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# American Institute of Fishery Research Biologists

Promoting excellence in fishery science

## ... BRIEFS ...

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The AIFRB is a 501(c)(3) tax-exempt nonprofit organization (EIN 61-6050711).

## President's Message

The AIFRB Board meeting in Little Rock had some of the most dynamic discussions and actions by our leaders that I've participated in. Our deliberations focused on some major challenges, like increasing membership and revival of some districts, as well as several exciting new developments. We were lucky to have two dedicated members to accept nominations for president-elect, and I was happy to announce Tom Keegan as our next president. After many years of Doug Vaughn's coordination of our activities with the American Fisheries Society, Sean Lucy is taking the AIFRB/AFS liaison position



2013 Board participants (from left) Cate O'Keefe, Tom Ihde, Traci Larinto, Tom Keegan, Kathy Dickson, Sean Lucey, Allen Shimada, Jeff Schaeffer, Steve Cadrin and Dick Beamish with the Arkansas River in the background.

in new and productive directions, continuing our series of symposia and expanding on our joint activities. Cate O'Keefe joined the Board as the young professionals representative and injected many creative ideas on how to "youthenize" our Institute. Sarah Fox was welcomed as the executive editor of *Briefs*, and her enthusiasm for invigorating the newsletter as well as her collaborations with Tom Ihde on making the website more current and active had contagious effects on the rest of the board. Several factors conspired to limit the number of district directors who could attend, but we were fortunate to have Traci Larinto describe the activities of the Southern California District that serve as an example for others. These people and others like Kathy Dickson (secretary), Allen Shimada (treasurer), Jeff Schaeffer (Great Lakes), and Dick Beamish (past president) traveled far, and devoted their weekend to the maintenance and advancement of our Institute. Their commitment to the board meeting reflects their devotion throughout the year, which will be needed to implement the many action items developed by the board. I am overwhelmed with gratitude to the board for their time and efforts.

*Steve Cadrin - President of AIFRB*

### COME JOIN OUR LinkedIn GROUP

and get the conversation started with other AIFRB - American Institute of Fishery Research Biologists on LinkedIn

[www.linkedin.com/groups/AIFRB-American-Institute-Fishery-Research-6513517?gid=6513517&goback=%2Emid\\_I740619895\\*416\\_\\*1\\_\\*1\\_\\*1%2Egmp\\_6513517&trk=NUS\\_UNIU-ngroup](http://www.linkedin.com/groups/AIFRB-American-Institute-Fishery-Research-6513517?gid=6513517&goback=%2Emid_I740619895*416_*1_*1_*1%2Egmp_6513517&trk=NUS_UNIU-ngroup)

## *For Our Young Professionals*

# Don't Forget

Please remember to take advantage of your free benefits!

- Submit a draft of a paper and one of our senior scientists will give it a pre-review. After that, you can submit the manuscript elsewhere knowing it's considered a strong, publishable scientific paper.
- Need some work experience? We'll back you and give you mentoring services.
- Need to travel? We have more grants and awards than you can shake a fishing pole at!

Where to start? Contact Cate O'Keefe [cokeefe@umassd.edu](mailto:cokeefe@umassd.edu). As your young professional representative, she's eager to help.

## Take Our Survey

[www.surveymonkey.com/s/aifrbyoungprofessionals](http://www.surveymonkey.com/s/aifrbyoungprofessionals)

## Young Professionals Perspectives

Cate O'Keefe, 2013/2014 AIFRB Young Professional's Representative  
[cokeefe@umassd.edu](mailto:cokeefe@umassd.edu)

Little Rock, AR isn't situated on a coastal harbor or a salt marsh, doesn't have fish processing plants or ocean-going trawlers docked nearby. So, why did I, a marine fisheries scientist, find Little Rock so rewarding for my career? I was selected as the AIFRB Young Professional's Representative at the Annual Board of Control Meeting held in conjunction with the Annual Meeting of the American Fisheries Society. By attending the AIFRB Board meeting and working at the AIFRB booth during the tradeshow, I had the opportunity to meet and mingle with world-renowned scientists, as well as introduce myself to students and young professionals researching fisheries from around the country.

The organization, incorporated in 1956, includes many distinguished scientists from North America and has evolved to recognize the important contributions young scientists can make. AIFRB encourages good science in the early stages of careers and wants to expand student and young professional membership. There are several services and opportunities that AIFRB currently offers to assist students and young professionals, including travel awards to attend conferences and meetings internationally, a mentor program that arranges work experiences throughout North America, free pre-submission of manuscripts for review by senior scientists, and the opportunity to meet and network with professionals in the fisheries field. Additionally, membership in AIFRB offers a chance to be involved in the community aspect of fisheries research, and gives young professionals a broader perspective of science, conservation and management of fisheries.

My goals as the 2013/2014 Young Professional's Representative are to expand the social media presence of AIFRB, encourage involvement of students and young scientists at the regional level within their districts, and communicate AIFRB-supported opportunities available to early-career scientists. In order to achieve these goals and continue AIFRB's commitment to increase membership, I need to hear from you! Please take a few minutes to fill out the Young Professional's Survey and contact me with your ideas. Becoming an active AIFRB member in your early-career stage opens doors to interesting, fun and unique experiences, and can help you develop a distinguished scientific career of your own!

## NEWS

### 'Lobster Wars' six-clawed specimen comes to Boothbay



Maine State Aquarium Manager Aimee Hayden-Roderiques reported September 3 that this four-pound lobster, with its "five-claw" crusher claw, is on its way to the aquarium. She said it is being shipped to West Boothbay Harbor from Hyannis, Mass., this week, courtesy of Richard Figueiredo and Captain Peter Brown of the *F/V Rachel Leah*, one of TV's "Lobster Wars" vessels.

[m.boothbayregister.com/article/'lobster-wars'-six-clawed-specimen-comes-boothbay/19993](http://m.boothbayregister.com/article/'lobster-wars'-six-clawed-specimen-comes-boothbay/19993)

## District News Northern California District



Investigation of the Impacts of Common Endocrine Disrupting Compounds on Multiple Early Life Stages of Endangered Atlantic Salmon and Shorenose Sturgeon and Threatened Atlantic Sturgeon

[www.kierassociates.net/Impacts%20of%20Common%20EDCs%20on%20early-age%20Atlantic%20salmon%20and%20sturgeon\\_Kier%20Associates\\_2013.pdf](http://www.kierassociates.net/Impacts%20of%20Common%20EDCs%20on%20early-age%20Atlantic%20salmon%20and%20sturgeon_Kier%20Associates_2013.pdf)

Publication sent in by AIFRB member, project administrator and co-author: BILL KIER

*American Institute of Fishery Research Biologists*  
**2014 MEMBERSHIP YEAR DUES NOTICE**  
(1 SEPTEMBER 2013 - 31 AUGUST 2014)

**Dear Colleagues:** Please return with annual dues and confirm email contact information. Annual dues are indicated on mail panel of envelope above your name & address, it reads your *Member Status*, the number is *Years owed*. Thank you.

Professional Associate (A) /Member (M) /Fellow (F) . . . . . \$40.  
Student Associate (S) . . . . . \$20.  
Emeritus Member (EM)/Fellow (EF) . . . . . No Dues.

I wish to make a tax-deductible donation. . . . . \$\_\_\_\_\_

E-mail Contact Information: \_\_\_\_\_

Check here to receive hard copies of *Briefs* by mail. (If left unchecked, and to reduce AIFRB expenses, you will receive *Briefs* only electronically if you email address is on file.)

*Please remit in U.S. Funds and payable to AIFRB. For credit card payment visit [www.aifrb.org](http://www.aifrb.org)*

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## Awards

**The AIFRB Outstanding Achievement Award** was presented to Mike Sinclair at the ICES/NAFO Gadoid Fisheries Symposium on October 15 in St. Andrews New Brunswick



Among Mike's many accomplishments, he was the President of the International Council for the Exploration of the Sea, the Director of the Bedford Institute of Oceanography, the Regional Director of Science for the Canadian Maritimes Region of the Department of Fisheries and Oceans, including management of the St Andrews Biological Station. Mike's 1988 book on Marine Populations is a good example of his approach to fisheries science, because it is truly interdisciplinary and applies an ecosystem approach to the topic. The book inspired advancements in early life history dynamics, stock identification and exploring the history of ideas in marine science. Mike joins an impressive list of previous award recipients that includes many of the greatest scientists in our profession.

More information on the symposium is at [www.gadoid-symposium.info](http://www.gadoid-symposium.info)

**The W.F. Thompson award for Best Student Paper** was presented to Nico Gutierrez at the International Council for the Exploration of the Sea conference in Reykjavik, Iceland.



Nico's award reflects excellence in his recent paper on 'Leadership, Social Capital and Incentives Promote Successful Fisheries' published in *Nature* (470:386-389). This year's award was for the best paper published in 2011, was nominated by Dr. Ray Hilborn at the University of Washington, and was one of 15 student papers evaluated by the committee. The W.F. Thompson Award consists of a certificate, \$1,000 check and a one-year membership in AIFRB at the appropriate level.

Nico now works for the Marine Stewardship Council in London, so the ICES conference was a suitable occasion to present the award. AIFRB and ICES were co-sponsors of the recent World Conference on Stock Assessment Methods for Sustainable Fisheries (Boston MA, July 2013). Coincidentally, in my closing address at the conference in Boston, I referred to a conversation that I had with Nico about reaching out to developing nations with our expertise and resources in stock assessment. Nico's accomplishment and recognition offer an example of how AIFRB focuses on American fisheries research and has global impacts. The award was presented by the Anna Christine Brusendorf, the ICES General Secretary. *Thanks to the selection committee and people at ICES for their efforts.*

*Author: Gary A. Nelson, Ph.D, Massachusetts Division of Marine Fisheries, [gary.nelson@state.ma.us](mailto:gary.nelson@state.ma.us)*



# Setting the Mood for White Abalone Recovery

Dr. Kristin Aquilino. UC Davis, Bodega Marine Laboratory; Email: kmaquilino@ucdavis.edu

Historically, an estimated 300,000 white abalone (*Haliotis sorenseni*) ranged from Point Conception to Baja California. However, severe over-fishing led to the species being the first marine invertebrate listed as endangered under the Endangered Species Act. Models suggest that the population will shrink to fewer than 1,000 individuals in the next 10-15 years in the absence of recovery efforts.

Already, most of the remaining wild white abalone are too far apart from one another to reproduce successfully. Captive breeding and outplanting were identified as critical to the recovery of this species. Over the past two years, University of California, Davis's Bodega Marine Laboratory (BML) and our partner institutions have celebrated the first instances of successful captive white abalone reproduction in nearly a decade. While these new progeny will contribute to the captive broodstock, greater reproductive output in captivity is required before outplanting in the wild is feasible. As we look ahead, we consider strategies for increasing captive reproduction and for successfully placing captive-bred white abalone back into their native habitat.

A key challenge in breeding white abalone in captivity is encouraging them to become reproductive. The natural breeding season for white abalone is in the late winter and early spring, but it is possible that in captivity they are missing an important environmental cue that stimulates gametogenesis. Currently, many of our adult abalone broodstock are not producing ripe gonads. When we induce spawning using a hydrogen peroxide bath, broodstock often release very few gametes and those that are released are often immature. At BML, we are manipulating conditions in the lab that might help "set the mood" for our broodstock to become more reproductive. An astronomic clock controls the lighting system for our broodstock, which turns on and off at the same time the sun rises and sets in the white abalones' native range. We also control seawater temperature and we feed the broodstock giant kelp (*Macrocystis pyrifera*) and dulse (*Palmaria mollis*), a proteinaceous red alga. With these improved conditions, we are hoping that we can increase the reproductive capacity of captive broodstock during their typical spring spawning season, and maybe even trick them into becoming reproductive at other times during the year.

Collaboration among partner institutions holding white abalone broodstock has been critical to recent captive breeding success. In addition to BML, white abalone are held at UC

Santa Barbara, Ty Warner Sea Center, Aquarium of the Pacific, and Cabrillo Marine Aquarium. Because of the proximity of some partner institutions, it is possible to transport sperm between facilities, and coordinating attempts improves the likelihood of getting both males and females to spawn by increasing the number of animals participating in an attempt. Because broodstock held at nearby partner institutions have different parentage, an additional benefit of coordinated spawning attempts has been the possibility of increasing the genetic diversity of progeny.

While focusing on reproductive conditioning techniques might increase the success of spawning attempts, we are also investigating ways to increase survival of white abalone

progeny, particularly during the few months after settlement. Abalone generally experience high natural mortality just after settling, and losses of 95% or more are common. It is possible that slight changes in diet or other conditions following settlement might help increase survival during this very sensitive stage.

Though mortality of white abalone is highest during the first few developmental stages, maintaining white

abalone health through adulthood is critical for breeding success. A fatal disease called withering syndrome threatens both wild and captive abalone. Generated by a bacterium that infects the gut tissues of abalone, it can cause their muscular foot to shrink and lose its ability to hold onto the substrate. Using PCR techniques, we regularly test all captive white abalone for the bacterium that causes withering syndrome, and we treat animals in an antibiotic bath if it is ever detected. We also make sure white abalone broodstock are free of shell-boring organisms like sponges, worms, and clams, which can make shells brittle and deformed, and create avenues for infection. We regularly apply a wax coating over the abalones' shells to suffocate any organisms present.

Already, captive breeding successes over the past two years have added over one hundred animals to the captive population, tripling the total number of white abalone in captivity. Because juvenile white abalone become reproductive as early as one year old in captivity, these animals will soon contribute to the captive broodstock. As we look forward to having enough juveniles to begin outplanting them, we have begun to prepare for outplanting efforts by deploying sets of habitats for easing captive-bred white abalone in the wild. These Baby Abalone Recruitment Traps will reduce predation



# Rebuilding Snake River Sockeye Salmon Population

*Article by Dan Baker (guest blogger for Jesse Trushenski)  
Eagle Fish Hatchery Manager Idaho Department of Fish and Game*

On April 2, 1990, the National Oceanic and Atmospheric Administration Fisheries Service (NOAA) received a petition from the Shoshone-Bannock Tribes (SBT) to list Snake River sockeye salmon as endangered under the United States Endangered Species Act (ESA) of 1973. On November 20, 1991, NOAA declared Snake River sockeye salmon endangered.

In the spring of 1991, the Idaho Department of Fish and Game (IDFG) along with the SBT initiated the Snake River Sockeye Salmon Captive Broodstock Program with funding from Bonneville Power Administration (BPA). The goal of this program was to conserve the population's genetic diversity and to rebuild Snake River sockeye salmon populations in Idaho.

Initial steps to recover the species focused on the establishment of captive broodstocks at the Eagle Fish Hatchery (Eagle FH) in Idaho and a safety net program at NOAA Fisheries facilities in Washington State. The initial broodstock was developed from three sources: 1) anadromous sockeye adults returning to Redfish Lake from 1991 through 1998 (16 total); 2) smolts emigrating from Redfish Lake from 1991 through 1993 (886 smolts collected); and 3) residual adult sockeye collected in Redfish Lake (26 total). From this limited genetic background, pedigrees and spawning matrices were initially developed to minimize the chance of inbreeding. More recently, microsatellite analyses are used to build spawning matrices based on individual relatedness. Genetic conservation efforts to date have been effective in maintaining an estimated 95% of the original genetic diversity of the population during the first 15 years of the program (Kalinowski et al. 2012).

## **Where Are We Now**

The Snake River sockeye salmon captive broodstock programs at IDFG's Eagle FH and NOAA Fisheries' Manchester Facility continue to maintain sockeye broodstocks providing progeny for reintroduction strategies. The program adopted a spread-the-risk release strategy; releasing eyed-eggs, pre-smolts, smolts and full term adults back to native habitat. These release strategies have been evaluated over the years to determine the most beneficial use of progeny produced from the captive broodstock operations. Smolt releases have shown to be the most effective release strategy numerically, although full term adults released to Redfish Lake have shown some of the highest smolt to adult return survival rates. Anadromous returns have increased over the last five years due to an expansion of the number of full term smolts released. From 1998 through 2004, 144,164 smolts were released resulting in 214 anadromous sockeye adults returning. From 2005 through 2011 959,834 smolts have been released resulting in 3,367 anadromous sockeye adults returning to the Stanley Basin.

## **What Is To Come**

The Snake River sockeye salmon captive broodstock program is currently expanding to meet production goals outlined in Phase Two of a three phased recovery approach identified by IDFG to help meet recovery objectives. Springfield Fish Hatchery was dedicated on September 6, 2013. This facility, operated by IDFG and funded by BPA, will be capable of rearing up to 1,000,000 sockeye smolts annually for release in the Stanley Basin. Anadromous returning sockeye are expected to increase to numbers not seen since the 1950's. As return goals are achieved, the sockeye captive broodstock programs at NOAA and IDFG will be phased out and the program will be operated as an integrated anadromous broodstock hatchery, spawning returning anadromous adults to meet egg production goals. Anadromous adults not required for hatchery spawning will be released to Stanley Basin lakes, rebuilding the natural population of Snake River sockeye salmon. The Snake River sockeye salmon program has come a long way from the 16 wild anadromous sockeye that returned during the 1990's, to the few hundred returning now... historically an estimated 25,000 to 40,000 Snake River sockeye salmon returned to the Stanley Basin each year.

[www.aifrb.org/2013/09/using-captive-broodstock-technology-to-rebuild-the-snake-river-sockeye-salmon-population](http://www.aifrb.org/2013/09/using-captive-broodstock-technology-to-rebuild-the-snake-river-sockeye-salmon-population)



*Snake River sockeye salmon captive broodstock at IDFG's Eagle Fish Hatchery.*



*In 2010, anadromous sockeye salmon trapped at Redfish Lake Creek were passed above the weir and allowed to complete their journey to Redfish Lake for the first time since the program started in 1991.*



*Anadromous Snake River sockeye salmon outplanted to Redfish Lake.*

# Step Aboard One of America's Most Advanced Ocean Research Vessels

By Joe Hanson / Wired Magazine

Wired Magazine is cool. NOAA's newest research vessel, the Bell Shimada is even cooler. And Allen Shimada, the son of the man for whom the vessel was named - Bell - is an active member of AIFRB and stands on the governing board. Thus, we thought it was high time we introduced those few who didn't know about the connection!

Bell M. Shimada (Fellow 1958) - the father of AIFRB member Allen Shimada - had a distinguished fisheries biologist career, making a lasting contribution in the early study of Pacific tuna stocks — so distinguished, in fact, that the National Oceanic and Atmospheric Administration (NOAA) commissioned their latest research vessel in his name in late 2010. The Bell M. Shimada is a 208-foot, state-of-the-art research vessel studies a wide range of marine life and ocean conditions along the West Coast. The ship operates primarily in U.S. waters from Washington state to Southern California.

Shimada died in a 1958 plane crash at the age of 36 during a research trip prior to taking a new job as the director of a new Bureau of Fisheries' Eastern Pacific Tuna Investigations. He left behind his wife Rae and young children Julie and Allen, a current NOAA fisheries biologist. A native of Seattle, Shimada entered the University of Washington's School of Fisheries in 1939. During World War II, he served in the Military Intelligence Service in Guam and at the U.S. Army headquarters in Tokyo. After the War, he received his bachelor's, master's, and doctorate degrees from the University of Washington. In 1956 when Shimada began work for the Bureau of Fisheries to the

Inter-American Tropical Tuna Commission, which was co-housed with the Scripps Institute of Oceanography, he earned a reputation as an expert on the habits of Pacific tuna.

Bell had also accepted an invitation from W.F.Thompson

to join AIFRB just before he left on his last trip (back when membership was offered based on the recommendation of five other AIFRB members!). According to Allen Shimada, the ship's commissioning was a high honor not only for Shimada, but also for Rae, who was Oscar Elton Sette's secretary at the Bureau of Commercial Fisheries Honolulu Laboratory. "However, I think [his] story is only one of the many young Japanese Americans who volunteered out of the camps for the military or government service and who rightly belong to 'The Greatest Generation'," said Allen Shimada. Bell and his fellow Nisei Veterans, including Dr. William Yasutake (Emeritus Fellow 1997) were awarded the 147th Congressional Gold Medal at the U.S. Capitol on November 2, 2011.

To learn more visit [www.nationalveteransnetwork.com/awardceremony.shtml](http://www.nationalveteransnetwork.com/awardceremony.shtml).

The ship was named by a team of freshman students from Marina High School in Monterey, Calif. that won a regional NOAA contest to name the vessel.

To read the complete article, pick up the hard copy of Wired, October 2013, and flip to page 109. Or head to our website: [www.aifrb.org/2013/10/step-aboard-one-of-americas-most-advanced-ocean-research-vessels](http://www.aifrb.org/2013/10/step-aboard-one-of-americas-most-advanced-ocean-research-vessels)



*The ship's namesake Bell M. Shimada, pictured here 1952, was passionate about his work.*



*NOAA Ship Bell M. Shimada (R-227) next to NOAA sister ship Pisces in the Gulf of Mexico.*



# Spotlight on AIFRB Member: Gary Nelson

Gary Nelson, an AIFRB Member, is interviewed about black spot disease by Martha's Vineyard Times.

## *Gone Fishin': Call Me Squeamish, But I Don't Eat Worms*

Early last week, I caught a fat striped bass. The fish was not particularly large, probably about 15 pounds but a nice size for the table. I paid no attention to what appeared to be a slight red sore on its side, figuring it was probably due to the fight. My practice when I plan to keep a bass is to cut the fish in the gills immediately to bleed it, both to end its struggle and preserve the quality of the meat. I trim off the dark red meat, which I think adds little to the flavor.

When I looked at the fillets I saw several dark spots in the otherwise white flesh. It was not an appetizing sight. A closer examination revealed small capsules or cysts. To paraphrase my daughter — gross.

I put the fish in the refrigerator and went to that source of all knowledge and opinion, Google search. For a second view, I also contacted the folks at the Mass Division of Marine Fisheries (DMF).

DMF striped bass biologist Gary Nelson told me that the department's resident parasitologist thought the fish was infected with black spot disease "which is a life stage of a trematode worm known as fluke."

He added, "The larvae create cysts under the skin and in the flesh. The fish is edible in that condition, just cook it as you normally would."

Do what? I emailed back and told him it did not sound very appetizing. I asked if he had any sense of how widespread it was, since this was the first time over many years I had ever spotted any black spots in any bass I had kept.

"I don't have any statistics, but I see it occasionally in striped bass and other fish," Gary said. "It is one of the most common diseases. Luckily, it usually isn't lethal."

Did you catch the "usually isn't" part of that answer? I imagined myself on the cusp of being the first human to contract mad striped bass disease.

A Google search for dark spots in striped bass brought up several references. The Maryland Department of Natural Resources website posted a question from a fisherman, Paul

Puher, about rockfish, their name for striped bass. It was very similar to my experience.

"I recently caught a rockfish that looked very healthy," Paul said. "I filleted it and saw these black spots deep in the meat. I cut through it, and it appeared to be a dead something. Can you please tell me what these things are; should the fish be thrown out, is this normal?"

Maryland fish health biologist Mark Matsche responded.

The black spots are the larval form of a parasitic worm known as digenean trematodes. This infection is often called "black spot disease", and in some fish, particularly small

individuals, the worms may be visible through the skin. There are many different species of digenea worms, and most are white or yellow in color. The black appearance of the worms is a result of pigments that may accumulate around the parasites as part of the fish's immune response. This black pigmentation of the worms doesn't always occur, and the spots may appear white or yellow ("white spot" or "yellow spot"



disease). Most species of fish may be susceptible to digenean infections. Digenean worms have a fairly complex life cycle, which involves aquatic snails or other invertebrates as the initial host; fish as an intermediate host; and mammals, birds, or other fish as the final host; the intermediate form of the worm penetrates and burrows into the flesh of fish.

Most digenean parasites are not dangerous to humans. When few in number, black spots can be trimmed from the fillets, and thorough cooking will kill any remaining worms.

My wife and I considered what to do, fish cakes perhaps. There did not seem to be enough beer in the fridge to wash down fish cakes with cooked trematode worms.

I imagined the farm to table folks could sell it if they charged enough and added Vineyard in front of worms on the menu, but it was not for us. I was not reassured by the notion that all I had to do was cook the bass. I used the fish for crab bait.

[www.aifrb.org/2013/10/spotlight-on-aifrb-member-gary-nelson](http://www.aifrb.org/2013/10/spotlight-on-aifrb-member-gary-nelson)



## Founding Father John B. Glude

John B. Glude was born on August 2, 1918, in Silverdale, Washington. He received a B.S. degree in Fisheries in 1939 from the University of Washington and an M.P.A. degree in 1969 from the same institution.

He worked as a shellfish biologist for the Washington Department of Fisheries (WDF) from 1940 to 1941. During World War II, from 1941 to 1945, he was employed as an associate naval architect draftsman at Todd Pacific Shipyards in Tacoma, Washington. After the war, he returned to the WDF, where he was involved in research on the effects of pulp mill pollution on oysters and the importation of Japanese seed oysters to Washington.

In 1948, he moved to the U.S. Fish and Wildlife Service (FWS) laboratory at the Woods Hole Oceanographic Institution in Woods Hole, Massachusetts, where he was involved in research on the abundance and survival of softshell clams along the

entire east coast of the United States. That project was moved to a former fish hatchery in Boothbay Harbor, Maine, in 1948. Soon thereafter, he became Director of the Boothbay Harbor Laboratory, where he instituted further research on artificial propagation of clams and other species.

He later became Director of the FWS laboratory in Annapolis, Maryland, where he worked on methods for farming shellfish, with an emphasis on oysters. He then moved to the U.S. National Marine Fisheries Service (NMFS) headquarters in Washington, D.C., where he was responsible for shellfish research covering seven regional laboratories and development of the first U.S. National Aquaculture Plan. Later, in 1970, he became Assistant Regional Director of the Northwest Region of the NMFS in Seattle, Washington. After retirement, he started Glude Aquaculture Consultants, and was active in the U.S. and overseas, often consulting on behalf of the United Nations Food and Agriculture Organization. Over the course of his career, he published more than 100 scientific papers on clam and oyster culture.

He served for two years, in 1964 and 1965, as President of the National Shellfisheries Association, and also periods as Vice-President and President of the World Aquaculture Society, the latter in 1978-1979. He was a member of the American Fisheries Society and the Ecological Society of America, and he was a Founding Fellow of the American Institute of Fishery Research Biologists.

Throughout his life, he was an avid sportsman, enjoying fly fishing, hunting, and kayaking. He took up wind surfing at the age of 65!

Mr. Glude died in Annapolis, Maryland, on October 19, 2004, at the age of 86. John was influential and well-respected worldwide for his work on clam and oyster culture, and for his efforts on behalf of the World Aquaculture Society and the National Shellfisheries Association. He is missed by his many friends and colleagues from around the world.

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## Kabata: Evolution of a Scientist

**A fascinating video series, produced by Dick Beamish!**

Meet Dr. Bob Kabata, Polish resistance fighter, British deckhand and Canadian scientist, who showed how parasites could be used to track fish populations, and who challenges the next generation to study the ocean as one huge interacting ecosystem. (Just one in a series of videos produced by Richard Beamish, AIFRB)

[www.aifrb.org/2013/10/kabata-evolution-of-a-scientist](http://www.aifrb.org/2013/10/kabata-evolution-of-a-scientist)

*continued from page 4*

### *Setting the Mood for White Abalone Recovery*

pressure on stocked juvenile white abalone and allow them to acclimate to ocean conditions before they migrate to the natural reef. These traps are already in place at three protected locations in the white abalone's native range.

As the white abalone remaining in the wild population continue to age, captive breeding and outplanting are critical for saving the species from extinction. The captive breeding successes we have experienced over the past two years, provides a strong ray of hope for this species.

The white abalone project at BML is led by Dr. Gary Cherr, the permit holder for white abalone and an expert in reproductive biology. Dr. Jim Moore of the UC Davis Wildlife Health Center and the California Department of Fish and Wildlife (CDFW) is an expert in shellfish health. He monitors and helps maintain the health of captive white abalone at BML and our partner institutions. Dr. Laura Rogers-Bennett of the UC Davis Wildlife Health Center and CDFW is an expert in abalone ecology. She helps lead efforts to better understand larval ecology and to prepare for planting captive-bred white abalone into the wild. Dr. Melissa Neuman is the white abalone recovery program coordinator at NOAA, National Marine Fisheries Service, West Coast Region.



# We Say Thank You and Bid Adieu, Sammy Ray

*“Find what you love to do and you’ll never work another day in your life.” Sammy Ray*

**Dr. Sammy Ray, World-Renowned Texas A&M-Galveston Professor, Dies At Age 94**

Dr. Sammy Ray, a world-renowned marine biologist and one of the founders of Texas A&M University at Galveston, has died at age 94. He joined the faculty in 1957 and became an internationally acclaimed scientist for his research in the field of oysters — research that authorities in the field agree had a profound and positive effect on the vital Gulf Coast industry — economically and otherwise. He formally retired in 1990, but continued to conduct research — either in his laboratory on campus or aboard a vessel that bears his name.

Please read his full obituary here: [www.tamug.edu/News/2013articles/SammyRayDeath.html](http://www.tamug.edu/News/2013articles/SammyRayDeath.html)

“Sammy Ray meant so much to so many people. I not only lost my mentor but also a best friend and father figure. It

was typical for him to wear khakis and work with a cup of coffee nearby and talk radio going (note photo sent by the head of the Outreach Program). He was in that lab seven days a week all the way up to the time of the stroke. He was ever remarkable for being 94 years old. The family is establishing a Dr. Sammy Ray Scholarship fund at TAMUG for Marine Science scholarships - for those who want to make a contribution of some kind, the family asks that they consider this as a vehicle.” *Judy Wern Kiester*

“The sad news that Dr. Sammy Ray had died reached me this afternoon. He was 94 years old, a long run for anyone. And yet my hand flew to my mouth and I gasped in surprise. I guess I just expected him to always be there. Listening to him speak was like being in a library, flipping through books. He was legendary on the Texas A&M at Galveston campus. Every time I saw him speak, he received standing ovations from the audience: conferences, meetings, lecture halls. He was brilliant, yes. But what set him apart was that he was *approachable*. No ivory tower syndrome there. He loved students and always found time to talk to them - to really talk to them, not just lecture. He so enjoyed his work every day that he never really retired, it was in his blood and his very being. It was who he was. He left a legacy that our oldest son was introduced to this summer. Sammy Ray started Sea Camp, it was his baby and he nurtured it and helped it grow into what it is today.” *Kate Ryan Williams – writer for Huffington Post, mother of one of the Sea Campers, and wife of a former TAMUG student who she refers to as Aquaman.*

For the full Memoriam: <http://kateryanwilliams.blogspot.com/2013/10/the-influence-of-good-man-dr-sammy-ray.html#.UmLBfJTXQki>



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## Keep An Eye Out

**AIFRB will present FISHOSPHY, a blog by Steve Cadrin, John Everett, Ray Hilborn, Bonnie McCay, Brian Rothschild, Nils E. Stolpe, James Sulikowski, Vidar Weststad**

A column in the New York Times on October 2, “Deep-Sea Plunder and Ruin”, focused on pressuring the European Parliament’s Fisheries Committee to “*phase out the use of deep-sea-bottom trawls and other destructive fishing gear in the Northeast Atlantic.*” It ends “*there is no doubt on the part of the more than 300 scientists worldwide who signed a declaration that this form of fishing should be eliminated from the deep sea. Whatever their reasons, Europe’s fishing corporations and their parliamentary allies — the “merchants of doubt” — are making one last stand even in the face of scientific consensus (sic). But this time the doubters may have run out of viable arguments.*”

Building on the fiction that fishermen are raping and pillaging the oceans, it categorizes deep sea bottom trawls and unspecified other types, as “destructive fishing gear,” implying that a worldwide scientific consensus supports a ban on this form of fishing.

A few hundred scientists signing a declaration isn’t a worldwide scientific consensus.

Some deep sea areas will produce more fish or shellfish thanks to trawling. Conversely, some areas should be protected. There are existing technologies to minimize the negative impacts and more are under development. What’s missing is an informed public dialogue focused on determining how much modification of the ocean environment we should accept for what level of increased protein production (consider how we’ve enhanced the “natural” productivity of our agricultural regions).

Our job is to see that this dialogue – and others dealing with ocean resources - is based on solid data and sound science, not hyperbole and alarmism. We owe it to our oceans, our fishermen and an increasingly hungry world to do as much as we can to insure that. It is our intention for the new Fishosophy blog to be a step in that direction.

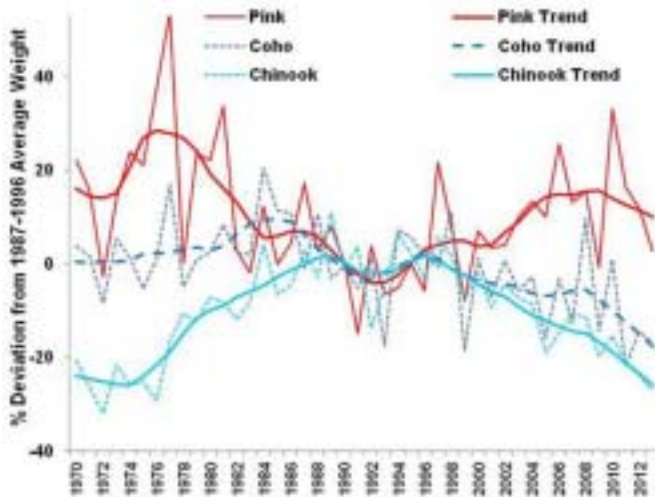
# Email Eavesdropping!

Pacific salmon abundances are at historic high levels but some species and some populations are at critically low levels. Pink salmon returns in odd numbered years continue to increase just about everywhere while Coho off the coasts of Washington and British Columbia remain at low levels. Here is a glimpse into the complex issues confronting scientists who try to understand - and manage - what is happening in such a changing environment.

—Original Message—

**From: Piston, Andrew W (DFG)**

I just checked ALEX and found that the all-gear pink salmon harvest has now topped 90 million (not including Yakutat) and seems to still be increasing fairly rapidly as fish tickets continue to be entered. Yesterday morning it was barely over 89 million. It will be interesting to see how much higher it gets into record territory.  
Andy



—Original Message—

**From: Shaul, Leon D (DFG)**

Awesome! It also appears that after an early lag of several million, we're kicking Prince William Sound's highly cultured butt - and apparently the entire central region.

—Original Message—

**From: Shaul, Leon D (DFG)**

The previous SEAK record was 75 million in 1999. Sounds like lots of pinks down your way too — while drifting off to sleep the other night I heard Les Jantz being grilled on "As it Happens" about a run estimated at 26 million entering the Fraser . . . . .

—Original Message—

**From: Irvine, James**

Yes, record pink salmon returns are widespread. I was asked to join Les on "As it Happens" to speak about ocean conditions but the necessary approvals were not in place. While we predicted good pink (and coho) salmon returns this year (<http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs->

[DocRech/2013/2013\\_032-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2013/2013_032-eng.html)), the magnitude of the runs was not anticipated.

I am beginning to think we need a major international initiative to assess abundance of returning salmon by proper sampling in Gulf of Alaska, kind of like the Russians do in their waters. I seem to recall Dick making this point in the past. We have the ability to discriminate among populations so the scientific challenge would be to obtain random samples of the population mixture.

Jim

—Original Message—

**From: Shaul, Leon D (DFG)**

I agree — with current GSI capability, forecasts based on offshore or high seas sampling could potentially turn out to be the most cost effective option overall. The NOAA pink forecast in this region (Joe Orsi's group) has the best predicting track record I'm aware of. It indicated for a very good 2013 catch (in the low 50 million range) and may actually have been fairly accurate this year considering just the relative strength of runs coming through the northern straits where they conduct their trawl surveys. However, the central and southern parts of the region and outer coastal areas in the north were relatively much stronger, so their forecast was quite low on a region-wide basis. While I'm amazed that the processors kept up as well as they did, while running short of supplies and bleeding a steady stream of burned out employees, there were definitely a lot more pinks that could have been caught had the industry been prepared for such an anomaly.

As far as coho, we have never tried to formally forecast them and I have lost all confidence in any ability I thought I had to do so. The NMFS folks have not had much success either, recently concluding that (in sharp contrast to pinks) the coho critical period is likely beyond where they last see them in August at a size of 200+ mm. The Auke Creek jack-adult relationship has completely disintegrated since the mid-1990s and I had begun to notice an even-year dominant cycle in marine survival in some stocks that's been running counter to both adult coho size (and % males) and pink abundance. I was actually pessimistic this year, as our marine survivals had been faltering (primarily in the northern part of the region) since 2006, with the deepening cooling trend, while cohos (and pinks) returning this year went to sea and spent their early marine life during the coldest 12 month PDO index since 1971 (during the worst of the bad old days for Alaska salmon). However, it is shaping up to be the second best coho year on record in terms of wild abundance (next to 1994) while troll CPUE throughout

the season has been at an all-time record — and I see the Babine escapement count has been running second highest since 1946.

Both cohos and Chinooks had been showing some signs of an emerging second critical period related to declining late-ocean growth, but it is certainly not in evidence this year — or if it has continued, is masked by extraordinary early marine survival. Early July troll Chinooks continued their decades-long declining trend in average weight to yet a new low (figure below). However, our trollers informed us the ocean was full of Chinooks, and wild fall brights (a main driver stock here) are in fact recently appearing in the Columbia in spectacular numbers closer to the shelf and are highly sensitive to the PDO but are probably much less vulnerable to salmon foraging than *B. anonychus*.

Leon

——Original Message——

**From: Beamish, Richard**

The CPUE for juvenile Coho in the September trawl surveys in the Strait of Georgia remains as a pretty good indicator of adult production. I suspect this happens because the early marine survival is so poor. If it was as good as in Alaska, I think there would be a lot more variability as more factors would be affecting the total production.

Dick

——Original Message——

**From: Shaul, Leon D (DFG)**

That makes sense. From the other perspective, it appears SEAK pinks are growing quite well at sea despite very high abundance in some years (size at abundance since 1997 has averaged about 10% higher than it was from 1982-1996) so there may be less variation in late-ocean mortality after the early marine mortality captured in the NOAA trawl surveys. In contrast, higher trophic consumers caught in SEAK have shown an opposite trend in growth (with coho size declining mostly in odd years) so one might expect late-ocean mortality to increase as a component of overall mortality in those species.

In Chinooks, the sibling forecasts used in the PSC allowable catch calculations have been over-forecasting the main north-migrating stocks caught here for several consecutive years (although likely not this year) and data from all along the Alaska coast (including stocks in the Bering Sea) shows smaller Chinooks are growing fine when they are feeding mostly in the coastal fish community as “feeder kings” but seem to hit a wall in the 3rd and 4th years when they move more offshore. Growth has been slowing but average age at maturity advancing -

would seem to suggest late-ocean mortality has become more of a factor than before.

——Original Message——

**From: Beamish, Richard**

I am working on a presentation in which I will limit the factors that affect brood year strength to seven. The number seven is just for fun because it is comfortable to most people. The main message is that there are a relatively small number of major factors that vary depending on the location of the population. Cheers, Dick

——Original Message——

**From: Shaul, Leon D (DFG)**

Speaking of factors, here’s a real oddity — perhaps an artifact of a scrambled ocean? Certainly unexpected with both ENSO and the PDO in negative territory. Actually, from what we can tell it may be a new species record for Alaska (yellowfin tuna) photographed by our fishery sampler on September 16 at the mouth of the Tsiu River (probably the greatest wild coho producing system for its size on the planet, mid-way between Yakutat and Cordova). Reportedly about 80 lbs dressed . . . of course they ate it and report it was delicious.



**Update from: Shaul, Leon D (DFG)**

It appears the tuna was likely a bigeye tuna, rather than a yellowfin (an equally impressive fish nearly as far as the yellowfin from its expected range). Iâ€™m sure readers more familiar with tuna will note that. The other is more of an update --- Andy says (Oct 25) the SEAK pink catch has now passed 93 million.

Leon



## **District Directors**

### **Alaska, Northern**

Christian Zimmerman  
USGS Alaska Science Center  
4230 University Drive Suite 201  
Anchorage, AK 99508  
czimmerman@usgs.gov

### **Alaska, Southeast**

Bruce Wing  
P.O. Box 210265  
Auke Bay, AK 99821-0265  
bruce.wing@noaa.gov

### **Arizona - New Mexico**

Vacant

### **California, Northern**

Thomas Keegan  
Senior Fisheries Scientist  
AECOM  
2020 L Street, Suite 400  
Sacramento, CA 95811  
thomas.keegan@aecom.com

### **California, Southern**

Traci Larinto  
California Department of Fish and Game  
4665 Lampson Avenue, Suite C  
Los Alamitos, CA 90720

### **Capital**

Katherine A. McGraw, Ph.D.  
NOAA Restoration Center  
1315 East West Hwy.  
Silver Spring, MD 20910  
kay.mcgraw@noaa.gov

### **Carolinas**

Vacant

### **Florida**

S Gregory Tolley, Ph.D.  
Professor of Marine Science  
Coastal Watershed Institute  
Florida Gulf Coast University  
10501 FGCU Blvd S  
Fort Myers, Florida  
gtolley@fgcu.edu

### **Great Lakes, South Central**

Edward F. Roseman  
USGS Great Lakes Science Ctr.  
1451 Green Road  
Ann Arbor, MI 48105-2897  
eroseman@usgs.gov

### **Gulf of Mexico, Northeast**

Vacant

### **Keystone**

Joseph W. Rachlin  
Dept. Biological Sciences  
Lehman College of CUNY  
250 Bedford Pk. Blvd. W.  
Bronx, NY 10468-5189  
joseph.rachlin@lehman.cuny.edu

### **New England**

Gary A. Nelson  
Massachusetts Division of Marine  
Fisheries  
30 Emerson Avenue  
Gloucester, MA 01930  
(978) 282-0308 x 114

### **Oregon-SW Washington**

Vacant

### **Texas**

Vacant

### **Washington, NW**

Katherine Myers  
School of Aquatic & Sciences  
University of Washington  
Box 355020  
Seattle, WA 98195-5020

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American Institute of Fishery  
Research Biologists  
c/o Allen Shimada  
NMFS, Office of Science and Technology  
1315 East West Highway  
Silver Spring, MD 20910

