

# Tributary Summary: James River

## Invasion status

*When were blue and flathead catfish introduced?*

- Blue catfish were introduced in the mid-1970s. In the mid-1980s the species was widely distributed to small impoundments throughout Virginia.
- Flathead catfish were a result of unauthorized introduction to the James River in the 1980s.
- See "[Ecological Role of Blue Catfish in Chesapeake Bay Communities and Implications for Management](#)" (Schloesser et al., 2011) for more history and description.

*What methods are being used to determine population size and structure? What population data exists?*

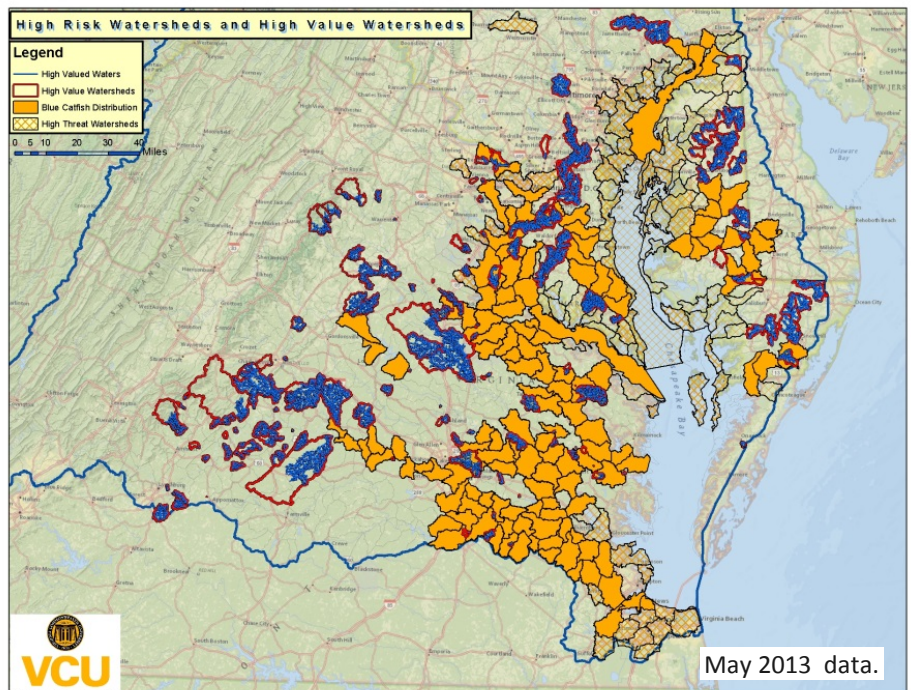
- Virginia Department of Game and Inland Fisheries (VA DGIF) conducted two mark-recapture estimates in 2007 and 2014 in Powell Creek. This summer DGIF biologists will be conducting mark-recap population estimates in the Pamunkey, Rappahannock and again in Powell Creek.
- VA DGIF monitors catfish assemblage in the James using standardized 15 pulse-per-second electrofishing at fixed stations throughout the range of blue catfish habitat. This program provides knowledge of the status and trends in blue catfish relative abundance, size and age distribution, growth and mortality. It also provides surveillance and early detection of expansion of invasive catfish.
- Virginia Tech (VT) and VA DGIF modeling efforts planning to produce models of blue catfish abundance in Virginia tributaries of the Bay.
- Virginia Institute of Marine Science (VIMS) is currently performing a mark-recapture study to estimate population size of blue catfish.
- VIMS also conducts monthly trawl surveys to estimate abundance and size structure of blue catfish.

*What are the specific ecological impacts (i.e. predominant prey species)? Is there any mapping or information on the spatial extent of the species?*

- VA DGIF has full understanding of the extent of blue catfish and flathead catfish occurrence in the James. The map (right) shows blue catfish distribution and high valued watersheds throughout the Bay.
- Blue catfish are omnivores and consume a broad array of prey. In the James, blue catfish <300 mm FL consumed the largest amount of common burrower amphipods by percent weight; while blue catfish from 300-600 mm FL's highest percent weight group was miscellaneous.
- See [Schloesser et al.](#) for a description of diet.



Researchers conduct an electrofishing survey in a Virginia tributary of the Chesapeake Bay in 2014. Photo courtesy of Bob Greenlee.



## Monitoring and Science

*What survey(s) are you using to monitor?*

- VA DGIF and VT are conducting an extensive food habits assessment in four rivers over multiple years. The project is now headed into analysis period to develop models of diet, population demographics, and potential of various management strategies.
- VIMS juvenile fish trawl survey. This is a stratified random survey conducted monthly in the James River.
- VIMS also conducts a [seine survey](#) in the James and Chickahominy rivers that monitors the relative abundance of juvenile striped bass. It also examines relationships between juvenile striped bass abundance and environmental conditions.
- VA DGIF has been conducting a low frequency electrofishing (LFEF) monitoring program in the James since the 1990s.

*List any active research projects.*

- VIMS juvenile fish trawl survey
- VIMS striped bass seine survey
- VA DGIF blue catfish mark-recapture study
- VT and VA DGIF food habits and diet study
- VT and VA DGIF modeling of population dynamics, likely potential impacts on other resources, and evaluation of likely efficacy of various management strategies
- Blue catfish maturity schedules (PhD student research)

*What information exists on the contaminant burdens of fish?*

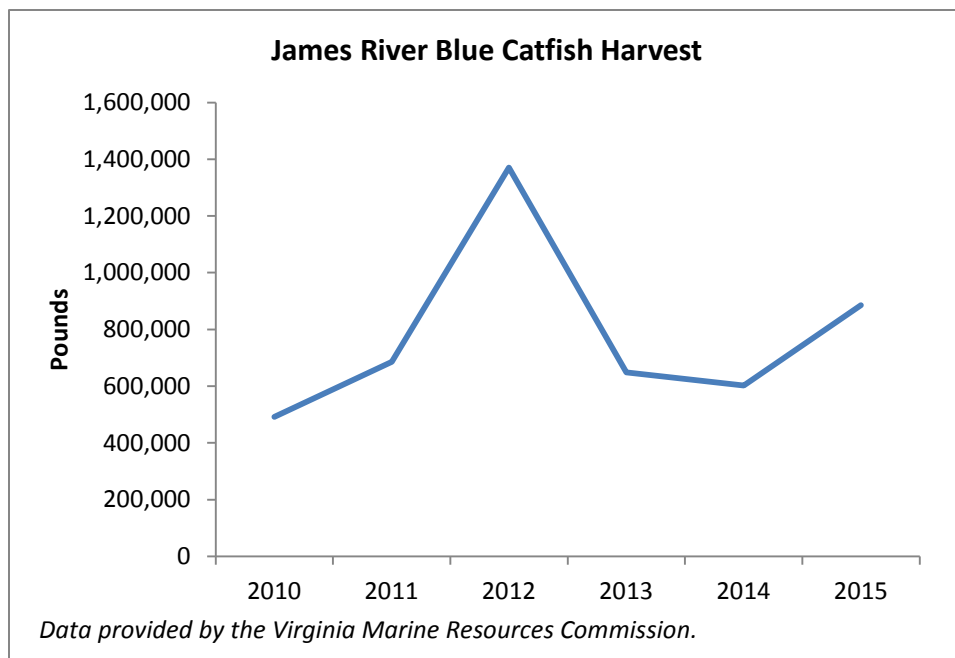
- Consumption advisories for contaminants in fish are issued at the federal and state levels and exist for both commercial and recreational fishing. More specific advisories are recommended for individual species depending on size of the fish and where it was caught in the water body. The main contaminants of concern for fish are Mercury (Hg) and PCBs.
- In the [James](#), the Virginia Department of Health recommends a two 8-ounce meal maximum per month for blue and flathead catfish less than 32 inches. For either catfish above 32 inches, there is a do not eat advisory.
- A [NOAA-funded study](#) further details the contaminant burdens in blue catfish in the James, Rappahannock and Potomac rivers.

## Fishery

*Is there an active commercial fishery?*

*What harvest data exist? What gear is being used to catch the fish?*

- There is commercial activity in all Virginia tributaries with blue catfish. According to data from the Virginia Marine Resources Commission (VMRC), in 2014, the three most popular gear types for all Virginia tributaries were gill net, sink/anchor, other; fish pots and traps; and fish pound nets. The commercial harvest data is shown in the chart, with the year and the sum of pounds of blue catfish caught in the James.



*Is there recreational fishing? Specifically, what types: charter, subsistence, or both?*

- Trophy recreational fishing was supported in the late 1990s and 2000s but size structure and abundance of the population is in decline. A number of full-time guides continue to make a living, in part, on this fishery. There is also a small subsistence component to the fishery.

*What fishing regulations exist in the tributary?*

- There is a statewide limit of possession to [1 fish](#) over 32" per day for blue catfish. For recreational and commercial fisheries in tidal waters, there is unlimited possession for blue catfish under 32" and for all flathead catfish. There is no commercial harvest outside of tidal waters, strictly recreational. Outside of tidal waters, the limit for catfish is 20 per day.

## **Communications and outreach**

*Who are the primary contacts and key stakeholders (scientists, managers, fishermen, conservation groups)?*

- VA DGIF, VIMS, Virginia Tech, VMRC, The Bay Catfish Advocates, The Virginia Anglers Club

*Are there any active public messaging campaigns?*

- VA DGIF has an active invasive species public messaging campaign. It is in the process of posting signs at all DGIF boat ramps in Virginia that feature a QR code with a link to a DGIF webpage with information about the potential impacts of invasive species and non-native introductions.
- VA DGIF has distributed information about blue catfish overabundance in Virginia rivers since the early 1990s and promotes expanded harvest as a potential mechanism to control catfish overabundance.

## **Management strategies**

*Are there active management strategies in place for invasive catfish in this tributary?*

- There is a two-pronged management strategy for blue catfish in the James. The 32-inch regulation supports the trophy fishery, while the zero limit on harvest of blue catfish less than 32 inches is intended to reduce overabundance.

*What strategies could be developed or implemented to reduce impacts of invasive catfish?*

- The Invasive Catfish Task Force under the Chesapeake Bay Program's Fisheries Goal Implementation Team has taken charge of this issue. They have developed a list of possible management strategies, including creating a fishery, increasing public messaging, and developing control methods to reduce population and slow its spread. The task force is currently revising their final report based on comments from peer reviews. Click [here](#) to see the draft document.