Mnemiopsis leidyi

Taxon	Family / Order / Class / Phylum
Mnemiopsis leidyi A. Agassiz, 1865	Bolinopsidae / Lobata / Tentaculata / Ctenophora

COMMON NAMES (English only)
Sea walnut
Comb jelly

SYNONYMS
Mnemiopsis gardeni L Agassiz, 1860
Mnemiopsis mccradyi Mayer, 1990

SHORT DESCRIPTION
A comb jelly, length up to 100 mm. The body is laterally compressed, it has four rows of small ciliated combs which are iridescent by day and may glow green by night. The colour is usually transparent or slightly milky and translucent. Feeds on holoplankton, meroplankton (larvae of benthic organisms), fish eggs and larvae.

***Mnemiopsis leidyi* from Black Sea**

Photo: Tamara Shiganova

BIOLOGY/ECOLOGY

Dispersal mechanisms
In ballast water of ships

Reproduction
As with most planktonic ctenophores, this species is both hermaphrodite and capable of self fertilization, and thus viable offspring can be produced from a single adult. They can produce offspring long before they reach their upper size limit. Also possesses paedogenesis (sexual maturity of larvae and juveniles) and dissogony (sexual maturity of larvae followed by regression of gonads and subsequent rematuring of adults). The fecundity of ctenophores depends upon the body size. Large specimens produce 2000 - 8000 eggs during spawning.

Known predators/herbivores
Main predators are Ctenophore (*Beroe ovata*), Scyphozoa (*Chrysaora quinquecirrha*), Harvest fish (*Peprilus alepidotus*) and butterfish (*Peprilus triacanthus).*

Resistant stages (seeds, spores etc.)
Unknown.

HABITAT

Native (EUNIS code)
A7: Pelagic water column. Marine and brackish water, coastal waters (temperate and subtropical estuaries and coastal areas)

Habitat occupied in invaded range (EUNIS code)
A7: Pelagic water column. Marine and brackish water, coastal waters, all areas in the Black Sea, in regions where salinity is higher than 3‰ in the Azov Sea and higher than 4‰ in the Caspian Sea.

Habitat requirements
Three factors act in a hierarchy to determine the abundance of this comb jelly, with temperature being the most important ranging from 6^{o}C in winter to 31^{o}C in summer, food availability second, and mortality by predation

third. It is invading waters of salinities ranging from 3‰ in the Sea of Azov to 39‰ in the eastern Mediterranean.

DISTRIBUTION

Native Range

Atlantic coastal waters of North and South America.

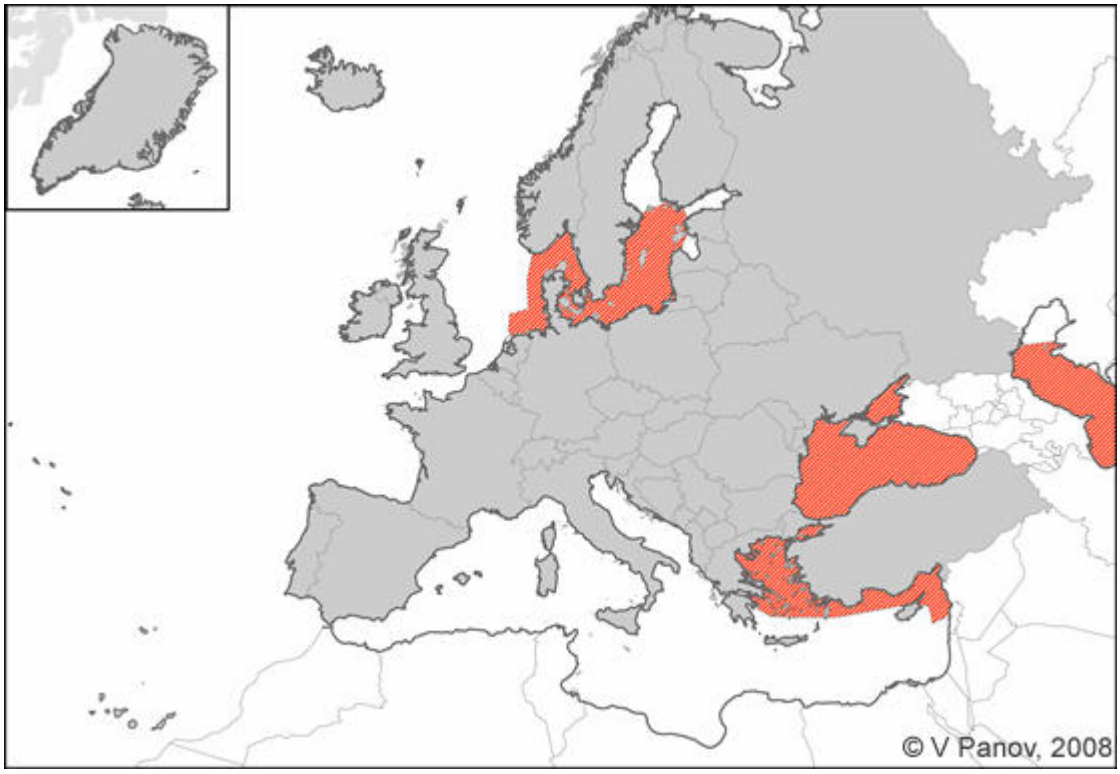
Known Introduced Range

Azov, Black, Caspian, North, Baltic and Mediterranean (north-eastern part) seas.

Trend

Unknown.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in area

INTRODUCTION PATHWAY

Ballast waters of ships. It was first found in Europe in the Black Sea in 1982, after that spread to the Sea of Azov (1988), Marmara (1990), Mediterranean (1990), and Caspian (1999) Seas.

IMPACT

Ecosystem Impact

In the Black Sea, dramatic reductions in zooplankton, ichthyoplankton, and zooplanktivorous fish populations have been attributed to the comb jelly. In the Caspian Sea density and biomass of zooplankton has been decreasing from month to month with increasing the size of the comb jelly population. Catches of three species of kilka greatly decreased in all Caspian countries. Since the decrease of kilka stocks, rations and share of kilka in diet composition of beluga has been reduced. This invasion causes cascading effects. The bottom-up effects include the collapse of planktivorous fish, vanishing dolphins in the Black sea and seals in the Caspian Sea. Top-down effects include an increase in phytoplankton, free from grazing pressure, and increasing bacterioplankton populations, triggering increases in zooflagellates and infusoria populations.

Health and Social Impact

They are not dangerous to humans.

Economic Impact

Significant economic losses for the Black Sea and Caspian Sea coastal countries due to drastic decline in pelagic fish catch (estimated in hundreds of million dollars in the case of the Black Sea).

MANAGEMENT

Prevention

Ballast water management

Mechanical

Unknown.

Chemical

Unknown.

Biological

The ctenophore *Beroe ovata* is considered as a biological control agent for *Mnemiopsis leidyi*. Accidental introduction of *Beroe ovata* in the Black Sea resulted in significant decline in Mnemiopsis in late summer periods and subsequent increase in zooplankton in some areas. Currently intentional introduction of *Beroe ovata* is suggested for biological control of *Mnemiopsis* in the Caspian.

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