



DEPARTMENTS OF GEOGRAPHY AND BIOLOGY

JOINT FRIDAY AFTERNOON SEMINAR



Calibrating Bioindicators of Environmental Condition and Recovery from Degradation

Dr. Jan J.H. Ciborowski
Professor,
Department of Biological
Sciences at the
University of Calgary

Friday, Jan 31
3:10-4:30 PM
L1050

Various classification systems have been developed to evaluate and understand the effects of human activity on local landscapes. The Reference Condition Approach (RCA) is used to assess aquatic systems. It determines whether or not the condition of a test site is 'acceptable' in comparison to least-disturbed (reference) locations having similar natural environmental features. However, human activity is so pervasive that few true reference areas exist. Furthermore, there is no basis for assessing the relative condition of locations that are clearly 'nonreference'. One solution is to use the complementary concept of 'degraded condition', and assess the population of 'most disturbed' locations (areas whose environmental characteristics are deemed unacceptable by consensus). Identifying the two extremes allows one to ordinate the condition of test sites along a reference-degraded continuum (RDC).

One can then model biological community attributes (bioindicators) as a function of increasing disturbance. Community responses to anthropogenic stress are often nonlinear, and dramatic changes in composition can occur if a threshold of disturbance is exceeded. These patterns can be seen as discontinuities in the range of natural variation as well as changes in 'average' characteristics. I will illustrate use of the RDC approach for evaluating the biological condition of Great Lakes coastal wetlands and for assessing reclaimed wetlands in the Alberta Oil Sands.

University of
Lethbridge

