

Comments on **“STATUS REVIEW OF ATLANTIC STURGEON”** -- DRAFT
Atlantic Sturgeon Status Review Team
National Marine Fisheries Service, NOAA

I have critically read the draft version of the “Status Review of Atlantic Sturgeon”.

Submitted Nov. 12, 2006.

My comments are as follows:

1. Distinct population segments (DPS) and species delineation.

Although I am in agreement with the DPS units chosen I think the report should show that only the Atlantic coast subspecies is being considered and that the range of the “species” was from Europe (Ludwig et al 2002) to the Gulf of Mexico (Vladykov and Greeley 1963; and numerous subsequent studies from Florida, Alabama and Mississippi). I also think that it should be made clear early in the report that there is a substantial seasonal migration each year of AS on the Atlantic coast from Chesapeake Bay to the Gulf of Maine-Bay of Fundy.

2. The report contains a substantial portion of the scientific and commercial information available but has some errors and oversights. See specific comments below.
3. Risk extinction analysis is appropriate but perhaps overcautious. If the species did not go extinct during the heavy commercial and pollution stresses it was under between 1850-1990 it is highly unlikely the extinction risk is high over the next 20 years with the checks and balances now in place.
4. Scientific conclusions are sound and derived logically except as noted in 3 above.
5. Some scientific information has not been considered but overall most old and new information is included.

SPECIFIC COMMENTS

Comments are presented in order as they pertain to the draft.

Pg. 3 1.2 Life History “ the species range includes the Baltic Sea to the Gulf of Mexico. Your report only deals with the Atlantic coast portion. This should be made clear. Baltic Sea AS are as closely related to Gulf of Maine AS as they are to Canadian AS. Ludwig et al 2002. This citations is missing from the citations.

Pg. 4. line 3-6. There is a fall migration of ripening adults upriver in the Saint John River, NB. While this is not a spawning run in the sense the adults are running ripe as

seems to be the case in southern rivers it is still a spawning run as the adults do not go back to sea before spawning the following spring. This point should be addressed.

Pg. 4 second para. Coastlines of aggregations should include Chesapeake Bay and the inner Bay of Fundy (Minas and Cumberland Basin (Dovel and Berggren 1983, Dadswell 2006).

Pg 5 Smith 1907 and Ryder 1890 also have good fecundity data.

P. 6. Paragraph 2. The sturgeon fishery in the St. Lawrence is different in that it is a flesh and local sale market. **All sturgeon captured in the Saint John were exported to the US.** The sturgeon were targeted for **caviar** and there were no local sales. The quotas discussed in the last two lines only apply to the St. Lawrence.

The crash in the St. Lawrence between 1967-1975 was pollution related not caused by the fishery (reread Trencia and papers by Caron) The major drop was caused by massive inputs of DDT above Montreal during 1966 and 1967 to eliminate the mayfly bloom for the 1967 Worlds Fair. This event was probably what also eliminated the population of striped bass in the St. Lawrence.

Recent River Specific Information

Canadian Rivers: There is no information Atlantic sturgeon are in the LaHave River (Last line p. 6) although they probably are. Delete. However the Avon and its tributaries in Minas Basin have records (see Dadswell 2006).

p. 7: Last paragraph. Size and age data are available for the Saint John. See

Pottle, R. and M.J. Dadswell 1979. Studies on larval and juvenile shortnose sturgeon. Report to Northeast Utilities. Hartford Conn. (MS report available from MJ. Dadswell)

Pg. 7. last 4 lines. Atlantic sturgeon between **19-480cm FL** were captured in the Saint John River. See Pottle and Dadswell 1979 and Dadswell 2006. In the period 1973-76, I personally saw 3 AS that were 16 feet long, the length of my boat, and heard of more. During that same period I captured 20-30 adults that ranged in size from 9-12 feet long and brought these into the boat for measurements. Many days when I set gill nets in the wrong areas during sampling for shortnose sturgeon, AS from 30-60cm were captured in abundance (50-100/day). These were sad days unless I had gloves. Some job getting the sharp little buggers out of the nets, lots of bleeding on my part.

Pg. 14. There is missing information for the Delaware River. In other parts of the draft document there is good review of past catches. Here they seem to be missing.

Brundage and Meadows recorded 130 AS captured between 1958-1980. (This reference is not in the bibliography and is an oversight since it shows AS were relatively common during the period of worse pollution in this river.

Bundage H.M. and R. E. Meadows 1982. The Atlantic sturgeon in the Delaware River estuary. Fish. Bull. 80: 337-343.

Lazzari et al 1986 recorded 89 more from 1981-1984 and all of these were in areas of the river that suggest a nursery area (upper tidal portion) and the fish were not migrants from other rivers.

Pg. 16. 5th Para. Since the Hudson was the only river where AS were tagged during the 1970's the first sentence is incorrect. It cannot say most subadults were from the Hudson stock. These were just the ones recorded because of tag returns. Its is obvious once the incentive is there lots of AS are around (see recent Maryland reward system)

Page 25. DPS Determination. This is where reference to Gulf and Baltic stocks of AS should be recognized. Makes it look like the species only comes from the Atlantic coast.

3.11 Dams

Three problems:

No mention is made of the effect of Tidal Power dams on AS. Dadswell and Rulifson 1994 document AS mortalities from turbine impact on the Annapolis River, NS. Three mature adult females (ready to spawn) were collected below the tidal turbine on the Annapolis River. One of these is documented with a picture in Dadswell (2006). The future possibility of immense tidal dams in the Bay of Fundy could impact Atlantic sturgeon from at least the Gulf of Maine DPS considering the number of AS found in Cumberland and Minas Basins during summer (Dadswell et al. 1984; Dadswell 2006). It is unknown if the Annapolis River population has survived the construction of a Tidal Project on that estuary.

Dadswell, M.J. and R.A. Rulifson. 1994. Macrotidal estuaries: a region of collision between migratory marine animals and tidal power development. Biological Journal of the Linnean Society 51: 93-113.

I am not convinced the Conowingo dam was not a disaster for AS in the Susquehanna River. It sure was for shad and the two species spawning regions in many rivers overlap. I would anticipate the Conowingo dam removed considerable AS spawning habitat.

Mention might be made of the head of tide dam removal in the Presumpscot River, Maine around 2000. This dam removal probably restored 100% of available spawning habitat in that river and Cobscook Bay appears to be good nursery habitat. One of juvenile Atlantic sturgeons preferred foods, *Cyathura polita* is common there (Burbanck and Burbank 1979).

3.1.3 Water Quality

Dadswell (1975) published information on Mercury contamination in Atlantic sturgeon from the Saint John River estuary, NB. Mean concentrations of Hg in a sample of 30 juvenile AS was 0.29ppm of wet weight with a range of 0.06-1.38ppm.

Dadswell, M.J. 1975. Mercury, DDT and PCB content of certain fishes from the Saint John River estuary, New Brunswick. Transactions of the Atlantic Chapter, Canadian Society of Environmental Biologists Annual Meeting. Fredericton, NB, November 1975. (Available from MJ Dadswell)

These comments may effect summary statements in 3.1.5.

3.2.2 Bycatch

I agree wholeheartedly about the recommendations to study the monkfish fishery long soak time problem. This is not good for any species of ocean fish.

Page 72. **Gulf of Maine DPS**

First para, fourth line. Peak recent commercial catch in the Saint John River was 80MT in 1994 (Dadswell 2006), not 44 tons in 1988.

Penobscot River ME,

Scutes are also known from native middens along the **Presumpscot River ME** (Yesner et al. 1983).

Competition

I would suggest that carp are a major competitor for food with juvenile sturgeon. They are exotic (p.80, 3rd para). Also Shortnose sturgeon juveniles compete with Atlantic sturgeon juveniles for the same food resources in the upper regions of the Saint John (Pottle and Dadswell 1979).

Page 86. Licences. Maritime provinces first line adding wrong or number of licenses wrong. In an earlier section it was stated eight licenses were active in the Maritimes 7 in NB and 1 in NS. In this section its 8 in NB and one in NS. Which is right? Also on p. 113 it states 8 are in the Saint John, NB.

In 3.5 there should be a section on Tidal Turbines. Mortality in tidal turbines is documented (Dadswell and Rulifson 1994). Tidal turbines would pose an immense threat to the viability of AS populations on the Atlantic coast because of their large size and the strike rates associated with larger fishes!!

7.3.1 Gulf of Maine DPS fails to include the Annapolis River. A total of 3 gravid female adults and 2 juveniles (approx. 50 cm) have been taken in the estuary of the river. The adults below the Tidal dam (mortalities) and the juveniles, upstream in the head pond in bottom set, fixed gill nets.

7.3.2 New York Bight DPS

DPS analysis fails to evaluate the long-term, continued catches of AS in the Delaware. Brundage and Meadows 1982, Lazzari et al. 1986, and so on. Seems to me the population has been relatively stable, perhaps at low levels, for a long time.

Table 1. Lacks historic and current spawning information for the Mirimichi, Annapolis and Avon River estuary (Dadswell 2006). All these rivers have either or both juveniles or fecund adults reported.

Table 5. ditto

Figures. It seems strange to me that you would include AS landings from the Saint Lawrence fishery (Fig. 2), which is a river not in a DPS, but **not** include the landing information from the Saint John, NB which is a river in the Gulf of Maine DPS. See Fig. 7, Dadswell 2006.

Sincerely

M. J. Dadswell,
Professor of Biology
Acadia University, Wolfville, NS
B4P2R6
Canada

mdadswell@bwr.eastlink.ca