

September 9, 2021

Mr. Peter GERSTMANN,
Managing Director,
JBG Power GmbH and JBG Energy Japan
Kurfürstendamm 52,
10707 Berlin,
GERMANY.

**Request for conservation of the biodiversity in tidal flats at Hachi-no-higata, Takehara City,
Hiroshima Prefecture, Japan**

Dear Mr. GERSTMANN,

The decrease in natural tide flats and decline in the biodiversity of coastal organisms that live in these habitats have been accelerated during the last 50 years in Japan. A large number of these organisms are endangered or have been made extinct in many of the tidal flat areas.

The tidal flats at Hachi-no-higata in Takehara City, Hiroshima Prefecture, Japan (facing the Seto Inland Sea) have miraculously maintained rich natural tidal flat environments, and thus Hachi-no-higata is one of the most significant hot spots for the conservation of the biodiversity of coastal organisms in Japan. More than 70 species — listed in the latest Red List issued by the Japanese Ministry of the Environment (2020), and latest Red Data Book of Hiroshima Prefecture (2011) — currently inhabit the tidal flats or the adjacent sea areas: among them, 16 species are designated as critically endangered or endangered, 19 as vulnerable, and 39 as near-threatened. The IUCN (International Union for the Conservation of Nature) Horseshoe Crab Specialist Group maintains that the Hachi-no-higata is a very important habitat, particularly because it represents the northernmost and easternmost distribution limit of the crab species *Tachypleus tridentatus*, which has been classified as endangered by the IUCN not only in Japan, but in the world. In line with the significance for the conservation of biodiversity, the tidal flats and neighboring waters have been included by the Japanese Ministry of the Environment among the Important Wetlands with High Biodiversity, and Important Marine Areas with High Biodiversity, respectively. (<http://www.env.go.jp/en/nature/biodic/kaiyo-hozen/kaiiki/index.html>).

Because of its rich biodiversity, Hachi-no-higata attracts both domestic and foreign researchers from prestigious institutions such as the universities of Hiroshima, Hokkaido, Kyoto, Okayama, Kochi, Kyusyu, the Japanese National Museum of Nature and Science, and the Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung. Over 20 scientific studies investigating this ecosystem have been recently published.

Additionally, Hachi-no-higata has been designated by administrative bodies of Hiroshima Prefecture and Takehara City as a destination for students and local people to learn and appreciate the environmental dynamics of the tidal flats and its neighboring seas.

The site for the LNG power plant, recently proposed by your companies, is adjacent to the tidal flats, and the massive sea-based facilities that are to be constructed have the potential to disrupt the natural equilibrium in this region, producing the following negative impacts on the delicate tidal flat ecosystem and on its many endangered organisms:

- 1: The discharge and accumulation of sand, mud, silt and hazardous substances during the construction will impede the feeding and reproductive activities of marine organisms, leading to a decrease in their populations.
- 2: Marine non-indigenous invasive organisms will be introduced via hull-fouling occurring on ocean-going LNG carriers and coastal barges that will visit the area during construction operations, and this will decrease the populations of indigenous threatened organisms through competitive exclusion or predation.
- 3: The discharge of cooling water, if any, which is used in the closed cooling system and will contain hazardous substances, has negative effects on the endangered organisms.
- 4: The ocean-going LNG carriers, with their lengths of ca. 250 m, the LNG floating storage barge, which is 120 m long and 50 m wide, and the landing piers with lengths of over 500 m, will most likely change the direction and volume of tidal streams, coastal flows and discharge from the Kamogawa River, which flows into Hachi-no-higata. As a result, this will cause a severe loss of the balance between the erosion and deposition of sand, mud and silt on the tidal flats, as well as changes in the composition of grain size in the tidal flat substrata, which will inevitably affect the distribution and density of organisms living on and in the tidal flats. For instance, siltation on the substrata will decrease the number or area of spawning sites for horse shoe crabs, which lay eggs on a restricted substratum consisting of sand with a grain size (diameter) between 0.4 and 1.0 mm.
- 5: Mooring of the huge LNG carriers and storage barge in the shallow coastal area will inevitably cause frequent dredging, resulting in the loss of balance between the erosion and deposition of sand, mud and silt on the tidal flats.
- 6: The potential occurrence of marine accidents, such as grounding of the carriers, will severely damage the shallow water ecosystems, including Hachi-no-higata and the adjacent sea areas.

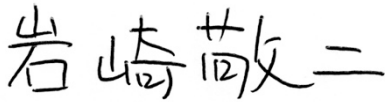
Nevertheless, your companies' construction works are about to be started without a proper environmental impact assessment.

We would strongly urge you to consider that

- 1: scientifically valid environmental impact assessment should be conducted to thoroughly evaluate the impacts of this construction on many endangered and rare species,
- 2: the results of the assessments should be disclosed and evaluated by specialists from a variety of fields, including coastal engineering, hydraulics, conservation biology, benthology and planktology, and
- 3: this plan should be reconsidered or cancelled, if detrimental effects on endangered and rare species are confirmed as likely.
- 4: you should respond to our requests in writing as soon as possible.

We would expect you to exercise your own judgment while considering the challenge of preserving the precious biodiversity of the Hachi-no-higata tidal flats and adjacent sea areas. We believe that an objective judgment on this matter will lead to the correct decision, in line with the current international policy of Sustainable Development Goals (SDG's).

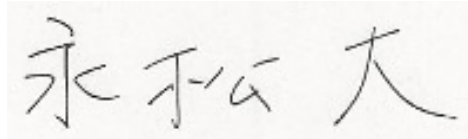
Sincerely,



Keiji IWASAKI, Chairperson of the Committee for the Conservation of Biodiversity, the Malacological Society of Japan, Professor of Nara University, Dr.



Yuji ANKEI, Chairperson of the Committee for Conservation for the Natural Environments, the Society for the Study of Molluscan Diversity, Professor Emeritus of Yamaguchi Prefectural University, Dr.



Dai NAGAMATSU, President of the Chugoku-Shikoku Branch of the Ecological Society of Japan, Professor of Tottori University, Dr.



Gento SHINOHARA, President of the Ichthyological Society of Japan, Senior Curator of the National Museum of Nature and Science, Dr.



Shinichi SATO, Chairperson of the Committee for Conservation of Natural Environment, The Japanese Association of Benthology, Professor of Shizuoka University, Dr.

Persons to contact:

Keiji IWASAKI,
Department of Geography, Nara University,
1500 Misasagicho, Nara 631-8502, Japan
E-mail: iwasaki@daibutsu.nara-u.ac.jp

Gyo ITANI,
Member of the Nature Conservation Committee, the Chugoku-Shikoku Branch of the Ecological Society
of Japan,
Faculty of Education, Kochi University,
2-5-1 Akebono, Kochi 780-8520, Japan
E-mail: itani@kochi-u.ac.jp

Enclosed: Photographs of tidal flats at Hachi-no-higata, and a list and photographs of threatened species living in the tidal flats.

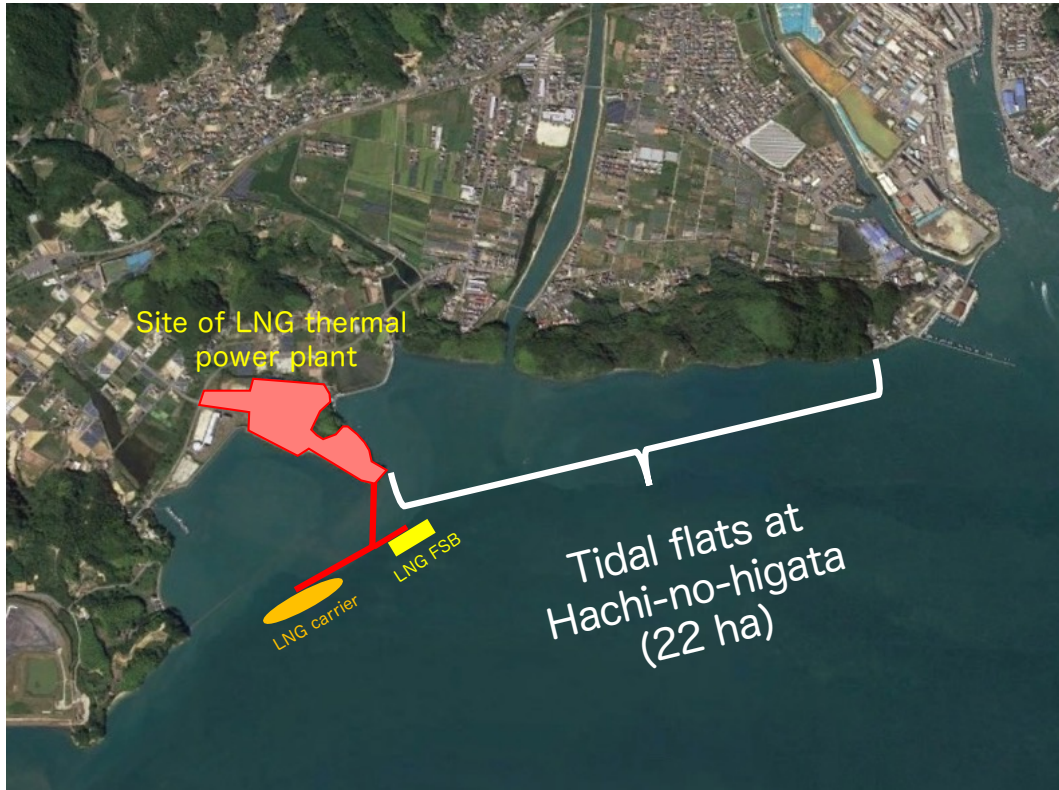
Reference material



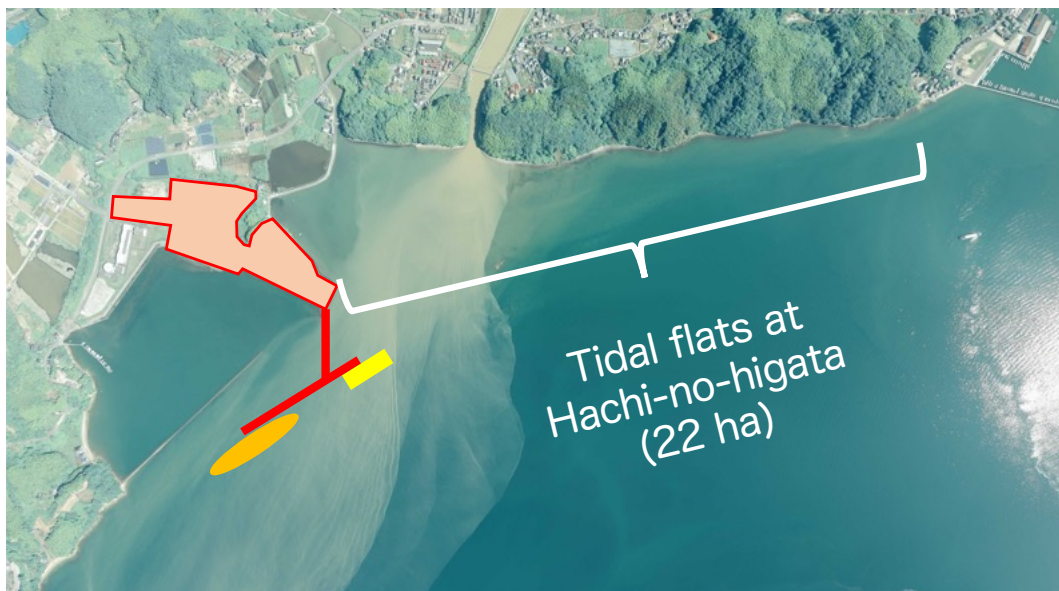
Phot 1 Tidal flats at Hachi-no-higata (view from land).



Phot 2 Tidal flats at Hachi-no-higata (view from Hachi-iwa reef).



Phot 3 Planned locations for LNG thermal power plant, landing piers, LNG carrier and LNG floating storage barge (FSB) (drawing on an aerial photography from Google Earth).



Phot 4 Planned locations for LNG thermal power plant, landing piers, LNG carrier and LNG floating storage barge (FSB) (drawing on an aerial photography, courtesy of Geospatial Information Authority of Japan).

Table 1. Threatened animals living in or near the Hachi-no-higata Tidal Flats and listed in the Red List 2020 of the Japanese Ministry of Environment (JMRL), Red List of Marine Organisms of JME (JMRL*), and Red Data Book 2011 of the Hiroshima Prefecture (HiroshimaRDB). CR+EN: critically endangered or endangered, VU: vulnerable, NT: near threatened, DD: Data Deficient, NA: need attention, ©: the species whose type locality is Hachi-no-higata. The species with underlined bold letters indicate that their photographs are in the reference material. The period of investigation from 2004 to 2020.

JMRL	HiroshimaRDB	Taxon	Scientific name
CR+EN	CR+EN	Fish	<i>Taeniooides cirratus</i> (Blyth, 1860)
CR+EN	NT	Fish	<i>Gymnoqobius scrobiculatus</i> (Takaqi, 1957)
CR+EN	—	Fish	<i>Anguilla japonica</i> Temminck & Schlegel, 1847
CR+EN	CR+EN	Horseshoe crab	<u><i>Tachypleus tridentatus</i> (Leach, 1819)</u>
CR+EN	NA	Lugworm	<i>Chaetopterus cautus</i> Marenzeller, 1879
CR+EN	—	Snail	<i>Paratectonatica tiqrina</i> (Röding, 1798) ○
CR+EN	—	Snail	<i>Reticunassa hiradoensis</i> (Pilsbry, 1904)
CR+EN	—	Snail	<u><i>Amathina tricarinata</i> (Linnaeus, 1767)</u>
CR+EN	—	Clam	<i>Teqillarca granosa</i> (Linnaeus, 1758) ○
CR+EN	—	Clam	<u><i>Pegophysema bialata</i> (Pilsbry, 1895)</u>
CR+EN	—	Clam	<i>Bornioopsis ariakensis</i> Habe, 1959
CR+EN	—	Clam	<i>Devonia semperi</i> (Ohshima, 1930)
CR+EN	—	Clam	<i>Platomysia rugata</i> Habe, 1951
CR+EN	—	Clam	<u><i>Basterotia gouldii</i> (A. Adams, 1864)</u>
CR+EN	CR+EN	Flatworm	<i>Ectoplana limuli</i> (Iijima & Kaburaki, 1916)
VU	—	Fish	<i>Pseudoqobius masago</i> (Tomiyama, 1936)
VU*	NT	Lancelet	<u><i>Branchiostoma japonicum</i> (Willey, 1897)</u>
VU	NT	Crab	<u><i>Uca lactea</i> (de Haan, 1835)</u>
VU	NA	Snail	<i>Cipangoaludina cf. laeta</i> (Martens, 1861)
VU	—	Snail	<i>Finella pupoides</i> A. Adams, 1860
VU	—	Snail	<i>Stosicia annulata</i> (Dunker, 1860)
VU	—	Snail	<i>Assimineidae</i> gen. sp.
VU	—	Snail	<u><i>Naticarius concinnus</i> (Dunker, 1860)</u>
VU	—	Snail	<u><i>Melanella tanahensis</i> Takano, Tanaka & Kano, 2019</u>
VU	—	Snail	<u><i>Mucronalia exilis</i> A. Adams, 1862</u>
VU	—	Snail	<i>Engina menkeana</i> (Dunker, 1860)
VU	—	Snail	<u><i>Syrnola tenuisculpta</i> (Lischke, 1872)</u>
VU	—	Snail	<u><i>Melanochlamys fukudai</i> Cooke, Hanson, Y. Hirano, Ornelas-Gatdula, Gosliner, Chernyshev & Valdés, 2014</u>
VU	—	Snail	<u><i>Cylichnatus yamakawai</i> (Yokoyama, 1920)</u>
VU	—	Clam	<u><i>Fragum carinatum</i> (Lyngø, 1909) ○</u>
VU	—	Clam	<i>Bornioopsis tsurumaru</i> Habe, 1959
VU	—	Clam	<u><i>Thracia concinna</i> Reeve, 1859</u>
VU	—	Clam	<u><i>Solen kikuchii</i> Cosel, 2002</u>
NT	NT	Fish	<i>Hyporhamphus intermedius</i> (Cantor, 1842)
NT	NT	Fish	<i>Periophthalmus modestus</i> Cantor, 1842
NT*	—	Spoon worm	<u><i>Sipunculus nudus</i> Linnaeus, 1766</u>
NT*	—	Spoon worm	<i>Siphonosoma cumanense</i> (Keferstein, 1867)
NT*	NT	Spoon worm	<u><i>Ikeda taeniooides</i> (Ikeda, 1904)</u>
NT*	—	Spoon worm	<i>Arhynchite hayaoi</i> Tanaka & Nishikawa, 2013 ©
NT*	—	Spoon worm	<i>Ikedosoma gogoshimense</i> (Ikeda, 1904)
NT	—	Snail	<i>Patelloida conulus</i> (Dunker, 1861)
NT	—	Snail	<u><i>Umboium moniliferum</i> (Lamarck, 1822)</u>
NT	—	Snail	<i>Plesiothyreus</i> sp.
NT	—	Snail	<i>Batillaria multiformis</i> (Lischke, 1869)
NT	—	Snail	<u><i>Vitrinella</i> sp.</u>
NT	—	Snail	<u><i>Nozema ziczac</i> (H. Fukuda & Ekawa, 1997)</u>
NT	—	Snail	<i>Voorwindia cf. paludinooides</i> (Yokoyama, 1927)
NT	—	Snail	<i>Cryptonatica adamsiana</i> (Dunker, 1860)
NT	—	Snail	<i>Eunaticina papilla</i> (Gmelin, 1791)
NT	—	Snail	<i>Gennaosinum bathyraphe</i> (Pilsbry, 1911)
NT	—	Snail	<i>Nassarius livescens</i> (Philippi, 1849)
NT	—	Snail	<i>Hemifusus tuba</i> (Gmelin, 1791) ○
NT	—	Snail	<u><i>Pyrquolina shigevasui</i> (Yokoyama, 1927)</u>
NT	—	Snail	<i>Tiberia dunkeri</i> (Dall & Bartsch, 1906)
NT	—	Snail	<u><i>Turbonilla scrobiculata</i> Yokoyama, 1922</u>
NT	—	Snail	<i>Turbonilla kuraenohamana</i> Hori & H. Fukuda, 1999
NT	—	Snail	<u><i>Turbonilla teganumana</i> Yokoyama, 1922</u>
NT	—	Snail	<i>Laemodonta exaratooides</i> Kawabe, 1992
NT	—	Clam	<u><i>Solemya pusilla</i> Gould, 1861</u>
NT	—	Clam	<i>Atrina japonica</i> (Reeve, 1858)
NT	—	Clam	<u><i>Pinna attenuata</i> Reeve, 1858</u>
NT	—	Clam	<u><i>Mactrotoma angulifera</i> (Reeve, 1854)</u>
NT	—	Clam	<i>Nipponomysella subtruncata</i> (Yokoyama, 1927)
NT	—	Clam	<u><i>Peregrinamor ohshimai</i> Shōji, 1938</u>
NT	—	Clam	<i>Pseudoqaleomma japonica</i> (A. Adams, 1862)
NT	—	Clam	<i>Coecella chinensis</i> (Deshayes, 1855)
NT	—	Clam	<u><i>Nitidotellina hokkaidoensis</i> (Habe, 1961)</u>
NT	—	Clam	<u><i>Nitidotellina minuta</i> (Lischke, 1872)</u>
NT	—	Clam	<u><i>Solen roseomaculatus</i> Pilsbry, 1901</u>
NT	—	Clam	<i>Mya japonica</i> Jay, 1857
DD	—	Snail	<u><i>Dolicrossea</i> sp.</u>
—	CR+EN	Whale	<i>Neophocaena phocaenoides</i> (G. Cuvier, 1829)
—	VU	Fish	<i>Ammodytes personatus</i> Girard, 1856
—	NT	Sea cucumber	<i>Oestergeria dubia</i> (Semper, 1867)
—	NT	Crab	<i>Ocypode stimsoni</i> Ortmann, 1897
—	NA	Shrimp	<i>Laomedea astacina</i> De Haan, 1849

Photos of threatened animals living on or in tidal flats at Hachi-no-higata (No. 1).
CR + EN: critically endangered or endangered by the Red List 2020 of
the Japanese Ministry of Environment.



Photo 5 Horse shoe crab
Tachypleus tridentatus (CR+EN)



Phot 6 Nassariid snail *Reticunassa hiradoensis* (CR+EN)

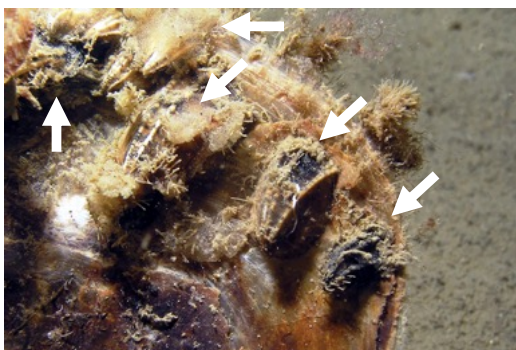


Photo 7 Amathinid snail *Amathina tricarinata* (CR+ EN)



Photo 8 Lucinid clam *Pegophysema bialata* (CR+EN)



Photo 9 Lasaeid clam *Borniopsis ariakensis* attached to a sea cucumber



Photo 10 Lasaeid clam *Borniopsis ariakensis* (CR+EN)



Photo 11 Lasaeid clam *Devonia semperi* (CR+EN) attached to a sea cucumber



Photo 12 Lasaeid clam *Devonia semperi* (CR+EN)

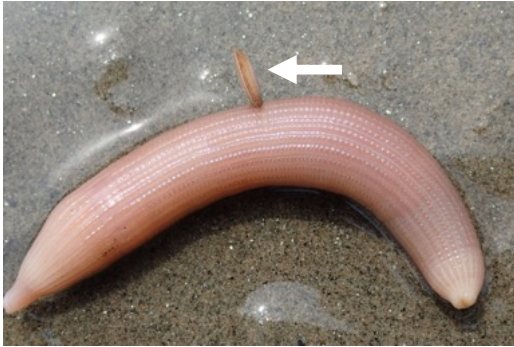


Photo 13 Lasaeid clam *Platomyia rugata* (CR+EN) attached to a sipunculid worm



Photo 14 Lasaeid clam *Platomyia rugata* (CR+EN) attached to a sipunculid worm

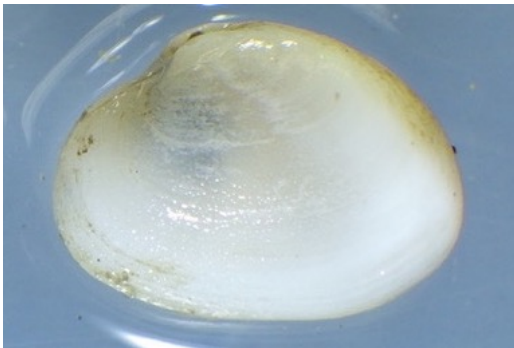


Photo 15 Basterotiid clam *Basterotia gouldi* (CR+EN)



Photo 16 Branchiostomid lancelet *Branchiostoma japonicum* (VU)



Photo 17 A crowd of the fiddler crab *Uca lactea* (VU)



Photo 18 Scaliolid snail *Finella pupoides* (VU)

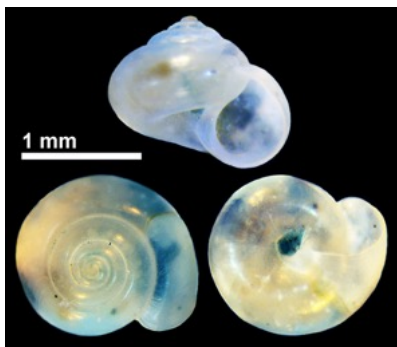


Photo 19 Assimineid snail Assimineidae gen. sp.(VU)



Photo 20 Naticid snail *Naticarius concinnus* (VU)

Photos of threatened animals living on or in tidal flats at Hachi-no-higata (No. 3).
VU: vulnerable by the Red List 2020 of the Japanese Ministry of Environment.



Photo 21 Eulimid snail *Melanella tanabensis* (VU)



Photo 22 Eulimid snail *Mucronalia exilis* (VU)



Photo 23 Pyramidellid snail *Syrnola tenuisculpta* (VU)



Photo 24 Aglagicid sea slug *Melanochlamys fukudai* (VU)



Photo 25 Cylichnid snail *Cylichnatys yamakawai* (VU)



Photo 26 Lasaeid clam *Borniopsis tsurumaru* (VU)



Photo 27 Lasaeid clam *Borniopsis tsurumaru* (VU)



Photo 28 Cardiid clam *Fragum carinatum* (VU)

Photos of threatened animals living on or in tidal flats at Hachi-no-higata (No. 4).
VU: vulnerable, NT: near threatened by the Red List 2017 for Marine Organisms
and Red List 2020 of the Japanese Ministry of Environment.



Photo 29 Thraciid clam *Thracia concinna* (VU)



Photo 30 Solenid bivalve *Solen kikuchii* (VU)



Photo 31 Proboscis of Sipunculid worm
Ikeda taenioides (NT)



Photo 32 Trochid snail *Umboonium moniliferum* (NT)

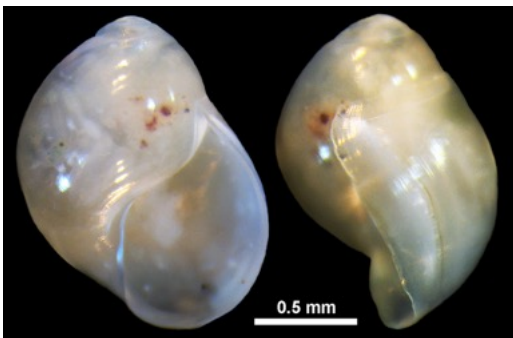


Photo 33 Tornid snail *Vitrinella* sp. (NT)



Photo 34 Elachisid snail *Nozema ziczac* (NT)



Photo35 Pyramidellid snail *Pyrgulina shigeyasui* (NT)



Photo 36 Pyramidellid snail *Turbonilla scrobiculata* (NT)

Photos of threatened animals living on or in tidal flats at Hachi-no-higata (No. 5).
 NT: near threatened by the Red List 2020 of the Japanese Ministry of Environment.



Photo 37 Pyramidellid snail *Turbonilla teganumana* (NT)



Photo 38 Mactrid bivalve *Mactrotoma angulifera* (NT)



Photo 39 Solemyd bivalve *Solemya pusilla* (NT)



Photo 40 Solemyd bivalve *Solemya pusilla* (NT)



Photo 41 Pinnid bivalve *Pinna attenuate* (NT)



Photo 42 Pinnid bivalve *Pinna attenuate* (NT)



Photo 43 Lasaeid bivalve *Peregrinamor ohshimai* (NT) symbiotic with a mud shrimp



Photo 44 Solenid bivalve *Solen roseomaculatus* (NT)

Photos of threatened animals living on or in tidal flats at Hachi-no-higata (No. 6).
NT: near threatened by the Red List 2020 of the Japanese Ministry of Environment.

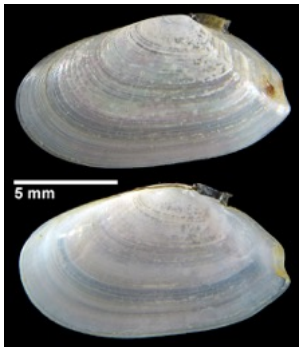


Photo 45 Tellinid clam *Nitidotellina minuta* (NT)



Photo 46 Solenid clam *Solen roseomaculatus* (NT)

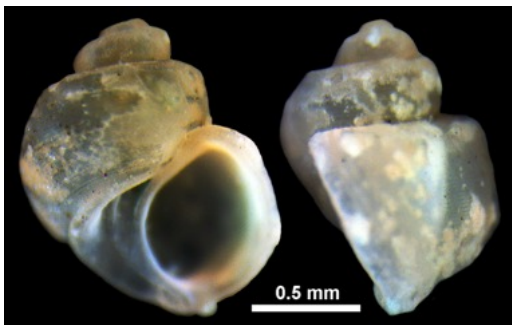


Photo 47 Elachisinid snail *Dolicrosesea* sp. (DD)

References

- Adachi, K., Kuramochi, T., Takaki, Y., Ohnishi, K., Yoshinaga, T. & Okumura, S. 2016. Genome size of spoon and peanut worms, and the validity of frozen samples for flow cytometry analysis. *Fish Genetics and Breeding Science*, 45: 25–31.
- Fukuda, H. 2012. *Finella pupoides* A. Adams, 1860. In: The Japanese Association of Benthology (ed.), *Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos*, p. 28, Tokai University Press, Hatano. (in Japanese)
- Fukuda, H. 2012. *Dolicrossea* sp. In: The Japanese Association of Benthology (ed.), *Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos*, p. 41, Tokai University Press, Hatano. (in Japanese)
- Fukuda, H. 2012. *Mucronalia exilis* A. Adams, 1862. In: The Japanese Association of Benthology (ed.), *Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos*, p. 64, Tokai University Press, Hatano. (in Japanese)
- Fukuda, H. 2012. *Solen roseomaculatus* Pilsbry, 1901. In: The Japanese Association of Benthology (ed.), *Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos*, p. 170, Tokai University Press, Hatano. (in Japanese)
- Fukuda, H. & Kimura, S. 2012. *Amathina tricarinata* (Linnaeus, 1767). In: The Japanese Association of Benthology (ed.), *Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos*, p. 83, Tokai University Press, Hatano. (in Japanese)
- Goto, R., Hamamura, Y. & Kato, M. 2011. Morphological and ecological adaptation of *Basterotia* bivalves (Galeommatoidea: Sportellidae) to symbiotic association with burrowing echiuran worms. *Zoological Science*, 28: 225–234.
- Goto, R., Henmi, Y., Shiozaki, Y. & Itani, G. 2021. Giant spoon worms pumped out of their deep burrows: First collection of the main bodies of *Ikeda taenioides* (Annelida: Thalassematidae: Bonelliinae) in 88 years. *Plankton and Benthos Research* DOI: <https://doi.org/10.3800/pbr.16.155>.
- Goto, R., Ishikawa, H. & Hamamura, Y. 2016. Morphology, biology, and phylogenetic position of the bivalve *Platomyia rugata* (Heterodonta: Galeommatoidea), a commensal with the sipunculan worm *Sipunculus nudus*. *Zoological Science*, 33: 441–447.
- Goto, R., Kawakita, A., Ishikawa, H., Hamamura, Y. & Kato, M. 2012. Molecular phylogeny of the bivalve superfamily Galeommatoidea (Heterodonta, Veneroidea) reveals dynamic evolution of symbiotic lifestyle and interphylum host switching. *BMC Evolutionary Biology*, 12: 172. <http://www.biomedcentral.com/1471-2148/12/172>
- Hasegawa, K. & Fukuda, H. 2017. Irvadiidae. In: Okutani, T. (ed.), *Marine Mollusks in Japan, The Second Edition*, pp. 126, 811–812. Tokai University Press, Hiratsuka. (in Japanese with English abstract)
- Hirose, M., Ohtsuka, S., Kondo, Y., Hirabayashi, T., Tomikawa, H. & Shimizu, N. 2012. Two species of Brachiopods from central part of Seto Inland Sea, western Japan. *Bulletin of the Hiroshima university Museum*, 4: 43–48. (in Japanese with English abstract)
- Hiroshima Fisheries Experimental Station (Mori, T., Tamura, M. & Makino, K.). 1932. Report on the fishing bait bugs from Hiroshima Prefecture. Hiroshima Fisheries Experimental Station, Hiroshima, 45pp. (in Japanese)
- Ishikawa, H. 1938. Experimental and applied research on the use of fishing bait bugs. Study group fishing baits, Fukuoka, 253pp. (in Japanese)
- Kondo, Y., Hirano, K., Kashimoto, K., Iida, K., Yonetani, M., Fuji, T. & Ohtsuka, S. 2018. Biological notes on *Tachypleus tridentatus* (Leach, 1819) in Hiroshima Prefecture, Japan: two species of epibiotic organisms found on adults, and the carcass of a juvenile presumably eaten by a bird. *Bulletin of Setouchi Field Science Center, Graduate School of Integrated Sciences for Life, Hiroshima University*, 16: 1–5. (in Japanese with English abstract)

- Nishikawa, T. 2012. *Siphonosoma cumanense* (Keferstein, 1867), *Ikedosoma gogoshimense* (Ikeda, 1904). In: The Japanese Association of Benthology (ed.), Threatened Animals of Japanese Tidal Flats: Red Data Book of Seashore Benthos, pp. 234, 237, Tokai University Press, Hatano. (in Japanese)
- Ohtsuka, S., Nishihara N., Hirayama, R., Tanaka, H., Kondo, Y., Saito, H., Shimizu, N., Tomikawa, K., Iida, K. & Yonetani, M. 2017. Occurrence of endangered tri-spine horseshoe crab in Etajima and Takehara Cities of Hiroshima Prefecture, western Japan. Japanese Journal of Benthology, 72: 16–26. (in Japanese with English abstract)
- Ohtsuka, S. & Takahashi, S. 2021. Conservation of tri-spine horseshoe crabs in the Seto Inland Sea – examples of tidal flats at Sone-higata, Fukuoka Prefecture, and Hachi-no-higata, Hiroshima Prefecture. Kagaku, 91: 232–234. (in Japanese)
- Saito, H., Iwasaki, S., Kondo, Y. & Ohtsuka, S. 2014. Distribution of peanut worms (Sipuncula) as fishing bait in the tidal flats at Hachi-no-hitgata. Bulletin of Setouchi Field Science Center, Graduate School of Integrated Sciences for Life, Hiroshima University, 12: 1–9. (in Japanese with English abstract)
- Tanaka, M., Kon, T. & Nishikawa, T. 2014. Unraveling a 70-year-old taxonomic puzzle: redefining the genus *Ikedosoma* (Annelida: Echiura) on the basis of morphological and molecular analyses. Zoological Science, 31: 849–861.
- Tanaka, T. & Nishikawa, T. 2013. A new species of the genus *Arhynchite* (Annelida, Echiura) from sandy flats of Japan, previously referred to as *Thalassema owstoni* Ikeda, 1904. Zookeys, 312: 13–21.
- Teramoto, S. & Teruya, S. 2017. molluscan fauna in sand-mud area in the subtidal zone offshore the Takehara marine Science Station of Hiroshima University, Takehara City, Hiroshima Prefecture. Nankiseibutsu, 59: 144–148.
- Tomikawa, H. 2012. *Ikeda taenioides* (Ikeda, 1904). In: Red Data Book Hiroshima Revision Review Committee (ed.), Red Data Book Hiroshima (3rd Edition) 2011, p. 265. Hiroshima Prefecture, Hiroshima.
- Yamamoto, A., Sato, S. & Azuma, M. 2015. Faunal change of benthic animals around the outer area of the Isahaya reclamation dike after the temporary opening of the water gates: special notes on the occurrence of *Devonia semperi* (Ohshima, 1930) (Bivalvia: Veneroidea: Galeommatoidea) from the outer area of the northern water gate. Molluscan Diversity, 4: 29–37.
- Yoshigo, H. 2003. A population of Lancelet (*Brachiostoma beicheri*) from a tidal beach in Takehara City, Hiroshima Prefecture. Hibakagaku, 211: 1–4.