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RESEARCH COLLOQUIUM SERIES

Peace Fish and Wildlife Compensation Program Presents:

FISH AND WILDLIFE COMPENSATION PROGRAM

Dr. Richard A. Cunjak

Canadian Rivers Institute, Dept. of Biology and Faculty of Forestry & Environmental Mgmt., University of New Brunswick

Thursday

Mar. 14, 2013

3:30 - 4:30

LECTURE THEATRE

Canfor

THE RESPONSE OF ATLANTIC SALMON TO EXTREME WARMING IN RIVERS

All freshwater fishes are ectotherms. Hence, ambient water temperature directly regulates their metabolic processes and survival. This feature makes them particularly susceptible to the increased variability in temperature predicted from climate change models. Our work in eastern Canadian rivers has shown that Atlantic salmon (*Salmo salar* L.) parr show a behavioural and physiological stress response when water temperature exceeds 23°C but the response differs between young-of-the-year and older (larger) parr. Territories are abandoned and fish will move long distances (kilometres) to aggregate around patchily distributed thermal refugia. Extreme temperature events now occur with such regularity that most wild Atlantic salmon in NB rivers will experience at least one event during their freshwater phase. But when is a thermal refuge too far, and how do fish 'know' where to find such coolwater sources? And what are the threshold conditions for initiating behavioural thermoregulation of salmon parr *in situ*? Such questions, currently being investigated by our research group, have important implications for conservation and recreational fisheries management. For example, if the incidence of temperature stress events and proximity to thermal refugia affect the distribution and abundance of wild, juvenile salmon, should management reflect this pattern? Whereas this seminar will emphasize extreme water temperatures in summer, how riverine fishes cope with warmer, milder winters will also be discussed, especially in relation to egg survival and development, and the potential impact from anthropogenic factors such as flow regulation.

RECEPTION TO FOLLOW IN 6-205/211

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