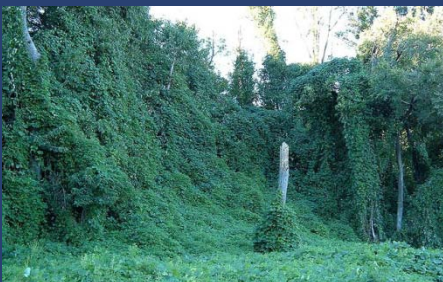




NOAA FISHERIES SERVICE



The intensive filtering activity of invasive mussels can drastically alter aquatic ecosystems by increasing water clarity and decreasing the food available to native species.



Kudzu (*Pueraria lobata*) was intentionally introduced to control soil erosion. The plant now occupies 7 million acres and is often referred to as “the plant that ate the South.” Growing an average of 12 inches per day, Kudzu literally swallows forests, preventing other plants and trees from getting proper sunlight.

Aquatic Invasive Species – Quick Facts

Biological Pollution

- Every year, more than **21 billion gallons – or 40,000 gallons per minute** – of ballast water are discharged into U.S. waters from international ports.
- Every day, an estimated **10,000** marine species are transported around the world in ballast water.
- The spread of invasive species has increased with global trade and development and is likely to be further augmented by continuing global change, especially climate change.

Number of Invasions in Selected Ecosystems:

- In the history of the United States, roughly **50,000** non-native (terrestrial and aquatic) species are estimated to have been introduced.
- Since the 1800's, there have been **160** new exotic species introduced to the Great Lakes; most of these species came from South Eastern Europe and approximately 70 percent have been introduced through ballast water operations.
- The current number of invasive species in San Francisco Bay is **212**, with a new species appearing every **14 weeks** since 1962.
- Approximately **160** aquatic invasive species (AIS) have established populations in tidal waters and wetlands of Chesapeake Bay.
- At least **113** invasive species have established populations in the Hudson River Basin; an additional **70** AIS have invaded the Delaware Bay-River estuary.
- The Hawaii Biological Survey at Bishop Museum reported **5,047** invasive species within the Hawaiian archipelago, composing about 20 percent of the terrestrial and aquatic species known to inhabit the islands.

Rate of Introductions of Invasive Species

- As a result of increased movement of people and goods around the globe, it is estimated that a marine species will invade a new environment somewhere in the world on a **weekly to daily** basis.
- The number of invasions is steadily growing the Great Lakes. Since 1970, on average, there has been **one invader recorded every eight months** in the Great Lakes.



Boats can transport invasive species into new locations. Watercraft operators should follow the Clean, Drain, Dry strategy in between every body of water, every time (Photo credit: NY Department of Environmental Conservation).



Once introduced, aquatic invasive plants can spread quickly. Once established they reduce light and oxygen to native wildlife (Photo credit: Maine Bureau of Land and Water Quality).

Biodiversity

- Biological invasion is second only to habitat destruction as the greatest cause of species endangerment and global biodiversity loss.
- Aquatic and terrestrial invasive species have contributed to the decline of half of imperiled species in the United States.
- 400 of the 958 species are listed as threatened or endangered under the Endangered Species Act as a result of competition with, or predation by, invasive species.

Human Health

- Recorded historical epidemics of human diseases such as malaria, yellow fever, typhus, and bubonic plague have been associated with introduced organisms. Most recently, West Nile virus was introduced to North America through an infected bird or mosquito.
- In 1991, **one million** people were infected with cholera and more than **10,000** died, when ballast water containing the microbe *Vibrio cholera* was released and infected drinking water in Peru.
- In 1991, cholera strains were found in oyster and fin-fish samples from Mobile Bay, Alabama, resulting in a public health advisory to avoid handling or eating raw oysters or seafood.

Cost to U.S. economy

- Estimated damage and control costs of aquatic and terrestrial invasive species in the U.S. alone amount to more than **\$137 billion annually**. This is more than the combined total of all other natural disasters.
 - The economic and environmental losses caused by AIS in the Great Lakes have been estimated to be as much as **\$5.7 billion** annually.
 - The estimated economic impact to the Great Lakes region (US & Canada) from zebra mussels **\$5 billion** between 2000 and 2010.
- The annual loss from the fishing industry as a result of the invasion of more than 40 exotic fish species that impact native fish and other aquatic biota is **\$5.4 billion**
 - Approximately **\$1 million** per year was spent to eradicate an invasive alga (*Caulerpa taxifolia*) in southern California.

For further information on Aquatic Invasive Species issues please contact:
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