



December 23, 2013

Chief, Endangered Species Division  
National Marine Fisheries Service, F/PR3  
1315 East-West Highway  
Silver Spring, Maryland 20910

Application for an Individual Incidental Take Permit under the Endangered Species Act of 1973

### III. Contact Information

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Fed. Tax ID # 14-6049022

### IV. Species description: Source-NYSDEC sturgeon website

#### Atlantic sturgeon (*Acipenser oxyrinchus*)

The largest of New York's sturgeons, Atlantic sturgeon in the Hudson River occasionally reach over 200 pounds in weight and six to eight feet in length. Individuals up to 14 feet long and 800 pounds have been recorded from New Brunswick, Canada. The Atlantic sturgeon is olive green to blue-black on its back and upper sides, shading to white on the belly. It can be told apart from its cousins by its long, narrow snout with a relatively small underslung mouth and four barbels. Atlantic sturgeon are anadromous, migrating from saltwater to spawn in freshwater. While much is known about its habits in freshwater, little is known about this sturgeon while at sea. At spawning time, male sturgeon move into the river first followed by the females. Spawning occurs from April-June upstream of the salt front. Individual fish have been known to travel over 900 miles to spawn. Following spawning, female Atlantic sturgeon will move out of the river while males may remain until the fall. Female Atlantic sturgeon reach sexual maturity at 18-19 years of age when they are six to eight feet long and over 70 pounds. Males become sexually mature at 12-14 years of age, when they are 3.5 to 6.5 feet long. The oldest recorded individuals were over 60 years old. Spawning sturgeon scatter the eggs across a wide area. The eggs are sticky and attach themselves to stones and vegetation. Following hatching, the young fish remain in freshwater for two to seven years before moving out to sea. As they grow, they feed on a variety of benthic or bottom organisms, including worms, amphipods, isopods, midge larvae, plants, and small fishes. Atlantic sturgeon are sometimes seen basking at the water's surface and making spectacular jumps. After spending up to the seven years of life in freshwater, Atlantic sturgeon migrate out to sea to spend the rest of their lives. Only during spawning season do adult

sturgeon return to large coastal rivers and estuaries. In New York, Atlantic sturgeon are generally found in the deeper portions of the Hudson River. While occasionally found as far upriver as Albany, young fish are rarely seen upstream of Hudson. Prior to 1900, Atlantic sturgeon were abundant in the Hudson River estuary, especially south of Hyde Park. People caught large numbers of these huge fish for their delicious meat and for the caviar. Nicknamed "Albany Beef," the once plentiful Atlantic sturgeon was commonplace dining fare in New York's Capital Region. Atlantic sturgeon numbers have dramatically decreased since then. Currently, they are protected and no one is allowed to fish for them.

Based on communication with DEC biologists, it is estimated that for Atlantic sturgeon, Clearwater is most likely to encounter individuals, mostly sub-adults, 98 % of the time from the New York Bight distinct population segment (DPS). Larger individuals would like be able to avoid the otter trawl that Clearwater uses, because of its small size and slow speed. It is estimated that there are fewer than 1,000 spawning age Atlantic sturgeon in the Hudson, but recent evidence suggests that the overall population is recovering (personal communication, Kathy Hattala, Fisheries Biologist, NYSDEC Hudson River Fisheries Unit). Ms. Hattala also states that a small otter trawl like the one employed by Clearwater has very low likelihood of catching a spawning age Atlantic sturgeon because of the small size of the net and slow speed of the towing vessel.

<http://www.asmfc.org/uploads/file/SturgeonBoardSupplementalcontSu2012.pdf>

This paper asserts that the spawning population for Atlantic sturgeon may be significantly larger than 1,000 individuals.

#### Shortnose sturgeon (*Acipenser brevirostrum*)

The shortnose sturgeon is the smallest of New York's sturgeons, rarely exceeding 3.5 feet in length and 14 pounds in weight. It has a short, blunt, conical snout with four barbels in front of its large underslung mouth. Its body color is generally olive-yellow to gray or bluish on the back, and milky white to dark yellow on the belly. Its scutes are pale and contrast with its background. While much is still not fully understood about the spawning behavior and early life stages of the shortnose sturgeon, a few facts are known. The shortnose sturgeon is semi-anadromous. Each year, between April and May, adult sturgeon migrate up the Hudson River from their mid-Hudson overwintering area to spawn in freshwater sites north of Coxsackie. Males spawn every other year and females every third year. Eggs are deposited and hatch in approximately 13 days. The newly-hatched fry are poor swimmers and drift with the currents along the bottom. As they grow and mature, the fish move downriver into the most brackish waters of the lower Hudson. Like all sturgeon, shortnose sturgeon are long-lived. The oldest known female was 67 years old and the oldest known male was 32. Using their barbels to locate food, shortnose sturgeon eat sludge worms, aquatic insect larvae, plants, snails, shrimp, and crayfish. The shortnose sturgeon is restricted in range to the Atlantic seaboard in North America. It occurs in estuaries and large coastal rivers. In New York State, it is found in the lower portion of the Hudson River from the southern tip of Manhattan upriver to the Federal Dam at Troy. The shortnose sturgeon is officially listed as endangered in all states where it occurs. It is unlawful to kill or possess this fish. A combination of factors is responsible for the declines in shortnose sturgeon populations. During the 1800s and early 1900s, large tidal rivers such as the Hudson served as dumping grounds for pollutants. This led to major oxygen depletion and resulting high fish losses. In addition, dam construction that cut off upstream breeding grounds, and demands for sturgeon meat and caviar also contributed to the decreases in shortnose sturgeon populations. Shortnose sturgeon populations in the Hudson have experienced strong population growth in the recent past:

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V. Detailed description of proposed activity:

Overview: Clearwater is an environmental education organization that owns and operates a 106 ft. historic tall ship, the sloop *Clearwater*. Clearwater is a replica of cargo vessels that sailed the Hudson River in the 18<sup>th</sup> and 19<sup>th</sup> Centuries. Specifications of the Clearwater can be found here at this link: <http://www.clearwater.org/the-sloop/history-and-specifications/>

Clearwater also contracts another vessel in the springtime, the schooner *Mystic Whaler*, for our education program. This vessel generally sails with us only in May and June. The specifications for the *Mystic Whaler* are included at this link: <http://www.mysticwhalercruises.com/pages/The-Schooner.html>

Our programs routinely reach over 15,000 people each year. For many students, the Hudson estuary is nothing more than a strip of brown water they cross when travelling over the Tappan Zee or George Washington Bridges. Many believe the river is so polluted it can't harbor any life and as a result it's not worth working to protect it. We use this sailboat as a platform to teach students (who many range from 4<sup>th</sup> graders from Harlem one day to West Point cadets the next) about the ecology and history of the Hudson River. We are applying for this incidental take permit in order to use a small otter trawl as part of our program. This is not a research project. The trawl is meant to occasionally sample Hudson River fish and invertebrates. The students participate in setting and hauling in the net. Only a very few individual fish and invertebrates are kept onboard in an aquarium for the duration of the three-hour program. The rest are immediately returned to the river. The trawl is a useful, participatory tool in exposing students and the public to the diversity of life in the Hudson estuary. Our other primary tool for sampling is a beach seine, but use of this net requires access to a beach, something that is not available along large stretches of the Hudson River shoreline.

Clearwater has created sampling protocols designed to minimize the already low likelihood of catching a sturgeon with our trawl. This protocol includes limiting net sets to 5 minutes each. A set would be defined as the time when the doors reach the water's surface to the time when they are retrieved. Each set will be logged in detail by the captain onboard. Each set will be limited to less than 2-3 knots vessel speed (less than 4 mph). If a sturgeon of either species is caught, our education staff will immediately release the fish back into the river without delay.

Because the trawl is so small, the sets are short in duration and the river habitat where we will be sampling is very resilient (detritus covered mud), we anticipate that this is a low-impact activity. We limit use of the trawl to areas where no other options for obtaining fish and invertebrate samples exist and avoid known sturgeon gathering areas.

After reviewing species lists provided by the NMFS, we do not anticipate encountering any other NMFS species of concern with our sampling protocol. This permit application would be specific to the two species of sturgeon listed above.

A. Activity dates: from April 1st to October 31<sup>st</sup>. We are requesting a 10 year permit to be valid from 2014 to 2024. The trawling activity will include one to two sets per day, depending on conditions. No more than a maximum of 10 sets in any given week per vessel during our active sailing season will be taken. Most weeks would feature between 6-8 sets per vessel.

B. Location: the Hudson River estuary, from various locations between Albany, NY south to New York Harbor depending on the demand for programs at specific docks. The specific scheduled locations for trawling sets are based on Clearwater's sailing schedule. The schedule of the vessels will be forwarded to DEC fisheries officials before the start of the season. A list of docks where Clearwater will employ trawling is included here with links to Google maps of their specific location:

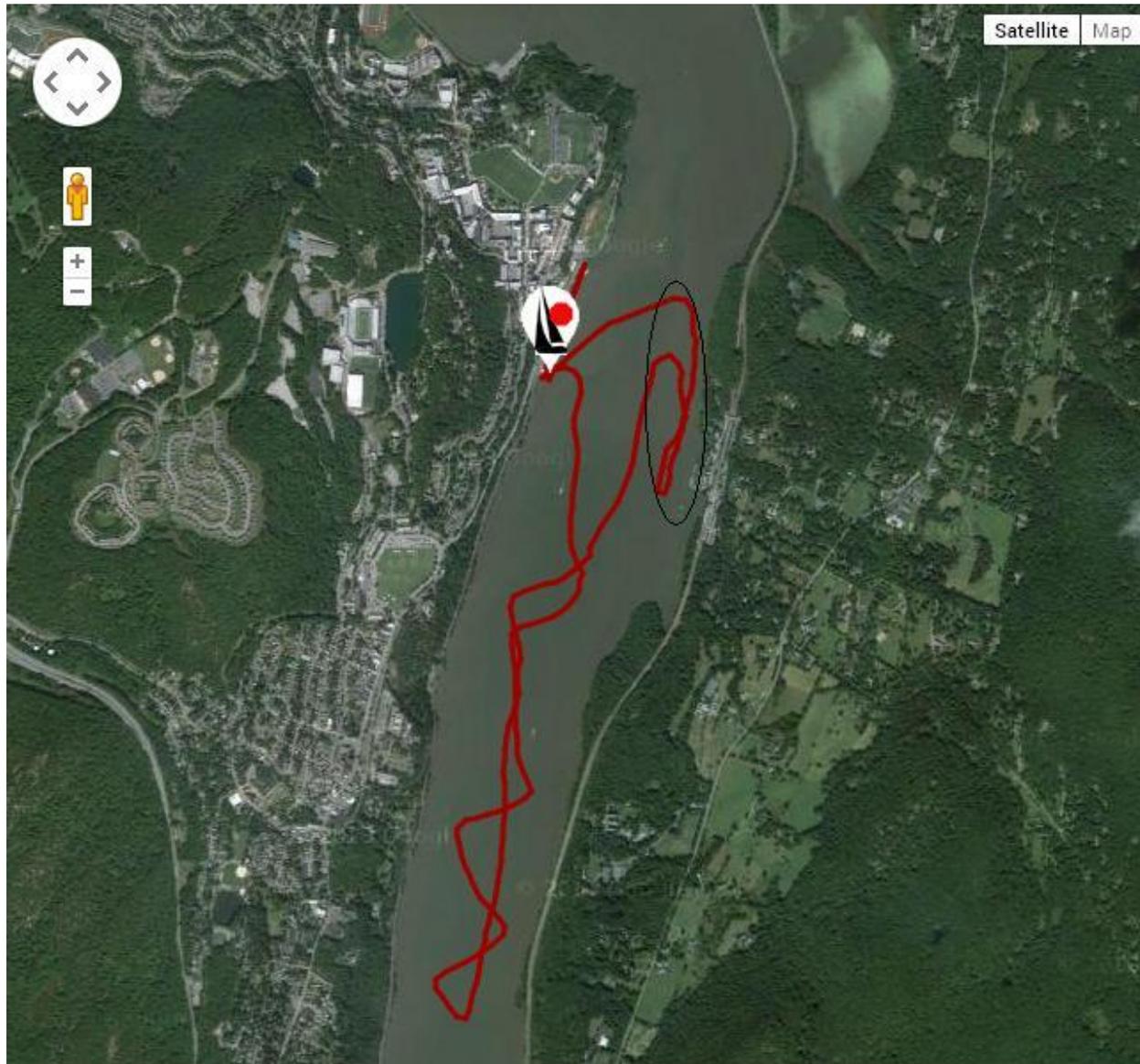
Dock Name	River Mile	Link to Google Map	Coordinates	*Gear	Dock Authority
Brooklyn/Red Hook	---	<a href="#">Brooklyn</a>	40.676520°N 74.011373°W	Trawl only	NY Waterways Ferry
West 79 <sup>th</sup> St. Boat Basin, Manhattan	5.0	<a href="#">79th</a>	40°47'10"N 73°59'07"	Trawl only	NYC Office of Parks
Alpine, NJ	15.5	<a href="#">Alpine</a>	40.968149°N 73.91715	Trawl & Seine	Palisades Interstate Park
Yonkers, NY	15.5	<a href="#">Yonkers</a>	40°56'29"N 73°51'52"W	Trawl only	City of Yonkers
Piermont, NY	21.5	<a href="#">Piermont</a>	41°2'26"N 73°55'8"W	Trawl & Seine	Village of Piermont
Haverstraw, NY	32.5	<a href="#">Haverstraw</a>	41°12'17"N 73°59'26"W	Trawl only	West Haverstraw Marina
Verplanck, NY	38.0	<a href="#">Verplanck</a>	41°15'11"N 73°57'35"W	Trawl & Seine	King's Marine
West Point, NY	48.0	<a href="#">WP</a>	41°22'N 74°03'W	Trawl only	US Military Academy
Cold Spring, NY	49.5	<a href="#">CS</a>	41°25'8"N 73°57'16"W	Trawl only	Village of Cold Spring
Beacon, NY	53.0	<a href="#">Beacon</a>	41°30'15"N 73°57'56"W	Trawl & Seine	Village of Beacon
Poughkeepsie, NY	66.0	<a href="#">Pok</a>	41°42'N 73°55'W	Trawl & Seine	City of Poughkeepsie
Kingston, NY	79.0	<a href="#">Kingston</a>	41°55'30"N 74°0'00"W	Trawl only	Hudson River Maritime Museum
Catskill, NY	96.5	<a href="#">Catskill</a>	42°13'16"N 73°51'59"W	Trawl only	City of Catskill
Hudson, NY	101.0	<a href="#">Hudson</a>	42°15'0"N 73°47'23"W	Trawl only	City of Hudson
Coxsackie, NY	106.0	<a href="#">Cox</a>	42°21'27"N 73°48'29"W	Trawl only	Village of Coxsackie
Castleton, NY	117.0	<a href="#">Castleton</a>	42°31'57"N 73°45'1"W	Trawl only	Village of Castleton
Rensselaer NY	125.0	<a href="#">Rens</a>	42°38'48"N 73°44'01"W	Trawl only	City of Rensselaer

\*Beach seine use is available only during low tide conditions at these docks.

Clearwater is part of the Hudson River Environmental Conditions and Observation System ([www.hrecos.org](http://www.hrecos.org)). The sloop serves as the mobile water quality sensor for this network. The boat is outfitted with a GPS and every sail that we do can be tracked and plotted on a map of the

Hudson River. Water temperature, salinity, turbidity, and dissolved oxygen data are also recorded. The example from the HRECOS site below shows a typical sail track from West Point. The area circled would represent the section of river where the trawl would be set.

Clearwater track on May 31, 2011 from West Point, NY.



C. Estimate of total level of activity: The proposed activity involves the use of a small otter trawl net as part of an environmental education program on the Hudson River estuary. This program reaches thousands of students as well as members of the general public each year. This activity will involve using the net once or twice a day as needed, for 5 minute intervals, with the vessel speed around 2 knots, to sample Hudson River life. Most sets take place between 20 and 40 feet of water depth. Trawling will be scheduled to take place onboard the sloop *Clearwater* only. The vast majority of individual fish that are caught will be immediately returned to the river after, with only a select few saved in aquaria for brief display to school groups on board the vessels before being returned. Trawling in general will commence at approximately 9:30 AM and 1:30 PM on a given day, based on our program schedule. A maximum number of 10 sets a

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week would be employed, and during many weeks the number of sets would likely run from 6-8 per week.

#### VI. Conservation Plan:

A. Species impact- Trawling, even with small gear, slow speeds, and short sets, does allow for the possibility of catching a sturgeon of either species. Our estimated catch of sturgeon using our otter trawl in past years has been 2 individual sturgeons (either shortnosed or Atlantic) per sailing season. This figure is derived from field data sheets from historical use of the trawl by *Clearwater* and our leased vessel, the schooner *Mystic Whaler*. Since we are taking active steps to limit the scope of our trawling (using beach seines when possible; actively avoiding known sturgeon zones; slow vessel speeds and shortened set times) we anticipate that we can substantially reduce the sturgeon encounters to near zero.

Nevertheless, anytime a trawl is set there is potential to catch a sturgeon and some potential for mortality does exist, mostly for juveniles, from impingement in the net. Over the 10-year term of this permit, *Clearwater* anticipates a possible mortality (or lethal take) of up to 2 individual sturgeons of either of the listed species. All steps will be taken to avoid known sturgeon gathering areas and to minimize sturgeon injury and mortality if by chance one is captured in the net. Any sturgeon incidentally caught in the trawl net would be immediately released back to the river. This article identifies known sturgeon spawning locations by Hudson River mile that we will avoid. [http://193.146.153.5/publicaciones/boletin/pdfs/bol16/16\\_043-053.PDF](http://193.146.153.5/publicaciones/boletin/pdfs/bol16/16_043-053.PDF)

Also, while employing the trawl, *Clearwater* will follow protocols outlined by the NMFS here: [http://www.nmfs.noaa.gov/pr/pdfs/species/kahn\\_mohead\\_2010.pdf](http://www.nmfs.noaa.gov/pr/pdfs/species/kahn_mohead_2010.pdf). The most serious problem outlined here is the risk of trawl hang-downs. According to this paper, sturgeons are a fairly resilient fish when captured in a trawl net.

B. Habitat impact- The trawl is designed to collect fish at or near the river bottom; most of the benthic habitat impacted by the trawl consists of mud covered with leaf litter and other detritus. Trawling is an invasive process, especially use of large scale commercial trawls. The National Science Center in 2002 stated in general, trawling (1) reduces habitat complexity, (2) alters benthic communities, (3) reduces benthic productivity, and (4) most strongly affects fauna that live in regimes of low natural disturbance, especially soft-bodied, erect, sessile organisms inhabiting stable deep seafloors. (NRC, 2002. Effects of Trawling and Dredging on Seafloor Habitat. National Academy Press, Washington D.C. 126 pp.). Intensive commercial trawling can result in changes to biodiversity and habitats and favor opportunistic species over slow moving or sessile species.

Most existing research on trawling impacts involves impacts on sensitive sea beds under intensive commercial fishing pressure with large gear. Much of the research on trawling impact involves the tracking of the heavy otter boards, which on the standard Engel 145 Otter Trawl weigh 1250 lbs. The Hudson River is currently under no commercial fishing pressure, so the use of trawls of any kind is limited to educational or research sampling. *Clearwater's* trawl is a small fraction of the size of even standard research trawls, with otter boards weighing less than 20 lbs.

C. Impact mitigation- The otter trawl net to be used for this project has two otter boards (doors) that are 36" by 18" long and each weighs less than 20 lbs. The net itself includes a soft inner liner at the cod end to help protect the fish. The net's small size (16 ft. long, approx 8 ft. mouth diameter) and the short duration the net is set (5 minutes) lessens the impact on a resilient river

bottom habitat that consists mostly of debris covered mud. Clearwater will use beach seines where possible to minimize use of the otter trawl.

We believe that with some simple protocols, we can significantly reduce the probability of catching any sturgeon. In order to minimize trawl impacts and the likelihood of incidentally catching sturgeon, limiting the number of sets, the length of sets and avoiding known sturgeon areas will be implemented. Clearwater will avoid setting this net in areas of sensitive habitat and in areas known by the NYSDEC to be sturgeon gathering areas and spawning grounds. Clearwater will regularly communicate with DEC fisheries officials to coordinate this activity, and make use of information from the DEC benthic mapping project to avoid sensitive areas. (<http://www.dec.ny.gov/lands/33596.html>). Sturgeon are known to make nests from gravel beds. Knowing where gravel beds are located will allow us to avoid these critical areas. <https://www.nywea.org/clearwaters/pre02fall/321060.html>.

D. Alternative actions- Clearwater considered the use of beach seines only. However, beach seines are not practical in many locations or at times when tides are not favorable. This is especially true in urban areas, so the trawl is necessary in many areas in order for Clearwater to carry out its environmental education program by collecting fish and invertebrates that students can examine onboard the vessel.

Clearwater will maintain a License to Collect or Possess through NYSDEC and comply with all the reporting requirements under that special license. This includes logging all species collected under the license and submitting a report annually to NYSDEC. Clearwater will keep a detailed log of our use of the trawl, make regular reports to the NMFS of our trawling activities, and submit incidence reports should a sturgeon of either species be caught as per NMFS requirements.

Limited use of the trawl will allow Clearwater to sample such common river species such as channel catfish, brown bullheads, American eels, white perch and hogchokers. Students use custom designed Hudson River dichotomous keys to identify the fish. These fish would not otherwise be accessible to the thousands students that participate in our education program each year.

E. Our primary source for current Hudson River sturgeon information is Kathy Hattala, Fisheries Biologist, Hudson River Fisheries Unit NYSDEC Bureau of Marine Resources, 21 S. Putt Corners Rd. New Paltz NY 12561, p: 845-256-3071, email: [kahattal@gw.dec.state.ny.us](mailto:kahattal@gw.dec.state.ny.us). During the sailing season, Clearwater will keep in weekly contact with Ms. Hattala regarding our trawling activities, including sending her office in advance a copy of our sailing schedule listing the boat's location and program activity.

In summary, Clearwater is requesting a 10-year incidental take permit to begin in 2014 that will be valid between April 1<sup>st</sup> and October 31<sup>st</sup> that will allow limited use of a small otter trawl as part of a Hudson River shipboard education program. We will not use the trawl in known sturgeon spawning habitat and make every reasonable effort to avoid catching any sturgeon. We will limit the duration to the trawl sets to 5 minutes. If a sturgeon of either species is caught, it will be immediately released with a minimum of handling following protocols outlined by the NMFS.