

NEWSLETTER

Spring 2011 AFS

Washington –

British Columbia

Chapter

“Winner of the AFS Outstanding Chapter for 2010”

Our Focus: Informing and strengthening the fisheries profession, advancing fisheries science, and conserving aquatic and fisheries resources.

More information on the WA-BC Chapter is available at our website: <http://wabc-afs.org/>
information on AFS is available at <http://fisheries.org/afs/>

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NEW FRONTIERS IN FISHERIES MANAGEMENT AND ECOLOGY:
LEADING THE WAY IN A CHANGING WORLD

AMERICAN FISHERIES SOCIETY 141ST ANNUAL MEETING
SEATTLE, WASHINGTON . SEPTEMBER 4-8, 2011 . WWW.FISHERIES.ORG/AFS2011

AFS Meeting Sept 4-8 at the Convention Center

Check out the upcoming June Newsletter for full updates on the AFS annual meeting in Seattle with symposia and other events by chapter members. With its focus on “New Frontiers in Fisheries Management and Ecology: Leading the Way in a Changing World,” the conference will provide a wonderful opportunity for fisheries professionals to meet, exchange information, catch up with friends, and find inspiration.



We expect over 4,000 participants from all over the world.

This will require a huge effort by about 100 volunteers from the Chapter membership, to be led by a contingent of about 10 committee chairs, and 25 subcommittee chairs. While committee chair positions are filled, there is still plenty of opportunity to volunteer!



Left: Eric Knudsen, Cleve Steward, and Craig Busack, three of our WA-BC Chapter leadership crew at the Nashville AFS meeting advertising the Seattle meeting.

If you are still considering a part to play in any capacity, (volunteer, sponsor, contributor) please Contact General Arrangements Co-Chairs Cleve Steward (Cleve.steward@amec.com) or Larry Dominguez (mLD50_@msn.com) so we can direct you appropriately. If you are interested in Sponsorship at any level, contact Eric Knudsen, ericknudsen@gci.net

Action Alert: Career Fair at AFS The Student Career Fair for the 2011 meeting in Seattle is being held in the Seattle Aquarium on the evening of Tuesday Sept 7th. If your agency, organization, or consulting firm is interested in having a table and interacting with prospective employees please contact Jim Shannon, jshannon@anchorqea.com. We are planning on having 20 tables so space is limited.

OFFICERS REPORTS

President's Report: AFS reaches Papua New Guinea

Chapter President, Mark Pedersen, just returned from Papua New Guinea (PNG), where he was part of an environmental and social audit team working for the consortium of Lenders who are financing the Esso Highlands Ltd. PNG Liquid Natural Gas project. Mark is the fisheries expert, charged with monitoring compliance with the Lender standards dealing with maintenance of biodiversity and public use of natural resources.



This country is one of the most biologically and socially diverse in the world. During the baseline studies, several new species were discovered, and this is land where there are over 800 languages and cultures! While there, he audited monitoring studies that focused on coral reefs, fishes, sea grasses, mangroves, and freshwater stream crossings, as well as artisanal fisheries harvest and gear types.

It takes about 28 hours to get there from Seattle. After arrival, Mark flew via helicopter to remote outposts, such a Moro, Kopi, and Kikori in the interior. It was hard work: 95 degrees, 100% humidity, malaria-carrying mosquitoes, and poisonous snakes, up at 4:30 am and work until dark.

He worked with a local project team of fish biologists, and helped obtain approval of their leader and AFS member, Ms. Ursula Kolkolo (photo), to attend the 2011 AFS annual meeting in Seattle! Hopefully, as many chapter members as possible can meet her and learn more about the fish and fisheries of her country.



Past-President - Jim Shannon

The WA-BC Chapter has been participating in an ad-hoc committee with representatives from the Oregon Chapter to update the Western Division resolution regarding the lower four dams on the Snake River. See the links below to follow the latest developments. The Oregon AFS Chapter's opinion piece made it to the Oregonian on "The Stump" and received top billing, next to Representatives Doc Hastings' and Peter DeFazio's salmon

plan piece (they reiterate the claim that the "best available science" was used).

Links, below:

- The WA-BC Chapter article is at:
oregonlive.com/opinion/index.ssf/2011/03/saving_columbia_river_salmon_g.html
- Reps. Hastings' and DeFazio's piece
oregonlive.com/opinion/index.ssf/2011/03/saving_columbia_river_salmon_t.html and a response to a recent letter from NOAA head Jane Lubchenco's Opinion piece (<http://bit.ly/gKRCMr>).
- Call for **nominations for WA-BC Chapter Excom** extended to April 15. Email Jim Shannon for more information jshannon@anchorqea.com. For more info visit: wabc-afs.org/2011/02/23/wa-bc-open-executive-committee-positions/
- Please friend us on facebook <https://facebook.com/wabcafs>
- And follow us on twitter <http://twitter.com/wabcafs>

Secretary -- Lisa Harlan,

I continue to take minutes at the Executive Committee teleconferences. I encourage all chapter members to check out the minutes on the WA-BC website found under the "About Us" tab; it is a great way to keep up with the activities of your Executive Committee. In November 2010 I helped staff the WA-BC booth at the Pacific Marine Expo along with Norma Jean Sands (see picture). The vast majority of attendees are associated with the commercial fishing community and very few people we talked with were aware of the American Fisheries Society. I am also on the Social Responsibility Committee for the 2011 AFS meeting in Seattle, which is looking to be the "greenest" show yet.



WA-BC Student Chapter Representative – Nicole Casper

Nicole attends Western Wash University where she studies "Feeding ecology of larval crabs" with her advisor, Steve Sulkin. She is the student rep for all AFS member students in WA-BC Chapter and would like to encourage college members to form student chapter at their campuses in BC and WA. This year student chapters were started at Western, re-activated at the UW (see below) and she is presently helping to form a chapter at the Northwest Indian College in Bellingham, WA.

Chapter Student Activities

Western Washington University's student subunit was born this past quarter!

Headed up by Nicole Casper, the AFS WA-BC Student Representative, over 30 students and several faculty have enthusiastically joined. The first kickoff event was a fundraiser for the Nooksack Salmon Enhancement Association (NSEA). Held at Chuckanut Brewery & Kitchen in Bellingham, it was an evening of fun fish trivia with an introduction by fisheries biologist Steve Seymour and NSEA Executive Director Rachel Vasak.

Over 60 people were cozily packed into Chuckanut's dining room and \$361 was raised for NSEA! It was also a great way to raise awareness of the new student chapter. More activities will be underway when spring quarter resumes.

If you are interested in getting an AFS student chapter started at your campus - please contact Nicole Casper at nicolejcasper@gmail.com.



University of Washington Chapter News

Greetings Friends of UW AFS!



We are off to a great start this year thanks to your support. We had almost 40 people attend our 2nd Annual UW AFS Trivia Night Fundraiser, including our Parent Chapter President Mark Pedersen!

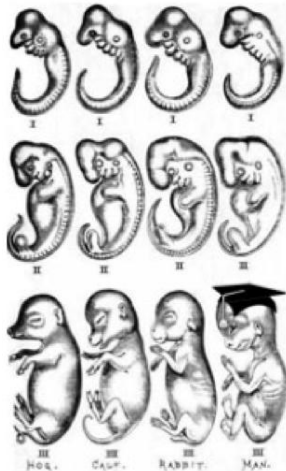
To see event pictures and the winning team please visit our newly updated website at <http://students.washington.edu/afsuw/news.html>. Thank you to everyone who attended, donated, and sponsored the event.

UW Student Chapter also has a [Facebook page](#)— “Now it's even easier to know what the student chapter is up to! "Like" us and show your support for the student chapter. In addition, you will get facebook notifications on our upcoming events, and be able to upload pictures, videos, links, or tell us that story about "the big one" that got away

February kicked off our new mentor program. The first event was social on February 15 from 5:30-7:00pm where interested mentors and mentees mixed and mingled. There will also a short panel discussion featuring some of our members. This event was organized by UW AFS member James Thorson and Lauren Kuehne and was sponsored by SAFS.

AFS UW will now be holding meetings on the 3rd Tuesday of every month, so mark your calendars! These meetings will include socials, hosted speakers, outreach events, and other activities that our members want to be involved in.

AFS UW is pleased to announce our new Career Development Seminar Series. We are bringing in several professionals from the fisheries field to tell us about their personal career development experiences.



Our first speaker is **Dr. Roy Stein**, Professor of Ecology, Evolution, and Organismal Biology at Ohio State University. He will give a presentation on **Stage Dependent Mentoring in Recognition of the Ontogenetic Development of Graduate Students** on Friday, April 8, at 3:30 pm.

At the AFS UW general meeting on April 19, **Dr. George Pess** from NOAA's Northwest Fisheries Science Center, will tell us about the evolution of his career from SAFS graduate student to fishery biologist at the NWFSC. Don't miss this great opportunity, mark your **calendar!**

To learn more about UW AFS or join our mailing list, visit our website at: <http://students.washington.edu/afsuw/news.html>. Please e-mail us with questions, comments, or concerns at afsuw@uw.edu Sincerely, Caroline Storer AFS UW President



Workshops and Follow-up Meetings

Understanding and Adapting to Climate Change in Aquatic Ecosystems at Landscape and River Basin Scales: A decision support workshop for integrating research and management

This was a workshop held from February 28/March 1, 2011 in Boise, Idaho and chaired by WA-BC Chapter member Dan Isaak. The workshop is over now, but there are many ongoing activities including web presentations and follow-up session. If you are interested, contact Dan at the addresses below.

Concern and uncertainty exist regarding the effects of climate change on aquatic ecosystems. Limited information has been available to guide management decisions but new analytical techniques and spatial data linked to downscaled climate projections could

help. These tools provide high-resolution information across broad areas, which may make it possible to consider management or restoration schemes under a range of climate scenarios. This workshop provided an opportunity for researchers and managers to begin exploring the utility of these tools.

Workshop objectives: Gather a diverse group of researchers and management professionals to focus on three objectives: 1) sharing current information regarding the effects of climate change on aquatic ecosystems, 2) presenting analysis tools that could assist managers in addressing climate change, and 3) discussing management implications of climate change, the utility of existing tools, and future information and analysis needs.

Science presentations from the climate-aquatics decision support workshop in Boise February 28 are available for viewing online from the workshop webpage (http://www.fs.fed.us/rm/boise/AWAE/workshops/climate_aquatics_decision_support.shtml)



Left: At the climate change workshop, one of the groups discusses prioritization choices for bull trout using spatial data and downscaled climate information. From left to right Caty Clifton (Umatilla NF - seated), Stephen Zylstra (USFWS - standing), unknown (middle), Charlie Luce (RMRS - standing), and Lisa Eby (University of Montana - seated).

More info, contact:

Dan Isaak (disaak@fs.fed.us) - Fisheries Research Scientist
Rocky Mountain Research Station; US Forest Service

Stream Temperature Webpage:

http://www.fs.fed.us/rm/boise/AWAE/projects/stream_temperature.shtml

Scientist Webpage:

<http://www.fs.fed.us/rm/boise/AWAE/scientists/profiles/AWAIsaak.shtml>

FIN -- FISH IN THE NEWS

FIN is an occasional article we publish on some controversial topic in fisheries science. Note that FIN articles do not represent the position or beliefs of AFS or the WA-BC Chapter, but are solely those of the author. **Any comments by members are welcomed and will be published in future newsletters. Please reply to editor <orlay.johnson@NOAA.gov>.**

Recently Dr. Fred Utter, University of Washington, was asked by the president of the American Institute of Fisheries Research Biologist to prepare a perspective on the pending approval for marketing genetically modified Atlantic salmon dubbed “Frankenfish” in some media releases. He wrote an article published in their newsletter BRIEFS. As this is a subject of interest to many of us in WA-BC chapter of AFS, we are reprinting it here with Fred’s and AIFRB’s permission.

What are Dr. Utter’s qualifications to write about genetic modification of fish?

Bio: Dr. Fred Utter (1931-) is a long time AFS member who has been honored many times by the national AFS and our WA-BC chapter for his work in genetics. He is known as the founding father of the field of fishery genetics. He helped found NOAA’s Northwest Fisheries Science Center fishery genetics laboratory in 1959 became head of the laboratory in 1969 and led the genetics group until his retirement from NOAA in 1988. Since then, he has remained active in the field of fisheries genetics as an adjunct professor at the University of Washington, as an editor of the *North American Journal of Fisheries Management*, and many other related activities. He was a pioneer in the development of genetic methods for the study of natural populations and a visionary in his early advocacy of the critical importance of genetic information for managing fish populations. When Dr. Utter began his career, these issues received little attention; today it is axiomatic that wise stewardship of living marine resources requires reliable information about stock structure and the various levels of biodiversity. This transformation in thinking about marine conservation can be attributed in no small part to the profound and long-lasting influence Dr. Utter has had on the field.

Frankenfish: A visioning exercise by Dr. Fred Utter

Recently I sent a favorable message about the content of current issues of BRIEFS to the editor and the AIFRB president. In turn, I am responding to their invitation to prepare a perspective on the pending approval for marketing genetically modified Atlantic salmon dubbed “Frankenfish” in some media releases.

I have a two-fold interest in this topic. As a consumer, I have found the quality and price of pen-reared fish to be attractive relative to their comparable wild-caught products. This opinion is far from a blanket endorsement (as explored below) but merely acknowledgement of a potentially valid contribution to the marketplace of a specific pen-reared salmon when produced under appropriate conditions. As a biologist, there are multiple issues (e.g., genetic, ecological, public health) that interrelate to complicate guidelines for producing the genetically modified (GM) Atlantic salmon in question. I outline my perception of some of these interactions to anticipate some possible outcomes.

The product. The present product of concern is the AquaAdvantage @ salmon, developed by AquaBounty Technologies and pending FDA approval for human consumption. Three steps for producing the GM fish are: (1) a Chinook salmon growth hormone gene modified for continual hormonal release has been inserted into an all female line of Atlantic salmon; (2) sperm from hormonally sex-reversed (and still genetically female) GM males fertilize normal Atlantic salmon eggs; (3) early embryonic pressure shock creates sterile triploid and all female progeny. The continued hormonal release of these sterile progeny accelerates their growth resulting in earlier marketability relative to non-GM fish.

A visioning exercise. In preparing this item, I came across the scholarly and detailed statements of the underlying issues that are cited below. These steered me away from presenting another (and less authoritative) technical statement towards an imagination exercise based on some common major issues outlined in these sources. The myriad possible consequences arising from the pending FDA approval for marketing the AquaAdvantage product defy simple speculation. The process is analogous to predicting my (or anyone's) future from time of conception through the present (a year away from 80) to my ultimate departure. Reflecting on the past and looking ahead, it just can't be done! However, outlining a range of extreme possibilities and following a course somewhere down the middle, though inevitably flawed, puts matters within the realm of feasibility.

So here goes, returning to the metaphor of a human lifetime to envision the AquaAdvantage salmon. The time frame in years is realistic given the conception of growth hormone technology in the late 20th century (see references below). With gestation, infancy and childhood already passed, we begin at adolescence. Assuming a favorable FDA ruling, the youthful product is destined for a prep school education through 2020 where product development might follow two extremes.

Optimally, a well-behaved development could proceed towards marketability being:

- Reared to market size in contained isolation in Panamanian highlands (as proposed),
- Close to 100% sterile triploids,
- Nutritionally and allergenic ally equivalent to non-GM Atlantic salmon,
- Subject to rigorous environmental impact studies and adaptive management,
- Grown on largely synthetic plant-protein feeds supplemented by commercial harvest of such nuisance species as silver (jumping) carp.

In a contrasting rebellious and unconstrained adolescence, marketable fish could be:

- Quickly expanded to temperate and escape-prone marine net-pen culture,
- Infested with higher proportions of fertile diploids,
- Posing elevated risks from ingestion relative to comparable non-GM fish,
- Subject to firm regulatory constraints only after crises emerge,
- Grown on fishmeal derived from over-harvested target marine species.

In a more-likely middle road, the now-mature AquAdvantage salmon production would be reared and marketed worldwide. The initial approval would facilitate multiple FDA licenses to the parent organization, and prompt other groups to develop, patent and gain marketing approval for similar Atlantic salmon and other salmonid products. The requirement for land-based containment would be relaxed, particularly in, for instance, Chilean facilities under less rigid regulation. However, there is no evidence from escaped fertile GM fish of colonization or hybridization with indigenous conspecifics. Reliance on marine fishmeal diets has substantially diminished through improved synthetic feeds.

By 2040 the middle-aged AquAdvantage salmon would be nearing retirement. Through its successful commercial career, it has been fully accepted by the public, and has supported its parent organization and mentored abundant offspring. Having undergone numerous environmental impact assessments, this GM salmon has established a standard for production and regulation of GM fish marketed for human consumption. GM fish have become an accepted and necessary commodity in a new generation of co-developed biology and technology that cannot be realistically imagined today.

Final thoughts

Like a flat stone being skipped along the surface of a pond, this thumb-nail overview only skims across the topic, inadequately addressing the area and depth of the complex and cross-relating issues concerning developing, rearing, marketing and releasing genetically modified fish. Nevertheless, the above vision was not derived in a vacuum. Based on considerable professional experience with population genetics and induced triploidy, it is intended to stimulate differing visions from other readers based on their own and inevitably unique experiences and perspectives. These alternative views, revisited like a time capsule 40 years down the road, could provide fascinating reading. I thank

colleagues Gary Thorgaard, Eric Hallerman, and Orlay Johnson for sharing their own insights, experiences and materials with me as these thoughts were being drafted.

References:

Hallerman, E.M. In press. Transgenic Fishes: Application, State of the Art, Risk, and Concerns. In: R.A. Meyers, ed. Encyclopedia of Sustainability Science and Technology. Springer, New Delhi.

Muir, W.M. 2004. The threats and benefits of GM fish. EMBO reports 5:654-659.

Snow, A.A., D.A. Andow, P. Gepts, E.M. Hallerman, A. Power, J.M. Tiedje, and L.L. Wolfenbarger. 2005. Genetically engineered organisms and the environment: Current status and recommendations.

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THE BOOK NOOK

A semi-regular review by one of our members of a book that would interest our membership. If you'd like to write a review of a book (or series of books) you think fits the bill. Please contact the Editor or any officer – we are always looking for submissions.

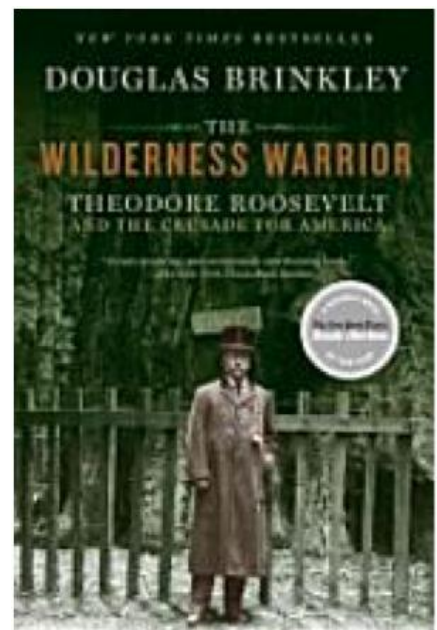
The Wilderness Warrior, Theodore Roosevelt and the Crusade for America

Author: Douglas Brinkley

Publisher: HarperCollins

Review by Orlay Johnson

Whether you have only thought of Teddy Roosevelt as a stuck-up and war-mongering aristocrat or as the first modern and progressive US President, this book should have something you like in it. It is well researched, detailed, and a fun read. The book focuses on Teddy's (Theodore, to his friends) preservationist side, addressing the questions of how, why, and when he went from a rich city kid, with little formal schooling, to perhaps most



effective conservationist in US history. For at least 100 years, he protected more of America's natural real estate than all other presidents combined. True the book does ignore most of his war mongering, but in other ways does not hesitate to show his weaknesses and class-blindness. However, above all else, it brings us a wealth of new information and insights, not only about TR, but also about America and our history of resource exploitation at the cost of human and environmental devastation.

And for fishery biologists one of the most interesting aspects (in many more ways than one) is that Teddy's uncle turned out to be one of the original fish conservationists in America.

Yes the book is dense and long (over 800 pages of text) and it is only the latest in a long line of biographies on this President. So a good question might be, is this really worth it? Yeah, it really is.

Why? To start, it is written by author, Douglas Brinkley, a historian at Rice University, who knows how to write readable best sellers about famous Americans and events: Rosa Parks, FDR, Gerald Ford, Katrina, and Ron Reagan to name a few. I have read several of these books, and I think this is perhaps his best. Plus, and this is not a minor point today, the paperback is only \$20.

Here are two items I liked about the book:

I have never understood the stoic Puritanism that runs so strongly through all of Roosevelt life, influencing most strongly his personal relationships, but also his politics. Because Brinkley gives us a wealth of background on TR's upbringing (including backgrounds on childhood books and their main characters), and family relationships, including info on a favorite uncle, Robert B. Roosevelt, I think this mystery is partly solved. I will let you investigate this on your own in the book, but will say that while Uncle Bob is considered one of the fathers of fish conservation in America, and was one of the leaders in bringing down "Boss Tweed", he was also many other things. So much so that the Roosevelt family blacklisted him and hid his papers and diaries for almost 100 years – probably at the instigation of TR's beloved father. Not only were there Irish involved (a scandal to a Knickerbocker all by itself), but territorial markings, which give a whole new meaning to the term "going green".

The second item is Brinkley's portrayal of Roosevelt's childhood education. As marine educators, this book emphasizes the extreme importance of allowing kids to discover nature and wildlife at an early age. If TR had not been given the opportunity to explore the wild world, the landscape of American would be vastly different.



Theodore Roosevelt, age 11 *Roosevelt, circa 1902*

Theodore Roosevelt's education was not like other Americans. Because of his parents' wealth and his bouts with asthma, he never went to a formal school until Harvard, instead had tutors at home and during the many trips his father took the family on for "educational" purpose (Egypt, Palestine, Great Britain, and Germany to name a few). Consequently, Roosevelt had a completely different learning profile than others, and what he learned in particular was biology, natural history and hunting. But not just any natural history – at a very early age he developed a knowledge (and a museum) that was the equivalent of any professional. As an example, Charles Darwin had recently published "The Origin of Species" and Roosevelt carried the book with him at all times reading it obsessively. By an early age he was as knowledgeable of the recent scientific advances of his day and as skilled an ornithologist and mammalogist as any professional biologist.

As an aside -- it is also probably worthwhile to note that he planned to be a professional biologist right up until the time he took his first classes in biology at Harvard. Academically he did well in his science classes, but all lacked fieldwork and were mainly memorization, so eventually he switched to the more exciting field political science. A potentially brilliant scientist lost to the dark side once again.

Consequently, TR was not the usual politician who only uses an outdoorsy cowboy/brush cutting image simply to get elected (although he certainly used that image every chance he got), but rather, he was a highly trained naturalist whose love of nature and wildlife runs through every political and personal decision in his life. His beliefs and actions regarding conservation and preservation were not superficial; they were the core of his being. He did not want to preserve animals and birds just so he could shoot more of them

– he truly cared about nature and wildlife and worked to preserve America’s natural legacy for all future generations. You might say he was truly out of step with his times, but by the force of his personality, he convinced others to join his own march.

This is all my personal interpretation gleaned from the text, but we should not exclude his actual conservation achievement, way too numerous to list here. Instead just a summary, but an impressive one:

- He doubled the number of National Parks during his terms in office (from 5 to 10)
- He created 150 national forests, 51 Federal Bird Reserves, 4 National Game Preserves, 18 National Monuments, and 24 Reclamation Projects.
- He passed the Antiquities Act of 1906 that allowed the federal government to protect as national monuments history or prehistoric structures, landmarks, and other objects of historic or scientific interest.
- He enacted legislation that protected much of the Grand Canyon as a Monument and National Game Preserve, leading to its National Park status in 1919.

During his term, more than 230 million acres of land was conserved – more than by all future presidents combined.

I recommend the book. Yes, it is a long historical narrative, but I found it inspiring, full of fascinating information, and vastly fun to read. Oh that we had such politicians today.