



Aquatic Invasive Species:

European Green Crab in Newfoundland Waters

The European green crab (*Carcinus maenas*) is native to several European coastal areas. It was found in North America in the early 1800s and recently arrived in Newfoundland waters, adapting and expanding rapidly in its new environment. Green crab is small to medium in size and reaches a maximum carapace width of 10 centimetres. It is distinguished from other crabs by the five pointed spines appearing on the outside of each eye and the three small rounded spines between the eyes. Other characteristics of green crab include slightly flattened back legs that aid in its rapid movement. Its colour can range from bright green, brown and orange to red, often depending on how recently the crab has molted.

One species often confused with the green crab is the rock crab (*Cancer irroratus*), due to the rock crab's size and shape. A rock crab can be distinguished by its scallop-shaped carapace consisting of nine rounded teeth on either side of the eyes.



European green crab



Photo credit: A. Vickerson

Rock crab (front) and green crab (back).

Environmental Impact of Green Crab

Green crab primarily feeds on shellfish and other crustaceans, but has been observed eating small and juvenile finfish in eelgrass beds. It is a naturally aggressive and territorial crab species. There is also concern that green crab may damage eelgrass habitat: when digging for prey in the sediment or making burrows, green crab cut the roots of the eelgrass, which destroys this ecological habitat.

Unless controlled, this new aquatic invasive species will have a significant impact on biodiversity and habitat in the Newfoundland ecosystem.

Discovery and Survey Findings

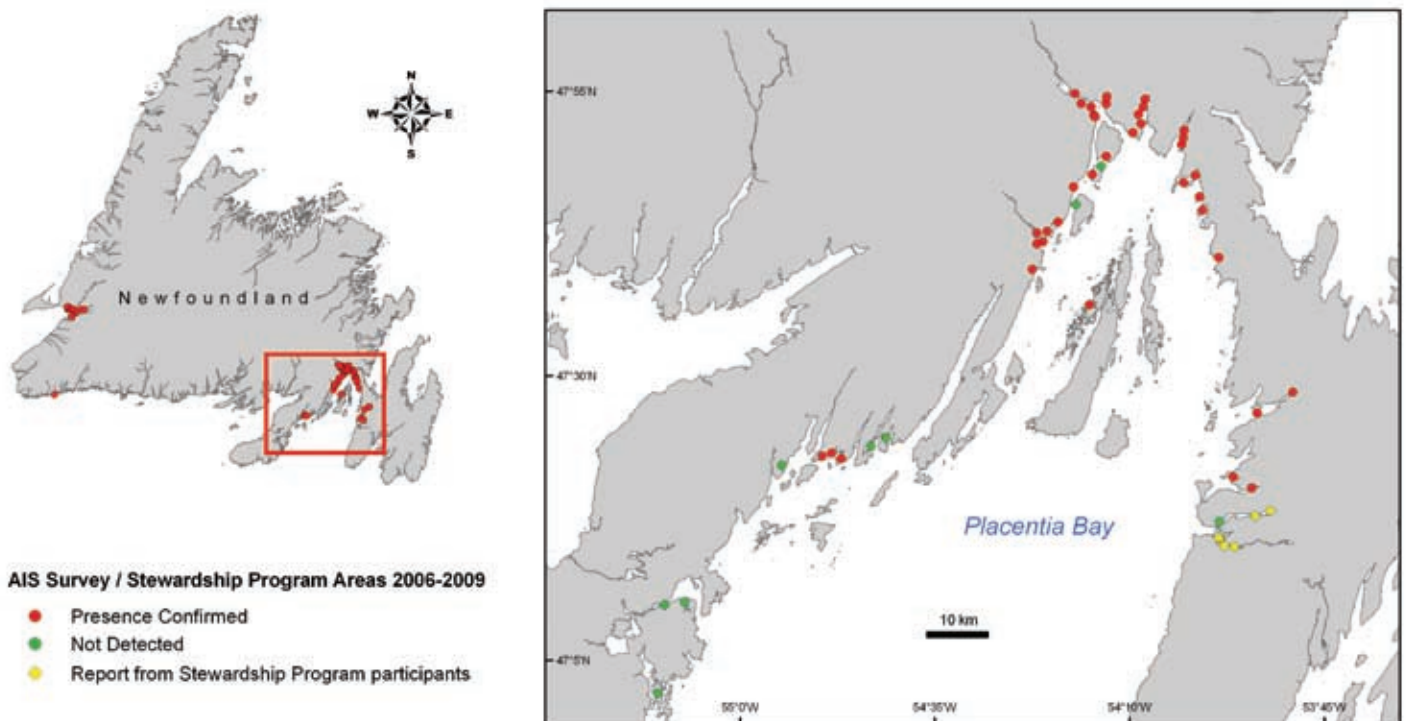
In August 2007, European green crab was confirmed in the northern regions of Placentia Bay. This discovery raised significant concerns because of the potential negative impact of this species on biodiversity and habitat in these regions. Following the initial discovery of European green crab in North Harbour, Placentia Bay, the Science Branch of Fisheries and Oceans Canada in collaboration with Memorial University of Newfoundland and the provincial Department of Fisheries and Aquaculture, conducted several rapid assessment surveys for aquatic invasive species in Placentia Bay. The largest green crab population was observed in North Harbour. It was also found in smaller numbers in surrounding areas and along the west and southwest coasts of Placentia Bay. This raised concern as small populations may expand rapidly. Green crab was also found on the west coast of Newfoundland in St. George's Bay near Stephenville in 2008.

Mitigation Methods to Control the Spread of Green Crab and Decrease its Impact

Ballast water is an identified source for the introduction of this aquatic invasive species and may be responsible for the introduction of European green crab in Newfoundland. Green crab has a long larval phase and can survive for extended periods in ballast water tanks. Adult green crab can also survive for long periods out of the water or in freshwater. Other pathways of introduction may include the movement of gear from one area to another and the unintentional release of by-catch species outside the area of capture. To control the spread of green crab, it is important to check and clean fishing gear and boats.

In 2008 and 2009, Fisheries and Oceans Canada worked with fish harvesters, the Fish, Food and Allied Workers Union, Memorial University of Newfoundland and the Department of Fisheries and Aquaculture to test various mitigation methods including trapping and removal. The results indicated that where sustained collection of green crab took place, the catch rate decreased significantly and the native species, rock crab, returned to the area.

Aquatic Invasive Species (AIS): Green Crab Distribution in Newfoundland Waters



References

Klassen, G. and A. Locke. 2007. A biological synopsis of the European Green Crab, *Carcinus maenas*. Canadian Manuscript Reports of Fisheries and Aquatic Sciences. no. 2818: vii +75pp.

McKenzie, C. H., T. Baines, K. Best, R. Boland, E. Dawe, D. Deibel, D. Drover, E. Johnson, S. Kenny, S. Macneill, D. Mouland, R. O'Donnell, L. Park, P. Sargent, C. Vickers, A. Vickerson. 2007. The European Green Crab, *Carcinus maenas*, in Placentia Bay, Newfoundland. Aquatic Invasive Species Survey 2007. Aquatic Invasive Species Newfoundland Workshop. St. John's, NL. November 16, 2007.

Disponible en français.

For further information, please contact your nearest DFO office or visit www.dfo-mpo.gc.ca