

Northern Snakehead Discussion With Mr. Jonathon McKnight

Dr. Joseph Love

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Background Information:

Discussion date: 2/10/2021

Discussion time: 4:00 PM to 5:00 PM

Throughout this interview we will discuss information regarding the Northern Snakehead and other invasive species in Maryland waters. Questions surround educational opportunities, government actions, effects of climate change, consumption, and environmental impacts. Our aim is to educate on the prevention of invasive species, and what the impacts of the Northern Snakehead are in Maryland.

Interview:

Q: Will rise in sea level positively or negatively impact the Northern Snakehead?

- Will climate change affect the food sources of the Northern Snakehead?

Dr. Love: “Climate change is expected to do a few things over the next hundred years, one is that it will raise water temperatures, and it will also cause eroding shorelines and more intense storms.” “Snakeheads would benefit from some of the effects of climate change, Snakeheads are a lot like Largemouth Bass in terms of what they eat and from what we've seen with them... climate change could increase the duration of spawning season for Snakehead giving them more time to establish in the environment.” “If we see more intense rainfall in the spring then we could begin to see the further expansion of the Snakehead across the watershed due to the Snakeheads tendency to avoid faster flowing water.”

Q: What predators does the Northern Snakehead have to avoid? How does climate change affect their predators?

Dr. Love: “Young Snakeheads have been seen to be eaten by mosquito fish at very young ages, along with gar, snapping turtles, and various birds” “Although Snakeheads have predators they have the tendency to outgrow them once they age into adulthood.”

Q: When is the next time the committee meets to discuss the renewal of the Snakehead Management Plan?

Dr. Love: “Every year Maryland meets with Virginia and DC Fish and Wildlife Service to talk about the work related to Snakeheads, and just two years ago we had the first Snakehead Symposium located in Virginia.” “It depends on how much information is gathered and how much time they have to update the national plan, but I don't think it will happen anytime soon.”

Q: Do you believe the issues surrounding the invasive Northern Snakehead (extinctions of native plants and animals, reducing biodiversity, competing with native organisms for limited resources, and altering habitats etc.) are still as prevalent as they were when they were first introduced?

Dr. Love: “In 2002 people thought differently about Snakeheads and they wanted to eradicate them because the best way of dealing with invasive species is making sure they never become established, because when they become established it's next to impossible to get rid of them.” “Back in 2002 and 2004 researchers had believed they could completely eradicate the species, and there were some worries that the species would become established and expand causing issues in the ecosystem.” “We have not become complacent with Snakeheads but were no longer trying to eradicate them because it's just not possible anymore. We are taking a different approach by attempting to actively lower its biomass through harvesting initiatives. The management strategy has definitely changed.”

Q: Have Largemouth Bass populations shown a decline in recent years as a result of Snakehead competition?

Dr. Love: “What we know is that Snakeheads and Bass have similar prey, habitats, and lifestyles. Knowing that gives people cause for concern, but the truth is that Bass are also very strong predators and are actually considered invasive in Japanese and African waters” “In places like the Potomac river where there is a very healthy Largemouth Bass population it has not been as much of a concern that Snakeheads are immediately threatening the Bass population” “Nanjemoy Creek in the Potomac river we have seen a decline in the number of bass and increases in the number of snakehead over the past five years. We can attribute the change due to a change in habitat preference of Bass.” “We know that it is not that common for Snakeheads to directly consume Largemouth Bass.”

Q: What other organisms are affected by the foreign diseases and bacteria the Northern Snakehead brings into the ecosystem?

Dr. Love: “Snakeheads are eating American eel, Minnows, Sunfish, White Perch and Bluegill. We know that Snakeheads are eating a lot of these other species but we have not been able to discover if there are any negative effects that these targeted populations have experienced.” “Some people say they are

harming amphibian populations and even Ducks, although we don't have enough data to say they are being negatively affected by the snakehead drastically.”

“In terms of disease Snakeheads have been identified to carry some viruses, including Largemouth Bass virus, but so do other species in our watershed. One of the differences is that Snakeheads behavior is different and they are exploring new areas more than other fish, it is a worry that they are spreading viruses into non-tidal areas”

Q: How is telemetry tagging performed and are you still actively tagging them?

- What about angler surveys for calculating size of the population?

Dr. Love: “The work has already been completed. Telemetry tagging involves sticking a transmitter inside of the stomach of a Snakehead, and they used a passive array system with a series of receivers along the water and as they moved past the receivers their locations were logged by the system.”

Q: Are there possible opportunities to experience the tagging/surveying of the Northern Snakehead?

Dr. Love: “There aren't any that I know of.”

Q: What is the best and most efficient way to hunt for the Northern Snakehead?

Dr. Love “One of the most popular ways to fish for Snakeheads is to use a Bull Minnow it is because they eat quite a few of them. Hook and line is the most popular method of catching Snakehead. Bass fisherman are more likely to catch snakehead due to the similarities in the fish diets. Bow fisherman have also been very good at finding Snakehead. People have also used frogs on the eastern shore. There are some areas with lower o2 levels in the water where bass cannot thrive so in order to target snakeheads go to shallower areas with lower dissolved o2 levels. Casting on an outgoing tide in shallow vegetated areas. April-November is the fishing season and during the summer they tend to come out during the middle of the day but are typically harder to catch.”

Q: If you could only recommend one action to limit the growth of the Snakehead species, what would it be?

Dr. Love: “Harvesting the Snakehead is the best thing you can do to help contribute to the control of the Northern Snakehead species. If you catch it, ideally you would eat it so it doesn't go to waste and there are

incentives to pull it out of the water and do something with it.” “We have laws in place that require you to kill the fish if you have possession of it.”

Q: Are there any educational programs or opportunities on how to prevent the further spread of invasive species for youth?

- Are they interactive?
- Are there any informative signs about Snakeheads around fishing areas?

Dr. Love: “Invasive species cost taxpayers a lot of money so the government has quite a few things out there to encourage people to be more responsible” “there are programs that folks participate in, in Maryland there is a launch stewardship program where it involves people checking boats before they launch into places like deep creek lake so there are no hitchhikers.” “There are Snakehead tournaments that were held to help encourage the general population to harvest Snakeheads.” “There will be a blue catfish tournament in the Patuxent River to help encourage harvest and educate on the dangers of invasive species.”

Q: Are there any local restaurants that serve Snakehead?

- Have you ever tried eating Snakehead?
- What's the best way to prepare Snakehead for eating, in your opinion?

Dr. Love: “The Snakehead tastes great, and it is a species that recreational fishermen are much better at catching than commercial watermen. Commercial watermen aren't geared to target snakeheads so there aren't a whole lot of restaurants that serve Snakehead. There is no aquaculture for the species so one of the only ways to get it is to catch it yourself.” “Snakehead is sometimes sold in local restaurants and one time I saw one being served at the Charles County fair.”

Q: Why do Snakeheads move between bodies of water more than other fish?

Dr. Love: “It could be due to food shortages or too much competition for food sources, and they move into new areas to search for good breeding grounds where there are fewer predators in order to protect their young.” “A lot of the movement occurs in the spring which leads us to believe that it is correlated with their breeding season which can last from April until December”