

NOBANIS - Marine invasive species in Nordic waters - Fact Sheet

Lepas anatifera

Author of this species fact sheet: Kathe R. Jensen, Zoological Museum, Natural History Museum of Denmark, Universiteteparken 15, 2100 København Ø, Denmark. Phone: +45 353-21083, E-mail: krjensen@snm.ku.dk

Bibliographical reference – how to cite this fact sheet:

Jensen, Kathe R. (2010): NOBANIS – Invasive Alien Species Fact Sheet – *Lepas anatifera* – From: Identification key to marine invasive species in Nordic waters – NOBANIS www.nobanis.org, Date of access x/x/201x.

Species description

Species name

Lepas anatifera, Linnaeus, 1758 – Common goose barnacle

Synonyms

Lepas (Anatifa) anatifera; several subspecies have been described from around the world, e.g. *L. anatifera striata* (de Graaf, 1952).

Common names

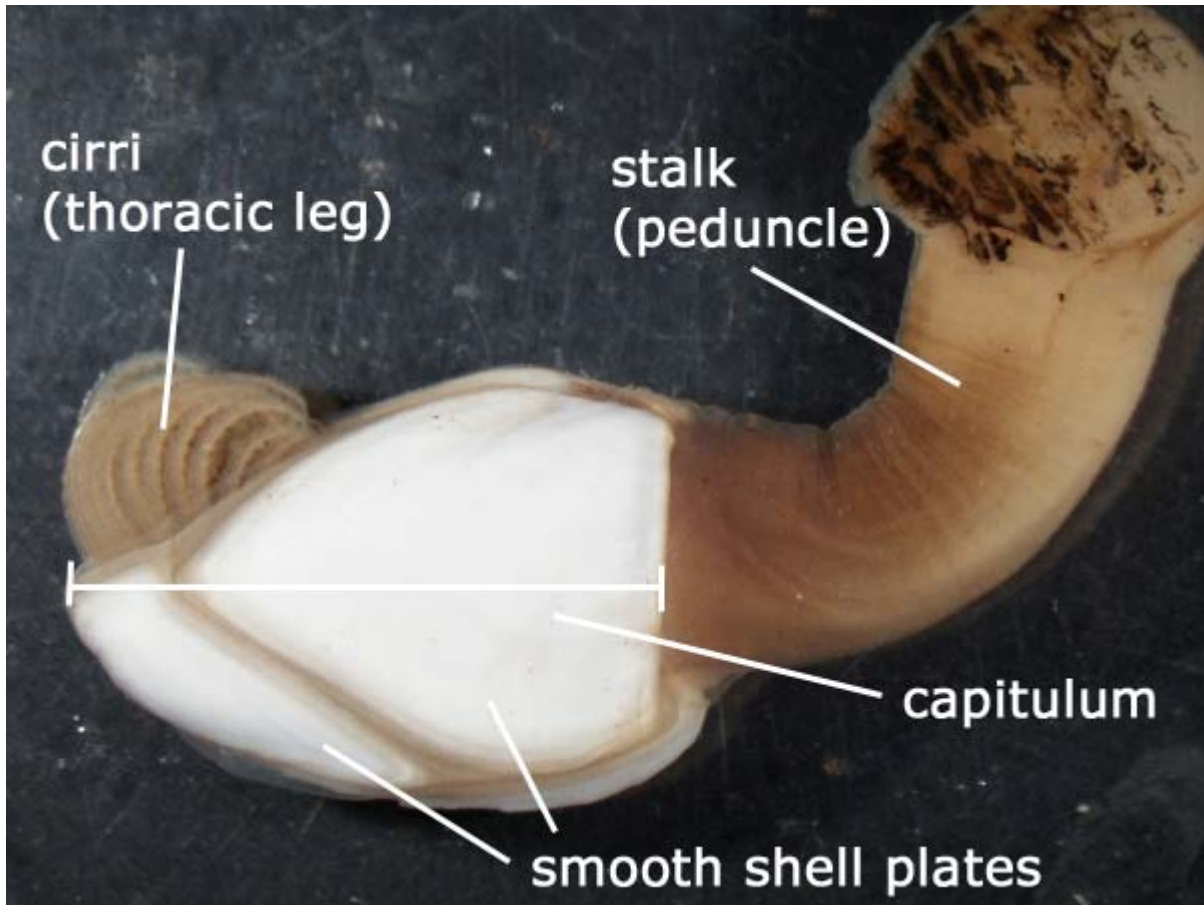
Common goose barnacle, Smooth goose-neck barnacle (UK, USA); Almindelig langhals, Glat langhals (DK); Svartstilket andeskjell (NO); Pouce-pied, Anatife (FR); Gewone eendemossel, Grote eendemossel (NL).

Taxonomic note

The year of description is variously given as Linnaeus 1758 or 1767. According to World Register of Marine Species (WoRMS) the correct year is 1758 (see: <http://www.marinespecies.org/>).

Identification

The stalk (peduncle) can be extremely long, up to 80 cm, but usually is only about 4 cm long. The “head” (capitulum) is up to 5 cm long and covered by 5 smooth white plates. This species is usually attached to floating objects, such as ships’ hulls, driftwood or even drifting plastic waste. There are several species of *Lepas* found in tropical and subtropical waters, but the species usually found in Nordic waters is *L. anatifera*. The meaning of the scientific species name is “bearer of ducklings”. Occasionally another species, *L. anserifera* Linnaeus, 1767, enters the Norwegian Sea, Skagerrak and the northern North Sea. Its shell plates are more sculptured than the almost completely smooth *L. anatifera*. Also *L. fascicularis* Ellis & Solander, 1786, with a very short stalk, and *L. pectinata* Spengler, 1793 are rare visitors in Nordic waters.



Picture of *Lepas anatifera* with cirri, stalk and smooth shell plates. Photo by Kathe Rose Jensen.

Lepas anatifera see: http://species-identification.org/species.php?species_group=crustacea&id=112 and <http://www.marlin.ac.uk/speciesfullreview.php?speciesID=3643>

Lepas anserifera see: http://species-identification.org/species.php?species_group=crustacea&id=113

Lepas fascicularis see: http://species-identification.org/species.php?species_group=crustacea&id=114

Lepas hilli (Leach, 1818) see: http://species-identification.org/species.php?species_group=crustacea&id=115

Lepas pectinata see: http://species-identification.org/species.php?species_group=crustacea&id=116

Distribution

Native area

This is a cryptogenic species with unknown area of origin. It is more common in warmer waters of subtropical and tropical seas.

Introduced area

It is a cryptogenic species. Hence, no specific area can be designated as introduced. It occurs almost worldwide, but may be more common in the Atlantic Ocean than elsewhere. Krüger (1927) lists several localities, some from beaches on the west coast and some from inner Danish waters, but the latter are all from ships (for some records the port of origin is also noted; Lisbon, Mediterranean; West-Indies, South America). In the UK it is recorded from the whole western coast and the western part of the south coast, but only a few places on the east coast (MARLIN – see link above). In the North Atlantic it has been recorded till Spitzbergen and Greenland (Stephensen, 1933). *Lepas* spp. are not included in lists of introduced species from Germany (Gollasch & Nehring, 2006), Netherlands (Wolff, 2005), Belgium (Kerckhof et al., 2007), Ireland (Minchin, 2007) or the U.K. (Eno et al., 1997).

Vector

This species disperses with floating objects, such as ships' hulls and driftwood. It is unknown if human activities have been involved in its dispersal to Nordic waters, but it is often associated with man-made substrates (Krüger, 1927; Cheng & Lewin, 1976; Sneli, 1983).

Ecology

Lepas anatifera is most abundant in tropical and subtropical waters with temperatures above 18° C but below 34° C (Patel, 1959). It attaches to almost any floating objects, such as ships' hulls, wood, plastic – even turtles (Cheng & Lewin, 1976; Frick et al., 2003; Kitsos et al., 2003), and may also attach to fixed structures off-shore (Sneli, 1983). There are also indications that they may attach to attached macroalgae (Boëtius, 1952). *L. anatifera* cannot tolerate stagnant water (Patel, 1959) or low salinity. In the laboratory *L. anatifera* feeds on zooplankton and is not able to tolerate starvation for any length of time (Patel, 1959). The nudibranch *Fiona pinnata* (Eschscholtz, 1831) is a specialized predator on gooseneck barnacles (Thompson & Brown, 1984). Molting includes the integument of the body parts inside the mantle cavity, but not the lining of this cavity nor the stalk. Molting takes place every 8 to 27 days depending on temperature and food availability (Patel, 1959).

Reproduction

It has been claimed that *Lepas* spp. cannot reproduce in Nordic waters. However, settlement of larvae has been observed at a Norwegian off-shore facility (Sneli, 1983). *L. anatifera* is hermaphroditic, but requires cross-fertilization. Breeding requires a minimum temperature of 15° C and stops at temperatures above 30° C. Reproduction sets in about 4-5 weeks after settlement. Ovaries and newly spawned eggs are blue. The size of eggs and embryos depends on temperature, but generally embryos are about 250 µm long. During embryonic development the color changes to pink. Larvae hatch after 7 days at 25° C (Patel, 1959). The nauplius II larvae have long, conspicuous, barbed abdominal processes (Stephensen, 1933).

Impacts

When attached to ships' hulls in large amounts gooseneck barnacles may slow down the speed of the vessel. Goose barnacles may also attach to aquaculture, mariculture, and other off-shore equipment (Castro et al., 1999) and thus be a nuisance to these operations. Drifting solid wastes often function as substrate, but it is unknown whether this slows down or speeds up degradation of such waste.

References

- Boëtius, J. 1952. Some notes on the relation to the substratum of *Lepas anatifera* L. and *Lepas fascicularis* E. et S. *Oikos* 4(2): 112-117.
- Brock, H. 1959. Cirripedia Thoracica. Family Lepadidae. ICES Zooplankton Identification Sheet 83, 4pp.
- Castro, J.J., Santiago, J.A. and Hernández-García, V. 1999. Fish associated with fish aggregation devices off the Canary Islands (Central-East Atlantic). *Scientia Marina* 63(3-4): 191-198.
- Cheng, L. and Lewin, R.A. 1976. Goose barnacles (Cirripedia: Thoracica) on flotsam beached at La Jolla, California. *Fishery Bulletin* 74(1): 212-217.
- Eno, N.C., Clark, R.A. and Sanderson, W.G. 1997. Non-native marine species in British waters: a review and directory. Joint Nature Conservation Committee, Peterborough, UK, 136pp.
- Frick, M.G., Ross, A., Williams, K.L., Bolten, A.B., Bjorndal, K.A. and Martins, H.R. 2003. Epibiotic associates of oceanic-stage loggerhead turtles from the southeastern North Atlantic. *Marine Turtle Newsletter* 101: 18-20.
- Gollasch, S. and Nehring, S. 2006. National checklist for aquatic alien species in Germany. *Aquatic Invasions* 1(4): 245-269.
- Green, A., Tyler, P.A., Angel, M.V. and Gage, J.D. 1994. Gametogenesis in deep- and surface-dwelling oceanic stalked barnacles from the NE Atlantic Ocean. *Journal of Experimental Marine Biology and Ecology* 184: 143-158.
- Hopkins, C.C.E. 2001. Actual and potential effects of introduced marine organisms in Norwegian waters, including Svalbard. Research report 2001-1. Directorate for Nature Management, 53pp.
- Jensen, K.R. and Knudsen, J. 2005. A summary of alien marine benthic invertebrates in Danish waters. *Oceanological and Hydrobiological Studies* 34, Supplement 1: 137-162.
- Kerckhof, F., Haelters, J. and Golasch, S. 2007. Alien species in the marine and brackish ecosystem: the situation in Belgian waters. *Aquatic Invasions* 2(3): 243-257.
- Kitsos, M.-S., Christodoulou, M., Kalpakis, S., Noidou, M. and Koukouras, A. 2003. Cirripedia Thoracica associated with *Caretta caretta* (Linnaeus, 1758) in the northern Aegean Sea. *Crustaceana* 76(4): 403-409.
- Krüger, P. 1927. Cirripedia Thoracica der Dänischen Gewässer. *Videnskabeligt Meddelelser fra Dansk Naturhistorisk Forening* 84: 11-16.
- Minchin, D. 2007. A checklist of alien and cryptogenic aquatic species in Ireland. *Aquatic Invasions* 2(4): 341-366.
- Patel, B. 1959. The influence of temperature on the reproduction and moulting of *Lepas anatifera* L. under laboratory conditions. *Journal of the Marine Biological Association of the United Kingdom* 38: 589-597.

Sneli, J.-A. 1983. Larvae of *Lepas anatifera* L., 1758, in the North Sea (Cirripedia). *Crustaceana* 45(3): 306-308.

Southward, A.J. 1957. On the behaviour of barnacles III. Further observations on the influence of temperature and age on cirral activity. *Journal of the Marine Biological Association of the United Kingdom* 36: 323-334.

Stephensen, K. 1933. Havedderkopper (Pycnogonida) og rankefødder (Cirripedia). *Danmarks Fauna* 38: 1-158.

Thompson, T.E. and Brown, G.H. 1984. *Biology of Opisthobranch Molluscs*. Vol. 2. Ray Society, London. 229pp.

Wolff, W.J. 2005. Non-indigenous marine and estuarine species in The Netherlands. *Zoologische Mededelingen* 79(1): 1-116.