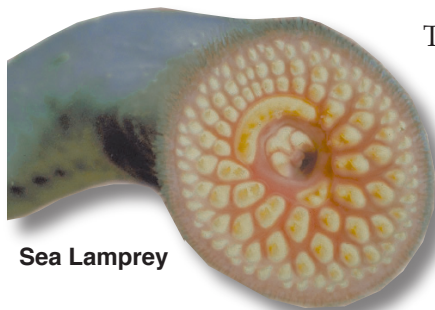


# Great Lakes

## Aquatic Nonindigenous Species List



The Great Lakes have a long history of introductions – intentional and unintentional – of aquatic nonindigenous species. The earliest record for the Great Lakes is the sea lamprey, which is believed to have entered from the Atlantic via canals and was first found in the Lakes in the 1830s. We've compiled a list of documented aquatic nonindigenous species considered established in the Great Lakes in response to an increasing number of queries asking if there is such a summary. The list supports various statistical interests of the scientific and management communities (such as how many there are, what are the primary vectors, how effective are our prevention efforts, etc), and is also useful for public information and education. We plan to convert the list by the end of 2003 to an on-line searchable database that will be part of a larger nationwide network of regional and national, and possibly global nonindigenous species databases.



Sea Lamprey

The documented number of aquatic nonindigenous species in the Great Lakes is best interpreted as a minimum. Recognition of new invaders depends on our ability

to find, identify, verify, and document new species, which, in turn, is dependent on our ability to adequately sample the ecosystem. In addition, in recent years there have been additional nonindigenous species identified through searches of existing literature. These species were misidentified or simply not recognized as nonindigenous at the time they were found and documented.

This list is presently available on our web site in various sort-orders, e.g. alphabetically by common name, date first found, mechanism of introduction, etc.



<http://www.glerl.noaa.gov/res/Programs/invasive/>

compiled by the  
NOAA National Center for  
Aquatic Invasive Species Research  
Great Lakes Environmental Research Laboratory  
Ann Arbor, MI.

Zebra Mussel



Purple  
Loosestrife



Many nonindigenous species have entered the Great Lakes via the ballast water of overseas ships.

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Sample of Great Lakes Aquatic Nonindigenous Species List found on GLERL's website as of 5/30/03:  
<http://www.glerl.noaa.gov/res/Programs/invasive/>

Common Name	Description	Taxon	Species	Origin	Date	Location of First Sighting	Mechanism	Information Links	Primary Information Source(s)
1 amphipod	benthic invertebrate	Gammaridae	<i>Gammarus fasciatus</i>	Atlantic	<1940	Detroit River	Shipping (Solid Ballast, Ballast Water)	UWN	Mills et al. 1993
2 amphipod	benthic invertebrate	Gammaridae	<i>Echinogammarus ischnus</i>	Black Sea	1995	Detroit River	Shipping (Ballast Water)	UWN	Ricciardi 2001
3 alewife	fish	Clupeidae	<i>Alosa pseudoharengus</i>	Atlantic	1873	Lake Ontario	Canals, Release (Fishing)	USGS	Mills et al. 1993
4 aquatic moth	insect	Pyralidae	<i>Acentropus niveus</i>	Eurasia	1950	Lake Ontario, Erie	Release (Accidental)	USGS	Mills et al. 1993
5 aquatic weevil	insect	Erhrididae	<i>Tanysphyrus lemnae</i>	Eurasia	<1943	Unknown	Unknown	UJMN	Mills et al. 1993
6 Asian clam <sup>a</sup>	benthic invertebrate	Corbiculidae	<i>Corbicula fluminea</i>	Asia	1980	Lake Erie	Release (Accidental, Aquarium, Fishing)	GSMFC	Mills et al. 1993
7 banded mystery snail	benthic invertebrate	Viviparidae	<i>Viviparus georgianus</i>	Mississippi	<1906	Lake Michigan (T)	Release (Aquarium)		Mills et al. 1993
8 barnyard grass	plant	Poaceae	<i>Echinochloa crusgalli</i>	Eurasia	<1843	Widespread	Release (Cultivation), Shipping (Solid Ballast)		Mills et al. 1993
9 bitter dock	plant	Polygonaceae	<i>Rumex obtusifolius</i>	Eurasia	<1840	Widespread	Unknown		Mills et al. 1993
10 bittersweet nightshade	plant	Solanaceae	<i>Solanum dulcamara</i>	Eurasia	<1843	Widespread	Release (Cultivation)		Mills et al. 1993
11 black alder	plant	Betulaceae	<i>Alnus glutinosa</i>	Eurasia	<1913	Widespread	Release (Cultivation)		Mills et al. 1993
12 black-grass rush	plant	Juncaceae	<i>Juncus gerardi</i>	Atlantic	1862	Chicago	Shipping (Solid Ballast)		Mills et al. 1993
13 blueback herring	fish	Clupeidae	<i>Alosa aestivalis</i>	Atlantic N. Amer.	1995	Jamesville Res. (O)	Release (Aquarium, Fishing)	USGS	Ricciardi 2001
14 bluespotted sunfish	fish	Centrarchidae	<i>Emmeocanthus gloriosus</i>	Atlantic	1971	Jamesville Res. (O)	Release (Aquarium, Fishing)	USGS	Mills et al. 1993
15 bristly lady's thumb	plant	Polygonaceae	<i>Polygonum caespitosum var. longisetum</i>	Asia	1960	Ohio (E)	Unknown		Mills et al. 1993
16 brown alga	phytoplankton	Phaeophyceae	<i>Sphacelaria fluviatilis</i>	Asia	1975	Gull Lake (M)	Release (Aquarium), Shipping (Fouling)		Mills et al. 1993
17 brown alga	phytoplankton	Phaeophyceae	<i>Sphacelaria lacustris</i>	Unknown	1975	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
18 brown trout	fish	Salmonidae	<i>Salmo trutta</i>	Eurasia	1883	Lakes Ontario and Michigan(T)	Release (Accidental, Deliberate)	USGS	Mills et al. 1993
19 bryozoan	aquatic invertebrate	Lophopodiidae	<i>Lophopodiella carteri</i>	Asia	1934				Ricciardi 2001
20 bur reed	plant	Sparganiaceae	<i>Sparganium glomeratum</i>	Eurasia	1936	Lake Superior	Unknown		Mills et al. 1993
21 calanoid copepod	zooplankton	Diaptomidae	<i>Skistodiaptomus pallidus</i>	Mississippi	1967	Lake Ontario	Release (Accidental, Fishing)		Mills et al. 1993
22 calanoid copepod	zooplankton	Temoridae	<i>Eurytemora affinis</i>	Widespread	1958	Lake Ontario	Shipping (Ballast Water)		Mills et al. 1993
23 chinook salmon	fish	Salmonidae	<i>Oncorhynchus tshawytscha</i>	Pacific	1873	All Lakes but S	Release (Deliberate)		Mills et al. 1993
24 diadoceran	zooplankton	Bosminidae	<i>Bosmina longirostris</i>	Eurasia	<1980s				Ricciardi 2001
25 cocciliophoroid	phytoplankton	Chrysophyceae	<i>Hymenomonas roseola</i>	Eurasia	1975	Lake Huron	Shipping (Ballast Water)		Mills et al. 1993
26 coho salmon	fish	Salmonidae	<i>Oncorhynchus kisutch</i>	Pacific	1933	Lake Erie	Release (Deliberate)	USGS	Mills et al. 1993
27 common carp	fish	Cyprinidae	<i>Cyprinus carpio</i>	Asia	1879	Widespread	Release (Deliberate)		Mills et al. 1993
28 crack willow	plant	Salicaceae	<i>Salix fragilis</i>	Eurasia	<1886	Widespread	Release (Cultivation)		Mills et al. 1993
29 creeping whorled mint	plant	Laminaceae	<i>Mentha gentilis</i>	Eurasia	1915	Central, NY (O)	Release (Cultivation)		Mills et al. 1993
30 creeping yellow cress	plant	Brassicaceae	<i>Rorippa sylvestris</i>	Eurasia	1884	Rochester, NY (O)	Shipping (Solid Ballast)		Mills et al. 1993
31 curlyleaf pondweed	plant	Potamogetonaceae	<i>Potamogeton crispus</i>	Eurasia	1879	Keuka Lake (O)	Release (Deliberate, Fishing)		Mills et al. 1993
32 cyclopoid copepod	zooplankton	Cyclopidae	<i>Megacyclops virens</i>	Europe	1994				Ricciardi 2001
33 diatom	phytoplankton	Bacillariophyceae	<i>Actinocyclus normanii fo. subsalsus</i>	Eurasia	1938	Lake Ontario	Shipping (Ballast Water)		Mills et al. 1993
34 diatom	phytoplankton	Bacillariophyceae	<i>Biddulphia laevis</i>	Eurasia	1938	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
35 diatom	phytoplankton	Bacillariophyceae	<i>Cyclotella atomus</i>	Eurasia	1946	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
36 diatom	phytoplankton	Bacillariophyceae	<i>Chaetoceros hornii</i>	Widespread	1946	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
37 diatom	phytoplankton	Bacillariophyceae	<i>Skeletonema potamos</i>	Widespread	1962	Detroit River	Shipping (Ballast Water)		Mills et al. 1993
38 diatom	phytoplankton	Bacillariophyceae	<i>Skeletonema subsalsum</i>	Widespread	1963	Toledo, Ohio (E)	Shipping (Ballast Water)		Mills et al. 1993
39 diatom	phytoplankton	Bacillariophyceae	<i>Stephanodiscus binderanus</i>	Widespread	1964	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
40 diatom	phytoplankton	Bacillariophyceae	<i>Stephanodiscus subtilis</i>	Widespread	1964	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
41 diatom	phytoplankton	Bacillariophyceae	<i>Thalassiosira guillardii</i>	Widespread	1964	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
42 diatom	phytoplankton	Bacillariophyceae	<i>Thalassiosira lacustris</i>	Eurasia	1973	Sandusky Bay (E)	Shipping (Ballast Water)		Mills et al. 1993
43 diatom	phytoplankton	Bacillariophyceae	<i>Thalassiosira pseudonana</i>	Widespread	1973	Sandusky Bay (E)	Shipping (Ballast Water)		Mills et al. 1993
44 diatom	phytoplankton	Bacillariophyceae	<i>Thalassiosira weissflogii</i>	Widespread	1973	Ohio (E)	Shipping (Ballast Water)		Mills et al. 1993
45 diatom	phytoplankton	Bacillariophyceae	<i>Diatoma ehrenbergii</i>	Widespread	1978	Lake Michigan	Shipping (Ballast Water)		Mills et al. 1993
46 diatom	phytoplankton	Bacillariophyceae	<i>Cyclotella cryptica</i>	Unknown	1978	Lake Huron	Shipping (Ballast Water)		Mills et al. 1993
47 diatom	phytoplankton	Bacillariophyceae	<i>Cyclotella pseudostelligera</i>	Europe	1988	Unknown	Unknown		Mills et al. 1993
48 diatom	phytoplankton	Bacillariophyceae	<i>Cyclotella waltereki</i>	Widespread	<1978	Lake Erie	Shipping (Ballast Water)		Mills et al. 1993
49 diatom	phytoplankton	Bacillariophyceae	<i>Thalassiosira baltica</i>	Widespread	1930s	Lake Michigan	Shipping (Ballast Water)		Ricciardi 2001
50 digenean fluke	parasite	Digenea	<i>Neascus brevicaudatus</i>	Unknown	1992				Ricciardi 2001
51 digenean fluke	parasite	Digenea	<i>Acanthostomum sp.</i>	Black Sea	1994				Ricciardi 2001