**Listening Session – Environment, Natural Resources and Sustainability**

**Facilitator: Dr. Richard Koch, professor of biology, BSU**

**American Indian Resource Center**

**Feb. 21, 2017**

**Topic:** Quality of Bemidji State students in environmental/natural resource fields

* Twenty years ago, BSU graduates “didn’t compete very well” with North Dakota and Wisconsin graduates. But more recently, they have become very competitive. See benefits of diverse course offerings and faculty relationships with professionals in the field, such as Andy Hafs and Brian Hiller. “Those folks have really placed an emphasis on getting students experience, whether it’s a summer internship or volunteer experience, and that has really served to prepare them very well” for work after graduation. (Henry Drewes, regional fisheries supervisor, Minnesota DNR, Bemidji)
* Quality of two recent interns from the BSU Sustainability office has been excellent. “I don’t know if that’s because of the academics or because of their outside interest in sustainability, but that part of the program seems pretty strong.” (Megan Fitzgerald, development specialist, Headwaters Regional Development Commission, Bemidji)

**Topic:** Strategies for boosting career preparedness and prospects for BSU aquatic and wildlife biology graduates (and others?)

* Best if students get low-level field experience while in school so professionals get to know them. (John Williams, northwest region wildlife manager, Minnesota DNR, Bemidji)
* DNR has provided universities with a list of the wildlife courses the agency will require for anyone being hired into a professional-level position. “That functions as a filter for the list of candidates we get.” (John Williams, Minnesota DNR)
* Academic programs need to keep step with changes in the field, such as increased emphasis on the environmental impact of fish and wildlife management practices rather than simply striving to increase public access and use. “The North American model has always been to have fish and wildlife funded by fees, the fewer hunters and fisherman, the less fees, the less in terms of budget support.” (John Williams, Minnesota DNR)
* Acknowledges that BSU and other universities have a challenge in attracting students to the STEM fields because of competing time spent with and interest in electronics. “They don’t have a direct connection to that land.” (John Williams, Minnesota DNR)
* Involvement with professional societies has increased over the past 5-7 years, and those organizations reflect changes in the fish/wildlife fields toward more environmental awareness and concern. “Look at the Wildlife Society. The history of the Wildlife Society was hunting, and now they talk about pollinators and insecticides and clean air and trees.” Seeing students form BSU chapters of groups such as the Wild Turkey Federation, the Deer Hunters Association and Ducks Unlimited. “Those things are important, and they lead to jobs.” (Dave Rave, Bemidji-area wildlife supervisor, Minnesota Department of Natural Resources)
* Important for graduates to have had wide-ranging exposure to various topics such as forestry and its place in wildlife management. The DNR’s Bemidji wildlife office manages 5,000 acres of forest. (Justin Pitt, Minnesota DNR)
* Continue to encourage faculty to maintain contacts with those in the field and to facilate field experience for students. (John Williams, Minnesota DNR)
* For example, DNR asked Andy Hafs to serve on an advisory committee rewriting the fish management plan for Cass Lake. “He brought a lot as a non-DNR person and brought back a real-world perspective to students.” (Henry Drewes, Minnesota DNR)
* Another benefit of faculty having field experiences is that it helps them work across different disciplines and develop “a more integrated system of thinking” they can share with students. (Brick Fevold, vice president, Minnesota Headwaters Audobon Society)
* An area of opportunity for both BSU and its students is hydrology, groundwater and watershed science. The DNR’s Division of Ecological and Water Resources is having a difficult time filling entry-level hydrologist positions. Because of the Clean Water Fund, $80 million will go into water protection strategies over the next 17 years. “That’s a big niche BSU could fill. … What better place to train people in that field than here” in the Bemidji region. (Henry Drewes, Minnesota DNR)
* Another field with opportunity is engaged species management, both in aquatic and wetlands. (Amy Westmark, assistant area wildlife manager, Minnesota DNR)
* Clean energy is a source of a lot of new jobs, “and it’s not going away.” (Megan Fitzgerald, Headwaters Regional Development Commission)
* The impact of agriculture on water quality and soil agronomy are important fields to consider and explore. For example, researchers are experimenting with multiple-species crops that keep soil covered throughout the year. (John Williams, Minnesota DNR)
* The impact of climate change is an obviously increasing area of focus – “certainly clean water, soil health, agricultural sciences, even clean energy, are burgeoning fields that humanity needs.” (John Williams, Minnesota DNR)
* Forestry is a bigger issue in the Bemidji region than agriculture. As the government increases harvesting of trees, “there are a lot of research projects to look at not only how trees come back, but soil health that depends on older trees or younger trees. ... We need to maintain the forestry industry, but we also need to maintain the forest.” (Dave Rave, Minnesota DNR)
* Study of the government and political environment is important as well. Some students have an idea that they “want to go into wildlife. Then they’re hit with the reality that they can’t just work in wildlife. There are also the people, the producers, the agriculturalists – or the person bothered by a raccoon in their house, whatever it might be. It’s not a one-size-fits-all thing.” (John Williams, Minnesota DNR)
* An example of this is the issue of wolves. “Some people absolutely hate them; some people absolutely love them. And it comes down to whether they grew up on a farm where wolves killed their cattle or grew up in the city where wolves are a symbol of the wilderness.” (Dave Rave, Minnesota DNR)
* “There’s no middle ground anymore.” (John Williams, Minnesota DNR)
* The ability to listen is very, very important. “We truly need to be able to listen and communicate with people who may have different ideas and be receptive to their needs. … It’s a fundamentally important skill set.” (Brick Fevold, Mississippi Headwaters Audobon Society)
* Echoing the point about communication and sensitivity, says public meetings “can go really badly” if don’t keep in mind aspects of social capital and issues framing. (Megan Fitzgerald, Headwaters Regional Development Commission)
* Echoing the point about the importance of systems, graduates need to learn how to think critically about the models they’re using for the basis of action – including “different cultural platforms and applications.” (Brick Fevold, Mississippi Headwaters Audobon Society)
* A knowledge of statistics is very important – not just simple but advanced. (John Williams, Minnesota DNR)
* GIS is also increasingly important, as well as knowing how to manage budgets. (Dave Rave, Minnesota DNR)

**Topic:** Ways BSU can help those in the field

* This coming fall will need students to help with research on chronic wasting disease in deer, talking to hunters at DNR stations, etc. Sometimes it’s difficult for students to meet some of the liability requirements. (John Williams, Minnesota DNR)
* There are a lot of opportunities for students to become engaged in nonprofit environmental organizations in the immediate region. “We could come up with a half-dozen projects that students could immediately be put to task on with a lot of creativity and opportunity.” (Brick Fevold, Mississippi Headwaters Audobon Society)