



American Eel Population & Hydropower Challenges

Population Status - Historic

We found here a number of eels and large lampreys taken in one of the eel pots. – Smith 1769 Upper Delaware River

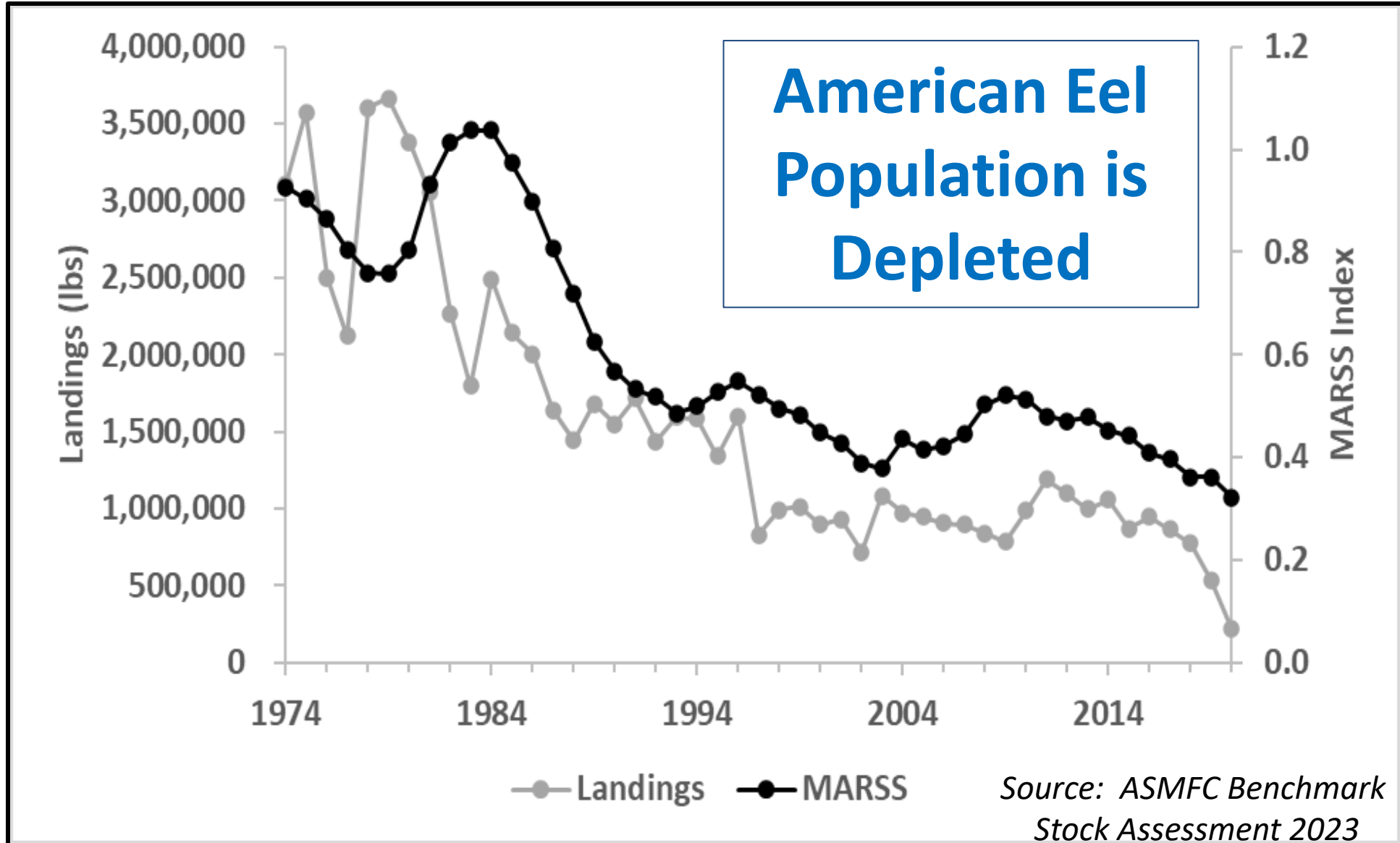
Eels are everywhere common in the headwaters of the Santee River Basin – Jordan 1889

Conowingo Dam
Susquehanna River
Built 1928
Height 95'
River Mile 10

The perch—the yellow perch—is also common in our lake; the largest are said to have weighed between three and four pounds. Besides these our fishermen take eels, dace or roach, suckers, cat-fish, and bull-pouts. - Cooper 1887 Upper Susquehanna River

Population Status - Current

Landings & Abundance 1974-2020



How can Dam Construction 80+ Years Ago Related to Past and Recent Eel Population Declines



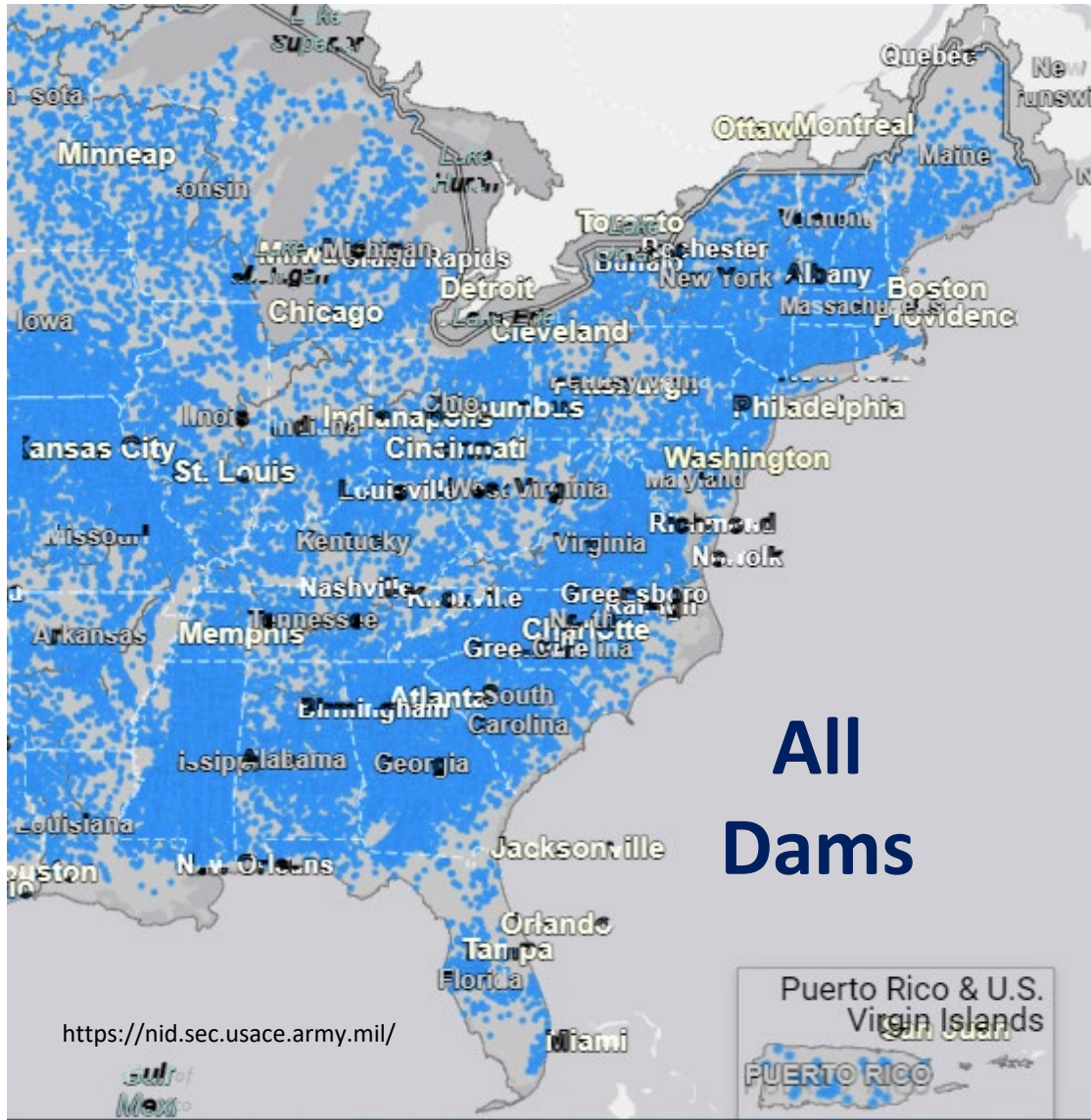
Eel Life History



- Freshwater areas produce more females
- Freshwater females are generally larger than estuarine females
- Larger eels = more egg production
- Eels from freshwater may take 15-30+ years to mature

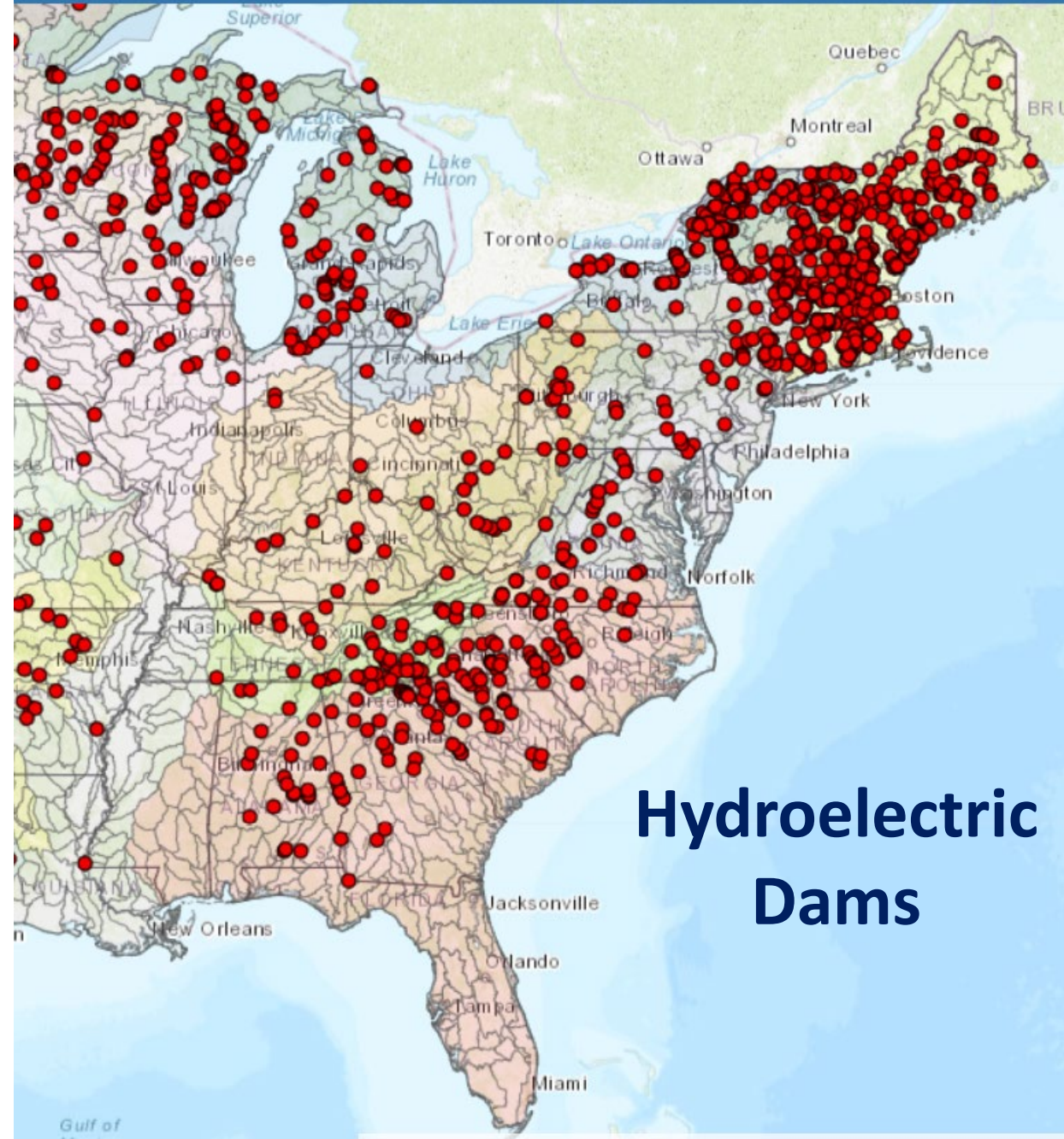
Dams

Average dam age on Atlantic Coast ~80 years

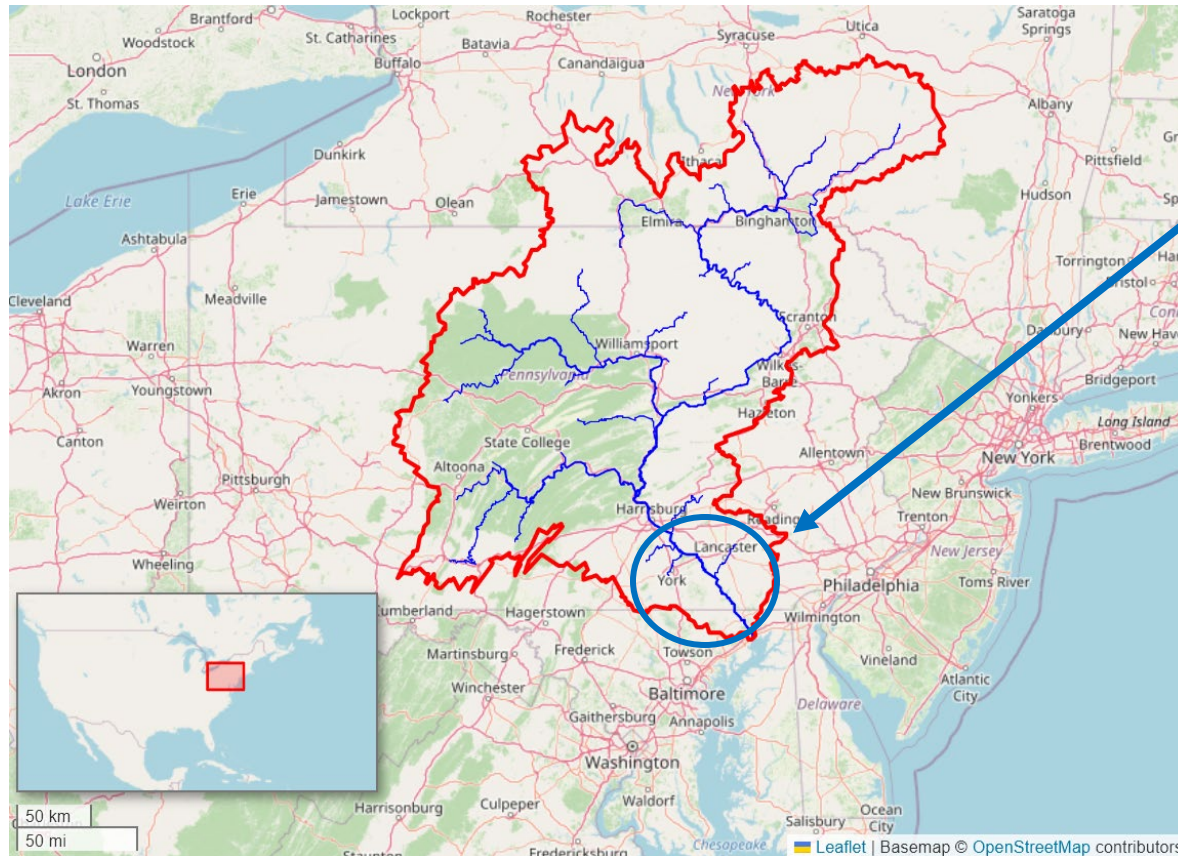


HydroSource Data Explorer

Source: <https://hydrosourcedataexplorer.ornl.gov/>

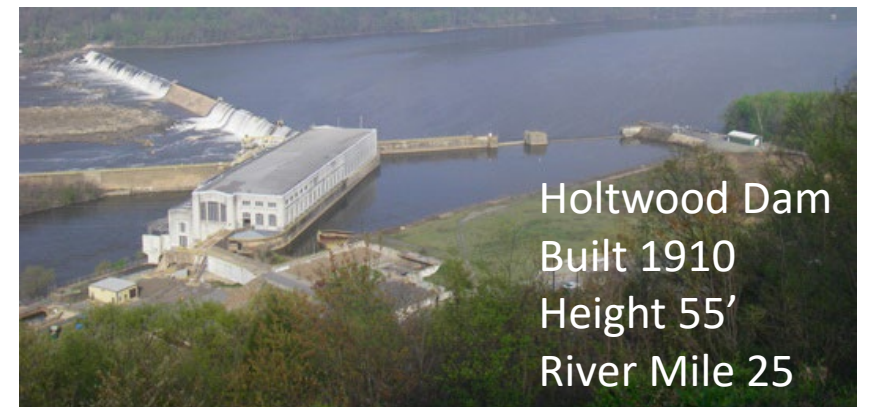
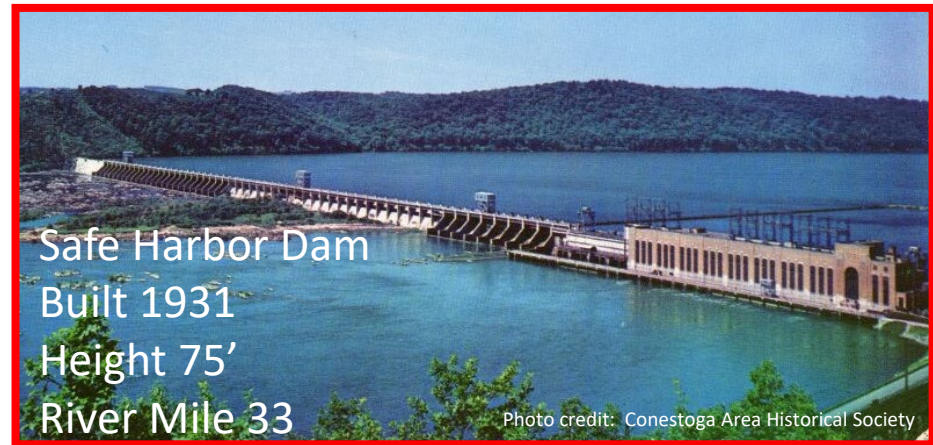


How Does Dam Construction
80 - 100 Years Ago Relate to Eel
Population Declines during the
past 50 years?
Susquehanna River Example

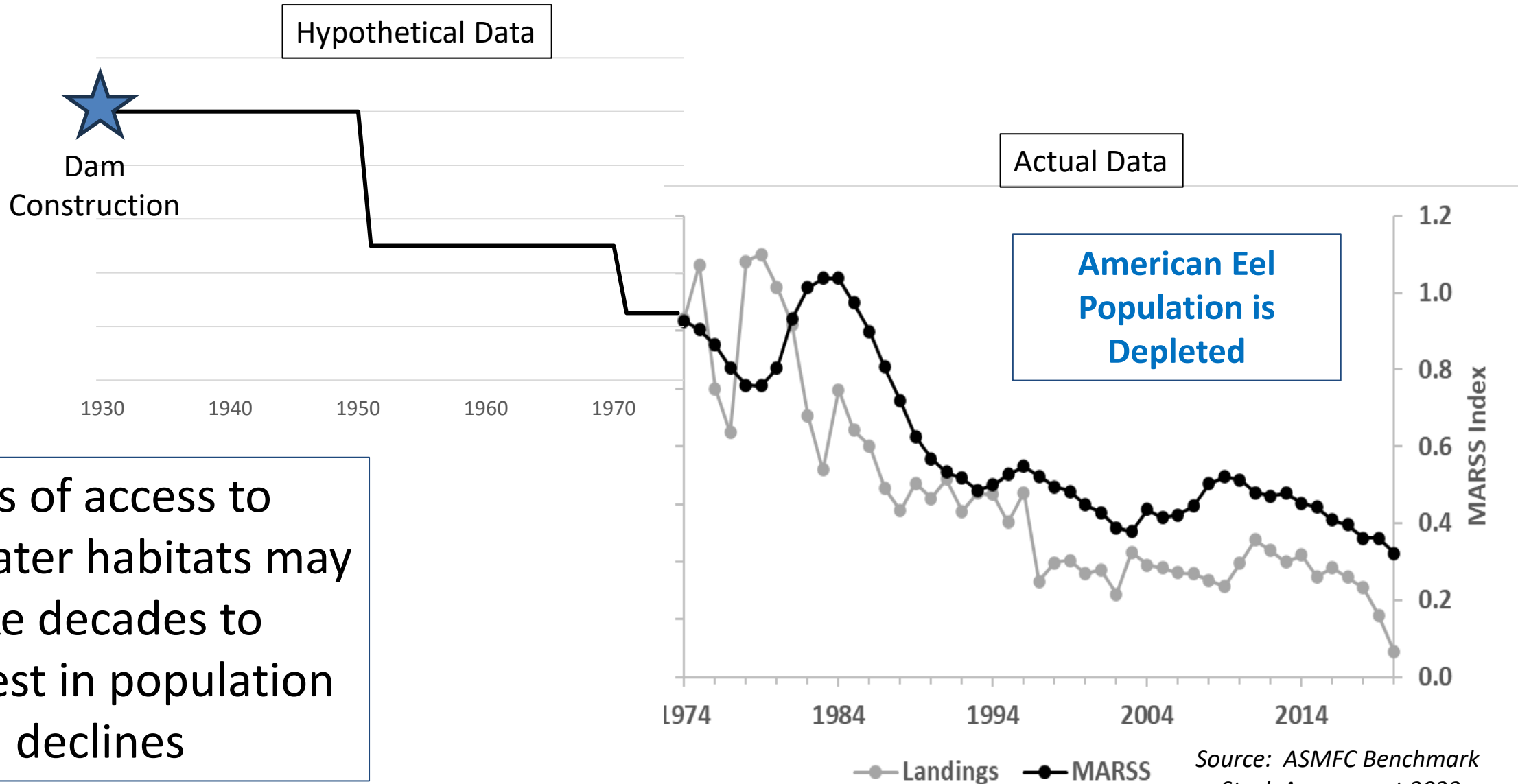


- 444 miles long
- 27,500 square mile watershed
- 40% of freshwater to Chesapeake Bay

High Dams Built ~1930



Generational Impact of Dams



Why Do We Need More Eels?



Credit: EthantheHunter https://wild-america.fandom.com/wiki/American_Eel

Efforts to Increase Eel Populations

- Fishery Regulations

- Quotas for both yellow and glass eel

- Further reduction of yellow eel quota being considered

- Silver eel fishery only in upper Delaware River, NY

- Less than 10 active weirs, limited entry fishery

- Access to Habitat

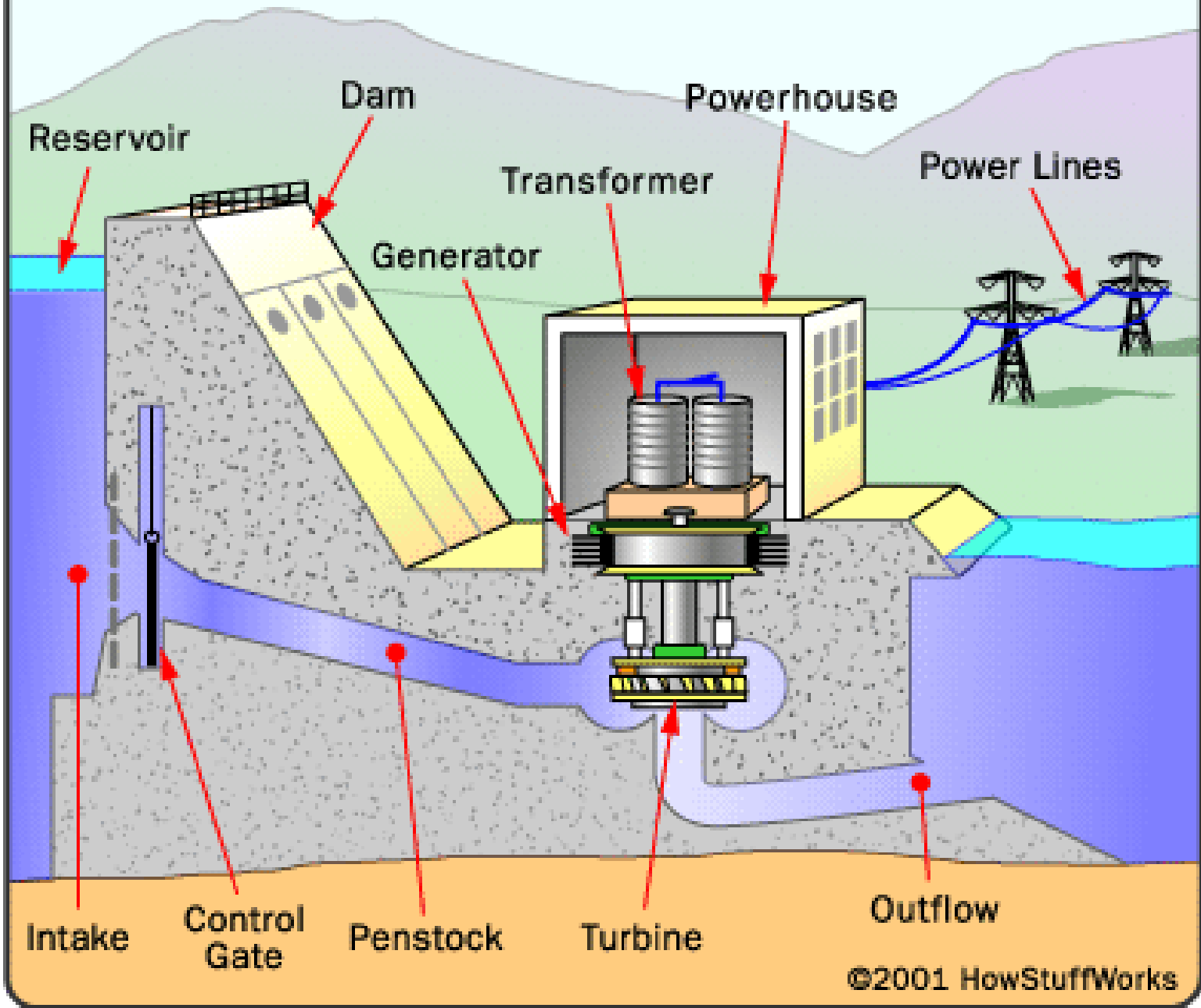
- Aquatic Connectivity (dam removals & passage)

- Relicensing at Hydroelectric Dams

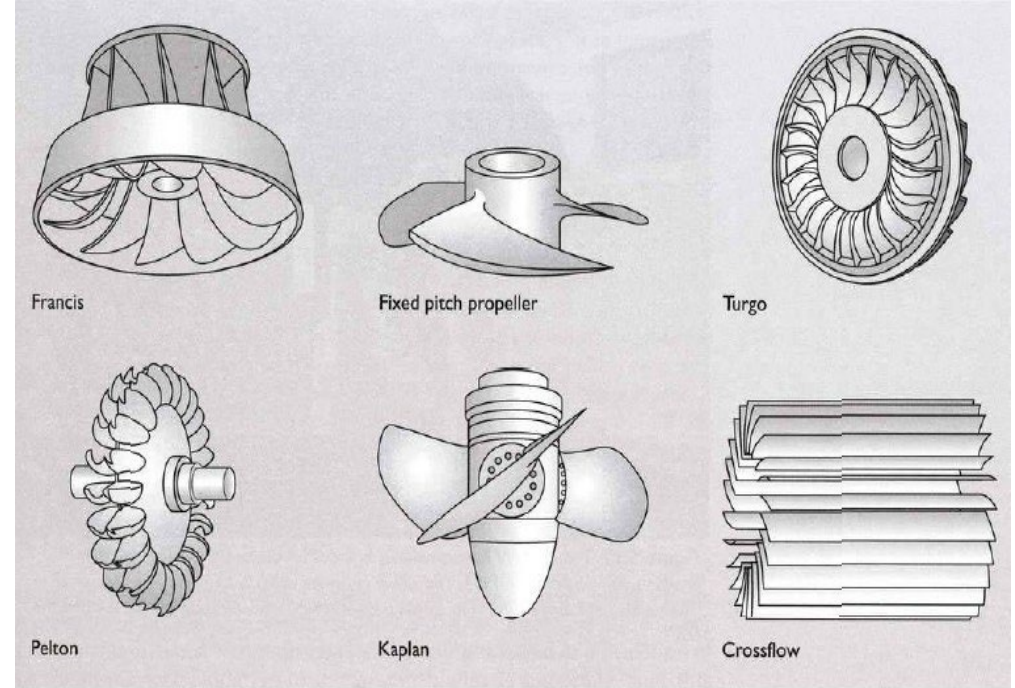
- Providing upstream passage
 - Providing for safe downstream escapement



Inside a Hydropower Plant



©2001 HowStuffWorks





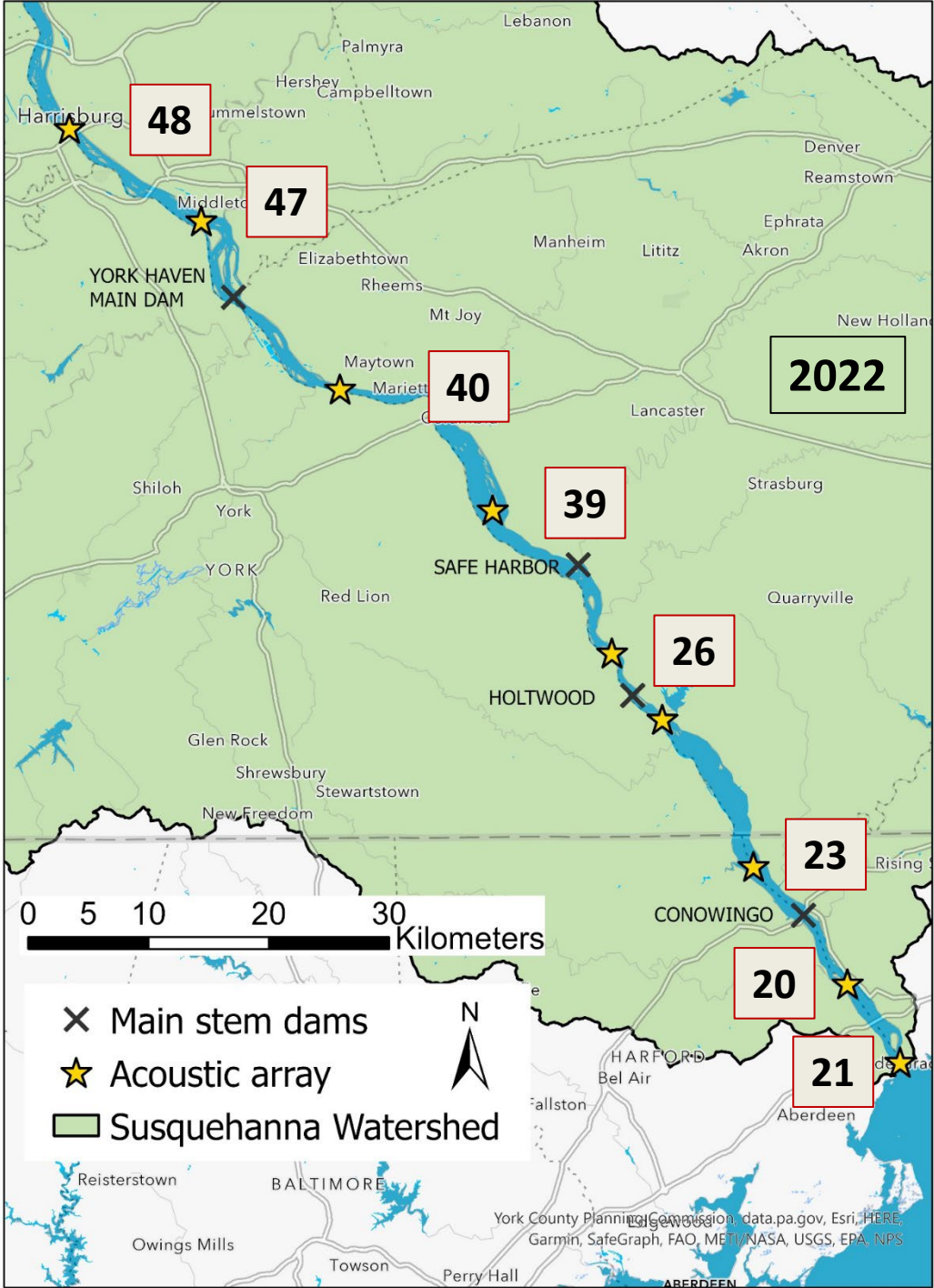
Turbine Injury and Mortality



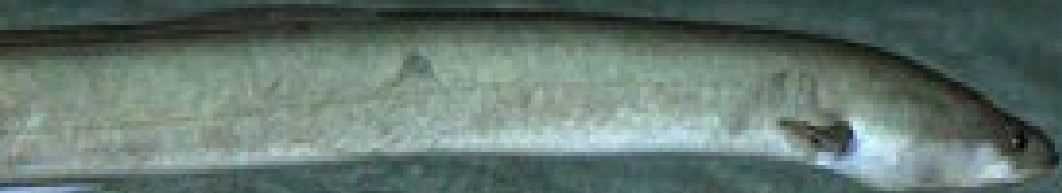
Cumulative Impacts: *Susquehanna River* *Example*

Cumulative Survival 44% of downstream migrating silver eel (large females)

Loss attributed to hydroelectric impacts in 60 miles of river = 56%



**THE GOAL –
Better
Downstream
Survival**



Questions?

