Climate Change Session at the Species at Risk 2004 Pathways to Recovery Conference

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Climate change has gained worldwide attention. Science has concluded that our global climate is changing (Houghton et al. 2001; Intergovernmental Panel on Climate Change 2001). Land, air, and sea temperatures are rising, the extent of snow and ice is declining, glaciers are melting, and recent extreme weather events, such as hurricanes, floods, droughts, and ice storms have created extraordinary levels of damage to habitats, ecosystems, human communities, socio-economic systems, built environments, and industry.

We can expect climate change to continue at an accelerated rate with higher frequencies of extreme events. Climate change and a trend towards global warming are expected to continue with higher levels of greenhouse gas emissions from human industry and development. Canadian and International Global Climate Models (http://www.cccma.bc.ec.gc.ca/models/models.shtml) predict that relative to 1990, global surface air temperature will increase on average 1.3–5.8°C by 2100, and sea levels will rise 0.09–0.88 m. While Canada is working to reduce greenhouse gas emissions (Kyoto Protocol http://www.ec.gc.ca/climate/kyoto-e.html), it is essential that Canadians understand that climate warming is underway and will continue even if we meet objectives to reduce these emissions.

While mitigation will be important, it can only slow the rate of greenhouse gas accumulation and warming trends; it will not alter the impacts of climate change on the most sensitive components of ecosystems including species and habitat diversity, and species at risk. Adaptation through the use of innovative policy and management is expected to help ameliorate the effects of climate change. Adaptation occurs as a proactive response to current exposure to climate change, and as the development of solutions to future exposure and potential vulnerabilities (Smit and Pilifosova 2001, 2003). Adaptation science and research will help identify approaches for sustainable use and development of ecosystems. Present approaches of protected areas, park refuges, and management area boundaries may not provide appropriate levels of conservation and protection to potentially vulnerable species at risk given the predictions of future impacts of climate variation and change. Recognizing the need to improve our knowledge of climate change impacts and adaptation, a Species at Risk 2004 Pathways to Recovery Conference session titled "Species At Risk: Identifying Impacts and Vulnerabilities to Climate Change and the Challenges

of Conservation and Social Adaptation" was held as a means of providing insight into a number of climate change issues and into research on those issues.

The climate change session included presentations on the following topics:

1. climate trends in British Columbia (B.C.), Canada, and the world (Taylor);
2. key indicators of climate change and regional impacts on species at risk (Fraser);
3. understanding climate change and paleoecology, and forecasting the future of species at risk in B.C. (Hebda);
4. impacts of climate change on butterfly populations in western North America (Hellman);
5. impacts of climate change on northern caribou populations (Harding);
6. climate change adaptation strategies for forest landscape biodiversity and management (Spittlehouse);
7. climate change and protected areas management (Scott);
8. regional biodiversity issues and climate change (Malcolm and Liu);
9. impacts of invasive plant species and control of such species in changing environments (Myers, Denoth, and Shaban);
10. steelhead trout as an indicator of climate change impacts (Ward and McCubbing);
11. impacts of climate change on the distribution of freshwater fish species at risk in Canada (Mandrak, Chu, and Minns);
12. impacts of climate variation and change on salmon species at risk in B.C. (Hyatt, Stockwell, and Rankin);
13. adaptation responses of endangered salmon species in Canada (Irvine);
14. climate change impacts on ocean survival and production of B.C. salmon stocks (Welch and Trudel); and
15. present and future directions of climate change impact assessments on species at risk and biodiversity, and adaptation research needed to manage future uncertainty (Johannes).

References

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