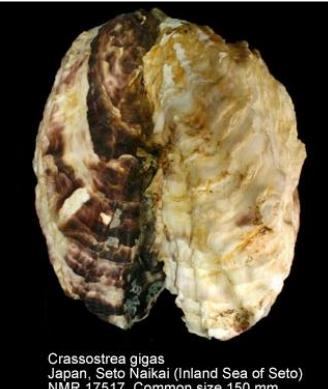


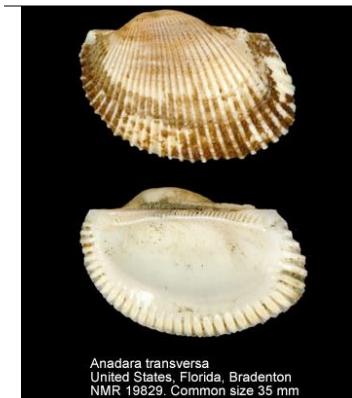
Bivalves present in Belgian marine waters

| | Common name | Scientific name | Adult size | NIS* | Habitat/structures colonized | Main period of larval presence | Period of larval settlement |
|--|-----------------------|--------------------------|------------|------|--|--------------------------------|-----------------------------|
|  <small>Mytilus edulis Netherlands, Zuid-Holland, Hoek van Holland NMR 38112. Common size 60 mm</small> | <u>Blue mussel</u> | <i>Mytilus edulis</i> | 5 – 10 cm | No | Windmill pilings | Spring | Spring |
|  <small>Crassostrea gigas Japan, Seto Naikai (Inland Sea of Seto) NMR 17517. Common size 150 mm</small> | <u>Pacific oyster</u> | <i>Crassostrea gigas</i> | 8 – 40 cm | Yes | Native mussel beds (Offshore) buoys | Summer | Summer |

*NIS = Non-Indigenous Species

| | | | | | | |
|--|---|------------|-----|--|--|--|
|  | Atlantic razor clam <i>Ensis leei</i> | 16 – 17 cm | Yes | Floating docks Native mussel beds Oyster reefs | Spring (Lasts up to 10-27 days) | Spring (after they've reached ± 210 µm) |
|  | Mediterranean mussel <i>Mytilus galloprovincialis</i> | 5 – 8 cm | Yes | Ships' hulls | Not known for the Belgian waters (Spring – Early summer in the Bay of Biscay) | Not known for the Belgian waters (Spring - Summer in the Bay of Biscay) |
|  | Zebra mussel <i>Dreissena polymorpha</i> | 3 – 5 cm | Yes | Ships' hulls Coastal defense structures Fishing nets Aquaculture cages Pipe blockage | Spring – Summer (2-4 weeks) | Spring – Summer |

*NIS = Non-Indigenous Species



Transverse ark

Anadara transversa

2 – 3 cm

Yes

Shellfish aquaculture

Not known for Belgian waters
(Summer in the northern Adriatic Sea)

Not known for Belgian waters



Asian date mussel

Arcuatula senhousia

1 – 3.5 cm

Yes

Coastal defense structures
Jetties
Seaweeds

Not known for Belgian waters
(Late winter in the northern Adriatic Sea)

Not known for Belgian waters
(Settle after a planktonic life stage of 3-6 weeks)



Pacific jewel box

Chama pacifica

6 – 8 cm

Yes

Ships' hulls

Not known for Belgian waters

Not known for Belgian waters

*NIS = Non-Indigenous Species

| | | | | | | | |
|--|------------------------|-------------------------------|--------------|-----|--|------------------------------|------------------------------|
|  | Asian clam | <i>Corbicula fluminea</i> | 2.5 – 6.5 cm | Yes | Ships' hulls Plants | Not known for Belgian waters | Not known for Belgian waters |
|  | Variable mussel | <i>Brachidontes pharaonis</i> | Up to 4 cm | Yes | Ships' hulls Coastal defense structures | Not known for Belgian waters | Not known for Belgian waters |

*NIS = Non-Indigenous Species

**Quagga mussel**

*Dreissena
rostriformis
bugensis*

3 – 4 cm

Yes

Ships' hulls
Buoys
Harbors
Coastal defense
structures
Pipe blockage

Not known for Belgian
waters
(September in Nevada,
USA)

Not known for Belgian
waters
(October – December
in Nevada, USA)

**Conrad's false
mussel**

*Mytilopsis
leucophaeata*

1.3 – 2.7
cm

Yes

Ships' hulls
Pipe blockage

Not known for Belgian
waters

Not known for Belgian
waters

*NIS = Non-Indigenous Species

| | | | | | | | |
|--|------------------------|-----------------------|------------|-----|--------------------------|--|---|
| <p>Rangia cuneata Netherlands, Noord-Holland Spaardam, Landje van Grijters NMR 100587. Actual size 63 mm</p> | <u>Atlantic rangia</u> | <i>Rangia cuneata</i> | 2.5 – 6 cm | Yes | Harbors Pipe blockage | Not known for Belgian waters (Fall & winter in the James River, USA) | Not known for Belgian waters (Early to midsummer & late fall to winter in the James River, USA) |
| | | | | | | | |

References:

- Azpeitia, K., Ortiz-Zarragoitia, M., Revilla, M., & Mendiola, D. (2017). Variability of the reproductive cycle in estuarine and coastal populations of the mussel *Mytilus galloprovincialis* Lmk. from the SE Bay of Biscay (Basque Country). *International Aquatic Research*, 9(4), 329–350. <https://doi.org/10.1007/s40071-017-0180-3>
- Birnbaum, C. (2011): NOBANIS – Invasive Alien Species Fact Sheet – *Dreissena polymorpha*. – From: Online Database of the European Network on Invasive Alien Species – NOBANIS www.nobanis.org, Date of access 25/09/2020
- Buck, B. H. (2007). Experimental trials on the feasibility of offshore seed production of the mussel *Mytilus edulis* in the German Bight: Installation, technical requirements and environmental conditions. *Helgoland Marine Research*, 61(2), 87–101.
- Diederich, S., Nehls, G. J. E. E., Van Beusekom, J. E., & Reise, K. (2005). Introduced Pacific oysters (*Crassostrea gigas*) in the northern Wadden Sea: invasion accelerated by warm summers?. *Helgoland Marine Research*, 59(2), 97.
- El-Sayed, A., & El-Mekawy, H. A. (2016). Biometric Relationships for the Bivalve Mussel, *Brachidontes pharaonis* Populations from the North-Western Coast of Suez Gulf, Egypt. *Egyptian Academic Journal of Biological Sciences Zoology*, 8(1), 61–73.
- Essink, K. (1985). On the occurrence of the American jack-knife clam *Ensis directus* (Conrad, 1843) (Bivalvia, Cultellidae) in the Dutch Wadden Sea. *Basteria*, 49, 73–80.

*NIS = Non-Indigenous Species

- Frantzen, S. (2007). Recruitment of blue mussels, *Mytilus edulis* L., on suspended collectors in Finnmark, North Norway (70-71°N). *Marine Biology Research*, 3(1), 37–48. <https://doi.org/10.1080/17451000601182627>
- Gollasch, S., Kerckhof, F., Craeymeersch, J., Gouletquer, P., Jensen, K., Jelmert, A., ... Minchin, D. (2015). *Alien Species Alert: Ensis directus. Current status of invasions by the marine bivalve Ensis directus*. ICES Cooperative Research Report (Vol. 323). Retrieved from [http://www.ices.dk/sites/pub/Publication Reports/Cooperative Research Report \(CRR\)/crr323/CRR 323.pdf](http://www.ices.dk/sites/pub/Publication Reports/Cooperative Research Report (CRR)/crr323/CRR 323.pdf)
- LaSalle, M. W., & de la Cruz, A. (1985). Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Gulf of Mexico): common rangia (Vol. 82). Fish and Wildlife Service.
- Mistri, M. (2002). Ecological characteristics of the invasive asian date mussel, *Musculista senhousia*, in the Sacca di Goro (Adriatic Sea, Italy). *Estuaries*, 25(3), 431–440. <https://doi.org/10.1007/bf02695985>
- Nerlović, V., Perić, L., Slišković, M., & Mrčelić, G. J. (2018). The invasive *Anadara transversa* (Say, 1822)(Mollusca: Bivalvia) in the biofouling community of northern Adriatic mariculture areas. *Management of Biological Invasions*, 9(3), 239.
- Nguyen, L. T. H., & De Pauw, N. (2002). The invasive *Corbicula* species (Bivalvia, Corbiculidae) and the sediment quality in Flanders, Belgium. *Belgian Journal of Zoology*, 132(1), 41–48.
- Ovalis, P., & Zenetos, A. (2007). On the establishment of two more alien mollusca (*Chama aspersa* Reeve, 1846 and *Chama asperella* Lamarck, 1819) in the eastern Mediterranean. *Mediterranean Marine Science*, 8/2, 97–100.
- Philippart, C. J., Amaral, A., Asmus, R., van Bleijswijk, J., Bremner, J., Buchholz, F., ... & Comtet, T. (2012). Spatial synchronies in the seasonal occurrence of larvae of oysters (*Crassostrea gigas*) and mussels (*Mytilus edulis/galloprovincialis*) in European coastal waters. *Estuarine, coastal and shelf science*, 108, 52–63.
- Verween, A., Kerckhof, F., Vincx, M., & Degraer, S. (2006). First European record of the invasive brackish water clam *Rangia cuneata* (G.B. Sowerby I, 1831) (Mollusca: Bivalvia). *Aquatic Invasions*, 1(4), 198–203. <https://doi.org/10.3391/ai.2006.1.4.1>
- Witbaard, R., Duineveld, G. C. A., Bergman, M. J. N., Witte, H. I. J., Groot, L., & Rozemeijer, M. J. C. (2015). The growth and dynamics of *Ensis directus* in the near-shore Dutch coastal zone of the North Sea. *Journal of Sea Research*, 95, 95–105. <https://doi.org/10.1016/j.seares.2014.09.008>
- Wong, W. H., Gerstenberger, S., Baldwin, W., & Moore, B. (2012). Settlement and growth of quagga mussels (*Dreissena rostriformis bugensis* Andrusov, 1897) in Lake Mead, Nevada-Arizona, USA. *Aquatic Invasions*, 7(1), 7–19. <https://doi.org/10.3391/ai.2012.7.1.002>