The Honorable Akinori Eto,
Minister of Defense
The Honorable Kazunori Inoue,
Director General, Okinawa Defense Bureau
The Honorable Yoshio Mochizuki,
Minister of Environment
The Honorable Hirokazu Nakaima,
Governor of Okinawa

Joint Petition by the 19 Society Groups calling for Environmental Conservation of the Highly Remarkable Biodiversity in Oura Bay, Okinawa

The ecosystem of coral reefs that develops in the tropical region of the western Pacific is known as home to the highest marine biodiversity around the world and its conservation has been recognized as an important international issue.

The Ryukyu Islands of Japan are located on the northern limit of this rich coral reef ecosystem. However, in many places of the Ryukyu Islands, modifications of the coastline due to coastal development in the past and outflows of red clay sediment caused by the development of the land area, have significantly damaged the coral reef ecosystem. Accordingly, rich biodiversity that has been fostered here is disappearing.

In such circumstances, the coral reefs and diverse natural environment around Henoko in Oura Bay, Nago City, located in the northern part of the east coast of Okinawa Island, remain without large destruction, and the remarkably high biodiversity has been preserved there. We should show our pride of having such a coral reef ecosystem to the world. As a contracting party of the Biodiversity Convention, Japan has the responsibility to preserve it.

Currently, in Oura Bay, where a rich coral reef ecosystem remains, a plan to landfill the surrounding area of the entrance of the bay (around Henoko area) to build an US military airfield base is under way. In additions, a seabed drilling survey (as preparation for the landfill main construction) has been conducted since August, 2014.

If the landfill work moves ahead, the richness of the irreplaceable coral reef ecosystem that remains in this area might be lost forever without many people being aware of its value.

The coral reef ecosystem around Oura Bay possesses noteworthy features and values in the following aspects.

1. The whole area of Oura Bay is a region with particularly high biodiversity in our country which has been recognized as one of the hot spots of biodiversity in the world. According to the environmental impact assessment report of the Ministry of Defense, 5,334 species have been recorded from the coastal waters (including waterfowls; refer to Table 1), including 626 endangered species.

In addition, through subsequent surveys, an undescribed species of huge sea cucumber and many undescribed or unrecorded species of sponges, ctenophores, gorgonians, sea slugs, crabs and so on have been reported one after another (Table 2). Since many undescribed species have been recently reported (among those, 11 species have been described as new species in 2007 and later), it seems that the species diversity in this area might be greater than is currently recognized. Moreover, the fact that a number of species that are not found in the coral reefs of the Kerama and the Yaeyama Islands inhabit the Oura Bay depicts well the uniqueness of this area.

2. In the whole area of the Oura Bay, diverse habitats neighboring each other construct a rich ecosystem. Those diverse habitats include natural rivers flowing from the dense subtropical forest, mangrove forests developing in the estuaries, natural coasts (sandy beaches and rocky shores) and tidal flats bordering the bay, well-developed coral reefs with seaweed fields developing inside the reefs, and the deep bottoms with fine-sand, muddy, and boulder beds. All these habitats together constitute a very distinctive ecosystem that is found only here in the country. The value of this ecosystem is all highlighted by vast seagrass beds where the feeding trails of dugong have been found, the seaweed bed of a giant brown macroalga (*Sargassum carpophyllum*) which grows up to 7 meters height, shallow waters with scattered large colonies of the massive corals (*Porites*), a huge colony of the blue coral (*Heliopora*), fine sand bottom inhabited by many heart urchins and sea cucumbers, and a river with the greatest number of diadromous fish species in Okinawa Island, all highlighting the value of this ecosystem. Recently it has been reported that there are dugongs that move long distance and it can be said that the dugongs of

Okinawa Island have a connection with those of the Philippines. This view suggests the importance to continue preserving well the ecosystem of sea grass as the habitat of the dugong.

Considering the survey result mentioned above and viewing from a perspective of biodiversity conservation, the whole area of the Oura Bay is one of the most valuable coastal waters in Japan.

Concerning the landfill plan of this area, the environmental impact assessment report (the environmental impact assessment report after amendments) based on the Environmental Impact Assessment Law has been submitted in December 2012. The assesment report concludes that "consideration for environmental conservation is appropriate and it has determined to have achieved consistency with the criteria or goals of environmental conservation", but neither mention the unrecorded or undescribed species that have been recently discovered (Table 2), nor assess properly the peculiarity of this coastal area harboring the diverse habitats.

Therefore, based on the recognition of the above-mentioned, in the joint names of the 19 academic societies (or its subordinate organization as a committee of the environmental protection department) which is a scientific group whose members are engaged in natural history research, we request the Government of Japan and the Prefecture of Okinawa to implement the following:

1. To review all the procedures for the landfill work, from the perspective of sustainable development to include passing on the environment and ecosystem to the next generation.
2. To conduct a complete assessment by carrying out survey about the items (diversity of invertebrates species whose taxonomic study has not progressed sufficiently and peculiarity of this area) missed during the environmental impact assessment.

The 19 Societies Group :
Ecological Society of Japan, Natural Environment Conservation Committee of the Japanese Association of Benthology, The Ornithological Society of Japan, The Fish Society of Japan, The Ichthyological Society of Japan, The Japanese Society of Systematic Zoology, The Entomological Society of Japan, The Society for the Study of Species Biology, Japanese Society of Phycology, Japanese Society for Plant Systematics, The Society for the Study of Phytogeography and Taxonomy, Japanese Association of Historical Botany, Palynological Society of Japan, Primate Society of Japan, The Japan Society of Medical Entomology and Zoology, The Genetics Society of Japan, Biogeographical Society of Japan, The Japanese Society of Limnology, The Zoological Society of Japan, The Association for the Geological Collaboration in Japan (in random order)

Attachments

Table1. Number of recorded and endangered species of the taxa (marine organisms and water birds) published in the environmental impact assessment report.
Table2. Noteworthy species recently reported in Henoko-Oura Bay.

Table 1. Number of recorded and endangered species of the taxa (marine organisms and water birds) published in the environmental impact assessment report.

Taxonomic Group	Total number of species	Number of endangered species* ★CR+EN	VU	NT	DD	LP	Remark (contents of CR＋EN, etc.)
Mammal	**1**	**1**					dugong (natural treasure)
Water bird***	**28**		**8**	**1**			roseate tern, colony of black collar tern
Reptile	**9**	**1**	**4**				Green turtle
Fish	**1,040**	**2**	**3**	**1**	**3**	**1**	*Scartelaos histophorus*, *Taenioides* sp.
Reef-building coral	**425**						
Mollusk	**1,974**	**19**	**47**	**58**	**10**		*Eretica tomlini, Mactra* sp. A, *Mactra* sp. B, *Tellina virgata, Lunulicardia hemicardium*, etc.
Arthropod	**753**	**3**	**10**	**22**	**6**	**1**	*Boninpagurus* sp. etc, 4 species of *Coenobita* species are considered natural treasure
Other animal	**701**		**1**	**1**	**2**		
Marine alga /seaweed	**403**	**6**	**12**	**26**	**13**		*Vaucheria longicaulis, Pseudodichotomosiphon constricta, Acetabularia caliculus, Lamouroux, acetabulária, Caliculus lamouroux*
Total	**5,334**	**32**	**85**	**109**	**34**	**2**	

*The ranking of endangered species follows the classification of Ministry of the Environment (the 4th Red List), Prefecture of Okinawa (Reviewed Edition of Red Data Okinawa) and the Japanese Association of Benthology**.

** Japanese Association of Benthology, 2012," Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos" published by Tokai University Press, Kanagawa Prefecture

*** Birds are classified as terrestrial organisms in the environment impact assessment report. Here, only water birds that seem to be most seriously affected by the landfill of the coastal water (Charadriidae, Recurvirostridae, Scolopacidae, Laridae) are included.

★
(CR) Critically Endangered
(EN) Endangered
(VU) Vulnerable
(NT) Near Threatened
(DD) Data Deficient
(LP) Threatened Local Population

Table 2. Noteworthy species recently reported in Henoko-Oura Bay

Taxonomic Group	Name	Reason	Source
Cnidarian	*Microzoanthus kagerou*	New family, new genus, new species	Fujii & Reimer, 2011, Zoologica Scripta, 40: 418-431
	Heliopora coerulea	Noteworthy population	Yasuda et al., 2012, Marine Genomics, 7: 33-35
	Goniopora stokesi	Noteworthy population	Kitano et al., 2013, Zoolical Studies, 52: 25
Mollusk	*Semelangulus lacrimadugong*	New species	Kato & Osuga, 2007, Venus, 65: 291-297
	Hypermastus ryukyuensis	New species	Matsuda, Ueno & Nagasawa, 2010, Venus, 69: 17-23
Arthropod	*Uruma ourana*	New genus new species	Naruse et al, 2009, Zootaxa, 68: 59-68
	Cuapetes lacerate	Species recorded for the first time in Japan	Okuno & Fujita, 2011, Biography, 13: 19-23
	Periclimenes incertus	Species recorded for the first time in Japan	Okuno et al, 2012, Research report at The Natural History Museum and Institute, Chiba, 12: 27-31
	*Paralbunea takedai**	New species	Ozawa & Fujita, 2012, Crustacean Monographs, 17: 245-262
	Leucothoe obuchii	New species	White & Reimer, 2012, Zookeys, 55: 13-55
	Arcania novemspinosa	Species recorded for the first time in Japan	Fujii & Naruse, 2013, Fauna Ryukyuana, 3: 1-6
	Cardiodectes shini	New species	Uyeno, 2013, Zootaxa, 3664, 301-311
	Paratrypae maldivensis	Species recorded for the first time in Japan	Komai & Fujita, 2014, Fauna Ryukyuana, 8: 1-7
	Processa affinis	Species recorded for the first time in Japan	Komai & Fujita, 2014, Zootaxa, 3794: 263-278
	*Processa filipes**	New species	Komai & Fujita, 2014, Zootaxa, 3794: 263-278
	Processa hayashii	New species	Komai & Fujita, 2014, Zootaxa, 3794: 263-278
	Rayllanassa rudisulcus	New species	Komai et al., 2014, Zootaxa, 3835: 549-563
Fish	*Scartelaos histophorus*	Noteworthy population	Kon et al., 2003, Okinawa Biological Journal 41: 25-32
	Gnatholepis yoshinoi	New species	Suzuki & Randall, 2009, Research report type A at the National Museum of Nature and Science, 35: 83-88
Bryozoa	*Lanceopora sp.*	Undescribed species	Hirose & Obuchi, 2011, The 47th Congress of the Japanese Society of Systematic Zoology
Echinoderm	2 undescribed species of sea cucumber 6 species recorded for the first time in Japan	Undescribed species	Obuchi & Michonneau, 2012, The 47th Congress of the Japanese Coral Reef Society
	Heterometra quinduplicava	Species recorded for the first time in Japan	Obuchi, 2014, Fauna Ryukyuana, 13: 1-9
Marine alga	*Sargassum carpophyllum*	Noteworthy population	Watanbe et al., 2013, The 50th Congress of the Biological Society of Okinawa
	4 undescribed species of marine algae	Undescribed species	Ohba et al., 2010, The 13th Congress of the Japanese Coral Reef Society

*Species recorded exclusively in this area (As of September, 2014)