Dataset Overview

For details on each variable, please refer to the Survey Overview.

site : Survey site

point : Survey point

latitude : Latitude of the survey point

longitude : Longitude of the survey point

year : Survey year

SPSSmax : The maximum value of the Suspended Particles in Sea Sediment (SPSS)

coral_spices_q : Number of coral species within the quadrate

coral_cover_q : Coral coverage within the quadrate

coral_cover_a : Coral coverage around the quadrate

Survey Overview

1．Survey parameters

（1）Soil sedimentation survey

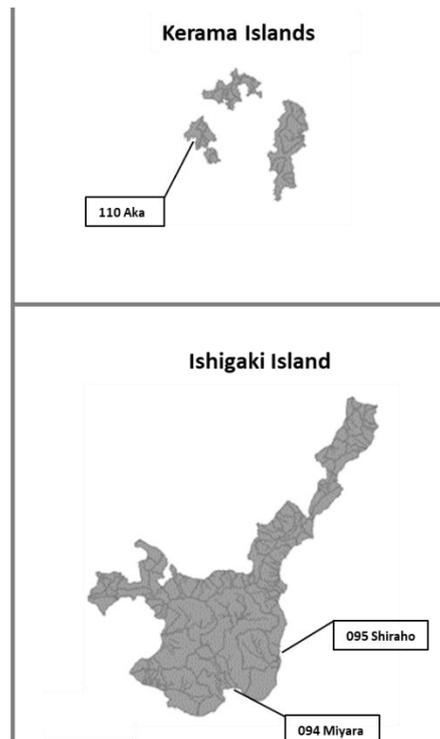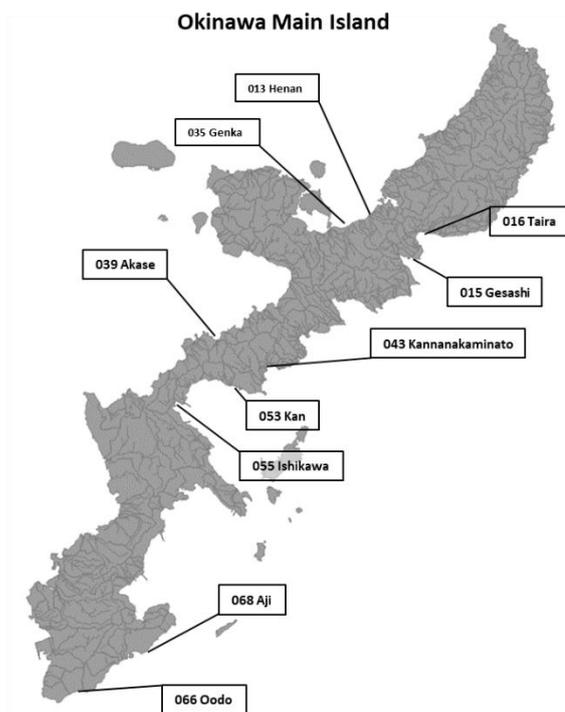Three times a year (After the rainy season, Fall season, Winter season) *

*After the rainy season：Late June to early July

Fall season : Late October to mid-December

Winter season : Late January to mid-February

（2）Coral survey：Once a year (Fall season)

2．Survey Areas

3．Survey methods

（1）Sedimentation survey（SPSS※）

Sediment sampling was conducted by divers. During sampling, sediment was scooped into a plastic container with a rubber gasket to minimize the dispersion of suspended particles from the seabed. To estimate the average accumulation of red soil and other sediments at each site, samples were collected from three locations around the site and combined into a composite sample.

The SPSS measurement was conducted in accordance with Report of Okinawa Prefectural Institute of Health and Environment No. 37, pp. 94-104.

Website of Report
https://www.pref.okinawa.jp/_res/projects/default_project/_page_/001/006/585/s37_13spss.pdf

※SPSS（Suspended Particles in Sea Sediment）

SPSS is an indicator used to assess sediment accumulation of red soil and similar materials on seabeds and tidal flats. It classifies sedimentation into nine ranks. Ranks 1 to 5b indicate suspended particles from natural sources, while ranks 6 and above signify pollution clearly caused by human-induced red soil runoff.

| SPSS (kg/m³) | | | Sediment Condition and Other Remarks |
Min.	Rank	Max.	
	1	<0.4	Even when bottom sand is stirred, fine particles are not suspended. White sand extends in the area and organisms are hardly observed.
$0.4 \leqq$	2	< 1	Even when bottom sand is stirred, suspended fine particles are not easily observed. White sand extends in the area and organisms are hardly observed.
$1 \leqq$	3	< 5	Suspended fine particles can be observed when bottom sediment is stirred. A live coral reef ecosystem is present. Water transparency is high.
$5 \leqq$	4	< 10	Water becomes slightly turbid when bottom sediment is stirred. A live coral reef ecosystem is present.
$10 \leqq$	5a	< 30	Fine particles are noticeable on bottom sediment surface by careful observation. This rank is equivalent to upper limit of SPSS where a live coral ecosystem is present.
$30 \leqq$	5b	< 50	Dust-like particles cover the sediment surface. Transparency decreases. Adverse effects on coral coverage is noticeable.
$50 \leqq$	6	<200	Red sediment is noted. Dark particles are suspended when bottom sediment is stirred. Above this rank, it is a clear indication of pollution by red soil runoff caused by man.
$200 \leqq$	7	<400	Shoe print is clearly noted on tidal flat. Red soil sedimentation is significant with a trace of sand as well. Large colony of branching *Acropora* is not present, and the proportion of massive corals has increased.
$400 \leqq$	8		Feet get stuck in what looks like mud. Sand is hardly noticeable. Massive corals with high resistance to sediment are scattered like cactus in a desert.

(2) Coral survey

  1) Within the quadrat

  Recorded coral cover and coral species richness within 2 m × 2 m quadrats (4 m × 4 m quadrats only in the Aka area [110-No.1]).

  Coral cover was calculated based on the area occupied by corals, derived from coral distribution maps created for each quadrat.

  Coral species richness was recorded as the number of coral species visually identified within each quadrat.

  2) Around the quadrat

  Spot checks were conducted within an approximately 20 m diameter area entered on each quadrat.

  Coral cover was visually estimated in increments of 0%, 2.5%, 5%, 10%, 20%, and then every 10% thereafter.