CLEARWATER
Navigator
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GREAT HUDSON RIVER **REVIVAL**
SEE PAGES 4 & 5 FOR FESTIVAL UPDATES

HUDSON RIVER REPORT CARD:

COUNTING SHAD

SO MANY VARIABLES, SO LITTLE TIME

One of the Hudson River's most charismatic – and troubled – fauna is the American Shad (Alosa sapidissima). The Hudson River and all other east coast shad stocks remain at their lowest levels in recorded history, and new mortality numbers strongly point to a continuing decline unless drastic action is taken soon.

The end of commercial intercept fishery in 2005 will be a positive development. "Intercept" indicates that the fish are taken along their ocean migration route to spawning rivers.

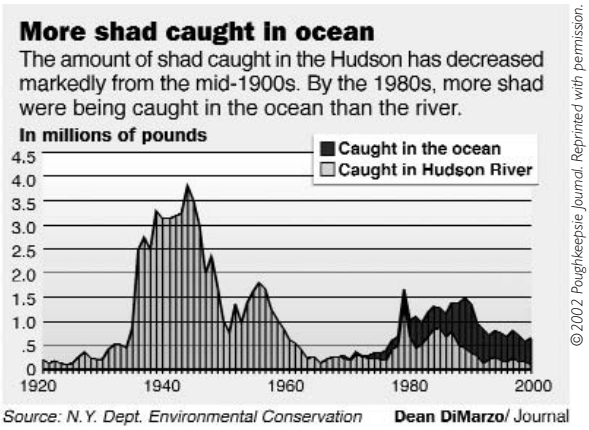
Many biologists, such as Kathy Hattala and Andy Kahnle of the NYS DEC Hudson River Fisheries Unit, believe that the intercept fishery, which began in the 1980s, is a principal cause of unsustainable shad mortality levels. Teasing apart the many other causes is a dizzying task filled with log (X+c) transformations, chi-square analysis and partial autocorrelation functions – tough stuff for your average citizen.

What's keeping the shad down, in plain English? Some of the answers are surprising.

First, what's not killing shad: voracious and burgeoning striped bass stocks. It is simply not physically possible for stripers to consume shad in quantities that impact the overall shad population during the spring spawning run, when most shad are just too big to fit down a striper's throat. Smaller herring also abound then to serve as preferred striped bass diet.

Chris Bowser

NYSDEC fisheries technician Joseph Cimino weighs an American shad caught by a commercial shad fisherman. Data collected is used in managing the fishery.



Power plants are killing shad – lots of them. Total annual shad mortality (as eggs and larvae) at the five mid-Hudson plants exceeds 16,000,000.

According to researcher Michael Hendricks, from 1986 to 1991 it took 385 stocked larvae to return a single adult spawning shad at the lift gates of the Susquehanna River's Conowingo Dam. In later years the ratio approached 500:1, reflecting increasing mortality. Applying this ratio to the Hudson River, closed-cycle cooling requirements for power plants could result in as many as 30,000 additional shad per season – roughly twice the total annual Hudson River catch in recent years.

There's more. Hattala, Kahnle, and David Strayer from the Institute of Ecosystem Studies have demonstrated that zebra mussels are impairing growth rates of new young shad as much as 20%. Zebra mussel filter-feeding has reduced phytoplankon 80-90% and cut many zooplankton species significantly. With less to eat, the young shad grow less, and may leave the river without enough mass to survive the coming winter.

Taken together, the factors affecting adult shad lead to net mortality rates of 70% and greater – per year – up from 37% in 1985, and far above the <30% thought necessary for the shad population to rebound.

- Andy Mele
Executive Director