Cancer pagurus

Cancer pagurus, commonly known as the **edible crab** or **brown crab**, is a species of crab found in the North Sea, North Atlantic Ocean and perhaps in the Mediterranean Sea. It is a robust crab of a reddish-brown colour, having an oval carapace with a characteristic "pie crust" edge and black tips to the claws. A mature adult may have a carapace width of up to 25 cm (10 in) and weigh up to 3 kg (6.6 lb). *C. pagurus* is a nocturnal predator, targeting a range of molluscs and crustaceans. It is the subject of the largest crab fishery in Western Europe, centred on the coasts of the British Isles, with more than 60,000 tonnes caught annually.

1 Description

Mouthparts and chelae of a female

Ventral view of an egg-bearing female

The carapace of *C. pagurus* adults is a reddish-brown colour, while in young specimens it is purple-brown. It occasionally bears white patches, and is shaped along the front edge into nine rounded lobes,[1] resembling a pie crust.[2] Males typically have a carapace 60 millimetres (2.4 in) long, and females 98 mm (4 in) long, although they may reach up to 150 mm (6 in) long in exceptional cases.[1] Carapace width is typically 150 mm (6 in), or exceptionally up to 250 mm (10 in).[3] A fold of the carapace extends ventrally to constitute a branchial chamber where the gills lie.[4]

The first pereiopod is modified into a strong cheliped (claw-bearing leg): the claw's fingers, the dactylus and propodus, are black at the tips.[1] The other pereiopods are covered with rows of short stiff setae; the dactylus of each is black towards the tip, and ends in a sharp point.[1]

From the front, the antennae and antennules are visible. Beside these there are the orbits in which the eyes are situated.[4] The mouthparts comprise three pairs of maxillipeds, behind which there are a pair of maxillae, a pair of maxillules, and finally the mandibles.[4]

In common with most crabs, the abdomen is folded under the thorax and shows clear sexual dimorphism: in males it is comparatively narrow, whereas in the female it is wider.[4]

2 Life cycle

Reproduction occurs in winter; the male stands over the female and forms a cage with his legs protecting her while she moults.[2] Internal fertilisation takes place before the hardening of the new carapace, with the aid of two abdominal appendages (gonopods). After mating, the female retreats to a pit on the sea floor to lay her eggs.[2] Between 250,000 and 3,000,000 fertilised eggs[5] are held under the female's abdomen for up to eight months until they hatch.[2]

The first developmental stage after hatching is a planktonic larva (1 mm) called the zoea that develops into a postlarva (megalopa), and finally a juvenile.[6] The first juvenile stage is characterised by a well-developed abdomen, which will, in time, become reduced in size and folded under the sternum. Juveniles settle to the sea floor in the intertidal zone, where they stay until they reach a carapace width of 60–70 mm (2.4–2.8 in) and then migrate to deeper water.[5] The growth rate in males slows from an increase in carapace width of 10 mm per year before it is eight years old, to 2 mm per year thereafter.[5] Females grow at about half the rate of males,[5] probably due to the energetic demands of egg laying. Sexual maturity is reached at a carapace width of 12.7 cm (5.0 in) in females, and 11 cm (4.3 in) in males.[2] Longevity is typically 25–30 years, although exceptional individuals may live for up to 100 years.[7]

The blue mussel, Mytilus edulis*, is a favourite food of* Cancer pagurus.

3 Distribution and ecology

Cancer pagurus is abundant throughout the northeast Atlantic as far as Norway in the north and northern Africa in the south, on mixed coarse grounds, mud and sand from the shallow sublittoral to depths of about 100 metres (330 ft).[3] It is frequently found inhabiting cracks and holes in rocks but occasionally also in open areas. Smaller specimens may be found under rocks in the littoral zone.[2] Unconfirmed reports suggest that *C. pagurus* may also occur in the Mediterranean Sea and Black Sea.[5]

Adult *C. pagurus* are nocturnal, hiding buried in the substrate during the day, but foraging at night up to 50 metres (160 ft) from their hideouts.[8] Their diet includes a variety of crustaceans (including the crabs *Carcinus maenas* and *Pilumnus hirtellus*, the porcelain crabs *Porcellana platycheles* and *Pisidia longicornis*, and the squat lobster *Galathea squamifera*) and molluscs (including the gastropods *Nucella lapillus* and *Littorina littorea*, and the bivalves *Ensis*, *Mytilus edulis*, *Cerastoderma edule*, *Ostrea edulis* and *Lutraria lutraria*). It may stalk or ambush motile prey, and may dig large pits to reach buried molluscs.[5] The main predator of *Cancer pagurus* is the octopus, which will even attack them inside the crab pots that fishermen use to trap them.[9]

Compared to other commercially important crab species, relatively little is known about diseases of *Cancer pagurus*.[10] Its parasites include viruses, such as the white spot syndrome virus, various bacteria that cause dark lesions on the exoskeleton, and *Hematodinium*-like dinoflagellates that cause "pink crab disease".[10] Other microscopic pathogens include fungi, microsporidians, paramyxeans and ciliates. *Cancer pagurus* is also targeted by metazoan parasites, including trematodes and parasitic barnacles.[10] A number of sessile animals occasionally settle as epibionts on the exoskeleton of *C. pagurus*, including barnacles, sea anemones, serpulid polychaetes such as *Janua pagenstecheri*, bryozoans and saddle oysters.[10]

4 Fishery

Crab pots, Lindisfarne, North Sea

Cancer pagurus is heavily exploited commercially throughout its range, being the most commercially important crab species in Western Europe.[2] The crabs are caught using crab pots (similar to lobster pots) which are placed offshore and baited.[2] The catch of *C. pagurus* has increased steadily, rising from 26,000 tonnes in 1978 to 60,000 t in 2007, of which more than 70% was caught around the British Isles.[11] The fishery is widely dispersed around the British and Irish coasts, and *C. pagurus* is thought to be overfished across much of this area.[11] Most of the edible crabs caught by the British fleet are exported live for sale in France and Spain.[12]

A number of legal restrictions apply to the catching of *Cancer pagurus*. It is illegal to catch "berried" crabs (females carrying eggs),[2] but since ovigerous females remain in pits dug in the sediment and do not feed, fishing pressure does not affect the supply of larvae.[5] Minimum landing sizes (MLS) for *C. pagurus* are set by both the European Union technical regulations and by the UK government.[11] Different minimum sizes are employed in different geographical areas, to reflect differences in the crab's growth rate across its range.[11] In particular, the "Cromer crab" fishery along the coasts of Suffolk, Norfolk and Lincolnshire is subject to a MLS of 115 mm (4.5 in), rather than the 140 mm (5.5 in) MLS in most of the species' range. An intermediate value of 130 mm (5.1 in) is used in the rest of the North Sea between the 56th parallel north and the Essex–Kent border, and in the Irish Sea south of 55° N. Around Devon, Cornwall and the Isles of Scilly, there is a separate MLS for males (160 mm or 6.3 in) and females (140 mm or 5.5 in).[11] The Norwegian catch is 8,500 tons annually, compared to 20,000 tons in the United Kingdom, 13,000 tons in Ireland, 8,500 tons in France, and a total 45,000 tons globally.[13]

5 Cookery

Around one third of the weight of an adult edible crab is meat, of which one third is white meat from the claws (see declawing of crabs), and two thirds is brown meat from the body.[14] As food, male edible crabs are referred to as cocks and females as hens. Cocks have more sweet white meat; hens have more rich brown meat.[15] Dishes include **dressed crab** (crab meat arranged in the cleaned shell, sometimes with decoration of other foodstuffs), soups such as bisque or bouillabaisse, pâtés, mousses and hot soufflés.[16]

6 Taxonomy and systematics

According to the rules of the International Code of Zoological Nomenclature, *Cancer pagurus* was first described by Carl Linnaeus in 1758, in the tenth edition of his *Systema Naturae*, which marks the starting point of zoological nomenclature. It was chosen to be the type species of the genus *Cancer* by Pierre André Latreille in 1810.[17] The specific epithet *pagurus* is a Latin word, deriving from the Ancient Greek πάγουρος (*pagouros*), which, alongside "κάρκινος" (*karkinos*), was used to refer to edible marine crabs; neither classical term can be confidently assigned to a particular species.[18]

Although the genus *Cancer* formerly included most crabs,[19] it has since been restricted to eight species.[17] Within that set of closely related species, the closest relative of *C. pagurus* is the Jonah crab, *Cancer borealis*, from the east coast of North America.[20]

7 External links

- Media related to *Cancer pagurus* at Wikimedia Commons
- Dressed crab, recipe from BBC Food

8 References

[1] Mario J. de Kluijver & Sarita S. Ingalsuo. "*Cancer pagurus*". *Macrobenthos of the North Sea*. Universiteit van Amsterdam. Retrieved August 4, 2010.

[2] "Edible crab (*Cancer pagurus*)". ARKive. Retrieved September 16, 2010.

[3] Ken Neal & Emily Wilson (2008). "Edible crab – *Cancer pagurus*". Marine Life Information Network.

[4] Ray W. Ingle (1997). "Structure and function". *Crayfishes, lobsters, and crabs of Europe: an illustrated guide to common and traded species*. Cambridge University Press. pp. 2–10. ISBN 978-0-412-71060-5.

[5] "Species Information for *Cancer pagurus*". *Biological Traits Information Catalogue*. Marine Life Information Network. Retrieved August 11, 2010.

[6] D. R. Eaton, J. Brown, J. T. Addison, S. P. Milligana & L. J. Fernand (2003). Oliver Tully, Juan Freire & Julian T. Addison, ed. "Life Histories, Assessment and Management of Crustacean Fisheries". *Fisheries Research* **65** (1–3): 191–199. doi:10.1016/j.fishres.2003.09.036. |chapter= ignored (help)

[7] "Edible crab, *Cancer pagurus*". *Fishonline*. Marine Conservation Society. Retrieved August 23, 2010.

[8] K. Skajaa, A. Ferno, S. Lokkeborg & E. K. Haugland (1998). J.-P. Lagardère, M.-L. Béhout Anras G. Claireaux, ed. "Advances in Invertebrates and Fish Telemetry". *Hydrobiologia*. 371–372 (0): 143–153. doi:10.1023/A:1017047806464. |chapter= ignored (help)

[9] Maurice Burton & Robert Burton (2002). "Edible crab". *International Wildlife Encyclopedia* (3rd ed.). Marshall Cavendish. pp. 741–742. ISBN 978-0-7614-7266-7.

[10] Grant D. Stentiford (2008). "Diseases of the European edible crab (*Cancer pagurus*): a review". *ICES Journal of Marine Science* **65** (9): 1578–1592. doi:10.1093/icesjms/fsn134.

[11] Nautilus Consultants (December 2009). *Future Management of Brown Crab in the UK and Ireland (IPF_D123)* (PDF). Seafish Report No. SR633. Sea Fish Industry Authority. ISBN 978-1-906634-36-0.

[12] "Responsible Sourcing Guide: Crabs & Lobsters" (PDF). Sea Fish Industry Authority. August 2, 2009.

[13] Knut Sunnanå. "Taskekrabbe" [Edible crab] (PDF) (in Norwegian). Norwegian Institute of Marine Research.

[14] Alan Davidson & Tom Jaine (2006). "Common crab". *The Oxford Companion to Food*. Oxford University Press. p. 222. ISBN 978-0-19-280681-9.

[15] Sheila Keating (February 9, 2008). "Food detective: crabs". The Times. Retrieved June 26, 2011.

[16] Rowland Foote (1996). "Types of shellfish". *Food preparation and cooking: Cookery units. Student guide*. Catering and hospitality, NVQ/SVQ2 (2nd ed.). Nelson Thornes. pp. 306–309. ISBN 978-0-7487-2566-3.

[17] Peter K. L. Ng, Danièle Guinot & Peter J. F. Davie (2008). "Systema Brachyurorum: Part I. An annotated checklist of extant Brachyuran crabs of the world" (PDF). *Raffles Bulletin of Zoology* **17**: 1–286.

[18] Andrew Dalby (2003). "Crab". *Food in the ancient world from A to Z*. Routledge. p. 105. ISBN 978-0-415-23259-3.

[19] Gary C. B. Poore & Shane T. Ahyong (2004). "Cancridae Latreille, 1803". *Marine decapod Crustacea of southern Australia: a guide to identification*. CSIRO Publishing. pp. 401–403. ISBN 978-0-643-06906-0.

[20] Michelle K. Harrison and Bernard J. Crespi (1999). “Phylogenetics of *Cancer* crabs (Crustacea: Decapoda: Brachyura)" (PDF). *Molecular Phylogenetics and Evolution* **12** (2): 186–199. doi:10.1006/mpev.1998.0608. PMID 10381321.

9 Text and image sources, contributors, and licenses

9.1 Text

- **Cancer pagurus** *Source:* http://en.wikipedia.org/wiki/Cancer%20pagurus?oldid=629581780 *Contributors:* Eugene van der Pijll, Robbot, Psychonaut, LHOON, Dr.frog, Jayjg, LindsayH, Syp, John Fader, Halsteadk, Stemonitis, Isfisk, Sengkang, GraemeLeggett, Trewornan, Pjrs, Rjwilmsi, Eubot, RobertWalden, YurikBot, RussBot, Gaius Cornelius, Zwobot, Epipelagic, Nescio, That Guy, From That Show!, SmackBot, KnowledgeOfSelf, Eskimbot, Chris the speller, Bazonka, Nbarth, OrphanBot, GrahamBould, JLCA, CmdrObot, Cydebot, Casliber, Rosarinagazo, I do not exist, Itsmejudith, Sophie means wisdom, Magioladitis, Soulbot, Jarvin, Bisonfum, Ligulem-s, Nono64, Vanished User 4517, Philip Trueman, TXiKiBoT, Frans Fowler, BotMultichill, Jonmp, Solsticedhiver, Panellet, Vegetator, Darmot and gilad, Richard Helmet, SilvonenBot, Addbot, DOI bot, LaaknorBot, Laikayiu, Ptbotgourou, Mmxx, Bjoertvedt, Citation bot, Xqbot, Discodown, Crabfan, Nasnema, RibotBOT, LucienBOT, Citation bot 1, EmausBot, Ὁ οἶστρος, Biopics, DrChrissy, Helpful Pixie Bot, NotWith and Anonymous: 30

9.2 Images

- **File:Blue_mussel_clump.jpg** *Source:* http://upload.wikimedia.org/wikipedia/commons/d/dd/Blue_mussel_clump.jpg *License:* Public domain *Contributors:* Own work *Original artist:* Inductiveload
- **File:Boi.crab4.jpg** *Source:* http://upload.wikimedia.org/wikipedia/commons/f/f8/Boi.crab4.jpg *License:* CC-BY-SA-3.0 *Contributors:* Own work *Original artist:* Luis Miguel Bugallo Sánchez (Lmbuga Commons)(Lmbuga Galipedia)
- **File:Cancer_pagurus_(eggs).jpg** *Source:* http://upload.wikimedia.org/wikipedia/commons/e/e4/Cancer_pagurus_%28eggs%29.jpg *License:* CC BY-SA 4.0 *Contributors:* Own work *Original artist:* Hans Hillewaert
- **File:Charybdis_japonica.jpg** *Source:* http://upload.wikimedia.org/wikipedia/commons/e/ed/Charybdis_japonica.jpg *License:* CC-BY-SA-3.0 *Contributors:* Own work *Original artist:* self
- **File:Lindisfarne_Lobster_Pots.JPG** *Source:* http://upload.wikimedia.org/wikipedia/commons/b/b8/Lindisfarne_Lobster_Pots.JPG *License:* CC BY-SA 3.0 *Contributors:* Own work *Original artist:* Russ Hamer
- **File:Symbol_support_vote.svg** *Source:* http://upload.wikimedia.org/wikipedia/en/9/94/Symbol_support_vote.svg *License:* Public domain *Contributors:* ? *Original artist:* ?

9.3 Content license

- Creative Commons Attribution-Share Alike 3.0