

Synthesis of Current Knowledge to Assess Future Risks of Climate Change to Fish and Wildlife Disease and Identification of Potential Management Strategies

Project Summary And Timeline

August 28, 2019

PROBLEM:

Climate change will have significant effects on the health of fish and wildlife: changes in range and distribution of diseases, emergence of novel pathogens or altered survival of pathogens, increases in physiological stress for hosts, and increases in risk exposure related to altered phenology (Hofmeister et al. 2012). With consequent changes in survival and reproduction, this may pose a challenge for harvested fish and wildlife populations (e.g., hemorrhagic disease and white-tailed deer [Sleeman et al. 2008]), threatened and endangered species (e.g., avian malaria and forest birds [Samuel et al. 2015]), and human communities (e.g., vector-borne zoonotic diseases [Kilpatrick and Randolph 2012]). The impact of intensifying and emerging diseases on fish and wildlife is of concern for resource managers in the Department of Interior, states, and tribes, but the information needed to anticipate and respond to future threats is limited.

APPROACH:

The USGS National Wildlife Health Center, in partnership with the USGS Climate Adaptation Science Center Network, is leading a one-year project to understand and prepare for emerging challenges related to fish and wildlife health, disease, and climate change. The objectives of the national project are to:

1. synthesize the best available science related to climate change and the effects on fish and wildlife health and disease
2. identify high priority research areas to inform surveillance and response
3. identify potential management strategies to limit the effects of climate change on fish and wildlife health

Because climate change and its effects vary across geography and taxa, comprehensive representation of expertise is important. Moreover, fish and wildlife health is a cross-boundary, cross-jurisdictional issue that requires collaboration and coordination across agencies. Therefore, a steering committee of federal, state, and tribal resource disease experts and managers (listed below) will provide direction for the duration of the project. In addition, we will host a 3-day, national workshop with ~40 scientists and managers from the Department of Interior, states, and tribes to inform objectives 2 and 3.

DELIVERABLES:

- Peer-reviewed synthesis of the effects of climate change on fish and wildlife health and disease
- National workshop with ~40 scientists and managers from the Department of Interior, states, and tribes to identify high priority research needs and adaptation strategies to address the effects of climate change on wildlife health and disease
- Web-accessible searchable database with summaries of each publication available to stakeholders and the public through a USGS web portal

TIMELINE:

September 2018	Project Initiation
October 2018 —	Literature Review Workshop Design and Planning Monthly Committee Meetings
October 2019	Workshop Invitations
January 2020	National Workshop (Madison, WI)
May 2020	Project Completion Peer-reviewed Synthesis

Web-accessible Database
Research Needs and Management Opportunities

PROJECT TEAM:

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COMMITTEE MEMBERS:

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