Urosalpinx cinerea 正體中文

System: Marine

Kingdom	Phylum	Class	Order	Family
Animalia	Mollusca	Gastropoda	Neogastropoda	Muricidae

Common name

Synonym

Similar species

Summary

Urosalpinx cinerea (the Atlantic oyster drill) is native to the North American Atlantic coast. It has invaded a few bays in the North American Pacific, southern Great Britain and recently the Netherlands via commercial oyster transfers. Urosalpinx cinerea predation on oyster spat, inflicting up to 50% and higher mortality rates, renders it a serious pest to the oyster industry.

view this species on IUCN Red List

Species Description

The Atlantic oyster drill (*Urosalpinx cinerea*) is a snail that typically grows up to 25 mm high and 15 mm wide, and may reach up to 35 mm high. It has a 5-6 whorled, fusiform shell with 9-12 strong vertical ridges per whorl. The shells may be yellow, gray, white, brown or orange. It has a short siphonal canal, producing a pear-shaped aperture. Its flesh is gray, yellow, reddish-brown, or purple. The operculum is usually orange or light brown (Cohen, 2005; Williams, 2002).

Lifecycle Stages

Deposited embryos are nourished by albumin within the egg for 6-8 weeks. Cleavage is unequal and spiral with large polar lobes. The hatching embryo produces an enzyme that dissolves its protective sac. The emergent snails are well developed and feed on bryozoans, barnacles, and other snails. They reach maturity after about 2 years and live for up to 8 years (Cohen, 2005; Williams, 2002).

Habitat Description

The Atlantic oyster drill (*Urosalpinx cinerea*) inhabits intertidal and shallow subtidal waters in estuaries, marshes, and bays. It usually resides on rocks or oyster reefs and may be found in depths up to 15 m. It can live in salinities of 13-15 ppt but prefers higher salinities (Cohen, 2005; Williams, 2002).

Reproduction

Oviparous. Sexual. *Urosalpinx cinerea* breeds in the spring and summer when waters first stay above 20° C for over a week. Eggs are fertilized and females attach 20-40 translucent, vase-shaped egg capsules to a suitable substrate. Each egg capsule contains 5-12 eggs (Cohen, 2005; Williams, 2002).

Nutrition
Urosalpinx cinerea feeds on oysters, mussels, other molluscs, and barnacles. It feeds on different primary prey species in different locations. In its native range, the Atlantic Coast of North America, it prefers mussels, in the San Francisco Bay it appears to feed mainly on barnacles, and in Britain it preys on mostly oysters and barnacles. *U. cinerea* crawls along ocean floors and oyster beds searching for prey. It uses its foot to grip the shell of its prey and exudes a glandular secretion which softens it. *U. cinerea* then uses its radula to drill a hole in the shell. It extends its probiscis through this hole to feed on the tissue inside. A minimum temperature of 9-10° C is required for *U. cinerea* to feed (Cohen, 2005; Williams, 2002; Hancock, 1954).

General Impacts
The Atlantic oyster drill (*Urosalpinx cinerea*) is a major pest to the commercial oyster industry. The oyster drill may pose a threat to oyster native populations and cultures wherever they exist. *U. cinerea* are especially harmful to oyster spat and are known to commonly inflict 50% mortality in Britain and 60-70% in its native range. *U. cinerea* also affect native ecology and community structures. They prey on native oysters, such as the Olympia oyster (*Ostrea lurida*) in Washington, and compete with native molluscs such as the dog whelk (*Nucella lapillus*) in the Netherlands and the California marine snail (*Acanthinucella spirata*) in California (Hancock, 1954; Frasse, 2007; Buhle, 2003; Alford, 1975; Eno, 1996; Travis, undated).

Management Info
Preventative measures: Introductions and transfers of oysters from locations where Urosalpinx cinerea occurs should be avoided altogether to prevent new invasions since even careful inspection may not reveal young and small specimens within shell crevices (Hancock, 1954).\r\n
Cultural: Bounties rewarding the public for bucketloads of *U. cinerea* were instated in Essex (P. French, pers. comm. In Eno *et al*., 1997) although there are no reports on its success. \r\n\r\n
Physical: Tile traps have successfully been employed to control *U. cinerea* in Britain (Hancock, 1959 in Hancock, 1960). Tile traps use roofing tiles to take advantage of the fact that *U. cinerea* move on to the shore during summer and require an elevated shaded position to deposit its spawn. Hancock (1960) reports that tile traps have caused substantially reduction of *U. cinerea* in some areas. Handpicking and systematic removal of *U. cinerea* during normal dredging is recommended, but is fairly inefficient (JNCC, undated; Hancock, 1954). \r\n
Chemical: *U. cinerea* is especially susceptible to imposex from tributyl tin (TBT), an antifouling toxin. Imposex is a condition in which female gastropods develop male reproductive organs resulting in infertility. A widespread example of imposex occurred in Britain in the 1970's and resulted in the dramatic reduction of *U. cinerea*. However, TBT is a harmful toxin that causes imposex in native molluscs and has been banned in some countries (McEnnulty, 2001; Fraasse, 2007; Gibbs, 1991), and even where it is not banned it is probably not advisable to apply it for *U. cinerea* control.

Principal source:
Cohen, A.N. 2005. *Urosalpinx cinerea* (Say, 1822) Guide to the Exotic Species of San Francisco Bay. San Francisco Estuary Institute, Oakland, .
Hancock, D.A. 1954. The destruction of oyster spat by *Urosalpinx cinerea* (Say) on Essex Oyster Beds. Fisheries Laboratory, Burnham-on-Crouch.

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ALIEN RANGE

[1] CANADA **[1]** NETHERLANDS

[1] UNITED KINGDOM

[9] UNITED STATES

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16 references found for **Urosalpinx cinerea**

Managment information

Centre for Environment, Fisheries & Aquaculture Science (CEFAS)., 2008. Decision support tools-Identifying potentially invasive non-native marine and freshwater species: fish, invertebrates, amphibians.

Summary: The electronic tool kits made available on the Cefas page for free download are Crown Copyright (2007-2008). As such, these are freeware and may be freely distributed provided this notice is retained. No warranty, expressed or implied, is made and users should satisfy themselves as to the applicability of the results in any given circumstance. Toolkits available include 1) FISK- Freshwater Fish Invasiveness Scoring Kit (English and Spanish language version); 2) MFISK- Marine Fish Invasiveness Scoring Kit; 3) MI-ISK- Marine invertebrate Invasiveness Scoring Kit; 4) FI-ISK- Freshwater Invertebrate Invasiveness Scoring Kit and AmphISK- Amphibian Invasiveness Scoring Kit. These tool kits were developed by Cefas, with new VisualBasic and computational programming by Lorenzo Vilizzi, David Cooper, Andy South and Gordon H. Copp, based on VisualBasic code in the original Weed Risk Assessment (WRA) tool kit of P.C. Pheloung, P.A. Williams & S.R. Halloy (1999).
The decision support tools are available from:
http://cefas.defra.gov.uk/our-science/ecosystems-and-biodiversity/non-native-species/decision-support-tools.aspx [Accessed 13 October 2011]

The guidance document is available from http://www.cefas.co.uk/media/118009/fisk_guide_v2.pdf [Accessed 13 January 2009].

Faasse, M. and Ligthart, M. 2007. The American oyster drill, *Urosalpinx cinrea* (Say, 1822), introduced to The Netherlands-increased risks after ban on TBT?. Aquatic Invasions. Vol 2, Issue 4: 402-406.

Summary: A journal article detailing *Urosalpinx cinerea* and its introduction in The Netherlands.
Available from: http://www.aquaticinvasions.ru/2007/AI_2007_2_4_Faasse_Ligthart.pdf [Accessed 24 January 2008]

Gibbs, P.E., Spencer, B.E., Pascoe, P.L. 1991. The American oyster drill, *Urosalpinx cinerea* (Gastropda): Evidence of decline in and imposex-affected population (R. Blackwater, Essex). Journal of the Marine Biological Association of the United Kingdom. Plymouth. Vol. 7, No. 2: 827-838.

Summary: This offers a description of the wideespread imposex condition developed *Urosalpinx cinerea* in Britain resulting from TBT pollution.

Hancock, D.A. 1954. The destruction of oyster spat by *Urosalpinx cinerea* (Say) on Essex Oyster Beds. Fisheries Laboratory, Burnham-on-Crouch.

Summary: This article provides detailed information concerning *Urosalpinx cinerea* and its effects on Oyster spat in Essex, England.
Available from: http://icesjms.oxfordjournals.org/cgi/reprint/20/2/186.pdf [Accessed 24 January 2008]

McEnnulty, F.R., Jones, T.E. and Bax, N.J. 2001. Antifoulants (TBT and novel modern coatings). The Wed-Based Rapid Response Toolbox.

Summary: This site provides details on antifouling toxin TBT and its effects on *Urosalpinx cinerea*.
Available from: http://crimp.marine.csiro.au/NIMPIS/controls.htm [Accessed 28 Januuary 2008]

General information

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Summary: This article examines the oyster population in Chesapeake Bay.

Buhle, E.R. and Ruesink, J.L. 2003. Context-dependent impacts of multiple invasive species on a threatened native species in a west coast estuary. In Abstracts: Third International Conference on Marine Bioinvasions, March 16-19, 2003. Scripps Institution of Oceanography La Jolla, California

Summary: Presense of *Crassotrea gigas* seems to decreases predation on native oyster by invasive oyster drills in Willapa Bay.
Available from: http://massbay.mit.edu/resources/pdf/MarinePDF/2003/MBI2003abs1.pdf [Accessed 21 March 2005]

Cohen, A.N. 2005. *Urosalpinx cinerea* (Say, 1822) Guide to the Exotic Species of San Francisco Bay. San Francisco Estuary Institute, Oakland, CA, www.exoticguide.org.

Summary: This guide to exotics in San Francisco Bay contains a detailed profile on *Urosalpinx cinerea*.
Available from: http://www.exoticsguide.org/species_pages/u_cinerea.html [Accessed 23 January 2008].

Eno, C.N. 1996. Non-native marine species in British water: effects and controls. Aquatic Conservation: Marine and Freshwater Ecosystems. Vol. 6: 215-228.

Summary: This article cites *Urosalpinx cinerea* introduction in Britain and its effects on the oyster populations.

ITIS (Integrated Taxonomic Information System), 2005. Online Database, *Urosalpinx cinerea* (Say, 1822).

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals. .
Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=73264 [Accessed 23 Januaray 2008]

Joint Nature Conservation Committee (JNCC). Undated. Non-native species. *Urosalpinx cinerea*.

Summary: This brief profile offers some common names and management methods in Britain.
Available from: http://www.jncc.gov.uk/default.aspx?page=1712 [Accessed 25 January 2008]

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Summary: Available from: http://www.marlin.ac.uk/species/urosalpinxcinerea.htm [Accessed 23 Januaray 2008]

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Waldichuk, M., Lambert, P., and Smiley, B. undated. Exotic introductions into BC marine waters: major trends. E-Fauna BC, Lab for Advanced Spatial Analysis, Department of Geography, UBC.
Summary: This website cites marine introductions in British Columbia, Canada.
Available from: http://www.geog.ubc.ca/biodiversity/efauna/MarineInvasiveSpecies.html [Accessed 24 January 2008]
Williams, B. 2002. *Urosalpinx cinerea*, Animal Diversity Web.
Summary: The Animal Diversity Web gives much detailed information about *Urosalpinx cinerea*.
Available from: http://animaldiversity.ummz.umich.edu/site/accounts/information/Urosalpinx_cinerea.html [Accessed 23 January 2008]