

<b>Common Name:</b>	Blue mussel	<i>SGCN</i>
<b>Scientific Name:</b>	<i>Mytilus edulis</i>	
<b>Taxon:</b>	Marine Mollusks	

<b>Federal Status:</b>	Not Listed	<b>Natural Heritage Program Rank:</b>
<b>New York Status:</b>	Not Listed	Global: Not Ranked
		New York: Not Ranked
		Tracked: No

**Synopsis:**

The blue mussel is a semi-sessile bivalve common on rocky intertidal habitats. On the eastern coast of North America this species ranges from Labrador to Cape Hatteras, North Carolina (Newell 1989). In New York, a small amount of mussels are commercially harvested each year (J. O'Dwyer, pers. comm.). Although never a large commercial fishery in New York, blue mussel harvest has decreased in recent years, most likely due to a change in harvest pressure rather than a lack of abundance (NYSDEC 2005). The abundance and distribution of blue mussels has not been well-documented throughout the years, making it difficult to assess trends. Some threats to blue mussels have been identified and include: increase in predators, ocean acidification, harmful algal blooms, and lack of optimal food.

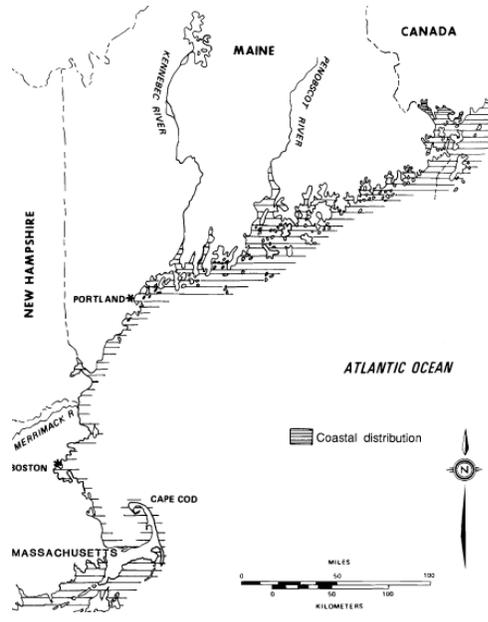
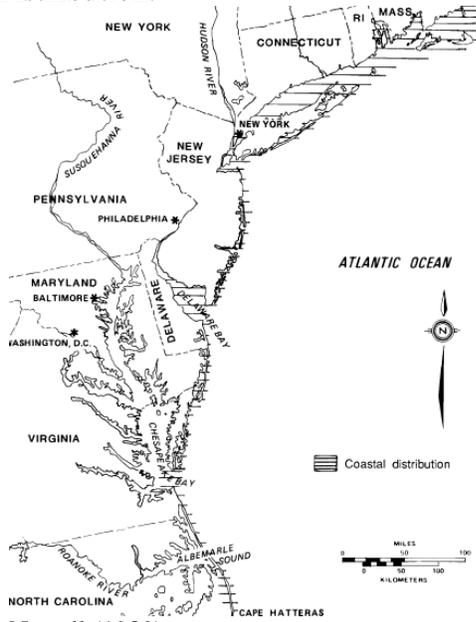
Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Unknown	Unknown
6% to 10%		Common	X		
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare			

**Habitat Discussion:**

Blue mussels are found in the Arctic, North Pacific, and North Atlantic. Along the eastern coast of North America they are found from Labrador to Cape Hatteras, North Carolina but are most common in the North and mid-Atlantic (Newell 1989). Blue mussels are generally found in the subtidal and intertidal zones and are generally found at depths of five to ten meters (Zagata et al. 2008). They are semi-sessile organisms and upon settlement can attach to a variety of substrates (Newell 1989). They are considered epibenthic since they attach to objects such as pebbles, rocks, or other mussels rather than the seafloor (Newell 1989). Due to this aggregating behavior, dense mussel beds are often formed, and this in turn provides shelter for a variety of other invertebrates (Newell 1989). Since mussels attach to other mussels shells rather than a firm substrate, storms or strong wave action can sometimes result in the loss of a large portion of the mussel bed (Newell 1989).

Primary Habitat Type
Estuarine; Brackish Intertidal
Estuarine; Brackish Shallow
Marine; Intertidal
Marine; Shallow Sub-tidal

**Distribution:**



Newell (1989)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species	W	L	H
2. Pollution	Household Sewage & Urban Waste Water	N	L	H
3. Pollution	Agricultural & Forestry Effluents (groundwater)	N	L	H
4. Natural System Modifications	Other Ecosystem Modifications (ocean acidification)	P	L	V
5. Climate Change & Severe Weather	Habitat Shifting & Alteration (water temperature increase)	P	L	V

**References Cited:**

Newell, R.I.E. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North and Mid-Atlantic)--blue mussel. U.S. Fish. Wildl. Serv. Biol. Rep. 82(11. 102). U.S. Army Corps of Engineers, TR E1-82-4.

New York State Department of Environmental Conservation (NYSDEC). 2005. New York State Comprehensive Wildlife Conservation Strategy. <http://www.dec.ny.gov/index.html>. Accessed 29 May 2013.

O'Dwyer, Jennifer. 2013. Personal communication. NYSDEC. East Setauket, NY.

Zagata, C.; C. Young; J. Sountis and M. Kuehl. 2008. "*Mytilus edulis*" (On-line), Animal Diversity Web. [http://animaldiversity.ummz.umich.edu/accounts/Mytilus\\_edulis/](http://animaldiversity.ummz.umich.edu/accounts/Mytilus_edulis/). Accessed 18 June 2013.

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**Common Name:** Ribbed mussel *SGCN*  
**Scientific Name:** *Geukensia demissa*  
**Taxon:** Marine Mollusks

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**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Not Listed Global: Not Ranked  
New York: Not Ranked  
Tracked: No

**Synopsis:**

The ribbed mussel is a bivalve that is common in salt marshes and is often found in close association with smooth cordgrass, *Spartina alterniflora*. Although not a commercially valuable species, ribbed mussels have important ecological functions, as they filter large amounts of water, and also provide nutrients and stabilization for marsh grass. The ribbed mussel natively occurs from the Gulf of Saint Lawrence, Canada to the northeastern coast of Florida (Franz n.d.). This mussel was introduced by accident to San Francisco in the 1800s and several populations have established themselves in California and more recently Mexico (Torchin et al. 2005). Although much research exists on the ecological functions and importance of the ribbed mussel in salt marsh habitats, abundance, distribution and recent trends are not often studied nor cited. The current status of the ribbed mussel in New York is unknown, although it appears to be very abundant in some areas such as Jamaica Bay (Franz n.d.). Conservation of this species is important due to its many ecological functions in places where it occurs.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Unknown	Unknown
6% to 10%		Common	X		
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare			

**Habitat Discussion:**

Ribbed mussels are found in salt marshes ranging from the Gulf of Saint Lawrence, Canada to northeastern Florida (Franz n.d.). They were accidentally introduced to San Francisco in the late 1800s and have since established themselves in several California Bays and most recently, western Mexico (Torchin et al. 2005). Typically found in the greatest numbers along the marsh or bank edge at the low to mid intertidal level, they can also be found higher up in the intertidal zone (Nielson and Franz 1995). *G. demissa* are usually in dense aggregations in soft bottom habitats (i.e. marsh mud) and around the culms of smooth cordgrass, *Spartina alterniflora*. Being intertidal dwellers, ribbed mussels can withstand constant fluctuations in air exposure, temperature, food availability, and salinity. Average daily temperatures over 45°C and higher have been shown to increase mortality in this species (Jost and Helmuth 2007). Jost and Helmuth (2007) have found that in areas of dense marsh grass, temperatures are higher, due to a suggested loss of convection from decreasing wind velocity near the base of marsh plants. However, the main determinant of body temperature is vertical positioning in the sediment (Jost and Helmuth 2007). In high marsh areas, mussels provide nutrients for *S. alterniflora* in turn increasing growth of the plant. In the lower marsh they bind sediments, increasing stabilization of the substrate and preventing marsh erosion. These positive interactions with *S. alterniflora* increase overall primary productivity in salt marshes (Bertness 1984).

<b>Primary Habitat Type</b>
Estuarine; Brackish Intertidal

**Distribution:**

Ribbed mussels are currently found in salt marshes around Long Island and in the lower Hudson with Franz (n.d.) noting large abundances in Jamaica Bay, New York (NYSDEC 2005, Franz n.d.). No map is available.

<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Natural System Modifications	Other Ecosystem Modifications (loss of salt marsh*)	P	M	H
2. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (loss of native cordgrass-mute swan, Chinese mitten crab)	R	L	H
3. Invasive & Other Problematic Species & Genes	Problematic Native Species (Canada goose)	R	L	H
4. Pollution	Household Sewage & Urban Waste Water (eutrophication/algal blooms)	P	H	H

**References Cited:**

Franz, D.R. n.d. Biology of Ribbed Mussels (*Geukensia demissa*)—with focus on Jamaica Bay. <http://academic.brooklyn.cuny.edu/biology/franz/biology25/MUSSELS.HTM>. Accessed 12 June 2013.

Jost, J., and B. Helmuth. 2007. Morphological and Ecological Determinants of Body Temperature of *Geukensia demissa*, the Atlantic Ribbed Mussel and Their Effects on Mussel Mortality. *Biological Bulletin*. 213(2):141-151.

Nielson, K.J., and D.R. Franz. 1995. The influence of adult conspecifics and shore level on recruitment of the ribbed mussel *Geukensia demissa* (Dillwyn). *Journal of Experimental Marine Biology and Ecology*. 188: 89-98.

Torchin, M.E., R.F. Hechinger, T.C. Huspeni, K.L. Whitney, and K.D. Lafferty. 2005. The introduced ribbed mussel (*Geukensia demissa*) in Estero de Punta Banda, Mexico: interactions with the native cord grass, *Spartina foliosa*. *Biological Invasions*. 7:607-614.