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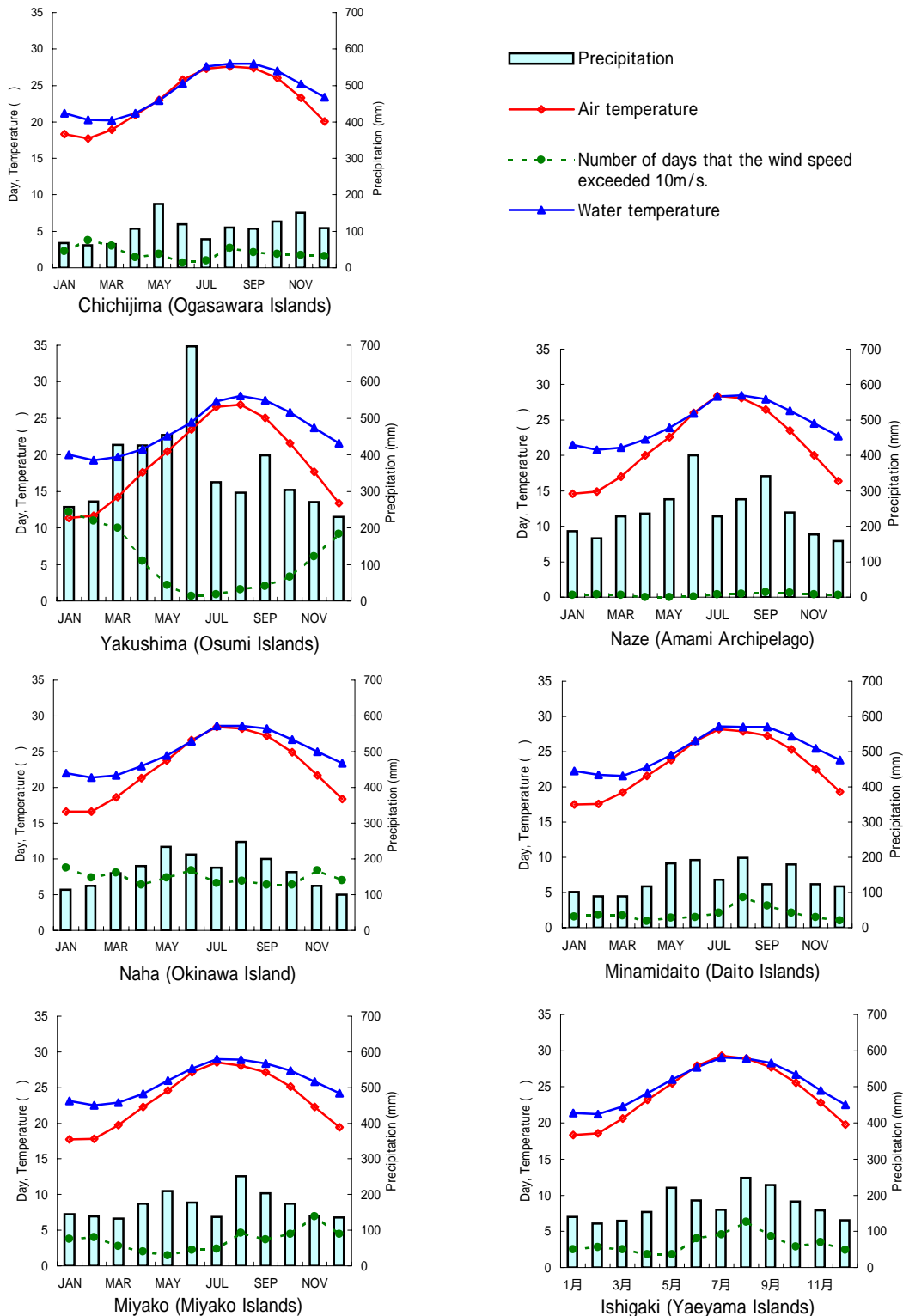
- 7 . Authors**

Appendix 1 Related statistic data of coral area

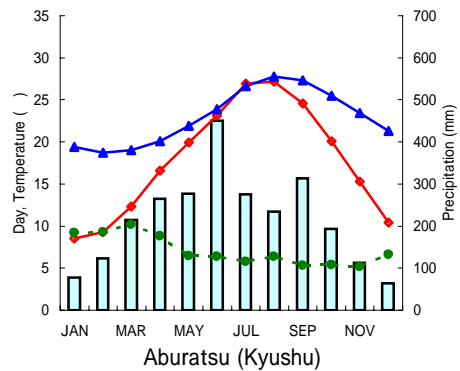
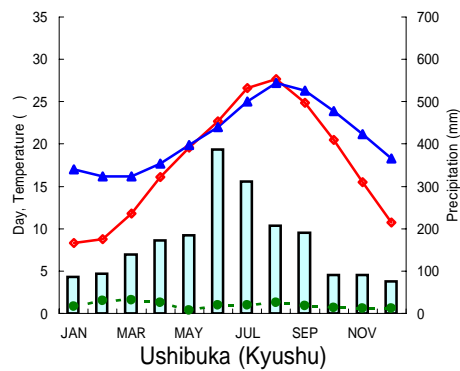
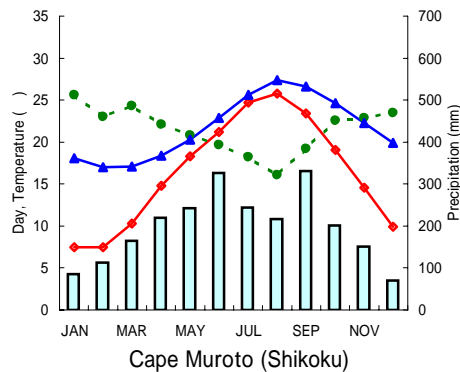
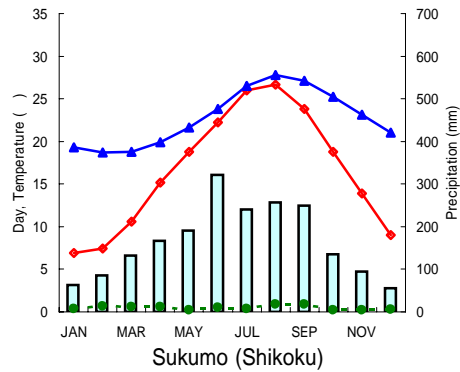
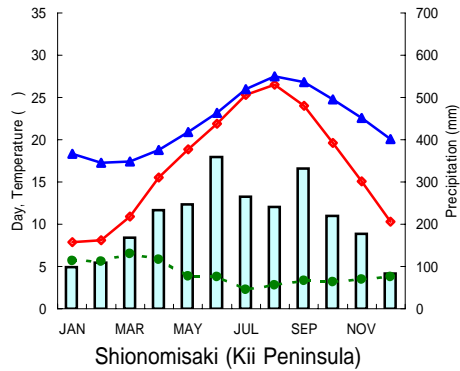
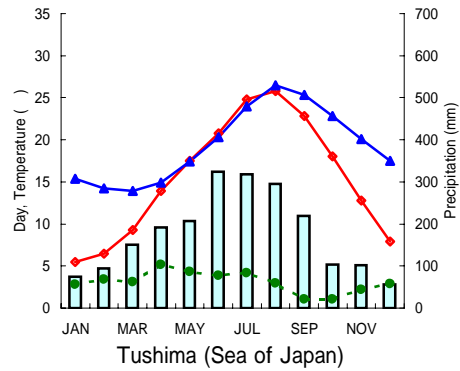
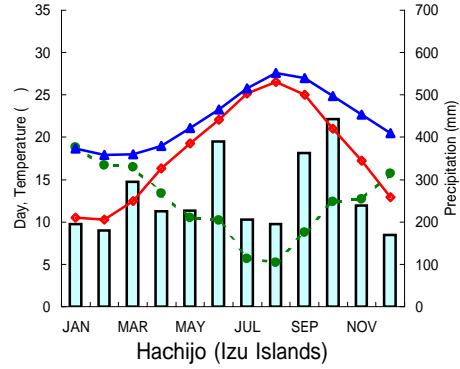
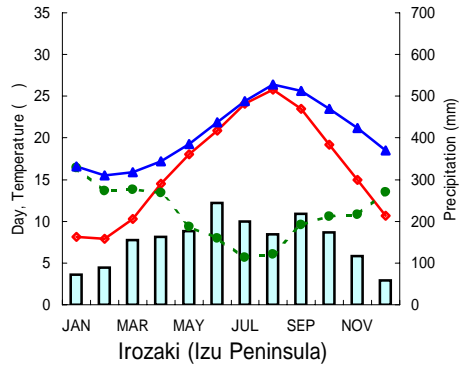
Appendix 1⁻¹ Meterological condition

All the meterological data are from the Japan Meterological Agency. The data at observation points are described at the beginning of Chapter 6. The annual average (during 1971-2000) of the atomosheric temperature, precipitation, the number of days that the wind speed exceeded 10m/s, and water temperature at each observation points are indicated.

Coral reef region



High-latitude coral community region



Appendix 1⁻² The population and number of households

The population and number of households are shown for respective local authorities from the national census (in fiscal 2000).

Division number	Regional division	Population				number of households
		0-14 years old	15-64 years old	65 years old	Total	
6-1-1	Ogasawara Islands	384	2,210	230	2,824	1,365
6-1-2	Osumi Islands, Tokara Archipelago	8,327	29,371	13,128	50,826	21,489
6-1-3	Amami Archipelago	23,189	74,607	34,189	132,315	52,904
6-1-4	Okinawa Islands	230,114	756,612	155,173	1,151,379	389,957
6-1-5	Daito Islands	417	1,386	313	2,116	1,014
6-1-6	Miyako Islands	10,709	33,101	11,711	55,587	20,042
6-1-7	Yaeyama Archipelago	10,251	30,526	7,917	48,705	18,265
6-2-1	Boso Peninsula, Izu Peninsula, and Izu Islands	57,558	274,520	88,308	420,443	153,675
6-2-2	Sea of Japan	47,988	193,997	86,297	328,323	115,733
6-2-3	Kii Peninsula	105,650	474,063	158,975	738,662	272,642
6-2-4	Shikoku	29,858	127,841	55,421	213,132	80,956
6-2-5	Kyushu	234,584	962,875	285,873	1,484,197	598,749
Total		759,029	2,961,109	897,535	4,628,709	1,726,791

* An unknown age is included in total

Appendix 1⁻³ The number of employee by industries

The number of employee by industries are shown for respective local authorities from the national census (in fiscal 2000).

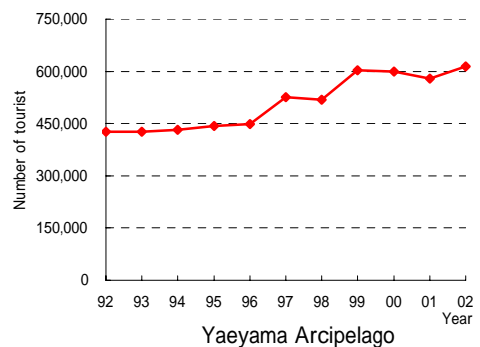
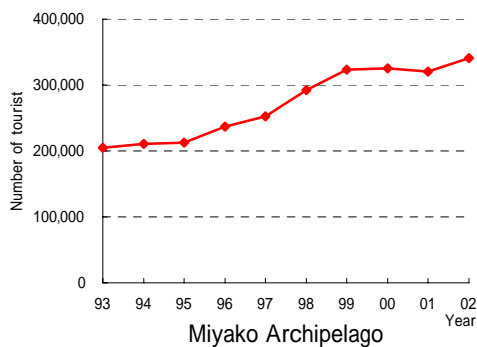
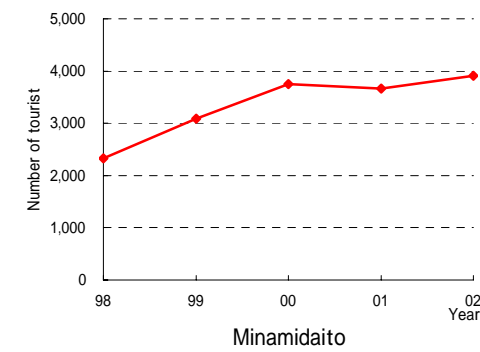
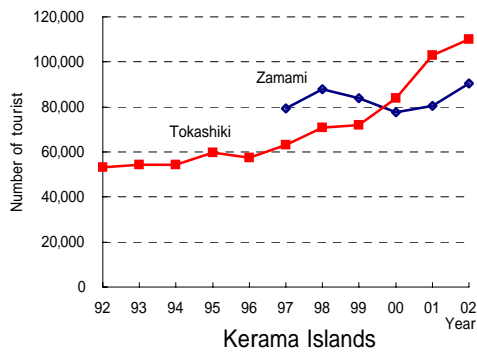
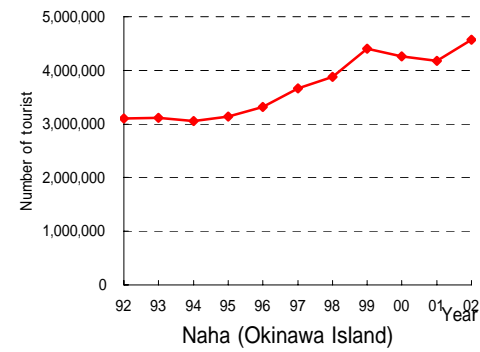
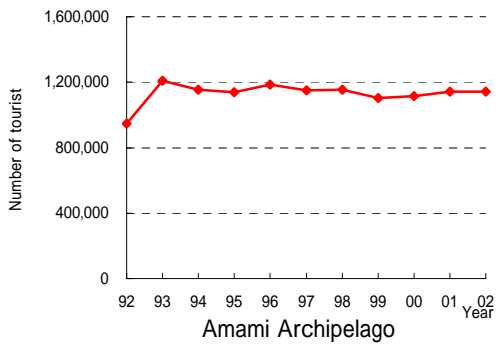
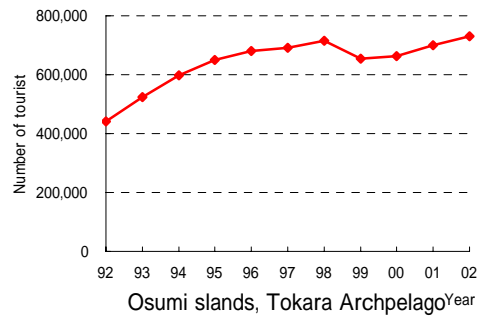
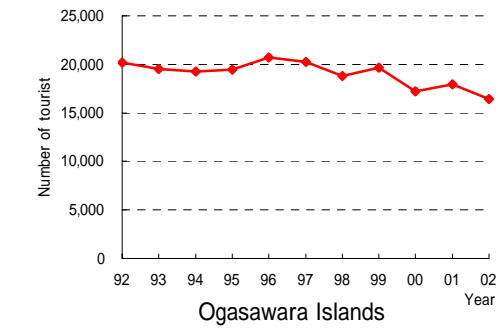
Division number	Regional division	Primary industry			Secondary industry		
		Agriculture	Forestry	Fishery	Mining	Construction industry	Manufacturing
6-1-1	Ogasawara Islands	60	0	94	0	320	18
6-1-2	Osumi Islands, Tokara Archipelago	6,288	135	575	77	3,735	1,170
6-1-3	Amami Archipelago	9,059	78	894	171	7,896	3,548
6-1-4	Okinawa Islands	19,412	186	2,508	507	63,499	24,863
6-1-5	Daito Islands	272	0	9	5	402	98
6-1-6	Miyako Islands	6,160	3	320	31	3,886	1,088
6-1-7	Yaeyama Archipelago	2,641	16	474	58	3,031	1,250
6-2-1	Boso Peninsula, Izu Peninsula, and Izu Islands	13,755	105	3,581	184	20,255	39,898
6-2-2	Sea of Japan	10,611	378	8,292	468	21,377	22,517
6-2-3	Kii Peninsula	16,878	552	7,820	220	33,820	56,738
6-2-4	Shikoku	8,578	453	10,464	221	10,879	10,412
6-2-5	Kyushu	37,705	895	9,586	432	72,435	77,189
Total		131,419	2,801	44,617	2,374	241,535	238,789

Division number	Regional division	Tertiary industries							Total
		Electricity, gas, heat supply, and water service industry	Transportation and communication industry	Wholesale and retail trade and restaurant	Finance and insurance	Real estate industry	Service industry	Official duties (Besides, one not classified.)	
6-1-1	Ogasawara Islands	26	38	262	6	3	554	618	1,999
6-1-2	Osumi Islands, Tokara Archipelago	182	1,128	4,152	331	28	6,709	1,530	26,040
6-1-3	Amami Archipelago	471	2,698	10,803	935	144	16,146	4,119	56,962
6-1-4	Okinawa Islands	3,121	29,960	120,264	12,299	5,278	163,103	29,125	474,125
6-1-5	Daito Islands	16	33	163	0	0	217	155	1,370
6-1-6	Miyako Islands	137	1,328	4,434	326	62	6,634	1,864	26,273
6-1-7	Yaeyama Archipelago	168	1,421	4,285	265	115	7,269	1,518	22,511
6-2-1	Boso Peninsula, Izu Peninsula, and Izu Islands	1,219	12,195	50,861	5,377	1,951	58,654	7,502	215,537
6-2-2	Sea of Japan	1,347	8,514	32,823	2,832	350	42,853	7,402	159,764
6-2-3	Kii Peninsula	2,686	19,348	79,671	9,116	2,686	93,359	13,583	336,477
6-2-4	Shikoku	591	5,278	20,958	1,884	256	24,941	3,903	98,818
6-2-5	Kyushu	3,868	40,119	173,579	21,075	5,667	214,189	30,569	687,308
Total		13,832	122,060	502,255	54,446	16,540	634,628	101,888	2,107,184

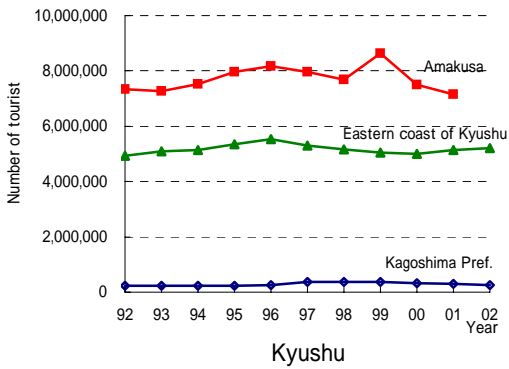
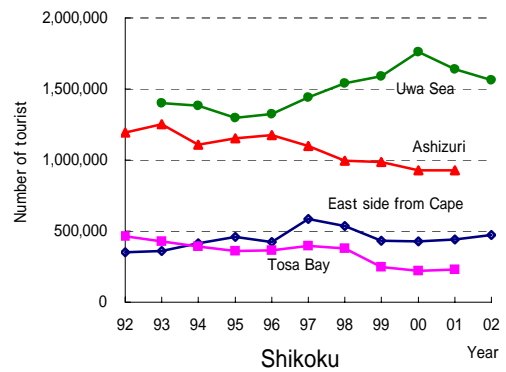
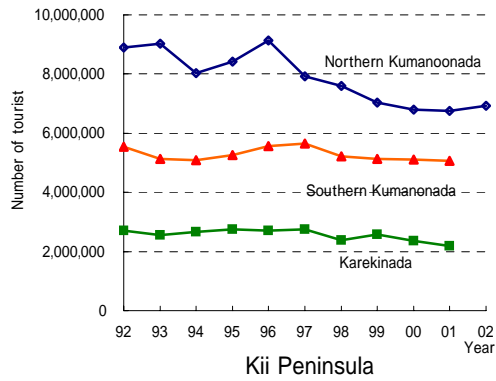
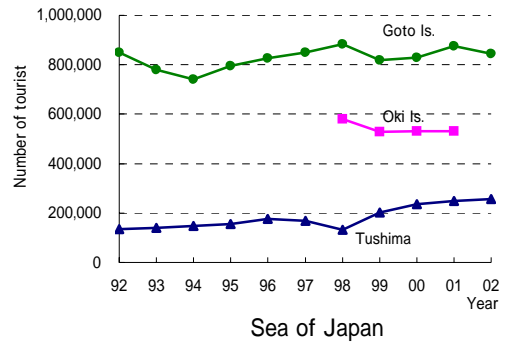
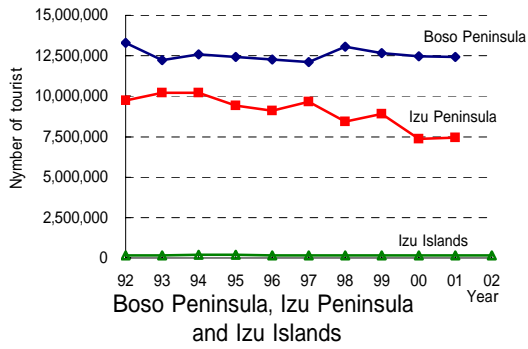
Appendix 1⁻⁴ Number of tourists visited

The number of tourist to each concerned municipalities are compiled from the data of each municipal government.

Coral reef region



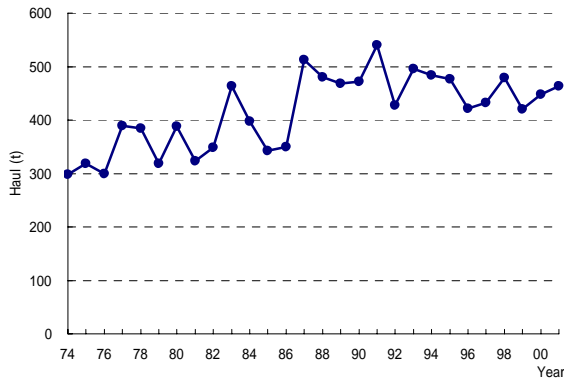
High-latitude coral community region



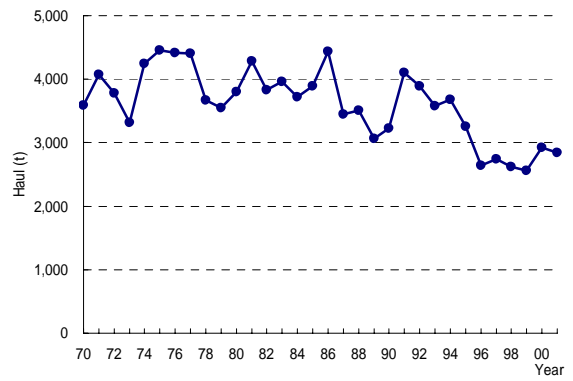
Appendix 1⁻⁵ Fishery Statistics

Transition of fishery production at each concerned local authorities were compiled from the Statistical Information Center of Ministry of Agriculture, Forestry and Fisheries, and the statistical data of each autonomous bodies. The data of fishery production that does not directly relates to coral reefs (e.g., distant-water fisheries) for Tokyo and Okinawa were deleted from the statistics. However, differentiation of data were not possible for other prefecture' statistics, therefore, they included all the fishery productions.

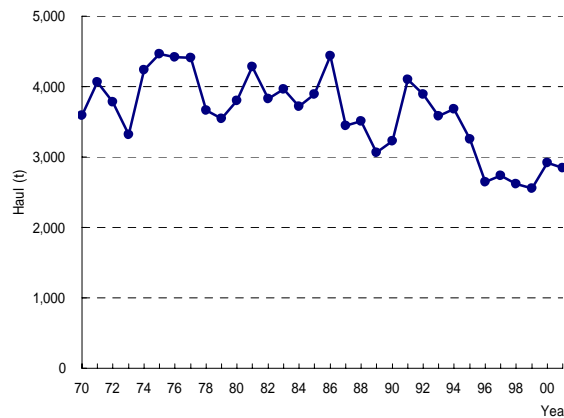
Coral reef region



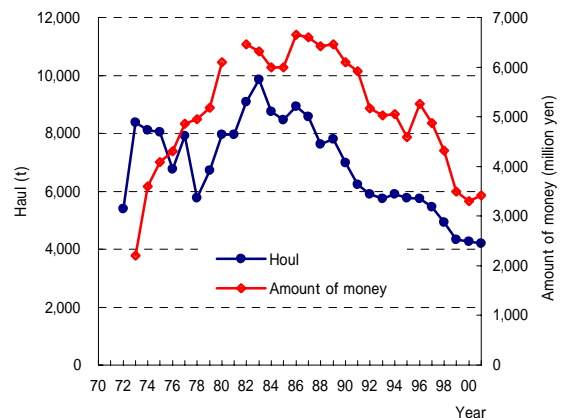
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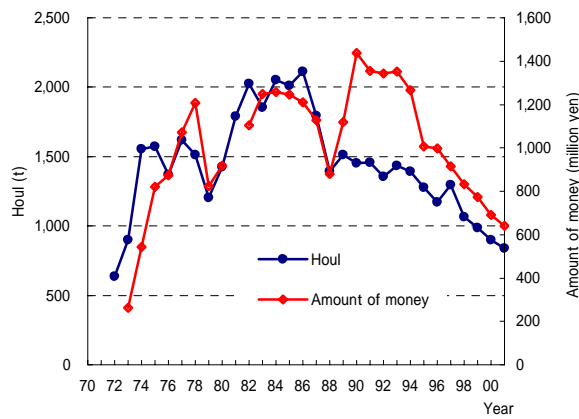
Osumi Islands and Tokara Archipelago



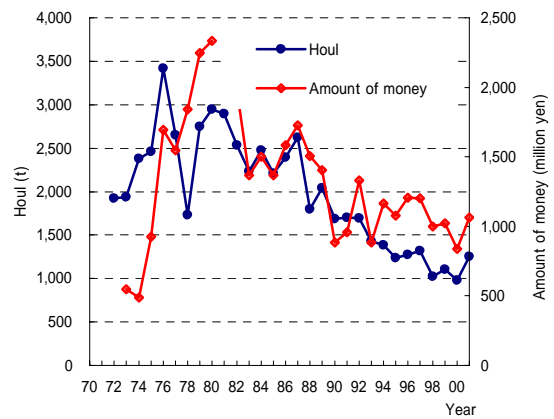
Amami Archipelago



Okinawa Islands

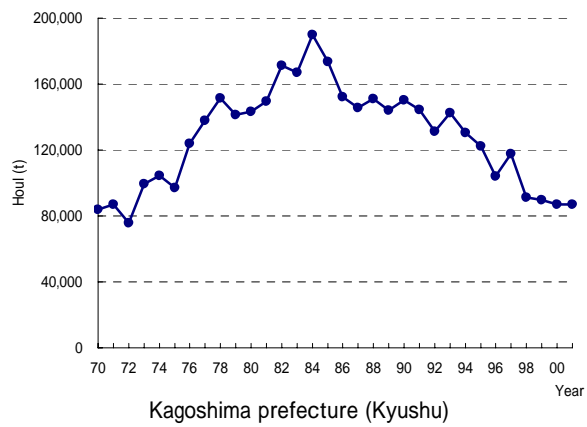
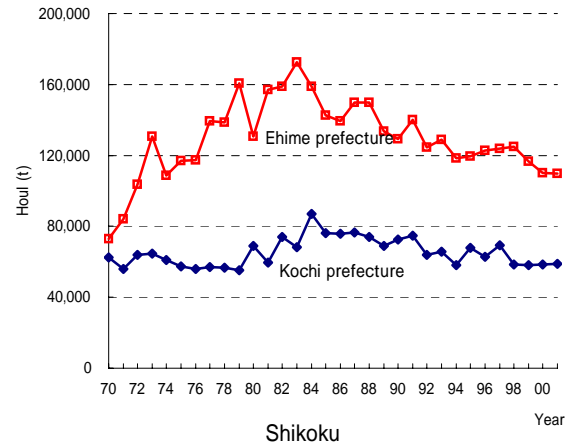
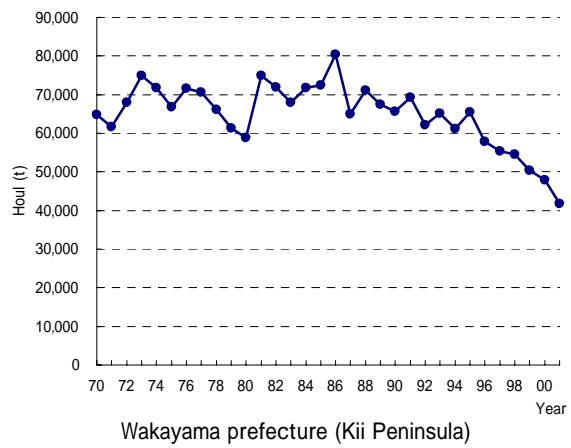
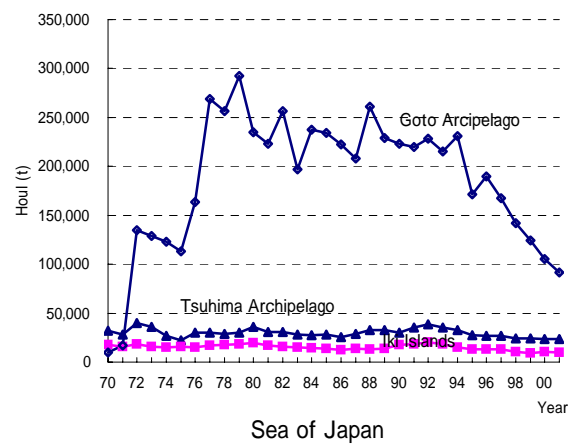
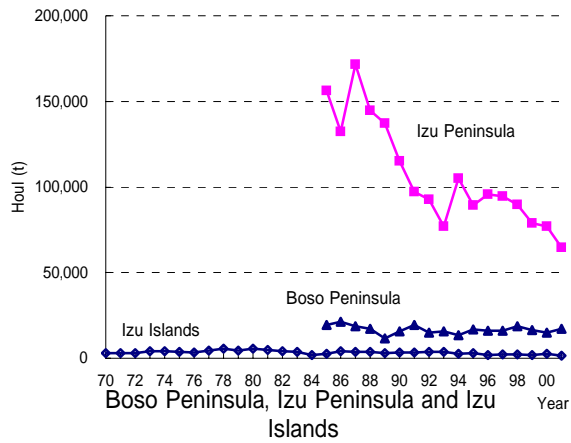


Miyako Archipelago



Yaeyama Archipelago

High-latitude coral community region



Appendix 1⁻⁶ Protected Areas in coral distribution

Marine Parks

Name of Park	Name of Marine Park Zone	Location	Area(ha)	Date	Outstanding Characteristics *1 and Pertinent Data	Category *
				Designated		
Ogasawara N.P.	Ogasawara	Hyotanjima, Hitomarujima, Anijimaseto(2), Minamishima, Miyukinohama, Hirashima, Ogasawara, Tokyo Metropolis	Site 1 25.0	16 Oct.1972	Consisting of two kinds of districts, i.e. (1) Hyotanjima, Hitomarujima, Anijimaseto and Hahajima with topography of complicated volcanic rock, agglomerate and tuff seabed; (2) Minamishima with its submerged karst topography of lime stone. Mainly <i>Acropora leptocyathus</i> of Scleractinia forms good underseascapes and large-sized tropical fishes like <i>Paracanthurus hepatus</i> and <i>Calotomus japonicus</i> are sailing around in crowds. Minamishima is the only submerged karst island in our country and has doline underseas; coral like <i>Euphyllia fimbriata</i> is abundant.	1
			Site 2 18.0			
Fuji Hakone Izu N.P.	Miyakejima	Miyake, Tokyo Metropolis	Site 1 29.0	7 Nov. 1994	Kuroshio flows through this area, and draw a boundary between warm and temperate-sea regions. Mainly, tabular <i>Acropora</i> forms large-sized colonies, and shore fishes such as <i>Amphiprion clarkii</i> , <i>Chromis notatus miyakeensis</i> and <i>Chaetodon auripes</i> can be seen in abundance.	2
			Site 2 22.6			
Yoshino-Kumano N.P.	Kumano-Nada Nikijima	Kumano, Mie Pref.	Site 1 7.8	19 Dec.1975	Sea cliffs extend to undersea; on wall-side numerous <i>Melithaea flabellifera</i> , and <i>Solandrella secunda</i> are sticking; on shore rocks table type coral <i>Acropora solitariaensis</i> , <i>Dendronephthya haberei</i> , <i>Platygyra lamellina</i> and <i>Favia speciosa</i> are seen, whereas seaweeds such as <i>Delisea japonica</i> , <i>Padina arborescens</i> and <i>Eckloniopsis radcosa</i> are growing. Fishes: <i>Goniistius zonatus</i> , <i>Prionurus scalprus</i> , <i>Chaetodon auripes</i> , <i>Apogon semilineatus</i> , <i>Ditrema temmincki</i> and Labridae are abundant.	2
			Site 2 6.6			
	Kushimoto	Sabiura, Kushimoto, Wakayama Pref.	Site 1 9.6	1 July 1970	Scleractinia grows finely. Especially, a large-scaled coral community can be seen at Nachikazaki and its vicinity. Around Fudeshima mainly <i>Acropora</i> hyacinthus as well as <i>Hydophora exesa</i> , <i>Platygyra</i> and <i>Pavona decussata</i> grow in crowds; kinds and quantities of those are extremely abundant. Besides, Alcyonacea and <i>Anthoplexaura dimorpha</i> , tropical fishes can be seen abundantly.	2
			Site 2 9.8			
Daisen-Oki N.P.	Shimane Hanto	Taisha, Shimane Pref.	7.0	16 Oct.1972	Rocky coast of igneous rock like quartz porphyry with marked pillar-shaped joint; complicated shoreline with inlets and convex angles. Feature of fauna and flora is as of southern part of temperate zone; <i>Sargassum</i> forming seaweed forest, whereas Ulvaceae and <i>Codium fragile</i> in plain-like shape. Fishes: <i>Pterogobius zonoleucus</i> , <i>Pterogobius elapoides</i> , <i>Ditrema temmincki</i> , etc. Invertebrates: <i>Melithaea flabellifera</i> , <i>Tubastraea faulkneri</i> , <i>Euplexaura erecta</i> , etc.	3
	Jodogaura	Fuse, Oki, Shimane Pref.	Site 1 12.5	11 Dec.1975	Vegetative-scape is composed of <i>Sargassum tortile</i> and <i>Sargassum ringgoldianum</i> , <i>Eisenia bicyclis</i> and <i>Phyllospadix japonica</i> ; besides, fishes like <i>Chromis notatus notatus</i> , <i>Ditrema temmincki</i> and <i>Girella punctata</i> are numerous, and also large-sized fishes like <i>Oplegnathus fasciatus</i> can be seen abundantly. In underwater caves and around Coelenterata such as <i>Melithaea flabellifera</i> , <i>Tubastraea faulkneri</i> , <i>Dendronephthya</i> , etc., and also Comatulida, <i>Pseudocentrotus depressus</i> and sponge can be seen.	3
			Site 2 8.3			
	Shiro	Gokamura, Oki, Shimane Pref.	14.8	11 Dec.1975	A group of <i>Sargassum tortile</i> forms a beautiful seaweed plain; fishes only a few species but Labridae such as <i>Chromis notatus notatus</i> , <i>Oplegnathus fasciatus</i> , <i>Girella punctata</i> and <i>Ditrema temmincki</i> are abundant. Behind rocks invertebrata like <i>Solanderia secunda</i> , <i>Acabaria japonica</i> , top shell and <i>Certonardoa semiregularis</i> can be seen.	3
	Kuniga	Nishinoshima, Oki, Shimane Pref.	7.3	11 Dec.1975	At rocky part <i>Eisenia bicyclis</i> and <i>Phyllospadix japonica</i> grow thick, whereas at large-gravel part <i>Sargassum tortile</i> , <i>Sargassum ringgoldianum</i> and at fine-gravel part small-sized seaweeds like <i>Nemacystus decipiens</i> and <i>Colpomenia sinuosa</i> can be seen abundantly. As for fishes, <i>Sebastes inermis</i> is abundant, and also <i>Girella punctata</i> , <i>Ditrema temmincki</i> , Labridae, etc. Besides, as to invertebrata, <i>Melithaea flabellifera</i> and <i>Aglaophenia whiteleggei</i> of Coelenterata, and <i>Anthocidaris crassispina</i> , <i>Pseudocentrotus depressus</i> and <i>Certonardoa semiregularis</i> can be seen.	3
	Ama	Ama, Oki, Shimane Pref.	7.6	18 Sept.1997	This area locates an inlet of Matsushima being on the east side of Okinoshima(Touzen). From the seaside to offshore, stones pile up and form a gentle slope of seabed followed by flat sandy bottom. At the stone area, seaweeds such as <i>Eisenia bicyclis</i> , <i>Sargassum patens</i> and <i>Sargassum macrocarpum</i> form large community, and in the shoal, Chridaria such as <i>Aglaophenia whiteleggei</i> , <i>Anthogorgia bocki</i> , <i>Dendronephthya</i> , and mollusc such as <i>Nordotis discus discus</i> , top shell live densely. And on the stones near the sandy bottom, Scleractinia such as <i>Alveopora japonica</i> , <i>Psammocora profundacella</i> , <i>Oulastrea crispata</i> are seen. <i>Oplegnathus fasciatus</i> , <i>Chromis notatus notatus</i> , <i>Pteragogus flagellifera</i> , <i>Sebastes inermis</i> are sailing around in corals.	2
Ashizuri-Uwakai N.P.	Uwakai	Nishiumi, Ehime Pref.	Site 1 12.0	10 Nov.1972 (designated on 1 July 1970 as a part of Ashizuri Quasi-National Park)	Species of colorful Alcyonacea is abundant; presenting flower-garden form is characteristic. It makes a very beautiful underseascape with species of large-sized Scleractinia growing in high density, tropical fishes abundant and <i>Tubastraea faulkneri</i> , <i>Melithaea flabellifera</i> and <i>Anthoplexaura dimorpha</i> sticking to seawater-eroded caves at Kashima-no-hora.	2
			Site 2 3.5			
	Okinoshima	Sukumo, Kochi Pref.	Site 1 8.0	10 Nov.1972	Due to north-going Kuroshio branch passing through, subtropical fauna and flora grow finely whereas large-sized <i>Acropora leptocyathus</i> and Alcyonacea grow in crowds; furthermore fishes around coral community, temperate fishes and sometimes large-sized migratory fishes can be seen abundantly. Scenically as well as scientifically very valuable treasury of marine fauna and flora.	2
			Site 2 8.0			
	Tatsukushi	Tosashimizu, Kochi Pref.	Site 3 0.8	10 Nov.1972 (designated on 1 July 1970 and 22 Jan., 1971 as a part of Ashizuri Quasi-National Park)	Species of Scleractinia grow markedly making underseascapes a very splendid one; particularly in Minokoshi Bay a large colony of <i>Pavona decussata</i> is magnificent and valuable from a scientific angle. Tropical fishes like <i>Pomacentrus coelestis</i> and <i>Chaetodon auripes</i> are abundant, making a beautiful underseascape.	2
			Site 4 1.5			
	Kashinishi	Otsuki, Kochi Pref.	Site 1 6.3	10 Nov.1972	Strongly affected by Kuroshio, subtropical fauna and flora grow. Due to an environment rather similar to inland bay, reef-building corals are distributed widely, corals and fishes are abundant and partly seaweeds can be seen.	2
			Site 2 10.5			
	Tsutomezaki	Otsuki, Kochi Pref.	8.3	21 Aug.1995	In the inlet on the south side of Tsutomezaki, largely covered tabular Scleractinia grows. On big gravel and complicated topography of sea bed near the point of Tsutomezaki, soft coral species like Alcyonacea are seen abundantly.	2
	Shirigai	Otsuki, Kochi Pref.	10.4	21 Aug.1995	In the shallow area on the northwest side of the Shirigai bay, largely covered tabular Scleractinia grows. Around the Matsuhae, soft coral species like Alcyonacea thrive.	2

Name of Park	Name of Marine Park Zone	Location	Area(ha)	Date	Outstanding Characteristics *1 and Pertinent Data	Category *
				Designated		
Saikai N.P.	Fukue	Fukue, Nagasaki Pref.	Site 1 5.5 Site 2 5.7 Total 11.2	16 Oct.1972	Northwestern area of Takenokojima and Yaneojima off Fukue port. Due to warm current, growth in crowds of Scleractinia like <i>Acropora squarrosa</i> and <i>Podabacia elegans lobata</i> , soft coral species like <i>Melithaea flabellifera</i> and <i>Alcyonacea</i> , seaweeds like <i>Sargassum</i> and <i>Zostera marina</i> growing in mixed condition and tropical fishes like Labridae and <i>Chromis notatus notatus</i> can be seen in abundance.	2
	Wakamatsu	Wakamatsu, Nagasaki Pref.	Site 1 4.2 Site 2 6.7 Site 3 8.3 Total 19.2	16 Oct.1972	A district bearing volcanic submerged coastal scene; inland-sea marine environment with many islands of complicated feature. Particularly, at Katashiojima large growth in thick crowds of colorful <i>Alcyonacea</i> shows a great characteristic of this district. At Gotejima: Scleractinia like <i>Porites tenuis</i> and <i>Acropora stuederi</i> . At Harunomendo: Splendid growth in crowds of <i>Gorgonacea</i> on wall-side.	2
Unzen-Amakusa National Park	Tomioka	Reihoku, Kumamoto Pref.	Site 1 7.6 Site 2 8.6 Total 16.2	1 July 1970	Especially seaweeds are abundant. <i>Martensia fragilis</i> , <i>Eckloniopsis radicoso</i> , <i>Corallina pilulifera</i> and <i>Amphiroa anceps</i> are growing thick and in crowds, and also Scleractinia can be seen abundantly. In shallow water, species of colorful <i>Alcyonacea</i> is abundant and groups of tropical fishes can be seen.	2
	Amakusa	Amakusa, Kumamoto Pref.	5.1	1 July 1970	Ogase is composed of 10 large and small groups of reefs; each reef has complicated topography of seabed. Scleractinia and tropical fishes are abundant, especially bright-colored <i>Alcyonacea</i> and <i>Anthoplexaura dimorpha</i> form an excellent underseascapes.	2
	Ushibuka	Ushibuka, Kumamoto Pref.	Site 1 9.3 Site 2 7.5 Site 3 6.0 Site 4 7.6 Total 30.4	1 July 1970	Large gregariousness of <i>Alcyonacea</i> is characteristic, and on account of its abundance in kind and quantity form a beautiful flower zone. Growth in crowds of <i>Antipathes japonica</i> , <i>Entacmaea actinostoloides</i> , <i>Melithaea flabellifera</i> and <i>Lobophytum batarum</i> makes a splendid scene and also Scleractinia and tropical fishes are abundant.	2
Kirishima-Yaku National Park	Sakurajima	Sakurajima, Kagoshima Pref.	Site 1 6.5 Site 2 8.2 Total 14.7	1 July 1970	Hakamagoshi has a rugged topography of seabed formed by Taisho lava current. Growth in crowds of <i>Alcyonacea</i> and Scleractinia makes an excellent sight of underseascapes, whereas splendid seaweed scene of <i>Padina arborescens</i> can be seen. Also, at Okinokojima growth in crowds of <i>Entacmaea actinostoloides</i> shows a very beautiful scene.	2
	Sata Misaki	Sata, Kagoshima Pref.	Site 1 4.5 Site 2 7.3 Total 11.8	1 July 1970	Besides species of Scleractinia abundant in kind and quantity and making typical coral community scene, invertebrate like colorful <i>Melithaea flabellifera</i> , <i>Anthoplexaura dimorpha</i> , Sarcophyton and <i>Alcyonacea</i> live in crowds making an excellent underseascapes.	2
	Kurio	Yaku, Kagoshima Pref.	Site 1 84.8 Site 2 15.8 Site 3 13.8 Total 114.4	19. Feb.2002	The area has a distinctive undersea view with very high visibility, and holds highly diversified fish and hermatypic coral communities. The coexistence of the extratropical and the subtropical species is specially notable in this area. The area may be strongly affected by the black current, since some the southeast asian tropical species are seen.	2
Iriomote N.P	Taketomijima Takidonguchi	Taketomi, Okinawa Pref.	36.7	1 July 1977	Waters include outer reef-flat and patch reefs along the fringing reef extended from northwest Taketomijima, and contact to Takidonguchi Channel of the west side. At the reef-margin spurs and grooves develop, and its topography is Rugged. In shallow reef-flat, table-shaped and branch-shaped corals grow thickly and Scleractinia such as <i>Acropora stuederi</i> , <i>Porites tenuis</i> , <i>Favia speciosa</i> , and <i>Seriatopora hystrix</i> , <i>Alcyonacea</i> and coral fishes such as Pomacentridae, Chaetodontidae and Labridae are seen abundantly.	1
	Taketomijima Shimobishi	Taketomi, Okinawa Pref.	83.1	1 July 1977	Waters include reef-margin and flat of Shimobishi Reef extended in the offing of southwest Taketomijima. Reef-margin develops with spurs and rugged topography. In shallow reef-flat, table-shaped and branch-shaped corals inhabit crowdedly on a large scale and Scleractinia such as <i>Acropora stuederi</i> , <i>Favia speciosa</i> and <i>Porites tenuis</i> , and coral fishes such as Chaetodontidae, Pomacentridae and Acanthuridae are abundant. The area shows seascape of barrier reef, having specific character of outer reef.	1
	Kuroshima Kyanguchi	Taketomi, Okinawa Pref.	45.5	1 July 1977	Waters include a moat extended in the offing of Kyan of east Kuroshima. Its topography is rugged. The moat is 2 to 7 meter in depth, having a large scaled forest of stag-horn corals and also many fishes such as Pomacentridae and Chaetodontidae.	1
	Aragusukujima Maibishi	Taketomi, Okinawa Pref.	48.2	1 July 1977	The area includes Maibishi-reef extended off northwest Kamiji of Aragusukujima, composed by small patch reefs. In a lagoon of 1 to 3 meter in depth, large <i>Acropora pectinata</i> dominates, branch-shaped coral and <i>Alcyonacea</i> inhabit in crowds. Fishes such as Pomacentridae, Chaetodontidae, Acanthuridae and Labridae, <i>Melithaea ocreacea</i> and <i>Comatulida</i> are living also abundantly.	1
Minamiboso Quasi-National Park	Katsuura	Katsuura, Chiba Pref.	14.5	7 Jun .1974	Algal flora, bearing a warm-sea element, shows a tendency to a cold-sea type. Growth in crowds of <i>Ecklonia cava</i> and <i>Eisenia bicyclis</i> , Fucales such as <i>Sargassum giganteifolium</i> , <i>S. fulvellum</i> and <i>Myagropsis myagroides</i> and <i>Serraticardia maxima</i> make underseascapes as a splendid one. Fishes: Besides Chaetodon auripes and <i>Chromis notatus notatus</i> , <i>Prionurus scalprus</i> , <i>Calotomus japonicus</i> , <i>Girella punctata</i> and Labridae are abundant. Invertebrate: <i>Allopora boschmai</i> , <i>Solanderia secunda</i> , <i>S. misakiensis</i> , <i>Melithaea flabellifera</i> and <i>Echinogorgia rigida</i> are also taking parts in beautiful scenes.	3
Muroto-Anan Kaigan Quasi-National Park	Awa oshima	Mugi, Tokushima Pref.	Site 1 9.5 Site 2 4.0 Site 3 2.0 Total 15.5	22 Jan.1971	Seabed of sandstone is covered all over with benthonic organisms. Besides seaweed like <i>Padina arborescens</i> , reef-building coral like <i>Acropora stuederi</i> , <i>Porites tenuis</i> , <i>Leptonia phrygia</i> , <i>Favia speciosa</i> and <i>Turbinaria rugosa</i> can be observed. Growth in large groups of <i>Entacmaea actinostoloides</i> is characteristic. Tropical fishes like <i>Amphiprion clarkii</i> , <i>Pomacentrus coelestis</i> and <i>Chaetodon auripes</i> are abundant.	2
	Awa takegashima	Shishikui, Tokushima Pref.	Site 1 5.3 Site 2 4.6 Total 9.9	16 Oct.1972	Topography with rather shallow seabed of sandstone. Scleractinia like <i>Acropora stuederi</i> , <i>Pavona decussata</i> and <i>Favia speciosa</i> grow in community. Tropical fishes like <i>Pomacentrus coelestis</i> , <i>Abudefduf vaigiensis</i> and <i>Chaetodon auripes</i> are living, adding beautiful color to transparent sea.	2
Genkai Quasi-National Park	Genkai	Karatsu, Yobuko and Chinzei, Saga Pref.	Site 1 6.0 Site 2 12.4 Site 3 9.6 Site 4 10.5 Site 5 7.0 Total 45.5	1 July 1970	Sea caves and cliffs of basalt with pillar-shape joint, studded on Lias-style coast, and the feature of fauna and flora distributing to subtropical and temperate zone is characteristic. Underwater forest of seaweeds and undersea-scapes consisting of species of hermatypic corals growing almost at the northern-most are splended in particular.	2

Name of Park	Name of Marine Park Zone	Location	Area(ha)	Date		Outstanding Characteristics *1 and Pertinent Data	Category *
				Designated			
Iki-Tsushima Quasi-National Park	Iki-Tatsunoshima	Katsumoto, Nagasaki Pref.	8.6	16 June 1978		Flat rock beds, several tens of meters wide, stretch out stepwise over the seabed, where <i>Eisenia bicyclis</i> , <i>Ecklonia cava</i> and <i>Sargassum fulvellum</i> have grown densely. The dominant fish is Labridae. <i>Portes tenuis</i> , <i>Favites abdita</i> and other hermatypic coral species are seen. Exposed to the open sea, the area is characterized by clear sea water. With good natural land condition, the area has a harmonious overall environment.	2
	Iki-Tenagashima	Katsumoto, Nagasaki Pref.	9.7	16 June 1978		The sea contains a well-developed underwater forest consisting of large brown algae including <i>Eisenia bicyclis</i> , <i>Ecklonia cava</i> , <i>Sargassum ringoldianum</i> , <i>Sargassum macrocarpum</i> and <i>Sargassum horneri</i> . In addition, Gorgonacea and Anthogorgia have also grown densely, forming a diversified undersea scape. Dominant coral species include <i>Alveopora japonica</i> , <i>Portes tenuis</i> and <i>Favia speciosa</i> . The dominant fish is Labridae while <i>Pomacentrus coelestis</i> , <i>Girella punctata</i> , <i>Prionurus scalprus</i> and <i>Oplegnathus fasciatus</i> are also seen.	2
	Iki-Tsumagashima	Ishida, Nagasaki Pref.	9.3	16 June 1978		The sea bottom topography is characterized by a sheer cliff that rise up vertically. The rock face is covered by densely-grown <i>Tubastrea faulkneri</i> , <i>Dendrophyllia arbuscula</i> and <i>Melithaea flabellifera</i> . Very large communities of Alcyonacea are seen in deeper parts. The area is rich in Sillaginidae as well as Labridae, Pomacentridae, <i>Parapristipoma trilineatum</i> , <i>Apogon semilineatus</i> , <i>Pagrus major</i> and <i>Chaetodontoplus septentrionalis</i> . Hermatypic coral Coscinareae columna and soft coral are distributed.	2
	Tsushima-Asowan	Mitsushima, Nagasaki Pref.	9.5	16 June 1978		This area has typical undersea scape in the Aso Bay, characterized by masses of <i>Codium fragile</i> and coral communities of <i>Acropora squarrosa</i> . Very large community of <i>Entacmaea actinostoloides</i> is seen on the north of the island. The dominant fishes include <i>Pomacentrus coelestis</i> , <i>Halichoeres tenuispinnis</i> , <i>Apogon notatus</i> , <i>Parapercis snyderi</i> , <i>Spratelloides gracilis</i> and Pomacentridae.	2
	Tsushima-Kozaki	Izuhara, Nagasaki Pref.	10.4	16 June 1978		The area is characterized by a diversified three-dimensional undersea topography. The dominant algae include <i>Ecklonia cava</i> , <i>Sargassum fulvellum</i> and <i>Eisenia bicyclis</i> . The area also provides habitats for coelenterates including <i>Melithaea flabellifera</i> , <i>Anthoplexaura</i> , <i>Dendronephthya gigantea</i> , <i>Dendronephthya</i> sp., <i>Macrorhynchia phoenicea</i> , <i>Tubastrea faulkneri</i> , <i>Alveopora japonica</i> and sea anemones; echinoderms including sea urchins, <i>Diadema setosum</i> , <i>Tropiometra afro macrodiscus</i> and starfish; and fishes including <i>Chromis notatus notatus</i> , <i>Pomacentrus coelestis</i> , <i>Pempheridae</i> , <i>Girella punctata</i> and Labridae. Thus the area is abundant in a large variety of species.	2
Nippo Kaigan Quasi-National Park	Kamae	Kamae, Oita Pref.	Site 1 10.0 Site 2 10.0 Site 3 8.3 Site 4 7.2 Total 35.5	1974. 2.15 15 Feb.1974		<i>Acropora leptocyathus</i> , <i>Pavona decussata</i> , <i>Acropora studeri</i> and Alcyonacea grow widely and on a large scale. Tropical fishes such as <i>Chaetodon auripes</i> , Labridae, <i>Chromis notatus notatus</i> and <i>Amphiprion clarkii</i> are seen sailing here and there and making underseascape an excellent one.	2
	Minami Kitaura	Minami Kitaura	Site 1 13.5 Site 2 4.0 Site 3 3.0 Site 4 2.0 Site 5 10.0 Site 6 14.8 Total 48.7	15 Feb.1974 27 Jan. 1993		Nice growth of large-sized <i>Acropora leptocyathus</i> , <i>Favia speciosa</i> , <i>Acropora studeri</i> , <i>Hydrades norvegicus</i> and <i>Dendronephthya</i> can be seen widely and on a large scale; tropical fishes like <i>Chaetodon auripes</i> , Labridae, <i>Chromis notatus notatus</i> and <i>Amphiprion clarkii</i> are sailing abundantly.	2
Nichinan Kaigan Quasi-National Park	Nichinan	Nango, Kushima and Nichinan, Miyazaki Pref.	Site 1 7.3 Site 2 11.3 Site 3 8.0 Site 4 10.0 Site 5 12.6 Site 6 6.3 Total 55.9	1 July 1970		On undulate reefs Alcyonacea, <i>Anthoplexaura dimorpha</i> and <i>Melithaea flabellifera</i> grow in groups, making underseascapes very beautiful. At Komenotoura, all over the bay large-sized stratiform <i>Acropora leptocyathus</i> grows in high density. Tropical fishes like <i>Chromis hollisi</i> , <i>Chaetodon auriga</i> and Labridae are sailing in groups and varied underseascapes can be seen.	2
Amami Gunto Quasi-National Park	Kasari Hanto-Higashi Kaigan	Kasari, Kagoshima Pref.	93.0	15 Feb.1974		Branch-shape corals such as <i>Acropora squarrosa</i> , <i>Portes tenuis</i> , <i>Stylophora pistillata</i> , and massive <i>Portes tenuis</i> are abundant. Besides, <i>Pocillopora damicornis</i> and leaf-shape <i>Montipora</i> can be seen. Fishes: <i>Chaetodon auripes</i> , <i>Chromis hollisi</i> , Labridae, <i>Zebrafish flavescens</i> , and <i>Naso unicornis</i> are rich in color and make underseascapes very magnificent.	1
	Surikozaki	Naze, Kagoshima Pref.	70.0	15 Feb.1974		Fishes such as Chaetodontidae sail around among coral of <i>Acropora</i> and seaweed of <i>Sargassum</i> .	1
	Setouchi	Setouchi, Kagoshima Pref.	Site 1 18.0 Site 2 22.0 Site 3 18.0 Total 58.0	15 Feb.1974		Shore reef fronting on sand bottom and corals sticking vertically; transition in fauna distribution from open-sea kind to inland sea one mainly corals can be seen. Corals: <i>Pocillopora damicornis</i> , plate-shape <i>Acropora studeri</i> , <i>Platygyra lamellina</i> , <i>Favia speciosa</i> , <i>Montipora foliosa</i> , massive <i>Portes tenuis</i> , and branch-shape <i>Montipora cactus</i> can be seen. Fishes: <i>Chaetodon auripes</i> , <i>Chromis notatus notatus</i> and <i>Labroides dimidiatus</i> can be seen abundantly.	1
	Kametoku	Tokunoshima, Kagoshima Pref.	70.0	15 Feb.1974		<i>Acropora studeri</i> , <i>Favia speciosa</i> , <i>Goniopora planulata</i> , <i>Platygyra lamellina</i> and <i>Echinophyllia aspera</i> can be seen abundantly; fishes such as <i>Holacanthus semicirculatus</i> , <i>Chaetodon auriga</i> , <i>Chromis hollisi</i> and <i>Amphiprion clarkii</i> are also abundant.	1
	Yorontou	Yoron, Kagoshima Pref.	Site 1 93.0 Site 2 4.0 Site 3 58.0 Total 155.0	15 Feb.1974		Corals in moat make a splendid scene; varying in kind like branch-shape <i>Acropora</i> , plate-shape <i>Acropora</i> , <i>Portes tenuis</i> , <i>Stylophora pistillata</i> , <i>Montipora cactus</i> , and <i>Favia speciosa</i> . Colorful fishes such as <i>Chaetodon auripes</i> , <i>Heniochus acuminatus</i> , <i>Holacanthus semicirculatus</i> , <i>Chromis hollisi</i> , <i>Amphiprion clarkii</i> , <i>Abudefduf sexfasciatus</i> , <i>Prionurus microlepidotus</i> , <i>Balistes niger</i> , Labridae and <i>Leptoscarus japonicus</i> are abundant and full of variety.	1
Okinawa Kaigan Quasi-National Park	Okinawa Kaigan	Nago & Onna, Okinawa Pref.	140.0	15 May 1972 (3 Sept. 1971 by Ryukyu Government)		Typical coral reef with developed moat. Being moat area shallow and calm, <i>Acropora squarrosa</i> , species of Chaetodontidae and Pomacentridae make a delicate underseascape. And, at the reef margin it has a splendid underseascape with <i>Acropora leptocyathus</i> and large-sized tropical fishes like <i>Leptoscarus japonicus</i> sailing around.	1
	Tokashiki	Tokashiki, Okinawa Pref.	120.0	9 Dec. 1978		Hermatypic corals such as table-shaped, branch-shaped, massive and covering corals are distributed densely and colorful coral fishes such as Pomacentridae, Chaetodontidae and Labridae inhabit abundantly.	1
	Zamami	Zamami, Okinawa Pref.	233.0	9 Dec. 1978		Large fish of <i>Mobula japonica</i> are seen in addition to the same coral and fish species as above. The area has a distinctive undersea view.	1

Category 1 13 zones 23 sites 1,615.5 ha
Category 2 29 zones 78 sites 718.3 ha
Category 3 5 zones 6 sites 64.4 ha
Total 47 zones 107 sites 2,398.2 ha

*1 :Description is mainly from results of survey carried for designation of proposed marine park areas.

*2: Category; 1:Parks in coral reef area, 2:Parks in non-coral reef area, with hermatypic corals, 3:Parks possibly hermatypic corals exist though not confirmed yet.

Data source: Protecting Nature of the Sea- Roles and activities of marine parks- (Marine Park Center of Japan 2001). The information is partly added.

Other protected areas

Category of protection	Name of marine protected area	Location	Area (ha)	Date Designated	Outstanding Characteristics and Pertinent Data	Category *
Nature Conservation Area	Sakiyamawan Nature Conservation Area	Sakiyama, Taketomi, Okinawa Pref.	128.0	28 June 1983	It is located on the coral reef in Sakiyama Inlet on the western coast of Iriomote Island. The area of the zone is 128 ha of the coral reef without land area. Large colony of <i>Galaxea fascicularis</i> and sea-grass beds mainly <i>Enhalus acoroides</i> , are found this inlet.	1
Protected Water Surface	Kuroshima, Ushibuka	Kuroshima, Ushibuka, Kumamoto pref.	22.7	1979. 8.22 22 Aug.1979	Capturing aquatic animals and plants is strictly prohibited.	2
	Fukami, Ushibuka	Fukami, Ushibuka, Kumamoto pref.	32.0	1980. 7. 7 7 July 1980	Capturing aquatic animals and plants, excluding <i>Undaria pinnatifida</i> and <i>Monostoroma nitidum</i> is strictly prohibited.	
	Kabira Bay	Kabira, Ishigaki, Okinawa pref.	275.0	1974. 9.26 26 Sep.1974	Capturing <i>Pinactada margaritifera</i> , giant clam, <i>Panulirus versicolor</i> , <i>P. ornatus</i> , <i>Penaeus latisulcatus</i> , <i>Tripneustes gratilla</i> and <i>Betaphycus gelatinum</i> is prohibited.	1
	Nagura Bay	Sakieda-yarabu, Ishigaki, Okinawa pref.	68.0	1975. 9. 1 1 Sep.1975	Capturing aquatic animals and plants is strictly prohibited.	

* 1 :Description is mainly from results of survey carried for designation of proposed marine park areas.

*2: Category; 1:Parks in coral reef area, 2:Parks in non-coral reef area, with hermatypic corals, 3:Parks possibly hermatypic corals exist though not confirmed yet.

Data source: Protecting Nature of the Sea- Roles and activities of marine parks- (Marine Park Center of Japan 2001). The information is partly added.

Appendix 1⁻⁷ Additional information (6-1-5 Daito Islands)

Table 1. Hermatypic corals recorded at 10-20m depths, at 6 sites in Daito Islands during October 2-4, 2001.

Family	Species
Pocilloporidae	<i>Pocillopora eudoxii</i>
	<i>Stylophora pistillata</i>
Acroporidae	<i>Montipora undata</i>
	<i>Montipora verrucosa</i>
	<i>Acropora gemmifera</i>
	<i>Acropora listeri</i>
	<i>Acropora florida</i>
	<i>Astreopora myriophthalma</i>
	<i>Astereopora gracilis</i>
Poritidae	<i>Porites solida</i>
	<i>Porites lutea</i>
	<i>Porites lobata</i>
	<i>Porites annea</i>
	<i>Porites cylindrica</i>
	<i>Porites lichen</i>
	<i>Porites rus</i>
	<i>Goniopora lobata</i>
	<i>Goniopora tenuidens</i>
Siderastreaeidae	<i>Psammocora superficialis</i>
Agariciidae	<i>Gardineroseris planulata</i>
	<i>Pavona duerdeni</i>
	<i>Pavona varians</i>
	<i>Pachyseris rugosa</i>
	<i>Leptoseris</i> sp.
Oculinidae	<i>Galaxea fascicularis</i>
Pectiniidae	<i>Echinophyllia aspera</i>
	<i>Echinophyllia orpheensis</i>
	<i>Pectinia paeonia</i>
	<i>Pectinia lactuca</i>
Mussidae	<i>Acanthastrea echinata</i>
	<i>Acanthastrea ishigakiensis</i>
	<i>Lobophyllia corymbosa</i>
	<i>Symphyllia recta</i>
	<i>Symphyllia radians</i>
	<i>Symphyllia agaricia</i>
Merulinidae	<i>Hydonophora microconos</i>
	<i>Merulina ampliata</i>
	<i>Scapophyllia cylindrica</i>
Faviidae	<i>Caulastrea furcata</i>
	<i>Favia stelligera</i>
	<i>Favia pallida</i>
	<i>Favia fava</i>
	<i>Barabattoia amicorum</i>
	<i>Favites abdita</i>
	<i>Favites halicora</i>
	<i>Favites pentagona</i>
	<i>Goniastrea retiformis</i>
	<i>Goniastrea edwardsi</i>
	<i>Goniastrea favulus</i>
	<i>Leptoria phrygia</i>
	<i>Leptoria irregularis</i>
	<i>Oulophyllia crispa</i>
	<i>Leptastrea purpurea</i>
	<i>Leptastrea pruinosa</i>
	<i>Montastrea curta</i>
	<i>Montastrea annuligera</i>
	<i>Cyphastrea agassizi</i>
	<i>Cyphastrea microphthalma</i>
	<i>Cyphastrea serailia</i>
	<i>Cyphastrea japonica</i>
Dendrophylliidae	<i>Turbinaria mesenterina</i>
Milleporidae	<i>Millipora exaesa</i>
Total	62

Table 2. Coral reef fish species recorded at 6 sites in Daito Islands during October 2-4, 2001.

Date	Station	Depth (m)	Species	Remarks	
2-Oct-01	St.3	40	<i>Chaetodon daedalma</i>	*1	
		40	<i>Pseudanthias ventralis</i>	*1	
	Minamidaito Is.	40	<i>Bodianus bilunulatus</i>	*1	
		40	<i>Aphareus rutilans</i>	*2	
		20	<i>Sphyræna barracuda</i>	*2	
		20	<i>Xanthichthys mento</i>	*1	
	St.4	15	<i>Pseudobalistes fuscus</i>	*2	
		20	<i>Centropyge flavissima</i>	*1	
	Minamidaito Is.	20	<i>Centropyge interrupta</i>	*1	
		15	<i>Carcharhinus</i> sp.	*2	
		15	<i>Girella leonina</i>	*1	
		15	<i>Centropyge flavissima</i>	*1	
		15	<i>Chaetodon daedalma</i>	*1	
		15	<i>Centropyge heraldi</i>	*1	
3-Oct-01	St.5	35	<i>Pseudochelinus</i> sp.	*1	
		25	<i>Hamitaurichthys polylepis</i>	*2	
	Minamidaito Is.	25	<i>Caesio teres</i>	*2	
		25	<i>Hamitaurichthys thompsoni</i>	*1	
	St.6	25	<i>Chaetodon daedalma</i>	*1	
		25	<i>Genivanthus watanabei</i>	*2	
		25	<i>Chaetodon unimaculatus</i>	*1	
		20	<i>Gracila albomarginata</i>	*2	
		20	<i>Macolor macularis</i>	*2	
		20	<i>Acanthurus thompsoni</i>	*1	
		20	<i>Pseudocoris yamashiroi</i>	*1	
		15	<i>Belonoperca chabanaudi</i> (young)	*1	
		10	<i>Melichthys vidua</i>	*1	
		10	<i>Sufflamen fraenatum</i>	*1	
10		<i>Neocirrhites armatus</i>	*1		
10		<i>Chaetodon daedalma</i>	*1		
4-Oct-01	St.1	25	<i>Xanthichthys auromarginatus</i>	*1	
		25	<i>Chaetodon punctatofasciatus</i>	*1	
	Kitadaito Is.	15	<i>Parupeneus cyclostomus</i> (young)	*2	
		15	<i>Bodianus bilunulatus</i> (var.)	*1	
		15	<i>Bodianus bilunulatus</i>	*1	
		15	<i>Caesio teres</i> (var.)	*1	
		15	<i>Sargoxentron caudimaculatum</i>	*1	
		15	<i>Thalassoma quinquevittatum</i>	*1	
		10	<i>Plectroglyphidodon imparipennis</i>	*1	
		10	<i>Chaetodon reticulatus</i>	*1	
		10	<i>Pseudanthias cooperi</i>	*2	
		10	<i>Acanthurus japonicus</i>	*1	
		St.2	25	<i>Hamitaurichthys thompsoni</i>	*1
			25	<i>Hamitaurichthys polylepis</i>	*2
25	<i>Caesio teres</i>		*2		
25	<i>Gracila albomarginata</i>		*1		
20	<i>Xanthichthys caeruleolineatus</i>		*1		
20	<i>Zebbrasoma flavescens</i>		*1		
20	<i>Bodianus anthioides</i>		*1		
20	<i>Sargoxentron caudimaculatum</i>		*1		
20	<i>Acanthurus japonicus</i>		*1		
15	<i>Neocirrhites armatus</i>		*2		
10	<i>Ptereleotris zebra</i>		*1		
10	<i>Chaetodon quadrimaculatus</i>		*2		
10	<i>Chaetodon daedalma</i>		*1		
10	<i>Thalassoma lutescens</i>		*1		
Kitadaito Is.	22	<i>Aphareus furca</i>	*1		
	20	<i>Pterocaesio tile</i>	*2		
	20	<i>Gnathodentex aureolineatus</i>	*1		
	20	<i>Chaetodon punctatofasciatus</i>	*1		
	20	<i>Xanthichthys auromarginatus</i>	*2		
	20	<i>Epinephelus hexagonatus</i>	*1		
	20	<i>Zebbrasoma flavescens</i>	*1		
	20	<i>Acanthurus pyroferus</i>	*1		
	20	<i>Centropyge flavissima</i>	*1		
	20	<i>Zebbrasoma scopas</i>	*1		
	20	<i>Naso tuberosus</i>	*1		
	20	<i>Arothron meleagris</i>	*1		
	20	<i>Pomacanthus imperator</i>	*1		
	20	<i>Chlorurus microrhinos</i>	*2		
10	<i>Chromis vanderbilti</i>	*1			
10	<i>Chaetodon quadrimaculatus</i>	*1			
10	<i>Chromis atripes</i>	*1			
10	<i>Neocirrhites armatus</i>	*1			
10	<i>Sebastapistes mauritiana</i>	*1			
10	<i>Chromis vanderbilti</i>	*2			
10	<i>Chaetodon daedalma</i>	*1			
10	<i>Chaetodon auripes</i>	*1			
10	<i>Chaetodon lunula</i>	*1			
10	<i>Zebbrasoma scopas</i>	*1			
10	<i>Parupeneus bifasciatus</i> (var.)	*1			

*1:identification by photo *2:identification by observation

Appendix 1⁻⁷ Additional information (6-2-2 Sea of Japan)

Table 3. Observed coral species and their coverage (%) at the coral reef of Kurosaki in Iki Islands.

Distance from shore (m)	0	5	10	15	20	25	30	35	40	45	50
Depth (m)	-0.4	0.5	0.7	1.7	2.3	2.4	2.3	1.5	1.7	2.7	4.8
<i>Lithophyllon undulatum</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	5.8	13.3	22.8
<i>Echinophyllia aspera</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	8.8
<i>Echinophyllia echinata</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	6.7	31.5	29.5
<i>Hydnophora exesa</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0
<i>Caulastrea tumida</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.0	0.0
<i>Favia speciosa</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8	64.5	42.4	10.8
<i>Favia fava</i> ?	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
<i>Favia lizardensis</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	5.5	2.0	0.0
<i>Leptastrea pruinosa</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
<i>Cyphastrea japonica</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.3	0.0	0.0
Coral coverage (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.4	84.8	89.1	72.6
Number of species	0	0	0	0	0	0	0	9	7	4	6

Table 4. Hermatypic corals recorded in Iki Islands.

Family	Species	Equchi and Fukuda (1972)	This study
Acroporidae	<i>Montipora mollis</i>		+
	<i>Acropora tumida</i>	+	+
	<i>Acropora pruinosa</i>		+
Poritidae	<i>Porites australiensis</i>	+	
	<i>Goniopora lobata</i>	+	
	<i>Goniopora stokes</i>		+
	<i>Goniopora sp.</i>	+	
	<i>Alveopora japonica</i>	+	+
Siderastreidae	<i>Coscinaraea monile</i>	+	
Fungiidae	<i>Lithophyllon undulatum</i>	+	+
	<i>Lithophyllon lobata</i>		+
Pectiniidae	<i>Echinophyllia aspera</i>	+	+
	<i>Echinophyllia echinata</i>		+
	<i>Echinophyllia patula</i>		+
	<i>Pectinia lactuca</i>	+	+
	<i>Pectinia (Physophyllia) ayleni</i>		+
Mussidae	<i>Acanthasterea echinata</i>	+	+
	<i>Acanthasterea hemprichii</i>		+
	<i>Cynarina lacrymalis</i>	+	
Merulinidae	<i>Hydnophora exesa</i>	+	+
	<i>Caulastrea tumida</i>	+	+
	<i>Favia pallida</i>		+
	<i>Favia speciosa</i>	+	+
	<i>Favia fava</i>		+
	<i>Favia lizardensis</i> ?		+
	<i>Favia cf. rotumana</i>		+
	<i>Favia veroni</i>		+
	<i>Favites abdita</i>	+	
	<i>Favites russelli</i>		+
Faviidae	<i>Platygyra lamellina</i>	+	
	<i>Platygyra contorta</i>	+	+
	<i>Goniastrea australensis</i>		+
	<i>Goniastrea pectinata</i>	+	
	<i>Oulastrea crispata</i>		+
	<i>Plesiastrea versipora</i>	+	+
	<i>Leptastrea pruinosa</i>		+
	<i>Cyphastrea serailia</i>	+	+
	<i>Cyphastrea japonica</i>	+	+
	Dendrophylliidae	<i>Turbinaria peltata</i>	+
39species of 22genera		22species of 19genera	31species of 23genera

Appendix 1⁻⁷ Additional information (6-2-2 Sea of Japan)

Table 5. Hermatypic corals recorded in Tsushima Archipelago.

Family	Species	Eguchi (1973)	This study	
Astrocoeniidae	<i>Stylocoeniella guentheri</i>	+		
Acroporidae	<i>Acropora tumida</i>	+	+	
Poritidae	<i>Porites lichen</i>	+		
	<i>Porites lutea</i>	+		
	<i>Porites lobata</i>	+		
	<i>Goniopora lobata</i>	+	+	
	<i>Alveopora japonica</i>	+		
	<i>Alveopora verrilliana</i>	+		
Siderastreidae	<i>Psamocora profundacella</i>	+		
	<i>Coscinaraea</i> sp.	+		
Fungiidae	<i>Lithophyllon undulatum</i>	+	+	
	<i>Echinophyllia aspera</i>	+	+	
Pectiniidae	<i>Oxypora lacera</i>		+	
	<i>Pectinia lactuca</i>	+	+	
Mussidae	<i>Cynarina lacrymaris</i>	+		
Merulinidae	<i>Hydnophora exesa</i>	+	+	
	<i>Caulastrea tumida</i>	+	+	
	<i>Favia pallida</i>	+	+	
	<i>Favia speciosa</i>	+	+	
	<i>Favia fava</i>		+	
	<i>Favia veroni</i>		+	
	<i>Favia lizardensis</i>		+	
	<i>Favia</i> sp.		+	
	<i>Favites abdita</i>	+	+	
	<i>Favites russelli</i>		+	
	Faviidae	<i>Platygyra lamellina</i>	+	
		<i>Platygyra contorta</i>	+	+
		<i>Goniastrea australensis</i>		+
		<i>Oulastrea crispata</i>		+
		<i>Plesiastrea versipora</i>	+	+
<i>Leptastrea purpurea</i>		+	+	
<i>Leptastrea pruinosa</i>			+	
<i>Cyphastrea japonica</i>			+	
<i>Cyphastrea microphthalma</i>			+	
<i>Cyphastrea chalcidicum</i>			+	
<i>Cyphastrea serailia</i>	+			
Dendrophylliidae	<i>Turbinaria peltata</i>	+		
	<i>Turbinaria mesenterina</i>	+		
38species of 23 genera		26species of 20 genera	25 species of 16 genera	

Appendix 1⁻⁷ Additional information (6-2-2 Sea of Japan)

**Table 6. Observed coral species and these coverage (%)
at three sites Tsushima Archipelago.**

[Senoura]

Distance from shore (m)	0	5	10	15	20	25	30
Depth (m)	0.4	0.9	2.3	1.3	1.5	4.5	6.2
<i>Lithophyllon undulatum</i>	0	0	9	0	6	0	0
<i>Echinophyllia aspera</i>	0	0	26	0	12	14	0
<i>Pectinia lactuca</i>	0	0	0	0	8	3	0
<i>Caulastrea tumida</i>	0	6	2	7	5	0	0
<i>Favia speciosa</i>	0	3	24	0	16	0	0
<i>Favia fava</i>	0	0	0	1	0	2	0
<i>Favia</i> sp.	0	0	0	0	2	0	0
<i>Favites abdita</i>	0	0	0	0	2	0	0
<i>Oulastrea crispata</i>	0	0	0	0	0	0	0
<i>Cyphastera microphthalma</i>	0	0	0	1	0	0	0
Coral coverage (%)	0	9	61	9	51	19	0
Number of species	0	2	4	4	7	3	0

[Kaseura east]

Distance from shore (m)	0	5	10	15	20	25	30
Depth (m)	0.6	1.2	2	2.7	3.6	5.1	7.1
<i>Echinophyllia aspera</i>	0	0	0	17	11	15	0
<i>Favia pallida</i>	0	0	0	0	14	0	0
<i>Favia speciosa</i>	0	0	34	22	8	0	0
<i>Oulastrea crispata</i>	0	0	0	0	0	0	0
<i>Cyphastrea chalcidicum</i>	0	0	0	5	0	0	0
Coral coverage (%)	0	0	34	44	33	15	0
Number of species	0	1	1	3	3	1	0

[Kaseura west]

Distance from shore (m)	0	5	10	15	20	25	30
Depth (m)	0.3	1	1.8	2.6	3.7	5.1	7.7
<i>Echinophyllia aspera</i>	0	0	3	5	30	0	0
<i>Favia pallida</i>	0	0	5	0	0	0	0
<i>Favia speciosa</i>	0	0	29	47	9	0	0
<i>Favites abdita</i>	0	0	3	0	0	0	0
<i>Oulastrea crispata</i>	0	1	0	0	0	0	0
<i>Cyphastrea chalcidicum</i>	0	5	0	0	0	0	0
Coral coverage (%)	0	6	40	52	39	0	0
Number of species	0	2	5	2	3	0	0