



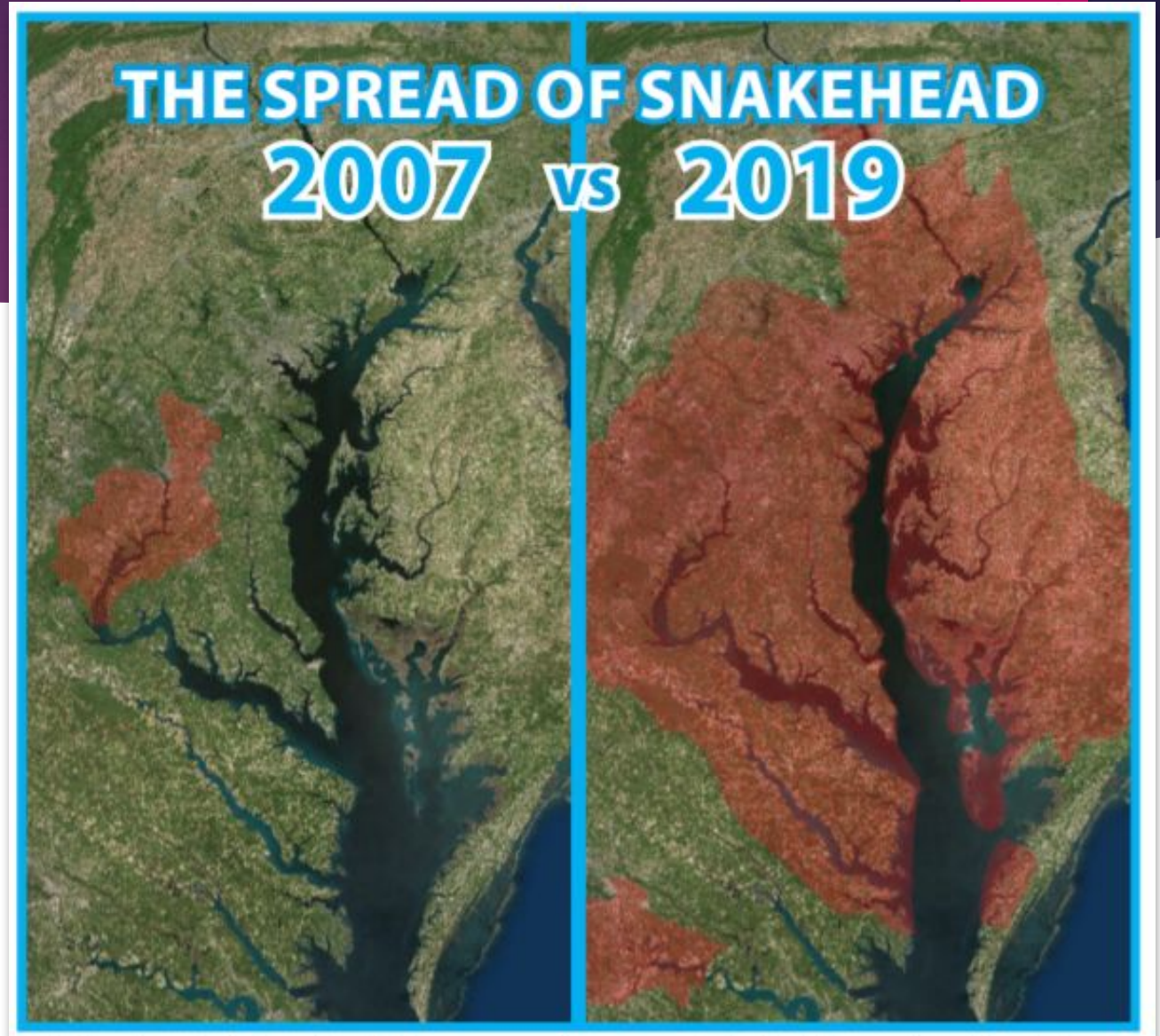
Illustrated by Susan Trammel, USGS

Northern Snakehead (*Channa argus*)

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IGS:718I | 11/5/21

History of Invasion

- ▶ First observed in Maryland in 2002 in a private fishing pond
 - ▶ Deputy Director Stevenson (Maryland Department of Natural Resources) testified in 2002 that the "major threats associated with this type of introduction result from ecosystem simplification."
- ▶ Known introduction pathways: Live Trade (commercial), International Import, Intranational Import and Export ,General Public (noncommercial), Incidental Introduction, Sport fish Introduction (Love, J.W. and P. Genovese. 2018.)



Biology

- ▶ The northern snakehead (*Channa argus*) is native to the Yangtze River basin in China. It can tolerate a wide range of temperatures (32-85° F). Snakeheads normally occupy freshwater ecosystems, but they have been observed in waters with high salinity.
- ▶ Female snakeheads average about 40,000 eggs and can spawn multiple times per year. The larvae are monitored by both parents until they reach the juvenile life stage.



<https://dnr.maryland.gov/fisheries/Pages/snakehead.aspx#biological>

Impacts

- ▶ “Snakeheads will not cause the extinction of any species but have the potential but, they have cause declines in native fish population”-Joseph Love
- ▶ Northern Snakeheads have preyed on bluegill, largemouth bass, crayfish and other invertebrates. Snakeheads also share 66% of their diet with largemouth bass in the Potomac River (Saylor, Ryan K., et al. 2012).
- ▶ Models predicts a 35.5% reduction in the abundance of largemouth bass in the Potomac River(Love and Newhard,2012).



Northern snakehead, open mouth showing sharp teeth, Photo by U.S. Geological Survey

Impacts Cont.

- ▶ Potential vector of aquatic diseases
 - ▶ Largemouth bass virus (LMBV) has been observed in Northern snakehead collected from the Potomac River (Densmore et al.)
- ▶ Snakehead's presence is changing aquatic community structures
 - ▶ In the Blackwater rivers fish communities were significantly different pre to post snakehead introduction (Newhard and Love, 2019)
 - ▶ The largest declines in relative abundance were observed for White Perch, Brown Bullhead, Atlantic Silverside, and Black Crappie (Newhard and Love, 2019)



Benefits

- ▶ Establish a new fishery
- ▶ Snakeheads can survive in more harsh conditions resulting in new fishing spots that anglers were not previously able to assess.
 - ▶ “They can survive and even thrive in just these sorts of conditions, turning those previously unproductive, underutilized waters into exciting fishing destinations.”-Joe Bruce, outdoor writer and author of “Fishing for Snakeheads”



https://www.fredericknewspost.com/news/lifestyle/travel_and_outdoors/todays-sportsman-snakeheads-are-exactly-what-anglers-desire-in-a-game-fish/article_2ce6d949-ca05-5384-9766-23ca66489be4.html

Management Strategies

- 1) Regulation
- 2) MDDNR-to-public information network
- 3) Agency-to-agency information network
- 4) Social media initiatives to promote recreational harvest
- 5) Fishing award initiatives to incentivize recreational harvest
- 6) Seafood marketing initiatives to support commercial harvest
- 7) Tournament initiatives to promote harvest. (Love and Genovese. 2018.)



snakehead caught in Virginia. Photo Credit: Steve Chaconas

Regulations

- ▶ Illegal to transport live snakeheads-can result in hefty fines
 - ▶ Anglers must either kill the snakehead or immediately return it back to the waters it was caught from.
 - ▶ Snakeheads can breathe on land and has exhibited locomotion and the potential for moving between water bodies when environmental conditions are extreme (Bressman et al. 2019).
- ▶ Northern Snakeheads are listed as injurious wildlife under the Lacey Act
 - ▶ Allows the Secretary of the Interior to prohibit importation and some shipment of wildlife species

Moving Forward

- ▶ Recruitment of new anglers who are excited to fish for snakeheads
 - ▶ “The impact of harvest will vary over time with effort because some years have more anglers and archers fishing than others. Additionally, anglers may become fatigued with harvesting when they either tire of fishing for the species or they fill their freezer full of meat.”-Joseph Love
- ▶ “Next year, the department will begin a high-reward tagging program whereby anglers will receive money for reporting tags and harvesting fish, and the department will receive data that can be used to determine exploitation in the fishery.”- Joseph Love
- ▶ More research is needed on how to prevent the spread of Snakeheads beyond the Chesapeake Bay and to determine exploitation (or the proportion of snakeheads harvested in the population).

References

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