

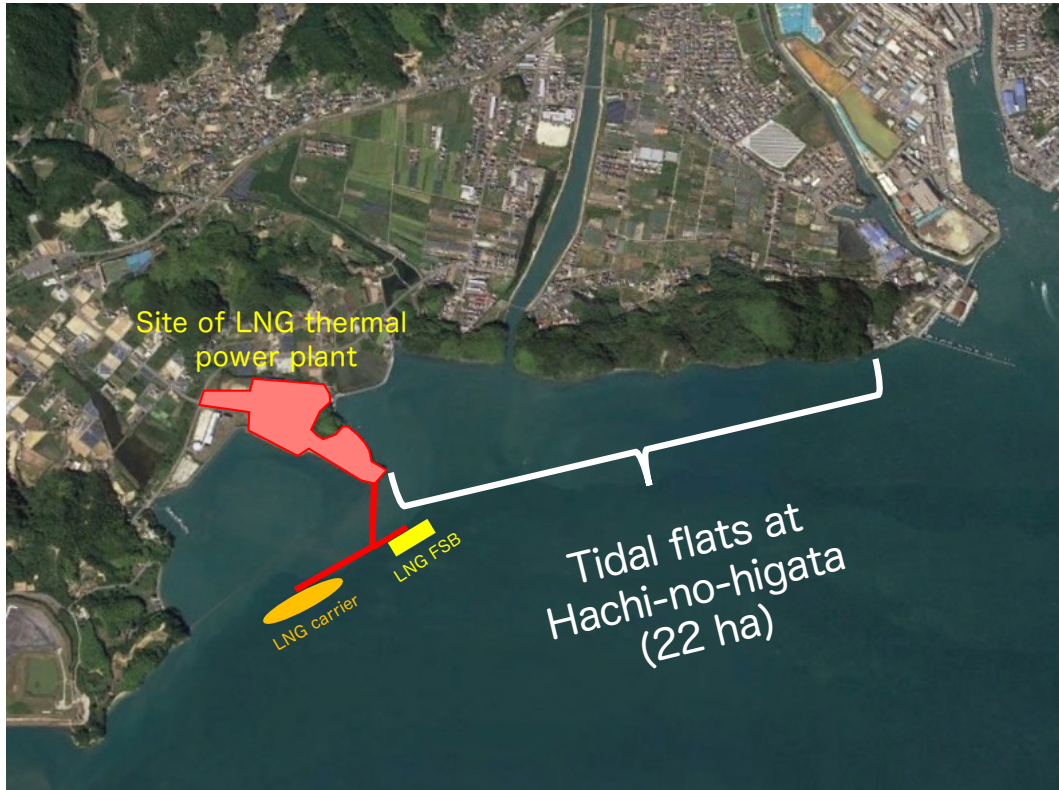
## Reference material



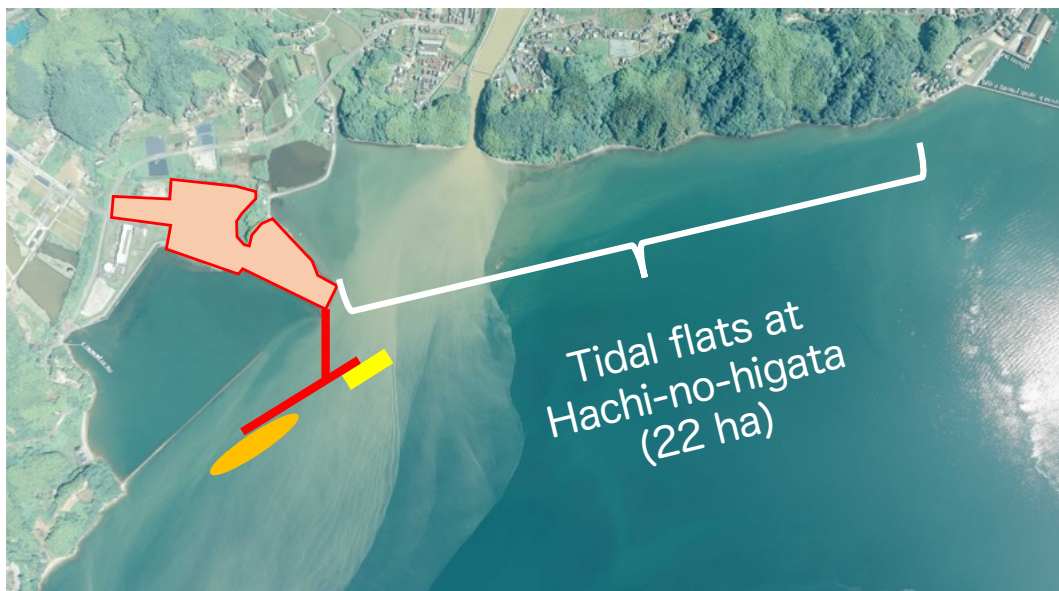
Phot 1 Tidal flats at Hachi-no-higata (view from land).



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 (JMREL), Red List of Marine Organisms of JME (JMREL \*), 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.

JMREL	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	<b><i>Tachypleus tridentatus</i> (Leach, 1819)</b>
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	<b><i>Amathina tricarinata</i> (Linnaeus, 1767)</b>
CR+EN	—	Clam	<i>Teqillarca granosa</i> (Linnaeus, 1758) ○
CR+EN	—	Clam	<b><i>Pegophysema bialata</i> (Pilsbry, 1895)</b>
CR+EN	—	Clam	<b><i>Bornioopsis ariakensis</i> Habe, 1959</b>
CR+EN	—	Clam	<b><i>Devonia semperi</i> (Ohshima, 1930)</b>
CR+EN	—	Clam	<b><i>Platomysia rugata</i> Habe, 1951</b>
CR+EN	—	Clam	<b><i>Basterotia gouldii</i> (A. Adams, 1864)</b>
CR+EN	CR+EN	Flatworm	<i>Ectoplana limuli</i> (Iijima & Kaburaki, 1916)
VU	—	Fish	<i>Pseudoqobius masago</i> (Tomiyama, 1936)
VU*	NT	Lancelet	<b><i>Branchiostoma japonicum</i> (Willey, 1897)</b>
VU	NT	Crab	<b><i>Uca lactea</i> (de Haan, 1835)</b>
VU	NA	Snail	<i>Cipangoaludina cf. laeta</i> (Martens, 1861)
VU	—	Snail	<b><i>Finella pupoides</i> A. Adams, 1860</b>
VU	—	Snail	<i>Stosicia annulata</i> (Dunker, 1860)
VU	—	Snail	<b><i>Assimineidae</i> gen. sp.</b>
VU	—	Snail	<b><i>Naticarius concinnus</i> (Dunker, 1860)</b>
VU	—	Snail	<b><i>Melanella tanahensis</i> Takano, Tanaka &amp; Kano, 2019</b>
VU	—	Snail	<b><i>Mucronalia exilis</i> A. Adams, 1862</b>
VU	—	Snail	<i>Engina menkeana</i> (Dunker, 1860)
VU	—	Snail	<b><i>Syrnola tenuisculpta</i> (Lischke, 1872)</b>
VU	—	Snail	<b><i>Melanochlamys fukudai</i> Cooke, Hanson, Y. Hirano, Ornelas-Gatdula, Gosliner, Chernyshev &amp; Valdés, 2014</b>
VU	—	Snail	<b><i>Cylichnatus yamakawai</i> (Yokoyama, 1920)</b>
VU	—	Clam	<b><i>Fragum carinatum</i> (Lyngø, 1909) ○</b>
VU	—	Clam	<b><i>Bornioopsis tsurumaru</i> Habe, 1959</b>
VU	—	Clam	<b><i>Thracia concinna</i> Reeve, 1859</b>
VU	—	Clam	<b><i>Solen kikuchii</i> Cosel, 2002</b>
NT	NT	Fish	<i>Hyporhamphus intermedius</i> (Cantor, 1842)
NT	NT	Fish	<i>Periophthalmus modestus</i> Cantor, 1842
NT*	—	Spoon worm	<b><i>Sipunculus nudus</i> Linnaeus, 1766</b>
NT*	—	Spoon worm	<i>Siphonosoma cumanense</i> (Keferstein, 1867)
NT*	NT	Spoon worm	<b><i>Ikeda taeniooides</i> (Ikeda, 1904)</b>
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	<b><i>Umboium moniliferum</i> (Lamarck, 1822)</b>
NT	—	Snail	<i>Plesiothyreus</i> sp.
NT	—	Snail	<i>Batillaria multiformis</i> (Lischke, 1869)
NT	—	Snail	<b><i>Vitrinella</i> sp.</b>
NT	—	Snail	<b><i>Nozema ziczac</i> (H. Fukuda &amp; Ekawa, 1997)</b>
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	<b><i>Pyrquolina shigevasui</i> (Yokoyama, 1927)</b>
NT	—	Snail	<i>Tiberia dunkeri</i> (Dall & Bartsch, 1906)
NT	—	Snail	<b><i>Turbonilla scrobiculata</i> Yokoyama, 1922</b>
NT	—	Snail	<i>Turbonilla kuraenohamana</i> Hori & H. Fukuda, 1999
NT	—	Snail	<b><i>Turbonilla teganumana</i> Yokoyama, 1922</b>
NT	—	Snail	<i>Laemodonta exaratooides</i> Kawabe, 1992
NT	—	Clam	<b><i>Solemya pusilla</i> Gould, 1861</b>
NT	—	Clam	<i>Atrina japonica</i> (Reeve, 1858)
NT	—	Clam	<b><i>Pinna attenuata</i> Reeve, 1858</b>
NT	—	Clam	<b><i>Mactrotoma angulifera</i> (Reeve, 1854)</b>
NT	—	Clam	<i>Nipponomysella subtruncata</i> (Yokoyama, 1927)
NT	—	Clam	<b><i>Peregrinamor ohshimai</i> Shōji, 1938</b>
NT	—	Clam	<i>Pseudoqaleomma japonica</i> (A. Adams, 1862)
NT	—	Clam	<i>Coecella chinensis</i> (Deshayes, 1855)
NT	—	Clam	<b><i>Nitidotellina hokkaidoensis</i> (Habe, 1961)</b>
NT	—	Clam	<b><i>Nitidotellina minuta</i> (Lischke, 1872)</b>
NT	—	Clam	<b><i>Solen roseomaculatus</i> Pilsbry, 1901</b>
NT	—	Clam	<i>Mya japonica</i> Jay, 1857
DD	—	Snail	<b><i>Dolicrossea</i> sp.</b>
—	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)



Photo 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)

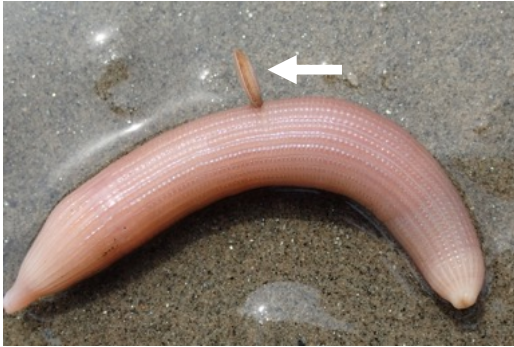


Photo 13 Lasaeid clam *Platomyia rugata* (CR+EN) attached to a sipunculid worm



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

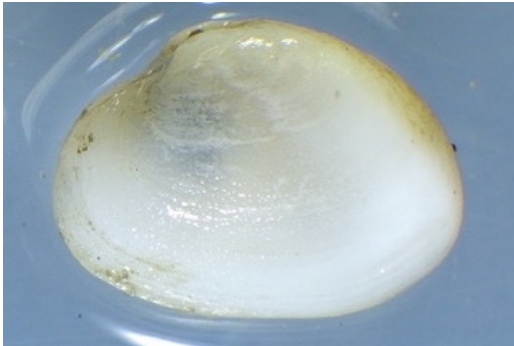


Photo 15 Basterotiid clam *Basterotia gouldi* (CR+EN)



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)

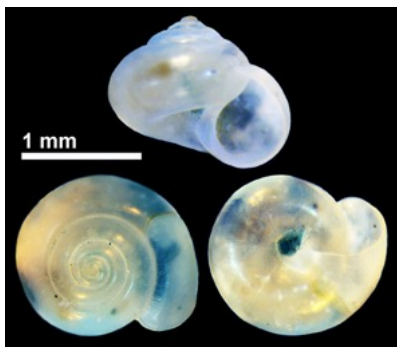


Photo 19 Assimineid snail Assimineidae gen. sp. (VU)



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.

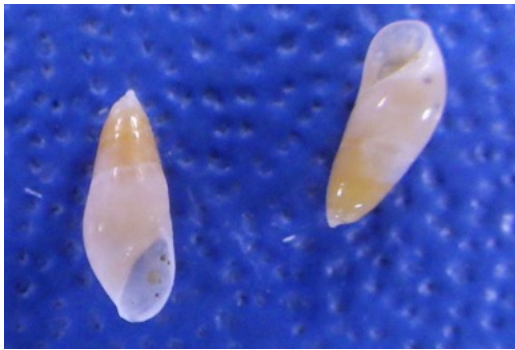


Photo 21 Eulimid snail *Melanella tanabensis* (VU)



Photo 22 Eulimid snail *Mucronalia exilis* (VU)



Photo 23 Pyramidellid snail *Syrnola tenuisculpta* (VU)



Photo 24 Aglagid 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 *Umbonium moniliferum* (NT)

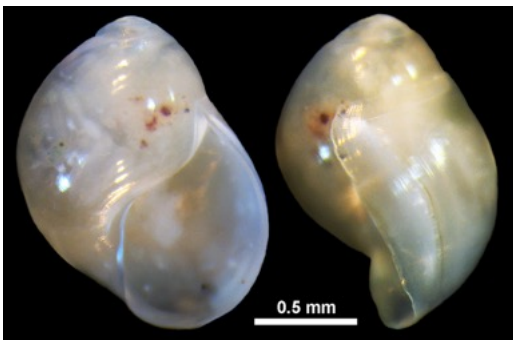


Photo 33 Tornid snail *Vitrinella* sp. (NT)



Photo 34 Elachisinid 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.

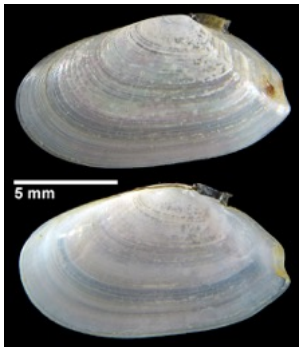


Photo 45 Tellinid clam *Nitidotellina minuta* (NT)



Photo 46 Solenid clam *Solen roseomaculatus* (NT)

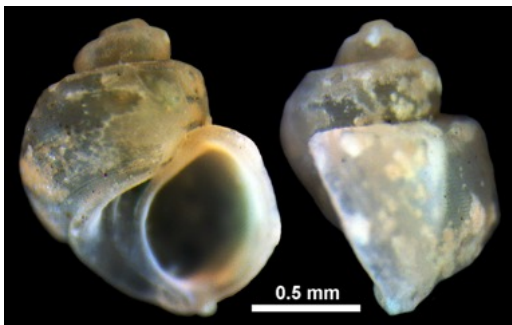


Photo 47 Elachisinid snail *Dolicrosesea* sp. (DD)

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