

All course materials--syllabus, schedule, recitation assignments, assigned readings (e-reserves), and PowerPoint lecture slides-are available through Carmen at <http://carmen.osu.edu/>.

This material is also available in alternative formats upon request. Please contact Dr. Don Eckert, School of Natural Resources, 210 Kottman Hall, 2021 Coffey Road, Columbus, Ohio. Phone 292-2265.

NR 203 - Society and Natural Resources (5 credit hrs)

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This course introduces students to concepts and theories in the social sciences that help the student understand how human societies interact with ecosystems and natural resources. This course emphasizes the human dimensions of ecosystems and natural resources primarily from a sociological perspective.

Text - NR 203 course readings from OSU Library Electronic Reserve

Course objectives -

To fulfill the purpose of the GEC Social Science requirement in Human, Natural, and Economic Resources through the following objectives:

Students will be challenged to critically consider different value systems, competing interpretations of the relationship between humans and nature, and the varying ways that social power is organized to influence and/or determine the status of natural resources.

Students will describe structural, functional models of human society and how culture, institutions, community-social order, and the polity effect ecosystem and natural resource values

Students will describe process models of human society and how social dilemmas, economic processes, and political processes effect ecosystems and natural resources

Students will describe the social construction model of human society and how symbolic meanings and differential power effect ecosystems and natural resources

Course Requirements -

Exam I	= 100 pts.
Exam II	= 100 pts.
Exam III	= 100 pts.
Recitations	= 200 pts. (10 @ 20 pts. each)
<hr/> Total	<hr/> = 500 pts.

Grades are based on total points earned by each student. Grading is based on a modified curve with the highest points for the class serving as the maximum points possible. A's are usually 90% and better of the maximum points scored, B's 80% to 89%, C's 70% to 79%, D's 60% to 69%, and E 59% or lower than the maximum points scored. Grading ranges may vary slightly depending on the distribution of scores for the class.

Assignments - Recitation assignments are due at the weekly recitations. Late assignments will not be accepted.

Attendance - Attendance at lectures and participation in recitations are required for a passing grade. All absences must be excused. No unexcused absences are permitted.

Selected readings source list: **Structural/functional**

human ecosystem models

- Axelrod, L.J. (1994). Balancing personal needs with environmental preservation: Identifying the values that guide decisions in ecological dilemmas. *Journal of Social Issues*, 50, 85-104.
- Culhane, P.J. (1981). *Public lands politics: Interest group influence on the Forest Service and the Bureau of Land Management*. Baltimore, MD: Resources for the Future, Inc.
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- Kemmis, D. (2001). *This sovereign land: A new vision for governing the west*. Washington, DC: Island Press.
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- Kubasek, N.K. & Silverman, G.S. (2002). *Environmental Law* (4th Ed.). Upper Saddle River, NJ: Prentice-Hall.
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- Merchant, C. (1992). *Radical ecology: The search for a livable world*. New York: Routledge.
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- Various authors (1994). Lessons from *FEMAT*. *Journal of Forestry*, 6-19, 32-35.

Process paradigms

- Crance, C. & Draper, D. (1996). Socially cooperative choices: An approach to achieving resource sustainability in the coastal zone. *Environmental Management*, 20, 175-184.
- Glance, N.S. and Huberman, B. A. (1994). The dynamics of social dilemmas. *Scientific American*, 76-81.
- Hardin, G. (1968). The tragedy of the commons. *Science*, 162, 1243-1248.
- Komorita, S.S. & Parks, C.D. (1994). *Social dilemmas*. Boulder, CO: Westview Press.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge, Cambridge University Press.
- Ostrom, E., Dietz, T., Dolsak, N., Stern, P. C., Stonich, S., Weber, E. U. (2002). *The drama of the commons*. Washington, DC: National Academy Press.

Social construction paradigm

- Albrecht, S.L. & Amey, R.G. (1999). Myth-making, moral communities, and policy failure in solving the radioactive waste problem. *Society & Natural Resources*, 12, 741-761.
- Charon, J.M. (1992). *Symbolic interactionism: An introduction, an interpretation, an integration*. 4th Edition. Engelwood Cliffs, NJ: Prentice Hall.
- Chase, A. (1995). *In a dark wood*. New York: HoughtonMifflin Co.
- Davis, S. (1995). The role of communication and symbolism in interest group competition: the case of the Siskiyou National Forest, 1983-1992. *Political Communication*, 12, 27-42.
- Dizard, J.E. (1994). *Going wild: Hunting, animal rights and the contested meaning of nature*. Amherst, MA: University of Massachusetts Press.
- Fedarko, K. (2000). In the valley of the shadow. *Outside*, 25, 114-125+.
- Greider, T. and Garkovich, L. (1994). Landscapes: The social construction of nature and the environment. *Rural Sociology*, 59, 1-24.

- Gobster, P.H. & Hull, R.B. (2000). *Restoring nature: Perspectives from the social sciences and humanities*. Washington, DC: Island Press, pp. 119-142. Hannigan, J.A. (1995). *Environmental sociology: A social constructionist perspective*. New York: Routledge.
- Karp, D. A. & Yoels, W. C. (1998). *Sociology in everyday life (2nd Ed.)*. Prospect Heights, IL: Waveland Press, Inc.
- Martin, P.S. & Burney, D.A. (1999). Bring back the elephants! *Wild Earth*, 9, 57-64
- Rogers, M.F. (1981). Taken-for-grantedness. *Current Perspectives in Social Theory*, 2, 133-151.
- Rose, D.B. *Nourishing terrains: Australian Aboriginal views of landscape and wilderness*. Canberra, ACT: Australian Heritage Commission.
- Wilson, M.A. (1997). The wolf in Yellowstone: Science, symbol, or politics? Deconstructing the conflict between environmentalism and wise use. *Society & Natural Resources*, 10, 453-468.
- Wilson, P. I. (2006). Forward to the past: Wolves in the Northern Rockies and the future of ESA politics. *Society & Natural Resources*, 19, 863-870.

Recitation 1- Structural, Functional Approaches

Background -Pacific Northwest Old Growth Forests

In the early 1990s the harvest of old growth timber in the Pacific Northwest had become a major national controversy. In April 1993 President Clinton convened a panel of citizens, scientists, and experts for a day long conference in Portland, OR in an attempt to solve the problems of timber dependent communities and timber industry jobs in light of demands for forest protection and protection of old growth dependent species, especially the spotted owl. At the end of the Portland meeting the President committed himself to developing a plan in 60 days that would reconcile the legal requirement for species and forest protection with the contribution of the forests to the economic and social wellbeing of the people of the Pacific Northwest. The planning process and the plan were called FEMAT - Forest Ecosystem Management Assessment Team.

The controversy had its beginnings in the 1940s and 1950s with the increased demands for wood during World War II and the post war building boom that followed. Until WWII an average of 1 billion board feet (bbf) had been cut annually on the national forests. In 1944 this had risen to 3.3 bbf, by 1955 to 4.4 bbf, and in 1966 to 12.1 bbf. As timber harvests increased public interests were changing from predominantly economic concerns to more environmental concerns. The environment was part of the great public debates that took place during the 1960s, culminating in 1969 with passage of the National Environmental Policy Act (NEPA). The 1970s saw more environmental legislation being passed, such as the Endangered Species Act of 1973 (ESA) that eventually had important implications for forest management, and specifically laws concerning the management of national forests. The National Forest Management Act of 1976 (NMFA) and its revisions in 1982 had the greatest impacts on timber harvesting. By requiring consideration of environmental protection the NMFA began a shift away from economic development and community stability to species and habitat protection. The combination of NMFA, ESA and the environmental impact statement (EIS) requirement of NEPA provided an eventual legal basis to challenge timber harvest levels and practices. The focal point became the spotted owl that was identified by the Oregon Endangered Species Task Force, an interagency group of biologists, as an "indicator species" under wildlife diversity requirements of NMFA. The Task Force recommended that 300 acres of old-growth forest be retained around every known owl nest site.

Spotted owl management guidelines proposed by the Forest Service in 1986 tried to balance habitat protection with continued high logging volumes that pleased neither side in the debate. The final 1988 guidelines were challenged in court by the Seattle Audubon Society for failure to comply with NMFA, ESA, and NEPA resulting in Federal District Judge William Dwyer's enjoining 135 timber sales in spotted owl habitat. This led to a series of task forces and recommendations followed by lawsuits and legal actions none of which solved the problem and served to fuel the controversy. The culmination was President Clinton's 1993 meeting and the establishment of FEMAT.

Recitation 1 - Assignment

Find one article, from a newspaper, magazine or internet site, about the old-growth controversy in the Pacific Northwest during the period 1990-1995. Copy or print the article and write a oneparagraph summary of the main points. Turn in your summary and the copy of the article at the first Recitation session.

Recitation 2- Structural, Functional Approaches

PNW Communities

The old growth controversy in the PNW has generally been a conflict between the values and social regularities of two main communities, a timber community and an environmental community. In general the timber community tends to be rural and has been characterized as an "occupational community" based on individualism, hard work, inventiveness, and an entrepreneurial spirit. Robert G. Lee, a natural resource sociologist at the University of Washington states, "[t]hese circumstances give rise to a very strong sense of personal identity as a logger. People form attachments to working in the woods and develop deep respect for both the natural world and the dangerous challenges of their work.. ... Identifications a logger is so firmly embedded in the self that people often cannot imagine doing anything else." The environmental community in general tends to be urban and has been characterized as being an upper-middle class social movement that is self-centered, ideological (the spiritual and practical values of nature), and technologically and politically sophisticated. Philosopher Alston Chase contends that environmentalism is based on a belief in nature as the ultimate reality that justifies, "...activism and absolutism, and a belief that nature [is] the source of political truth."

While there is some truth to the above characterizations the two communities are in fact diverse assemblages of sub-communities and groups that focus on particular values and establish their own social regularities. For each community we could at least recognize two distinct subcommunities. For timber a big timber sub-community and a small timber sub-community. And, for the environmental community a main stream sub-community and a radical sub-community.

Social integration for big timber is fostered by norms that support economic efficiency and property rights. Being land owners, big timber values unfettered management of their lands and trees in ways that ensure sustained profitability. An important way to enter big timber is through technical and business oriented higher education. Technical knowledge and skills learned in college are augmented by big timber values and norms through employment by a big timber company.

Social integration for small timber is fostered by norms that support economic independence and resource utilization. Being dependent on public trees, small timber values access to public resources and their stable or growing allocations. Entry into small timber is generally through family ties or a demonstrated willingness and commitment to doing the work. Living in small rural communities and working in the woods and independent mills provides social contacts that build and sustain small timber values and norms.

Main stream environmentalism is integrated through norms that support political influence, fiscal growth, and winning conflicts with opposing interests. "Occupying high-rent offices in the nation's capital far from the 'ecosystems' they promised to defend, and heavily staffed with wellpaid lawyers, these organizations are driven by ever greater pressures to increase income flow," commented Alston Chase. Entry to main stream environmentalism is through membership and contributions to national environmental organizations. Like the organizations they join and support, most members live in urban areas far removed from the forests of the PNW. Social ties and relations are built mainly through organization communications, local meetings, and sponsored trips.

Radical environmentalists are integrated through norms that support immediate action and civil disobedience. As journalist William Dietrich noted, "Many [radical environmentalists] saw compromise with the existing economic order as ... a softening of losses, a mere postponement of

planetary catastrophe. Society didn't need to be bargained with. It needed to be changed. [They were] ... interested in dramatic action, not the painstaking stockpiling of votes and dollars and polls and political chits that go into a legislative lobbying campaign." Entry into radical environmentalism is not so much through joining as through taking action - blocking logging roads, spiking trees, disabling logging equipment - where social ties and relations are built through the immediacy of front line confrontation or clandestine "monkey wrenching."

References

Chase, A. (1995). *In a dark wood: The fight over forests and the rising tyranny of ecology*. Houghton Mifflin Co.: New York.

Dietrich, W. (1992). *The final forest: The battle for the last great trees of the Pacific Northwest*. Penguin Books: New York.

Lee, R.G. in Chase op. cit.

Recitation 2 - Assignments

Which of the four PNW communities - big timber, small timber, main stream environmental, radical environmental - would you join, and why? In one paragraph describe how your values and norms are consistent with your preferred community.

Recitation 3- Structural, Functional Approaches

The Players in the old growth controversy

A variety of players were involved in the old growth controversy in the Pacific Northwest. The controversy centered around the timber industry and environmentalists, but timber dependent communities, biologists, foresters, Native Americans, judges and lawyers, and politicians were also involved.

The timber industry is a diverse group of individuals and businesses, but can be characterized by the loggers, who cut and remove trees from the forest, the truckers who haul the raw timber and timber products, and the mills that use the timber to produce dimension lumber and other wood products. While timber harvesting increased following WWII employment in the timber industry was more cyclical. Jobs in the timber industry in the PNW have been in decline due more to automation than to logging restrictions. Declining employment has greatly effected timber dependent communities -- usually small, rural towns where most residents are employed in the timber industry as loggers, truckers or mill workers. When jobs are lost due to automation, mill closures, or logging restrictions, the economic viability of these towns is severely strained causing many main street businesses to close.

The environmental community is equally diverse but is usually characterized by mainline environmental organizations and more militant activists. Mainline environmental organizations were primarily involved in legislation and lobbying and suing in federal courts. As logging volumes in the PNW increased militant environmentalist took more and more drastic measures to try to stop the harvest. These included non-violent protests, such as blocking logging roads and chaining themselves to trees, as well as more violent actions including bombings and tree spikings (driving metal spikes into the trunk). Spiking was particularly abhorrent to loggers as serious injury and death could result when chain saw chains broke apart or saws kicked back when a spike was hit.

As timber harvesting increased in the PNW urban residents and tourist visitors became increasingly displeased by the aesthetics of clear cutting. Biologists gave voice to these concerns by identifying birds and fish that were felt to be dependent on old growth forests. Terrestrial biologists were interested in the forests and the plants and animals found in them and were instrumental in identifying the spotted owl and its dependence on large stands of old growth forest. Fisheries biologists were also concerned with the impacts of logging practices on salmon fisheries, but these concerns came to the forefront after FEMAT.

Foresters are professionals with expertise in forest and timer management. Foresters are employed by the timber industry, state forest departments, and federal forest management agencies (USDA Forest Service and USDI Bureau of Land Management). Timber industry and state foresters generally supported timber harvesting methods and volumes. Federal foresters divided into two groups -- those who supported harvesting methods and volumes, and those who did not (generally represented by the Association of Forest Service Employees for Environmental Ethics). Native American interests generally concerned sovereign rights to water, the gathering of natural items and hunting/fishing. These rights have been affirmed both on and off reservations and affect nearly two-thirds of Oregon and nearly half of Washington. Timber harvesting and owl protection could both impinge on tribal rights and subsistence practices.

Two Federal District judges heard the various lawsuits filed by environmental groups. Judge Dwyer became best known because his decisions were understandable and quotable. All of the

decisions found that the owl management and timber harvesting plans were not legal because they did not comply with NMFA, ESA and NEPA. The most prominent politician in the controversy was President Clinton. At the Portland meeting he told the federal agencies to change how they did business, to follow the law, and to work together taking an ecosystem approach, but to not forget the people and economy of the Pacific Northwest.

Recitation 3- Assignment

Find internet or other information sources representing the views of two different players in the old growth controversy. Quote a sentence or two that represents the values of the two different players. Provide information on who made the statements and the source of the quotations (URLs for internet sites, bibliographic references for articles in magazines, newspapers, books, etc.).

Recitation 4- Structural, Functional Approaches

The Economy of the Pacific Northwest

Timber has historically been an important component of the economy of the Pacific Northwest (PNW), but the economy has diversified greatly since the 1970s and is now growing with "greencollar jobs" mainly in the electronics/computer industry and tourism. The decline of timber and the increase in electronics and other non-timber components of the economy has been very localized. Timber declines have effected small rural communities dependent on federal timber resources while the major urban centers of Seattle-Tacoma and Portland have accounted for most of the growth in the electronics industry. Some rural communities have not declined, however, due to increases in harvests of special forest products (mushrooms, boughs, ferns) and income from recreation and tourism.

The decline of the timber industry was a complex situation driven by a number of factors and coincided with declines in other extractive resource based industries including fishing, farming and ranching. The decline was mostly about the loss of timber jobs and the economic weakening of timber dependent communities, and not about the overall role of timber in the PNW economy. Much of the job loss was in the mills due to automation and attempts to become economically more efficient and competitive. This occurred even as timber harvests increased throughout the 60s, 70s, and 80s that put more loggers in the woods felling trees. The timber industry is not a monolithic entity, but is made up of large corporations that own their own timber, small mills and independent loggers dependent on public timber, log exporters, pulp and paper makers, and manufacturers of special wood products. Thus there is competition within the timber industry with different segments affected differently by federal policies on timber harvesting. Big companies that own their own trees can benefit from the removal of federal timber resources from harvesting that gives them a competitive advantage over small independent mills and increases the monetary value of their timber holdings.

Communities dependent on federal timber were affected by harvest reductions on federal lands and further hard hit due to reductions in federal subsidies that supported and resulted from timber harvesting. While timber on federal lands is harvested by private companies, access (through road building) and site preparation is paid for by the Forest Service and BLM. This has led to a controversy over "below cost" sales of federal timber (federal costs are lower than timber revenues). In addition, because federal agencies pay no state or local taxes, counties receive "payments in-lieu of taxes" (PILT) from the federal government based on timber revenues. As harvests declined Congress in 1993 altered the PILTs to counties effected by restrictions due to owl protection. These counties are now entitled to 25% or a moving percent of the 1986-1990 average annual payment (which was 82% in 1995 but has declined since then). Thus reduced harvests have resulted in reduced PILT.

The greening of the PNW economy is also a complex development with pluses and minuses. On the plus side the electronic/computer industry pollutes less, consumes fewer resources and disrupts less habitat per job than did the timber and other declining extractive industries. "For example, compared with computer chip plants and other electronic equipment manufacturers, the pulp and paper industry uses 29 times more energy per dollar of sales, releases 49 times more toxic waste and emits 765 times more air pollution" (Durning & Schubert, 1999). On the negative side, however, while jobs are greening in the PNW lifestyles are not. Affluent urban consumers are building more second-homes than first-homes with new developments consuming an acre of land every nine minutes. Fossil fuel consumption and air pollution are increasing dramatically with the popularity of SUVs and trucks that will outnumber cars by 2005 at current trends. Some rural communities near national parks and wilderness areas are growing rapidly, but many

provide no public transit and are unable to control growth.

Reference

Durning, A.T. & Schubert, J. (1999). Northwest grows on "green-collar" jobs. *The Oregonian*, July 25, 1999.

Recitation 4- Assignment

Develop two lists to show 1) the monetary values, and 2) the non-monetary values of old growth forests in the PNW. Then in one paragraph argue how you would allocate old growth forest resources based on monetary values, non-monetary values or a combination of monetary and nonmonetary values.

Recitation 5 - Structural, Functional Approaches

The Polity of the Pacific Northwest

The old growth forest, spotted owl controversy in the Pacific Northwest was a conflict over collective goals. In simple terms, on one side were collective goals that favored timber harvesting for commodity production, timber dependent communities, and timber lifestyles and on the other side were collective goals that favored preserving the remaining old growth forest stands for old growth dependent species (owls, marbled murrelets and salmon), green jobs in major urban areas, and leisure/tourist lifestyles. Power in the Pacific Northwest, and the nation, had been shifting from timber oriented goals to old growth oriented goals since the 1970s and reached a critical impasse in the early 1990s. The power struggle was largely played out at the federal level due to the extent of federal (Forest Service, BLM) lands in Northern California, Oregon, and Washington and federal policies that on the one hand encouraged higher timber harvests while on the other hand encouraged protection of species that were dependent on old growth forests.

The political process tries to find consensus about goals through compromise. Legislation is always a compromise between the two houses of Congress and the President. In the process lobbyists, the public, and the effected agencies have opportunities to influence legislation but the system of checks and balances makes it difficult for any particular interest to completely get their way. Goals, as expressed through legislation, change over time, however, as political fortunes change. Much of the environmental legislation that affected the old growth controversy was passed in 1970s and early 1980s when these issues were politically important. The 1980s saw a change in political power and reorientation towards goals concerning economic growth and stability. By the late 1980s environmental goals and economic goals clashed in the PNW over species protection and timber harvesting.

The agencies (Forest Service, BLM) were faced with conflicting legislative mandates, to manage forests as ecosystems and protect species while continuing to harvest timber at high levels, and could not do both. In the American political system when conflicts such as this reach an impasse the Judicial Branch provides another check and balance in the process of collective goal identification. Unlike the political process that seeks consensus through compromise, the judicial process is one of confrontation. For the courts to get involved in the controversy a group had to show that another group's actions were illegal and were causing them harm. The injured group (environmentalists) was seeking to show the agencies were acting illegally and wanted the courts protection to stop the harm being caused by the agencies timber harvests. The agencies timber harvests were held to be illegal under the National Environmental Policy Act, the Endangered Species Act, and the National Forest Management Act. The harm was that the timber harvests were destroying habitat for spotted owls that was diminishing their numbers and would eventually lead to their extinction thus depriving environmental groups the security and enjoyment of knowing the owls were protected. The courts found in the environmentalists' favor and as often happens this resulted in renewed attempts to find political compromises that culminated in President Clinton's Portland meeting in 1993 and the initiation of FEMAT.

Recitation 5 -Assignment

If wildlife (the spotted owl) is the sovereign property of the States, outline and for each heading briefly explain, how the federal government came to play such a dominant role in the spotted owl, old growth controversy in the PNW?

Recitation 6 - Social Dilemmas

Background -New England fisheries

The New England fishery is located off the New England coast (U.S. States of NJ, NY, RI, MA, NH, ME, and Canadian Province of Nova Scotia) on shallow waters of the continental shelf known as the Georges Bank. The fishery has been an important groundfishing resource for over 400 years since colonial times. Groundfish are bottom-dwelling fishes that include Atlantic cod, haddock, redfish, and yellowtail flounder. Throughout its entire history of human exploitation the fishery has been characterized by changes in methods and gear that continually increased fishing efficiency, competition between different sectors of the fishing fleet employing different gears, inability to cooperate with international fishing fleets, and failure to heed scientific advice.

As groundfishing changed from wooden sail boats using hooks and lines, to steam side trawlers and eventually to steel hulled diesel rear trawlers catches continually increased and fish stocks were put under increasing pressure. Technologies and consumer preferences changed over time, however, that put pressures on different species within the fishery. In the days of sail before refrigeration, salted cod was the fish of preference. About the time that steam replaced sail (1920s) cold storage became possible and the industry switched from cod to haddock. With improvements in marketing and distribution fish could be sold in areas far from the fishing ports. Demand for haddock shot up rapidly encouraging a more efficient fleet to catch more fish and haddock landings plummeted.

The next major change in the fishery occurred in the 1960s with the addition of foreign ocean going fish-factory fleets to the Georges Bank. Fleets from the former USSR, from Europe, and Japan fished the Banks for haddock, hake and herring. To understand fish-factory fleets, "...try to imagine a mobile and completely self-sustained timber-cutting machine that could smash through the roughest trails of the forest, cut down trees, mill them, and deliver consumer-ready lumber in half the time of normal logging and milling operations (Warner, 1983)." By the time an international commission settled on fishing restrictions in the early 1970s it was too late to avoid the virtual collapse of most groundfish stocks.

With foreign fish-factory fleets under control, U.S. groundfishers began to press for control of waters to a 200-mile limit. The Magnuson Act of 1976 established an exclusive economic zone out to 200 miles and established quotas for the domestic groundfish industry. Increased demand for fish as part of the American diet and government subsidies to support and expand the U.S. fishing fleet resulted in continuing high pressure on groundfish stocks of the Georges Bank. As the fleet modernized and grew quota management systems were replaced by what proved to be ineffectual controls on net mesh sizes, closed areas and minimum fish sizes. The result has been called an overcapitalized Georges Bank fleet that overfishes depleted groundfish stocks. The fleet is overcapitalized because virtually all of the capital goes towards harvest methods and technologies and little towards building groundfish stocks. Consequently, the most productive groundfish stocks have collapsed, landings have tumbled, and fish prices have soared fueled by scarce catches and increasing demand by health-conscious consumers.

Recitation 6 - Assignment

Find one article, from a newspaper, magazine or internet site, about ocean fishing. Copy or print the article and write a one-paragraph summary of the main points. Does the article present a case that illustrates a "Tragedy of the Commons?" Why or why not? Turn in your summary and TOC response, and a copy of the article in your Recitation section.

Recitation 7 - Social Dilemmas

New England Fisheries

The decline of the Georges Bank groundfish fishery over the past 25 years cannot be blamed on a single management policy or fishing practice. It can be seen as a constant battle between the fishing industry and government management. In this sense, fishers consider the situation to be at least as much political as biological. They disagree with government assessments of the conditions of stocks and trace the origins of their problems to policies implemented during the late 1970s and early 1980s that encouraged lowcost loans, technological advances in fish harvesting, processing and distribution, and unlimited access to the fishery. Fishers contend that the over capitalization that occurred laid the basis for the economic and social disruptions that impacted the groundfish industry and groundfish dependent ports.

The situation the fishers see themselves in could be analyzed as a social trap. For example, if government managers were to reduce season length by onethird, fishers would likely increase effort during the shorter season. In the short term, fishers may not be able to respond quickly and harvests might temporarily decline. But over time, they can build bigger boats equipped with more sophisticated gear and instrumentation. Because the competitive vessels are more expensive, they increase the cost per unit of the fish harvested. If the short run reduction in effort, due to the reduced season length, was successful in increasing fish stocks, each fisher may justify the additional expenses for boats, gear and instrumentation by the anticipated increase in harvest. The increase in fleet effectiveness, however, will send fish stocks into further decline. The managers will then see a need to reduce seasons to further restrict harvesting, and perpetuate the expensive race to increase fishing effectiveness while fish stocks still decline. In this case, any biological gains are lost, and the capacity of and costs of the fleet are higher than before. In addition, vessels may sit idle for increasingly long periods, or move to other fisheries. While moving to other fisheries is the most preferred response, most of the larger vessels of the most dependent ports have become too specialized, and too dependent on family networks for staffing, them to shift to other fisheries. Small and medium size vessels have had more success moving to other fisheries, but have often been met with hostility as they attempt to enter fisheries dominated by families and fleets that have been there for generations.

Declines in groundfish stocks can be attributed to unrestricted fishing with highly productive fishing technologies, overcapitalization of fishing fleets, and weak management structures and poor enforcement of fishing restrictions. One of these factors, the open access to the fishery, may contribute more than the others to the decline of groundfish stocks)t_ Under open access anyone can use the resource, which may partially explain why shifting to other fisheries is the preferred response of most fishers. A common property resource, on the other hand, is owned collectively and can be subject to restrictions developed and implemented by the common owners. Whether this is possible with the Georges Bank groundfishery is problematic. In the 21 st Century locally cooperating participants might be unable to regulate use of common fisheries because the dilemma is global. The economic interdependence and pressures of global markets, combined with perceived declines in the ability of social pressure to modify individual behaviors, are of a scale and nature that have proven difficult to deal with.

An important question is whether and how fishers can develop voluntary, local cooperation in an industry faced with global market pressures, where open access has been the rule.

Recitation 7 Assignment

Write short responses to the following questions: What short term benefits do fishers get from

fishing? Why is this a defecting or competitive strategy? If a fisher cooperated and reduced their fishing effort, while other fishers continued fishing as much as possible, what would be the "suckers" payoff to the cooperative fisher? What is the punishment for all or most all fishers defecting? Why don't fishers cooperate to sustain fish stocks?

Recitation 8 – Social Constructions of Nature

Background - Wolf reintroduction to Yellowstone

In your course packet, read Wilson (1997) pp. 453-459.

Recitation 8 - Assignment

Find one article, from a newspaper, magazine or internet site, about restoring an area to its "natural" condition. This could be an animal reintroduction, a wetland restoration, an exotic plant eradication, a dam removal or other restoration undertaking. Is(are) there one or more objects, natural features, animals, etc. that is(are) symbolic of the restoration? Does the object, natural feature, animal, etc. have different meanings to different groups of people? If so, what are they?

Recitation 9- Social Constructions of Nature

The wolf and differential social power

In your course packet, read **M. A. Wilson** (1997) pp. 459-468.

Recitation 9- Assignment

In one paragraph describe the meaning of the wolf to Wise Use supporters and to environmentalists.

Recitation 10- Social Constructions of Nature

The wolf, Endangered Species Act, and delisting

In your course packet, read P. A. Wilson (2006) pp. 863 - 870.

Recitation 10 Assignment

If the Gray Wolf is delisted (taken off the Endangered Species list) will the meaning of the wolf to the pro-Wolf and anti-Wolf publics change? What will the human dimension implications of delisting be for the States in the Northern Rocky Mountain region?