killing the starfish
- Coral Watch Project
- Promotion of sugar cane cultivation by stump shooting
To achieve the restoration of coral reef ecosystem in Sekise Lagoon effectively, we have to:

- Develop an appropriate framework, considering the scale of the ecosystem and the surrounding social activities, and various stakeholders including marine and terrestrial fields.
- Formulate an integrated project with a common goal and defined each member’s activity and role, and an organization with functional and practical components.
- Build up networks among members under the project framework to facilitate collaboration and information sharing.
- Evaluate effectiveness of the project activities based on scientific information by scientific monitoring and other available information, and improve the project plan in response to the evaluation.
Thank you for your attention!!

Please Visit Our Website!!

International Coral Reef Research and Monitoring Center, MOE: [https://www.coremoc.go.jp/](https://www.coremoc.go.jp/)