

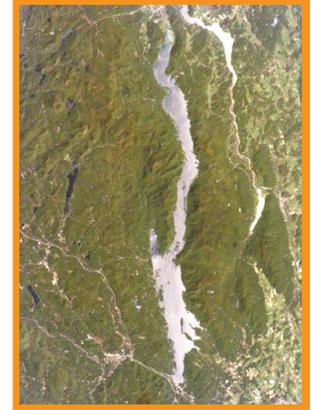
Atlantic Ocean



small lakes:
Finger Lakes and
Lake George



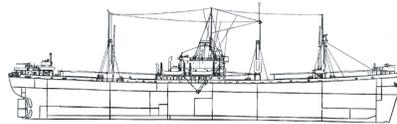
rivers: St. Lawrence
and Hudson



Great Lakes:
Erie and Ontario



ballast water



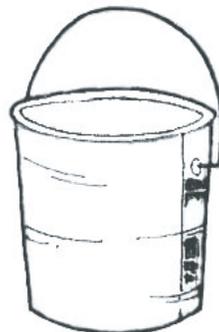
intentional
introduction



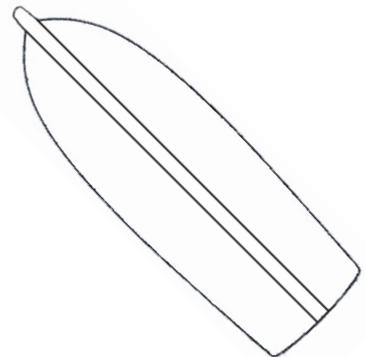
aquarium trade



bait release



hitch hiker

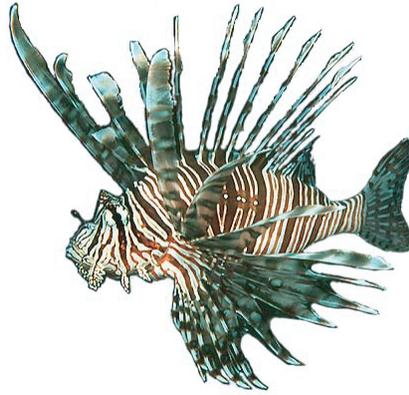


European green crab



Carcinus maenas

Lionfish



Pterois volitans

Eurasian watermilfoil



Myriophyllum spicatum

Water chestnut



Trapa natans

Sea lamprey



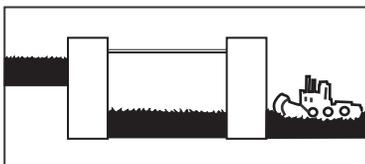
Petromyzon marinus

Zebra mussel



Dreissena polymorpha

canals



European green crab

Carcinus maenas

Native distribution:

northern Europe

Present distribution:

eastern North America since early 1800s and western North America since late 1980s

Vector: probably larval dispersal through ballast water

Consequences: predated on commercially and ecologically important bivalves and crab larvae

Lionfish

Pterois volitans

Native distribution:

Indo-Pacific

Present distribution:

established populations in FL; sightings in NY, NJ, NC, GA and Bermuda

Vector: accidental and intentional aquarium trade

Consequences: undetermined; with powerful venomous spines, the lionfish has no known natural predators

Eurasian Watermilfoil

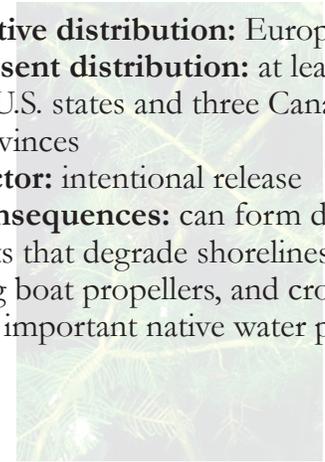
Myriophyllum spicatum

Native distribution: Europe

Present distribution: at least 45 U.S. states and three Canadian provinces

Vector: intentional release

Consequences: can form dense mats that degrade shorelines, clog boat propellers, and crowd out important native water plants



Water chestnut

Trapa natans

Native distribution:

Eurasia and tropical Africa

Present distribution:

northeastern U.S. and Quebec

Vector: imported as an ornamental plant

Consequences: forms dense mats, clogging waterways; outcompetes native vegetation and not eaten by native animals

Sea lamprey

Petromyzon marinus

Native distribution: western

and eastern Atlantic Ocean; Lake Ontario, Lake Champlain, and the Finger Lakes

Present distribution:

All the Great Lakes and some tributaries; various lakes in the northeast and midwest

Vector: Welland & Erie Canals

Consequences: by parasitizing other fish species, has led to the collapse of several commercial fisheries and extinction of three freshwater species

Zebra mussel

Dreissena polymorpha

Native distribution: Russia

Present distribution: All of the Great Lakes and waterways in many states, as well as Ontario and Quebec

Vector: ballast water from a transoceanic vessel

Consequences: Adults attach to boats, water-intake pipes, buoys, docks, piers, plants, and slow moving animals such as native clams and turtles; remediation estimates in the billions

