Environmental Case Study
Lake Victoria Perch:
Killing Lake Victoria

If you go into your local pet store, chances are, you'll see some cichlids (*Haplochromis* sp.) for sale. These small colorful, prolific fish come in a wide variety of colors and shapes from many parts of the world. The greatest cichlid diversity on earth - and probably the greatest vertebrate diversity anywhere - are found in the three great African rift lakes: Victoria, Malawi, and Tanganyika. Together, these lakes once had about 1,000 types of cichlids - more than all the fish species in Europe and North America combined. All these cichlids apparently evolved from a few ancestral varieties in the 15,000 years or so since the lakes formed, one of the fastest and most extensive examples of vertebrate speciation known.

Unfortunately, a well-meaning but disastrous fish stocking experiment has wiped out at least half the cichlid species in these lakes in the last twenty years and set off a series of changes that is upsetting important ecological relationships. Lake Victoria, which lies between Kenya, Tanzania, and Uganda, has been particularly hard hit. Cichlids once made up 80 percent of the animal biomass in the lake and were the base for a thriving local fishery, supplying much-needed protein for native people. Colonial administrators, however, regarded the little, bony cichlids as "trash fish" and in the 1960s introduced the Nile perch (*Lates niloticus*), a voracious, exotic predator that can weigh 100 km (220 lbs) and grow up to 2 m long.

The perch gobbled up the cichlids so quickly that by 1980 two-thirds of the haplochromine species in the lake were extinct. Although there still are lots of fish in the lake, 80 percent of the animal biomass is now made up of perch, which are too large and powerful for the small boats, papyrus nets, and woven baskets traditionally used to harvest cichlids. International fishing companies now use large power boats and nylon nets to harvest great schools of perch, which are filleted, frozen, and shipped to markets in Europe and the Middle East. Because the perch are oily, local fishers can't sun dry them as they once did the cichlids. Instead, the perch carcasses discarded by processing factories are cooked or smoked over wood fires for local consumption. Forests are being denuded for firewood, and protein malnutrition is common in a region that exports 200,000 tons of fish each year.

Perhaps worst of all, Lake Victoria, which covers an area the size of Switzerland, is dying. Algae blooms clog the surface, oxygen levels have fallen alarmingly, and thick layers of soft silt are filling in shallow bays. Untreated sewage, chemical pollution, and farm runoff are the immediate causes of this eutrophication, but destabilization of the natural community is ultimately responsible. The swarms of cichlids that once ate algae and rotting detritus were the lake's self-cleaning system. Eliminating them threatens the long-term ability of the lake to support any useful aquatic life.

As this example shows, biological diversity is important. Misguided management and development schemes that destroyed native species in Lake Victoria resulted in an ecosystem that no longer supports the natural community or the native people dependent on it.