Regional Sustainability
Anth./Biol./Econ./NRM 694
Fall semester 2003

Instructors
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Meet Tuesday, Thursday 2:00-3:30 in 138A Irving II

Course Description: This course develops the basic principles that govern resilience and change of linked ecological and social systems. We explore the roots of these concepts as they have developed in the fields of ecology, economics, political science, and anthropology. We then explore the integration of these concepts through an examination of three Alaskan issues: fisheries, subsistence, and conflicts between wilderness and oil development.

Textbooks:
Additional readings assigned from e-reserve

Course website: blackboard

Prerequisites: Graduate student standing in a natural science, social science, or interdisciplinary graduate program or permission of instructor.

Learning Objectives:
Develop a conceptual framework for exploring resilience and sustainability
Develop skills in applying basic principles to real-world issues related to resilience
Apply these principles to three case studies (fisheries, subsistence, wilderness-oil interactions)
Use these three case studies to outline plans for a more sustainable future for Alaska over the next 10-100 years.

Grading Policy: Letter grades determined from
4 problem sets related to issues (30%)
Mid-term takehome exam (20%)
Participation in class discussions 20%
Contribution to team projects (10%)
Final presentation (20%)
Origin of sustainability concepts (Sept. 4-Oct. 2)
Ecology (Chapin) (Sept. 4-11)
(readings: Folke et al. 2002; Chapin et al. 1996; Gunderson and Holling Chapter 2)
Assignment: definitions of sustainability and resilience (Sept. 11)
Political science (Lovecraft and Kofinas) (Sept. 16-18)
(Sabatier 1999; Ostrom 1999)
Economics (Greenburg) (Sept. 23-25)
Anthropology (Gerlach) (Sept. 30-Oct. 2)

Subsistence (Oct. 7-23) Gerlach
1.: Subsistence economies in Alaska. Historical, geographic and contemporary perspectives on subsistence and economy by region. Terrestrial, riverine, and marine/coastal systems.

2.: The subsistence debate: Definitions of subsistence, rural vs. urban, or an urban-rural continuum? Political considerations, economic and cultural “well-being” from the local point of view

3.: The legal framework for subsistence: ANILCA, ANCSA, and other federal legislation. Law vs. policy, and policy vs. implementation. The Alaska State Constitution (“all of the people vs. some of the people”), TITLE V! and the ADF&G Commissioners responsibilities, differences in federal and state law, and differences in federal and state agency policies, practices and management styles.

4.: Subsistence and indigenous wildlife management systems; subsistence and wildlife management systems from the federal and state agency perspective.

5.: Alaska Natives and Western management systems: economic, social and cultural responses to abundance, natural resource shortages and “crisis.” Traditional and contemporary perspectives.

6.: Complicated issues, paradox and practice, the myths and realities of subsistence from rural and urban Alaskans. A “nutshell” overview of contemporary life in a rural Alaskan village.

Sustainable fisheries (Oct. 28-Nov. 13) (Greenberg)
Case studies:
Maine lobster (Jim Wilson) and Alaskan king crab fishery
Cree regulation of fish harvest (Berkes)
Yukon chum salmon: interaction of subsistence/sport/commercial fisheries
Concepts emphasized
Ecology: ecosystem constraints on population dynamics;
“surplus production”
failure of optimal control in stochastic systems with thresholds
direct and indirect effects of fishing on habitats and foodwebs
Anthropology: Feedbacks between fishing communities and fish availability
Economics: Subsidies/incentives/closures to buffer fishing success
Role of different types of uncertainty in assessing policy alternatives

Conflicts between wilderness and oil development (Nov. 18-Dec. 11) (Chapin)
Nov. 18: The spectrum of human-environment interactions: wilderness to cities
ICDPs: interaction of people and conservation in developing countries (Smith)
Ecological footprint analysis: analyzing human impacts on environment (Rupp)
Nov. 20 Wilderness concepts and policies
Concept of wilderness: Lil Alessa
Alaskan wilderness policy: Jim Gladden
Nov. 25 Regional planning: integration of multiple considerations
Dec. 2 Oil development in Alaska: history, policy, and economics
Jerry McBeath (or Matt Berman)
Dec. 4 Ecological/cultural consequences of oil development: direct and cumulative effects
Cumulative ecological impacts: Terry Chapin
Ecological-cultural interactions: Gary Kofinas
Dec. 9 Class discussion: Development of a plan for sustainable development of oil and wilderness in Alaska

Practice presentations (Dec. 11)

Final presentations (Dec. 16)
Sustainable fisheries plan for Alaska
Subsistence policy for Alaska
Sustainable wilderness and petroleum development in Alaska
Draft List of Key Readings
Introduction to sustainability concepts

Levin, S.A. 1999. Fragile Dominion: Complexity and the Commons. Perseus Boos, Reading, MA.