



# The 2009-2010 Fenske Fellowship: Climate Change and the Climate of Management



**By: Abigail Lynch**



Jan Fenske was the first female Fisheries Biologist and District Fisheries Biologist in the history of the Fisheries Division. Paving the way for equality, Jan was a skilled biologist and selfless mentor to future generations of fisheries professionals. The Janice Lee Fenske Excellence in Fisheries Management Fellowship honors Jan's legacy. The program is now in its fourth year and has supported five fellows. For more information, please contact Dr. Dana Infante ([infanted@msu.edu](mailto:infanted@msu.edu)) and visit: [fw.msu.edu/fellowships.htm](http://fw.msu.edu/fellowships.htm).

"Be prepared. Things aren't going to stay the same," said Dr. Kelley Smith, Chief of the Fisheries Division, Michigan Department of Natural Resources (MDNR). "That much we can agree on when it comes to climate."

Kelley, as he told me to call him the first day I walked in his office, is a vocal skeptic of anthropogenic climate change; I disagree. But we both believe that changes in climate will influence Michigan's fisheries, therefore these changes are important, whatever their cause. Together, we are working on a project for the Fisheries Division to better understand the effects of climate change on Michigan's fisheries to be better prepared for the future. This collaboration was made possible by my 2009-2010 Fenske Fellowship.

## Fenske Excellence in Fisheries Management Fellowship

Jan Fenske (1954-2005) was the first female Fisheries Biologist and District Fisheries Biologist in the history of the Fisheries Division. The Janice Lee Fenske Excellence in Fisheries Management Fellowship, which provides underserved graduate students in the Department of Fisheries and Wildlife at Michigan State University (MSU) with experience in a management agency to navigate them toward successful careers in fisheries management honors Jan's memory, courage, and dedication to aquatic resource management. The Fellowship recipient is paired with a mentor both from a management agency and from MSU to collaborate on a project of mutual interest to the agency and the student.

I was honored to receive the 2009-2010 Fenske Fellowship for

a proposal I developed with Kelley and my graduate advisor, Dr. Bill Taylor. My project was designed to provide the Fisheries Division with guidance on potential changes to Michigan's fisheries due to climate change and to develop a means for communicating these changes to the public and stakeholder groups. Although Dr. Taylor and I share similar views on the causes of climate change, I knew that Kelley would bring a different perspective to the project, thus strengthening my Fellowship experience and the impact of the work.

## Climate Change and Fisheries

As part of my Fellowship project, we recently published a peer-reviewed article in the *Journal of Fish Biology* discussing the potential influence of climate change on the ecology and management of several important Great Lakes fisheries. As Bill and I made statements about climate change, Kelley would ask for evidence to substantiate our claims. As a result, our positions were well-supported because these discussions led to a thorough review of the literature. Our literature review concluded that abundances of some species will increase, while others will likely decrease; new parasites and diseases will emerge; and suitable fish habitat will change. Overall, the projections are for colder water fishes to seek refuge further north and deeper in the lakes and for warmer water fishes to fill in the vacated habitat.

Although these predictions are tempered by other factors, such as lake levels or oxygen, it is clear that climate change will have a significant influence on fisheries management and the public's perception of



**“Mentoring between the agency and the university is essential to prepare a more effective fisheries professional. If you do it right, you will be thinking of your research and management problems from a different perspective.”-Dr. Bill Taylor**

the value of their fisheries. And it is the role of the manager to conserve these fisheries and facilitate the communication of this process to the public. In the context of climate change, my Fenske project is designed to do just that. By writing a draft climate change chapter for the Fisheries Division Manual of Fisheries Survey Methods, I am helping the Division plan for potential changes in fisheries and aquatic resources and am directly involved in the management process.

### Managing What? No, Managing Whom.

My work with Kelley has taught me that fisheries biologists manage more than just fish and effective collaboration with the public is essential to the job. And climate change, he believes, will be an ultimate test in “people management.” How will biologists adapt to changes in fisheries due to climate change? How will they teach Michiganders to adapt to differences in their fisheries resulting from climate change?

Kelley’s classic example is Chinook salmon in Lake Huron. Chinook salmon, a popular fish native to the Pacific Northwest, was introduced in the 1960s into the Great Lakes both to prey upon non-native alewife and to provide recreational opportunities. As Chinook salmon accomplished the desired goal of reducing the abundance of alewife, they also reduced their primary source of food. When the quagga mussels also impacted the alewife population, the Chinook’s once abundant source of food became scarce. The Chinook salmon population, and consequently the recreational

industry dependent upon it, crashed. Concurrently, populations of recreationally-viable, naturally-produced alternatives such as walleye, lake trout, small-mouth bass, and northern pike, have rebounded. These species, however, do not yet have the same perceived economic and recreational value to the public as Chinook salmon, even though the present populations of these fish would have been perceived as highly valuable 75 years ago when the lake’s native species were all in severe decline due to habitat

degradation and overfishing.

From Kelley’s example, I am learning how important perceived value and expectations of management are to the public. Although a Chinook fishery was non-existent 40 years ago, people came to rely on its economic output and recreational potential as the industry grew. They began to set expectations for management of Chinook populations that were unrealistic for the Lake Huron ecosystem without alewife.

The situation also highlights what Bill believes is a “major fallacy of management.... [W]e try to keep things the same. We don’t know how to deal with dynamic change. All our institutions are set up to maintain the status quo.” The collapse of Chinook salmon in Lake Huron captures this sentiment because it was abrupt and the existing management infrastructure was not prepared for it.

Rather than these immediate and obvious effects on ecosystems and economies, climate change impacts will be gradual across the landscape. Some systems may experience change with little evidence of effect until they reach a sudden threshold or tipping point when conditions may become dramatically different. This lengthened time scale should give managers an advantage to prepare the public to accept anticipated changes.

Through the lens of climate change, the Fenske Fellowship has changed my perspective on management. The issues are rarely clear-cut. Management is dynamic; a delicate balance between science, society, economics, and politics. Jan Fenske knew this and navigated it well. I can only aspire to such skill.



### Products of the Fellowship:

Published Journal of Fish Biology article; MDNR Fisheries Division Manual Chapter; blog (please visit: [fenskefellow.wordpress.com](http://fenskefellow.wordpress.com)).