

RECREATIONAL FISHERIES: SCIENCE, MANAGEMENT AND POLICY
Hook, Line and Sinker
(FISH 260; Spring 2016)

Lecture – 3 credits, Tuesdays and Thursdays 10:30-12:20; Final Exam: Monday, June 6, 10:30 am-12:20 pm

Laboratory – 2 credits, Tuesdays 5-7 pm; Final Exam Tuesday, June 7, 6:30-8:20 pm

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Course Website: <https://canvas.uw.edu/courses/1040604>

Course Synopsis – Recreational fisheries are an increasingly important part of fisheries management particularly within State waters, the economic value of which now exceeds that of commercial harvest within Washington State. This course provides an overview of recreational shellfish and finfish fisheries within Washington State and adjacent waters with an emphasis on the science, management and policies associated with these fisheries. The course is suitable for undergraduate students with or without a strong science background, and will be offered as a 3- or 5-credit course. Topics for the 3-credit lecture include a description of these fisheries, who participates, and the value of recreational fisheries to society; the natural history of recreational shellfish and warm-water and cold-water finfish species; management, past and present; environmental impacts of recreational fisheries and environmental stressors on these fisheries; conflicts associated with present management of recreational fisheries; how science is translated for policy makers and recreational fishers; and the future of recreational fisheries. Lecture grades will be based on one mid-term (20%), four quizzes (20%), a position paper (20%), and a final exam (40%). The Laboratory Section (5 credit option) will focus on the opportunities and issues facing recreational anglers; the science and technology behind tactics, tackle and equipment for the primary game fish in Washington State; ways to minimize impacts of these fisheries on the aquatic environment and enhance conservation of target and non-target species; etiquette; and the challenges associated with enforcing recreational fishing regulations. Laboratory grades (40% of 5-credit course total) will be based on four quizzes on the readings and guest speaker presentations (20%), presentation of a position on a controversial management issue facing recreational fisheries in Washington State (40%), and a Final Exam (40%). Extra credit will be awarded to students who attend a monthly meeting of Puget Sound Anglers or other local recreational fishing organization. Students will have the opportunity to compete for salmon fishing trips on Puget Sound during summer 2016.

Exams will be comprehensive (all material covered prior to the time of the exam including readings and guest speaker presentations) and will consist of multiple-choice. Grades (lecture or lecture + laboratory) will be based on the total number of points obtained and not on a class curve.

Readings (course packet and *Washington's Sport of Kings*) will be available at the UW Bookstore. Others will be in electronic format (pdf) on the class website, or provided in class.

Justification

Recreational fisheries are an important part of fisheries management particularly within State waters, the economic value of which now exceeds that of commercial harvest within Washington State. This aspect of fisheries science and management is not currently addressed within the SAFS curriculum. Recreational fisheries encompass many of the scientific and management issues associated with commercial fisheries as well as several unique to the recreational fisheries affecting a much larger proportion of society. Sport fisheries are the foundation for inland fisheries management. The proposed class will serve as an avenue to introduce non-majors to a diversity of topics within aquatic and fishery sciences, and both majors and non-majors to the societal impacts of recreational fisheries, how science and policy intersect in the management of recreational shellfish and finfish species, how science and technology are incorporated into fishing tactics, and the role of recreational fishers in conserving target and non-target species.

Course Description

RECREATIONAL FISHERIES: SCIENCE, MANAGEMENT AND POLICY (FISH 260),
Spring Quarter, 3/5 credits, T Th 10:30-12:20, T 5-7 pm, Grue

Overview of Washington's recreational fisheries emphasizing science, management and policy. Laboratory focuses on the science and technology behind fishing tactics, tackle, and equipment, ways to minimize impacts and enhance conservation, and the politics associated with opportunities for recreational anglers. Suitable for undergraduate students with or without a strong science background.

Course Objectives

The objective of this course is to increase understanding of, and appreciation for, recreational fisheries within Washington State and adjacent waters. Specifically, students will be introduced to the scientific, societal, and political contexts in which recreational fisheries are managed; the opportunities and issues facing recreational anglers; the science and technology behind tactics, tackle and equipment for the primary game fish in Washington State; ways to minimize impacts of these fisheries on the aquatic environment and enhance conservation of target and non-target species; etiquette; and the challenges associated with enforcing recreational fishing regulations.

Learning Goals - Lecture

Students will be expected to be able to:

- Describe the history of recreational fisheries nationally and internationally, compare and contrast the economic, societal, and ethical values among the fisheries, and relate these values to management goals past and present

- Describe the natural history of the primary recreational shellfish and finfish species and relate natural history traits to management strategies for the primary recreational fisheries in Washington State
- Describe the regulatory framework for managing recreational fisheries in Washington State and adjacent waters and critique the scientific and political basis for this framework
- Describe how recreational fisheries can impact aquatic systems, how natural environmental stressors have and may in the future affect these fisheries
- Describe, synthesize and critique the information (pros and cons) related to current issues associated with the management of recreational fisheries in Washington State through readings, class discussion, and the development of a position paper

Learning Goals - Laboratory

Students will be expected to be able to:

- Describe how advances in science and technology have been applied to recreational fishing tactics, tackle and equipment, how these changes have affected management of target and non-target species, and predict how management may have to change with future advances in science and technology
- Describe the actions recreational fishers have taken to minimize their impact on target and non-target species and enhance conservation of impacted species, and based on this understanding, identify new/novel approaches to both for Washington State fishers
- Understand and appreciate the challenges associated with enforcement of regulations for recreational fisheries and the effects of non-compliance on fishing opportunities
- Critique and advocate a position on a controversial management issue involving recreational fisheries in Washington State through development of a position statement (10-minute PowerPoint presentation and 1-minute video) and participation in a mock Washington Fish and Wildlife Commission meeting.
- Students with grades in the top 10% (lecture + lab) will be eligible for a salmon fishing trip on Puget Sound in summer 2016.

Assignments and Grading - Lecture

Lecture grades will be based on the following:

- Quizzes (20%)
- Position paper (20%)
- Midterm (20%)
- Final exam (40%)

- Extra credit will be awarded to students who attend one of the monthly meeting of Puget Sound Anglers (April or May) or other local recreational fishing organization.

Quizzes (4, 25 pts each) will be hard copy and will be taken on Tuesdays or Thursdays at the beginning or end of class depending on the guest lecture schedule. Quizzes will cover the previous weeks' lecture material and readings (new material since last quiz). Questions will be multiple-choice. Total points = 100.

Exams will be comprehensive (all material covered prior to the time of the exam including readings and guest speaker presentations) and will also consist of multiple-choice. Many of the questions will come from the quizzes. Grades will be based on the total number of points obtained and not on a class curve. Mid-term = 100 pts; Final Exam = 200 pts

“Fish On” is a round of bonus questions randomly presented during the quarter. The questions are a review of previous lecture material. Correct answers are worth extra points toward the mid-term exam total, with the opportunity of adding 10-20 pts total. Students must be present in class to earn bonus points.

Position Paper (Lecture)

The position paper will be a team effort. Students within the lecture will be divided into teams (ca. 6-9 per team) at the end of Week 2 and will select a current controversial topic affecting recreational fishers in Washington State (e.g., from those provided to the class by the Washington Fish and Wildlife Commission and others). Teams will self-divide into sub-teams of ca. 3 students. Each sub-team will choose a position (pro, con, and team position) on the selected issue such that both are included in the final paper. Rough drafts will be due in Week 6, final papers will be due in Week 8, and will be available for all students to read on the class website in preparation for the Final Exam.

Each team will be responsible for all of the following:

- (1) Describing the issue/controversy
- (2) Synthesizing and critiquing the information supporting each position
- (3) Presenting coherent, well-written arguments for each position, including their own (Team),
- (4) Utilizing a minimum of five sources for information

Papers should be no more than 10 double spaced pages, 12-point font, 1-inch margins, plus references.

Grades will be based on the following:

- Rough draft (20%)
- Quality of the position statements (80% total: 50/50 content/presentation)

Points will be assigned based on evaluations by the instructor and TA. Students within the sub-teams will evaluate their own participation, the participation of sub-team members, and the

contribution of the other sub-team as a whole. Students who do not contribute sufficiently in the eyes of their peers will have their point total decreased. Total points = 100.

Assignments and Grading - Laboratory

Laboratory grades are 40% of 5-credit course total and will be based on the following:

- Quizzes (20%)
- Position statement presentation (40%)
- Final Exam (40%)

Quizzes (4, 25 pts each) will be hard copy and will be taken at the end of class depending on the guest lecture schedule. Quizzes will cover the previous weeks' lecture material and readings new material since last quiz). Questions will be multiple-choice. Total points = 100.

Position Statement (Laboratory)

Students within the Laboratory will be assigned to the lecture teams at the end of Week 2. Each team will have been assigned a controversial topic in lecture. Teams will self-divide into two sub-teams. One sub-team will prepare a 10-minute PowerPoint presentation describing the controversy and the Team position and the other sub-team will prepare a TV spot (1-minute video) promoting the Team position. Students will present their positions to a mock meeting of the Washington Fish and Wildlife Commission in Week 9 attended by three actual Commission members (Chair, Brad Smith, Commissioners Miranda Wecker and Larry Carpenter). Teams will have 15 minutes in which to present the PowerPoint and the TV spot and will be expected to answer questions from the Commissioners. One team member will be responsible for giving the PowerPoint presentation, and that team member will not be allowed to answer questions.

Presentations will be evaluated by the Commissioners and instructors based on the following:

PowerPoint Presentation	Video Presentation
• Content (30 pts)	• Content (20 pts)
• Persuasiveness (30 pts)	• Persuasiveness (30 pts)
• <u>Presentation/creativity (20 pts)</u>	• <u>Presentation/creativity (30 pts)</u>
Team ability to answer questions (40 pts)	

The team members' final grade will be based on the average of the scores from the Commission, instructor, and TA. Students within the sub-teams will evaluate their own participation, the participation of sub-team members, and the contribution of the other sub-team as a whole. Students that do not contribute sufficiently in the eyes of their peers will have their point total decreased. Total maximum points = 200, 40% of laboratory grade. Topics for students will vary each year and will be selected by the Commission and instructor from current controversies affecting recreational fisheries in Washington State.

The same teams will compete in "Recreational Fisheries Jeopardy" (review for laboratory Final Exam) and the opportunity for a continued subscription to *The Reel News* through December 2016 and a gift certificate to Outdoor Emporium.

Class Size, Level, and Course Design

The class is designed to be a high enrollment class with ca. 100 students in the lecture and 50 (ca. 50%) in the laboratory. Assignments, quizzes and exams are designed to accommodate these parameters. The class is designed as a 200 level course for students irrespective of the extent of their science background. Students are expected to be able to read scientific/technical papers as well as popular literature, synthesize information, prepare a well-written position paper, present information in various media, and be well prepared for class and participate in class discussions. The class is designed to be science-based, but also appeal to those who are interested in the topic but who are not obtaining a BS degree. My teaching philosophy over my nearly 40-year career (27 at the University of Washington) has been to provide a teaching atmosphere in which students share my enthusiasm for the topic and want to come to class, learn and be challenged. As such, detailed lecture material will not be provided on-line. Students will be expected to attend class, take notes, ask questions, and participate in discussions. Students will have the opportunity to obtain “Bonus Points” during lecture through “Fish On”, but only if students are present. Additionally, students will have the opportunity to “win” a fishing trip on Puget Sound during summer 2016 through occasional raffles during the lecture and the lab.

Prerequisites

A science pre-requisite is not necessary for students to do well in this class. The diverse nature of the topics in the class cross multiple disciplines (e.g., sociology, economics, science, communication, law, policy, ethics, education, public health, toxicology, recreation and leisure, animal welfare, and management) such that solely a science prerequisite will not enhance class performance and only serve to limit enrollment. The class is designed for high enrollment at the 200 level.

Required Reading

FISH 260 Course Packet. The cost of the course packet reflects those associated with copyright fees on the materials. **Available at UW Bookstore**

Washington's Sport of Kings. **Available at UW Bookstore**

The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. Monthly Issues: April-May 2016. Coordinating Services, Inc., Lake Stevens, WA. **Provided in class**

Washington Department of Fish and Wildlife. 2016. *Sport Fishing Rules*. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages. **PDF on class website**

All other reading material for the lecture and the laboratory will be provided electronically on the class website or distributed in class and selected from the attached reading list.

Attendance Policy and Behavior in Class

Attendance will not be recorded in lecture or laboratory except during Bonus Point opportunities in which only those present will be eligible for the points. Students will be responsible for all information presented in lectures, guest lectures, readings and discussions. No make-up quizzes or exams will be scheduled and no late assignments will be accepted except in the case of a documented medical or family emergency. Students are expected to be professional and courteous at all times during class activities, irrespective of whether they agree or disagree with the point of view of their classmates, guest speaker, or instructor.

Academic Misconduct

At the University, passing anyone else's scholarly work (which can include written material, exam answers, graphics or other images, and even ideas) as your own, without proper attribution, is considered academic misconduct. Plagiarism, cheating, and other misconduct are serious violations of the [University of Washington Student Conduct Code \(WAC 478□ 120\)](#). We expect that you will know and follow university policies on cheating and plagiarism. Any suspected cases of academic misconduct will be handled according to university regulations. For more information, see the College of the Environment's [Academic Misconduct Policy](#) and the [Community Standards and Student Conduct website](#).

Mobile Phone and Laptop Policy

Mobile phone use in class is disruptive and phones should be turned off upon entering the classroom. Laptops may be used in class for taking notes, but not to assist in answering exams or bonus questions.

Dropping/Adding

University policies on drops, adds, changes of grade option, or change to audit status will be enforced. Students adding the class are responsible for obtaining any missed material.

Disabilities

Provisions will be made to accommodate persons with disabilities according to the policies of the University of Washington. To request academic accommodations due to a disability, contact [Disability Resources for Students](#) 448 Schmitz 206-543-8924 (V/TTY). If you have a letter from that office indicating that you have a disability that requires academic accommodations, present the letter to the instructor so that we can discuss the accommodations needed for the class.

LECTURE OUTLINE

I. What Are Recreational Fisheries, Why Are They Important, Who Participates, and Who Is Impacted?

Week 1

29 March

Lecture 1

Overview of Class: Topics, Expectations, Readings, Quizzes, Position Papers, Teams, Bonus Points, Midterm, Final, Grading, Behavior in Class

History of Recreational Fishing and Overview of Recreational Shellfish and Finfish Fisheries within Washington State

31 March

Lecture 2

Economic, Social and Ethical Aspects of Recreational Fisheries: International, National and Washington State Perspectives

Week 2

5 April

Lecture 3

Economic, Social and Ethical Aspects of Recreational Fisheries: International, National and Washington State Perspectives

Guest Speaker: Gilbert Pauley, Professor Emeritus, and former Advisor to the US District Court on the Boldt Decision — Consequences of United States v. Washington 1973 (Boldt Decision)

7 April

Lecture 4

Recreational Fishing, Nature Deficit Disorder, and the Future of Management for Recreational Fisheries

Quiz #1 (25 pts)

II. Natural History

Week 3

12 April

Lecture 5

Natural History of Recreational Shellfish, Cold- and Warm-water Species within Washington State

Guest Speaker: Tom Nelson, Co-host ESPN's "The Outdoor Line" — Triple Threat Salmon Angling and Perspectives on Recreational Fisheries – Opportunities and Challenges

14 April

Lecture 6 **Guest Speaker:** Chris Donley, Inland Fish Program Manager, Washington Department of Fish and Wildlife — A) Involving Youth in Recreational Fishing; B) Management and Status of Inland Fisheries

Week 4

19 April

Lecture 7 Natural History of Recreational Shellfish, Cold- and Warm-water Species within Washington State

Guest Speaker: Ron Warren, Assistant Director, Fish Program, Washington Department of Fish and Wildlife — Perspectives on the Status and Future of Recreational Fisheries in Washington State

III. Management Framework for Recreational Fisheries within Washington State

21 April

Lecture 8 Management and Status of Shellfish, and Warm- and Coldwater Fisheries within Washington State

Quiz #2 (25 pts)

Week 5

26 April

Lecture 9 Management and Status of Shellfish, and Warm- and Coldwater Fisheries within Washington State

Guest Speakers: Lorraine Loomis, Chairwoman and Mike Grayum, Executive Director, Northwest Indian Fisheries Commission — Tribal Perspectives on the Management of Fisheries in Washington State: Shared Interests, Common Goals and Outlook for the Future

28 April

Lecture 10 **Class meets in FSH 204**
Management and Status of Shellfish, and Warm- and Coldwater Fisheries within Washington State

Week 6

3 May

Lecture 11 Management and Status of Shellfish, and Warm- and Coldwater Fisheries within Washington State

Guest Speaker: Pat Pattillo, former Special Assistant to the Director, Washington Department of Fish and Wildlife — Setting Seasons and Limits for Recreational Saltwater Fisheries: Past and Present and Competing Interests

5 May

Mid-term Exam (material thru *Lecture 11*)
Position Statement Rough Draft Due

IV. Impacts of Recreational Fisheries on Aquatic Food Webs and Environmental Stressors on These Fisheries

Week 7

10 May

Lecture 12 Management of Washington's Inland Waters, Freshwater Food Webs and Environmental Conditions

Guest Speaker: David Beauchamp, Chief, Fisheries Ecology Section, Western Fisheries Research Center, Seattle, WA — Introduced Game Fish and Inland Aquatic Food Webs: Impacts and Management Actions

12 May

Lecture 13 Ocean Conditions and Climate Change; Forecasting of Salmon Runs; Puget Sound Food Webs and Environmental Conditions; Factors Involved in State Shellfish and Fish Consumption Advisories

Week 8

17 May

Lecture 14 Exotic and Invasive Species, Bounty Fishing

V. Politics and Conflict: Current and Future Issues Facing Recreational Fisheries in Washington State

19 May

Position Statements Due

Lecture 15 Endangered Species, Critical Habitat, and Hatchery vs Wild Fish

Quiz #3 (25 pts)

Week 9

24 May

Lecture 16 Orcas vs Recreational Salmon Harvest: Westside San Juan Island, WA Marine Spatial Planning/ Marine Protected Areas and Ecosystem-based Management, and Wind/Wave/Current Energy Generation

Guest Speaker: Patrick Christie, Professor, School of Marine & Environmental Policy, University of Washington — Why Marine Reserves Fail: Implications for marine Conservation and Fisheries Management

26 May

Lecture 17 Rockfish Closures, Artificial Reefs, Alternative Energy: E-15 Gasoline and Outboard Engines

Week 10

31 May

Lecture 18 Commercial vs Recreational Harvest: Dungeness Crab and Salmon; Commercial and Recreational Bycatch; Gill Nets vs Selective Capture Strategies

2 June

Lecture 19 Management for Blackmouth and Chum Salmon in Puget Sound, Contaminants

Guest Speaker: Allen Thomas, Senior Outdoor Writer, The Columbian, Vancouver, Washington — Communicating with Recreational Fishers and Other Outdoor Enthusiasts

Quiz #4 (25 pts)

Final Exam

6 June 10:30 am-12:20 pm (200 pts)

LABORATORY OUTLINE

(Topics and Speakers; Order May Change Based on Availability of Speakers)

Week 1

29 March Laboratory Overview: Topics, Expectations, Readings, Preparation for Speakers, Attendance at Chapter Meetings, Quizzes, Teams, Bonus Points, Position Statements, “Recreational Fisheries Jeopardy”, Final Exam, Behavior in Class

Terminology and WA State Fishing Regulations

Week 2

5 April **Guest Speaker:** Captain Keith Robbins, A Spot Tail Salmon Guide, Seattle, WA — Mooching and Fly-fishing for Salmon in Puget Sound

Quiz #1 (25 pts)

Week 3

12 April **Guest Speaker:** Joan Drinkwin, Program Director, Northwest Straits Marine Conservation Foundation — Derelict Gear: Environmental Impact and Prevention

Week 4

19 April **Guest Speaker:** Bryce Molenkamp, Lower 48 States Record Holder for Lingcod and First Kayak Fisherman to Catch an Albacore Tuna in the Northwest — Kayak Fishing in the Pacific Northwest: Is It For You?

Quiz #2 (25 pts)

Week 5

26 April **Guest Speakers:** Frank Haw, Author of *Washington’s Sport of Kings*, and Tony Floor, Director of Fishing Affairs, Northwest Marine Trade Association and Northwest Salmon Derby Series — The Evolution of Saltwater Recreational Fisheries in Washington State

Week 6

3 May **Guest Speakers:** Dan Tonnes, National Marine Fisheries Service, and Ron Garner, President, Puget Sound Anglers — Management and Conservation Rockfish in Puget Sound

Quiz #3 (25 pts)

Week 7

10 May **Guest Speaker:** Rich Childers, Puget Sound Shellfish Manager, Washington Department of Fish and Wildlife — Management of Dungeness Crab in Puget Sound

Week 8

17 May

Guest Speaker: Mike Cenci, Deputy Chief, Enforcement, Washington Department of Fish and Wildlife — Challenges in Enforcing Recreational Fishing Regulations

Quiz #4 (25 pts)

Week 9

24 May

Student Position Statement Presentations — Controversial Topics in Recreational Fisheries Management and Policy in Washington State

Guest Commission Representatives: Brad Smith (*Chair*), Larry Carpenter, and Miranda Wecker, Washington State Fish and Wildlife Commission

Week 10

2 June

Recreational Fishing Jeopardy: review for Final Exam for laboratory; student teams will compete for a continuing subscription to *The Reel News* (2016) and a gift certificate to Outdoor Emporium

Final Exam

7 June

6:30 pm-8:20 pm (200 pts)

Reading List – Lecture (Assignments may change, consult class website)

*=pdf on class website, †=provided in class - hardcopy, **on the web (url on class website) or in the course pack

Week 1 – 28 March

Ditton, R.B. 2008. An international perspective on recreational fishing. Pages 5-55 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). *Global Challenges in Recreational Fisheries*. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 5-30

*Food and Agricultural Organization of the United Nations (FAO). 2012. Introduction. Pages 1-14 in: *Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13*, Rome, Italy.

Pitcher, T.J. and C.E. Hollingworth. 2002. Fishing for fun: Where's the catch? Pages 1-16 in: Pitcher, T.J. and C. Hollingworth (eds.), *Recreational Fisheries: Ecological, Economic and Social Evaluation. Fish and Aquatic Resources 8*, Blackwell Publishing, Oxford, UK. Course pack pp. 31-38

*Washington Department of Fish and Wildlife. 2015. *Sport Fishing Rules*. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. April 2016. Coordinating Services, Inc., Lake Stevens, WA.

Week 2 – 5 April

*Floyd, M.F., L. Nicholas, I. Lee, J-H Lee, and D. Scott. 2006. Social stratification in recreational fishing participation: Research and policy implications. *Leisure Sciences: An Interdisciplinary Journal* 28:351-368.

*Food and Agricultural Organization of the United Nations (FAO). 2012. Particularities of developing countries and economies in transition. Pages 111-116 in: *Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13*, Rome, Italy.

Kearney, R.E. 2002. Recreational fishing: Value is in the eye of the beholder. Pages 17-33 in: Pitcher, T.J. and C. Hollingworth (eds.), *Recreational Fisheries: Ecological, Economic and Social Evaluation. Fish and Aquatic Resources 8*, Blackwell Publishing, Oxford, UK. Course pack pp. 39-48

Lyman, J. 2008. Subsistence vs sport: Cultural conflict on the frontiers of fishing. Pages 292-302 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). *Global Challenges in Recreational Fisheries*. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 49-53

*Serrentino, J. 2013. Nature Deficit Disorder: What you need to know. 18 March, Education.com (Web)

Wightman, R., S. Sutton, B.E. Mathews, Kirk Gillis, J. Colman, and J-R Samuelsen. 2008. Recruiting new anglers: Driving forces, constraints and examples of success. Pages 303-323 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). Global Challenges in Recreational Fisheries. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 54-64

Week 3 – 12 April

**Alaska Department of Fish and Game. 2013. Pacific halibut (*Hippoglossus stenolepis*). Species profile. (Web).

**Alaska Department of Fish and Game. 2013. Lingcod (*Ophiodon elongatus*). Species profile. (Web).

*Dethier, M.N. 2007. Native Shellfish in Nearshore Ecosystems of Puget Sound. Puget Sound Nearshore Partnership, Olympia, WA. 26 pp.

*Johnston, F.D., R. Arlinghaus, and U. Dieckmann. 2012. Fish life history, angler behaviour and optimal management of recreational fisheries. Fish and Fisheries 13:1-26.

*King, J.R. and G.A. 2003. Marine fish life history strategies: Applications to fisheries management. Fisheries Management and Ecology 10:249-264.

Wydoski, R.S. and R.R. Whitney. 2003. Inland Fishes of Washington. University of Washington Press, Seattle, WA. 384 pp. Course pack pp. 65-88

Quinn, T.P. 2004. The Behavior and Ecology of Pacific Salmon and Trout. University of Washington Press, Seattle, WA. 320 pp. Course pack pp. 89-122

Week 4 – 19 April

*Andrew Loftus Consulting and Southwick Associates, Inc. 2011. Financial returns to businesses from the Federal Aid in Sport Fish Restoration Program. Andrew Loftus Consulting and Southwick Associates, Inc. 68 pp. (selected sections)

Arlinghaus, R. and I.G. Cowx. 2008. Meaning and relevance of the ecosystem approach to recreational fisheries management. Pages 56-74 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). Global Challenges in Recreational Fisheries. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 123-142

*Food and Agricultural Organization of the United Nations (FAO). 2012. Normative framework for responsible recreational fisheries. Pages 15-22 in: Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13, Rome, Italy.

*Food and Agricultural Organization of the United Nations (FAO). 2012. Management framework for sustainable recreational fisheries. Pages 23-36 in: Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13, Rome, Italy.

*Food and Agricultural Organization of the United Nations (FAO). 2012. Policy and institutional frameworks. Pages 37-44 in: Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13, Rome, Italy.

*Food and Agricultural Organization of the United Nations (FAO). 2012. Recreational fisheries management. Pages 45-78 in: Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13, Rome, Italy.

Knutson, P. 2010. The unintended consequences of the Boldt Decision. 19 February, Cultural Survival, culturalsurvival.org (Web)

*Office of Shellfish and Water Protection. 2012. 2011 Annual Report: Commercial and Recreational Shellfish Areas in Washington State. Washington State Department of Health. 26 pp.

U.S. Fish and Wildlife Service. 2013. Sport fish restoration program. 25 September (Web)

Washington Department of Fish and Wildlife. How recreational razor clam seasons are set. (Web).

Washington Department of Fish and Wildlife. Puget Sound clam and oyster FAQ. (Web).

*Washington Department of Fish and Wildlife. 2014. Sport Fishing Rules. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages

Week 5 – 26 April

*National Oceanic and Atmospheric Administration. A Vision for Marine Recreational Fisheries – NOAA Recreational Fisheries Strategic Plan. 24 pp.

*NOAA Fisheries Service. 2011. Northwest Region Saltwater Recreational Fishing Action Agenda. 9 pp.

Pew Charitable Trusts. 2013. The bottom line: Five myths about fishing. Pew Charitable Trusts. (Web).

Pew Charitable Trusts. 2013. The bottom line: Rebuilding plans work for U.S. fisheries. Pew Charitable Trusts. (Web).

*Pew Charitable Trusts and Ocean Conservancy. The Law That's Saving American Fisheries: The Magnuson-Stevens Fishery Conservation and Management Act. Pew Charitable Trusts and Ocean Conservancy. 44 pp.

**Pacific Fishery Management Council. (Web)

**Washington Department of Fish and Wildlife. North of Falcon: Setting salmon fishing seasons. Washington Department of Fish and Wildlife. (Web)

**Washington Department of Fish and Wildlife. Recreational salmon fishing – How seasons are set. (Web).

*Washington Department of Fish and Wildlife. 2015. Sport Fishing Rules. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages

Week 6 – 3 May

Griffith, J.S., C.F. Rabeni, R.B. Jaobson, ..., and P.A. Soranno. 1999. Common Management Practices: Coldwater streams, Warmwater streams, Large rivers, Natural lakes and large impoundments. Pages 481-557, 589-617 in: Kohler, C.C. and W.A. Hubert (eds.). 1999. Inland Fisheries Management in North America. Second Edition, American Fisheries Society, Bethesda, MD. Course pack pp. 143-199

*Jones, R., C. Travers, C. Rodgers ..., and J. Martinich. 2013. Climate change impacts on freshwater recreational fishing in the United States. Mitigation and Adaptive Strategies for Global Change 18:731-738.

*National Research Council. 2011. Ocean Acidification – Starting with the Science. National Research Council of the National Academies, National Academies Press, Washington, D.C. 20 pp.

**Pew Charitable Trusts. 2013. Little fish, big deal: For a healthy ocean albacore tuna need forage fish (25 September); A big victory for little fish (19 September), Fact Sheet Files, Pew Charitable Trusts. (Web).

Sawynok, W. and J.R. Platten. 2011. Effects of local climate on fisheries in central Queensland, Australia: A guide to the impacts of climate change. Pages 201-218 in: Beard, T.D., R. Arlinghaus, and S.G. Sutton (eds.). The Angler in the Environment: Social, Economic, Biological, and Ethical Dimensions. Proceedings of the 5th World Recreational Fishing Conference, American Fisheries Society Symposium 75, Bethesda, MD. Course pack pp. 200-208.

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. May 2016. Coordinating Services, Inc., Lake Stevens, WA.

Week 7 – 10 May

*Ayers, D.L. and H.J. Read. 2003. Managing important recreational and commercial shellfish fisheries around harmful algal blooms. Proceedings 2003 Georgia Basin/Puget Sound Research Conference 31 March-4 April, Vancouver, B.C. 4 pp.

*Cucherousset, J. and J.D. Olden. 2011. Ecological impacts of non-native fishes. Fisheries 36:215-230.

*Kostow, K. 2012. Strategies for reducing the ecological risks of hatchery programs: Case studies from the Pacific Northwest. *Environmental Biology of Fishes* 94:285-310.

*Rand, P.S., B.A. Berejikian, A. Bidlack, D. Bottom, and J. Gardner et al. 2012. Ecological interactions between wild and hatchery salmonids and key recommendations for research and management in selected regions of the North Pacific. *Environmental Biology of Fishes* 94:343-358.

*Sager-Rosenthal, I. 2002. Reel Trouble: How Washington's Fish Advisory Program Fails to Protect Consumers. Washington Public Interest Group Foundation and Washington Toxics Coalition, Seattle, WA. 34 pp.

*Scherer, A.C., A. Tsuchiya ..., E.M. Faustman. 2008. Comparative analysis of State fish consumption advisories targeting sensitive populations. *Environmental Health Perspectives* 116:1598-1606.

**US Fish and Wildlife Service. Endangered Species Act / Section 7. 15 July (Web)

**Washington Department of Fish and Wildlife. Hatcheries: Salmon Hatcheries Overview. (Web).

**Washington State Department of Health. 2013. Fish Consumption Advisories. (Web).

Lewin, W-C., D.P. McPhee, and R. Arlinghaus. 2008. Biological impacts of recreational fishing resulting from exploitation, stocking and introduction. Pages 75-92 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). *Global Challenges in Recreational Fisheries*. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 209-217

Week 8 – 17 May

**Center for Ocean Solutions. Ecosystem-based Marine Spatial Planning. (Web)

*Douvere, F. 2008. The importance of marine spatial planning in advancing ecosystem-based sea use planning. *Marine Policy* 32:762-771.

*Font, T. and J. Lloret. 2011. Socioeconomic implications of recreational shore angling for the management of coastal resources in a Mediterranean marine protected area. *Fisheries Research* 108:214-217.

*Hilborn, R., S.P. Cox, F.M.D. Gulland, D.G. Hankin, N.T. Hobbs, D.E. Schindler, and A.W. Trites. 2012. The Effects of Salmon Fisheries on Southern Resident Killer Whales – Final Report of the Independent Science Panel. Prepared with the assistance of D.R. Marmorek and A.W. Hall, ESSA Technologies Ltd., Vancouver, B.C. for National Marine Fisheries Service and Fisheries and Oceans Canada. 72 pp + Appendices. (selected sections)

McPhee, D.P., A. Gordo, and X. Illas. 2008. Marine recreational fisheries management challenges and marine protected areas: Comparison between the Mediterranean and Australia. Pages 93-110 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). *Global Challenges in Recreational Fisheries*. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 218-227

Nussman, J.M., G.C. Radonski, and A.J. Loftus. 2011. Marine recreational fisherman and oceans governance. Pages 39-48 in: Beard, T.D., R. Arlinghaus, and S.G. Sutton (eds.). *The Angler in the Environment: Social, Economic, Biological, and Ethical Dimensions*. Proceedings of the 5th World Recreational Fishing Conference, American Fisheries Society Symposium 75, Bethesda, MD. Course pack pp. 228-233

Week 9 – 24 May

**Bell, L. 2012. Ten reasons to care that E-15 ethanol is on its way to your gas station. 23 September, *Forbes Magazine* (Web)

*Bortone, S.A. 2011. A pathway to resolving an old dilemma: Lack of artificial reefs in fisheries management. Pages 311-320 in: Bortone, S.A., F. Pereira Brandini, G. Fabi, and S. Otake (eds.) *Artificial Reefs in Fisheries Management*, CRC Marine Ecology Series, CRC Press, Boca Raton, FL.

**Cellarius, D. 2013. Risks of E-15 gasoline continue. 3 October, *Sierra Club*. (Web)

*Sawchuk, J.H. 2012. *Angling for Insight: Examining the Recreational Fishing Community's Knowledge, Perceptions, Practices, and Preferences to Inform Rockfish Recovery Planning in Puget Sound, Washington*. MS thesis, University of Washington, Seattle, WA. 208 pp. (selected sections)

*Seaman, W. Jr., R. Grove, D. Whitmarsh, M. Neves Santos, G. Fabi, C. Gil Kim, G. Relini and T. Pitcher. 2011. Artificial reefs as unifying and energizing factors in future research and management of fisheries and ecosystems. Pages 7-30 in: Bortone, S.A., F. Pereira Brandini, G. Fabi, and S. Otake (eds.) *Artificial Reefs in Fisheries Management*, CRC Marine Ecology Series, CRC Press, Boca Raton, FL.

**West Marine. Busting ethanol fuel myths. (Web)

*Washington Department of Fish and Wildlife. 2015. *Sport Fishing Rules*. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages

Week 10 – 31 May

*Benoit, J. and C. Lefebvre. 2005. *Translating Science into Management: Challenges and Opportunities for the Coastal Community*. Report for the Coastal States Organization. Urban Harbors Institute, University of Massachusetts, Boston, MA. 14 pp.

*Chamberlin, J.W., T.E. Essington, J.W. Ferguson, and T.P. Quinn. 2011. The influence of hatchery rearing practices on salmon migratory behavior: Is the tendency of Chinook salmon to

remain within Puget Sound affected by size and date of release? Transactions of the American Fisheries Society 140:1398–1408.

Decker, D.J. and C.C. Krueger. 1999. Communication for effective fisheries management. Pages 61-81 in: Kohler, C.C. and W.A. Hubert (eds.). 1999. Inland Fisheries Management in North America. Second Edition, American Fisheries Society, Bethesda, MD. Course pack pp. 234-244

*Elfes C. and C. Grue. Persistent organic pollutants and mercury in chum salmon (*Oncorhynchus keta*) from Puget Sound, Washington. Environmental Research (Draft manuscript).

*Food and Agricultural Organization of the United Nations (FAO). 2012. Information, knowledge sharing and research. Pages 101-110 in: Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13, Rome, Italy.

*Higgins, C. A. 2001. Effective and efficient research translation for general audiences: Literature review and recommendations. The University of Kansas, Research and Training Center on Independent Living, Lawrence, KS. 35 pp.

*O'Neill, S., and J. West. 2009. Marine distribution, life history traits, and the accumulation of polychlorinated biphenyls in Chinook salmon from Puget Sound, Washington. Transactions of the American Fisheries Society 138:616–632.

**Washington Department of Fish and Wildlife. Puget Sound chum salmon. (Web)

**Wisner, L. 2013. Puget Sound blackmouth salmon history. 13 April. (Web)

Reading List – Laboratory**Week 1**

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. April 2016. Coordinating Services, Inc., Lake Stevens, WA.

*Washington Department of Fish and Wildlife. 2015. Sport Fishing Rules. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages

Week 2 (Keith Robbins)

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. April 2015. Coordinating Services, Inc., Lake Stevens, WA.

**Mooching for Salmon – Rob Endsley, Prince of Wales Sportfishing (Web-You Tube)

**Mooching for Salmon – Alaska Premier Charters Inc. (Web)

**Kaiser, J. 2012. Blackmouth Basics. Part 1. 21 December. Salt Patrol, saltpatrol.com (Web)

**Kaiser, J. 2012. Blackmouth Basics. Part 2. 22 December. Salt Patrol, saltpatrol.com (Web)

Week 3 (Joan Drinkwin)

*Antonelis, K., D. Huppert, D. Velasquez, and J. June. 2011. Dungeness crab mortality due to lost traps and a cost-benefit analysis of trap removal in Washington State waters of the Salish Sea. North American Journal of Fisheries Management 31:880-893.

*Washington Department of Fish and Wildlife. 2015. Sport Fishing Rules. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages.

**Northwest Straits Derelict Gear Removal Program, derelictgear.org (Web)

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. April 2016. Coordinating Services, Inc., Lake Stevens, WA.

Week 4 (Bryce Molenkamp)

TBD

Week 5 (Frank Haw and Tony Floor)

Diggles, B.K., W. Sawynok, and L.J.H. Olyott. 2011. Development of an environmental standard for recreational fishing tournaments. Pages 251-261 in: Beard, T.D., R. Arlinghaus, and S.G. Sutton (eds.). The Angler in the Environment: Social, Economic, Biological, and Ethical Dimensions. Proceedings of the 5th World Recreational Fishing Conference, American Fisheries Society Symposium 75, Bethesda, MD. Course pack pp. 245-250

Schramm, H.L. Jr. (ed.). 2008. Competitive fishing: Trends, opportunities and challenges. Pages 237-267 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). Global Challenges in Recreational Fisheries. Blackwell Publishing Ltd, Oxford, UK.

Course pack pp. 251-266

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. April 2016.
Coordinating Services, Inc., Lake Stevens, WA.

Week 6 (Dan Tonnes and Ron Garner)

**Alaska Department of Fish and Game. Rockfish conservation and deepwater release.
(Web)

*Hochhalter, S. J. and D.J. Reed 2011. The effectiveness of deep-water release at improving the survival of discarded yelloweye rockfish. *North American Journal of Fisheries Management* 31:852-860.

*Sawchuk, J.H. 2012. Angling for Insight: Examining the Recreational Fishing Community's Knowledge, Perceptions, Practices, and Preferences to Inform Rockfish Recovery Planning in Puget Sound, Washington. MS thesis, University of Washington, Seattle, WA. 208 pp.
(Selected sections TBD)

*Sawchuk, J.H., A.H. Beaudreau, D. Tonnes, and D. Fluharty. 2015. Using stakeholder engagement to inform endangered species management and improve conservation. *Marine Policy* 54:98-107.

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. May 2016.
Coordinating Services, Inc., Lake Stevens, WA.

**Washington Department of Fish and Wildlife. Protecting Washington's rockfish.
(Web)

Week 7 (Rich Childers)

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. May 2016.
Coordinating Services, Inc., Lake Stevens, WA.

*Washington Department of Fish and Wildlife. 2015. Sport Fishing Rules. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages

Week 8 (Mike Cenci)

Arlinghaus, R. 2008. The challenge of ethical angling: The case of C&R and its relation to fish welfare. Pages 223-236 in: Oystein, A., R. Arlinghaus, R.B. Ditton, D. Policansky, and H.L. Schramm Jr. (eds.). *Global Challenges in Recreational Fisheries*. Blackwell Publishing Ltd, Oxford, UK. Course pack pp. 267-274

Arlinghaus R. and A. Schwab. 2011. Five ethical challenges to recreational fishing: What they are and what they mean? Pages 219-234 in: Beard, T.D., R. Arlinghaus, and S.G. Sutton (eds.). *The Angler in the Environment: Social, Economic, Biological, and Ethical Dimensions*. Proceedings of the 5th World Recreational Fishing Conference, American Fisheries Society Symposium 75, Bethesda, MD. Course pack pp. 275-283

*Food and Agricultural Organization of the United Nations (FAO). 2012. Recreational fishing

practices. Pages 79-100 in: Recreational Fisheries. FAO Technical Guidelines for Responsible Fisheries 13, Rome, Italy.

**Minnesota Pollution Control Agency. 2013. Let's get the lead out: Non-lead alternatives for fishing tackle. 23 August. (Web).

Policansky, D. 2002. Catch-and-release recreational fishing: A historical perspective. Pages 74-94 in: Pitcher, T.J. and C. Hollingworth (eds.), Recreational Fisheries: Ecological, Economic and Social Evaluation. Fish and Aquatic Resources 8, Blackwell Publishing, Oxford, UK. Course pack pp. 284-294

Radonski, G.C. 2002. History and application of catch-and-release fishing: The good, the bad, and the ugly. Pages 3-10 in: Lucy, J.A. and A.L. Studholme (eds.). Catch and Release in Marine Recreational Fisheries. American Fisheries Society Symposium 30, Bethesda, MD. Course pack pp. 295-299

*UNEP/AEWA Secretariat. 2011. Literature Review: Effects of the Use of Lead Weights on Waterbirds and Wetlands. 7th Meeting of the AEWA Standing Committee, 26-27 November 2011, Bergen, Norway. 20 pp.

*Washington Department of Fish and Wildlife. 2015. Sport Fishing Rules. Washington Department of Fish and Wildlife, Olympia, WA. 140 pages.

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. May 2016. Coordinating Services, Inc., Lake Stevens, WA.

Week 9

†The Reel News - Outdoor Issues Covering the Greater Pacific Northwest. May 2016. Coordinating Services, Inc., Lake Stevens, WA.

No additional readings, "*Position Statements*", mock Washington Fish and Wildlife Commission Meeting with standing Commission members: Brad Smith (Chair), Miranda Wecker and Larry Carpenter

Week 10

No new readings, "*Recreational Fishing Jeopardy*", review for Final Exam