



Dear Members,

Welcome to the New Year! My message to start 2019 is one of commitment and the benefits of your involvement with AIFRB. As you have heard me champion in past communications, your participation is paramount to the success of the Institute. Each year you pay membership dues, you're renewing your commitment to be part of an organization that provides opportunities to new scientists, young and seasoned professionals, as well as leaders in the field of fisheries. Opportunities may be in the form of exposure through networking, a grant or recognition award, experience in non-profit organization management, supplemental education and more. I'd like to share how I have personally benefited from my affiliation with AIFRB.

I started attending the local AIFRB meetings in 1998 as a marine biology undergraduate student (often called marine BUGs) at Cal State Long Beach, through the encouragement of a more senior member. I sat in these first few district meetings beside myself. I was immediately exposed to a group of marine scientists from agencies like NOAA, nearby universities, local governments and consulting companies. As an inexperienced marine BUG, the realm of fishery science seemed a lot broader than I was able to confirm on my own. In addition to attending meetings, I joined a committee under the guidance of a NOAA fishery biologist. He and I worked closely in writing up goals and objectives for recruitment and marketing for presentation to President Dr. Dick Schaefer, who encouraged me even further with a personal letter commending me for my support of AIFRB.

I continued to remain involved with AIFRB through my undergraduate and graduate tenures, and was elected as the Southern California district's secretary/treasurer, followed by vice director and eventually as director. When I first became involved with AIFRB, I couldn't have predicted that I would someday serve as president. However, I'm really glad I did and here's why.

Meeting new people, networking and making friends are always benefits of social activities, no matter what the objectives of the activities may be—that's a given and a motive that tends to fall flat when used as often as it is. In addition to integrating into this special network, my level of participation with AIFRB has opened up career-development opportunities by working with a diverse group of people in this field. By diverse, I mean that we have different perspectives shaped by personal experiences—this is true in both how we interpret data and how we perform our jobs. Through my experiences with AIFRB, I've learned to communicate and open up to different perspectives better, prioritize tasks better, solve problems better and manage projects with multiple stakeholders better. These attributes have carried over to my full-time workplaces, where I haven't always had the same opportunities for leadership or career growth. AIFRB has helped make me a more sympathetic employee and, hopefully, a trustworthy leader.

The opportunities realized from my involvement with AIFRB have exceeded my expectations. As president, it's my opportunity to return the favor. I am truly humbled to work in the presence of the best fishery science professionals in the nation. I'm excited that many of you have stepped into important positions on the Board of Directors and I'm confident that your scientific prowess and professional leadership will influence other members and aspiring BUGs, just as those same characteristics influenced me.

I invite you to participate with me and give back (by mentoring students, communicating your ideas within your districts and at board meetings) to AIFRB in 2019.

Sincerely,



Kim Anthony
President

kim.anthony@aifrb.org

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New Member Spotlight

Sarah Margolis – Professional Associate

Sarah is a recent AIFRB Professional Associate and a driven early career professional devoted to the sustainability and health of our oceans. She graduated with a Master's of Science degree in Fisheries

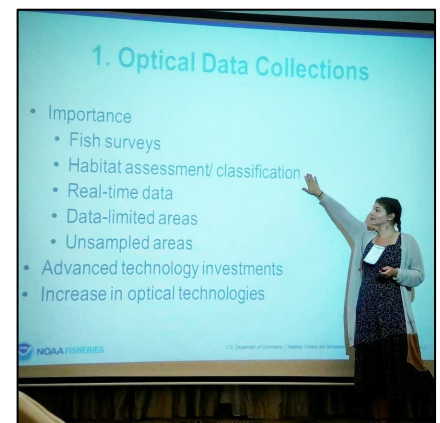


Oceanography from Louisiana State University in May 2018, focusing her research on age and growth of scamp grouper in the Gulf of Mexico. She successfully competed for the 2018 Knauss Marine Policy Fellowship, and was assigned to NOAA Fisheries' Office of Science and Technology to assist with the national efforts to develop and transition advanced sampling technologies into the next generation integrated survey and ocean observation systems.

During her one-year Knauss fellowship, Sarah obtained a unique combination of technical skills from various technology training workshops in underwater acoustic analyses and machine learning analytics for automated fish recognition. These skills were applied in field research during a Norwegian fisheries acoustic cruise in the North Sea and during an international optic-acoustic field experiment along Isla de San Andres, Colombia. To augment her technology training and experience, Sarah also took the initiative to complete a series of courses during her fellowship to refine leadership skills in communications, fisheries management, and supervision.

Her diverse skillsets were recruited to address the increasing challenge of big data imagery for science-based agencies such as NOAA, and Sarah excelled in consensus building as demonstrated in her recent NOAA Technical Memorandum Report entitled, "Accessibility of Big Data Imagery for Next Generation Computer Applications." This report addresses NOAA's technological infrastructure and data governance relative to the collection, storage and accessibility of NOAA Fisheries imagery, and will have future benefits in the cost-savings and timeliness of NOAA's scientific data products. The report is cited as:

Margolis, S., B. Alger, C. Beaverson, M.D. Campbell, E.J. Kearns, M. Malik, C.H. Thompson, W. L. Michaels, B. L. Richards, C. C. Wall, F. Wallace. (2018 in review). Accessibility of Big Data Imagery for Next Generation Computer Vision Applications. NOAA Techn. Memo. NMFS-F/SPO- p. doi: 10./TMSPO.



During the past year, Sarah provided scientific presentations around the world from Colombia, Germany, to Malaysia. She is an active member of the Gulf and Caribbean Fisheries Institute, American Fisheries Society and Society for Conservation Biology. Given Sarah's recent accomplishments, AIFRB is looking forward to her accomplishments during the upcoming year.

Current Member Spotlight

Becca Selden – Postdoctoral Fellow, Keystone District

Becca Selden is a postdoctoral research fellow at Rutgers University (RU) examining the effects of climate change on marine food webs and coastal communities. She couples high resolution spatial



models of ocean warming with information on species distributions and fishing effort to understand the cumulative impacts on marine ecosystems. Her recent work showed that warming alters spatial overlap between marine piscivores and their prey along the Northeast US Shelf, disrupting key species interactions. However, diversity among piscivores in their thermal preferences will likely buffer the overall ecosystem impacts of warming on food webs. While replacement of cold-water species with warm may help mitigate overall ecosystem responses, these changes in species distributions may have a big impact on the fishermen that rely on these species for their livelihoods. In collaboration with Malin Pinsky (RU), Kevin St. Martin (RU), Bonnie McCay (RU) and Eli Fenichel (Yale), Becca is quantifying how fishing communities respond to shifting species distributions. She finds following the fish is rare, with most fishers

continuing to target historical fishing grounds. Instead, species switching is a common strategy, though regulations and quotas based on historical landings can constrain flexibility. She hopes that this research can help inform more climate-ready management for our changing oceans.

Becca completed her PhD in Ecology, Evolution and Marine Biology at UC Santa Barbara in 2015, where she examined the effects of fishing-induced changes in predator size for marine food webs. She will begin as an assistant professor of marine biology at Wellesley College in fall 2019.

<https://rebeccaselden.weebly.com>

Recent Publications

Selden, RL, RR Warner, SD Gaines (2018) Ontogenetic shifts in predator diet drive tradeoffs between fisheries yield and ecosystem impacts. *Fisheries Research* **205**: 11-20

Morley, JW, **RL Selden**, RJ Latour, T Frölicher, R Seagraves, ML Pinsky (2018). Projecting shifts in thermal habitat for 658 species on the North American continental shelf. *PLoS ONE* **13**(5), e0196127.

Selden, RL, RD Batt, VS Saba, ML Pinsky. (2018). Diversity in thermal affinity among key piscivores buffers impacts of ocean warming on predator-prey interactions. *Global Change Biology* **24**: 117-131

Batt, RD, JW Morley, **RL Selden**, MW Tingley, ML Pinsky (2017) Gradual changes in range size accompany long-term trends in species richness. *Ecology Letters* **20**: 1148-1157

Young Professional Spotlight

Leah Baumwell – Florida District



What is your current position and what do you do?

This past September, I accepted a position as Director of Gray FishTag Research (GFR), an international, tagging non-profit that relies on recreational anglers and professional charter fishermen to enhance data collection efforts for multiple species of fish. As director, I plan and oversee all operations and projects, find ways to integrate our open-access data to that of academic and scientific agencies to increase the utility of their data for management purposes, act as a voice for the recreational fishing community, and define clear research questions and goals to benefit both the recreational fishing and scientific communities.

Where did you go to school, and what helped pave your way to your current position?

Academically, I completed a B.S. degree in Environmental Science and Biology from the University of Massachusetts Amherst in 2009. While there, I investigated the over-winter energy dynamics and feeding behavior of juvenile bluefish inhabiting the northern Florida coastal shelf and I also calculated hatch dates and estimated growth rates of juvenile bluefish inhabiting the Hudson River estuary using otolith microstructure. I then moved to Coastal Carolina University where I completed one year of graduate coursework which focused on applied experiment design/analysis, and marine and wetland ecology and processes. Professionally, I worked for the International Game Fish Association (IGFA) for six years where I managed a suite of local and international conservation projects including the IGFA Great Marlin Race (IGMR), the world's largest billfish satellite tagging program. The experience I gained from marlin fishing and tagging events, analyzing satellite tag data, and most importantly, communicating and developing strong relationships with tag sponsors and contributors within the sportfishing industry has provided me with a strong foundation to run an international, multi-species, fish-tagging program.



What is the focus of your research and/or work?

To promote catch & release fishing, assess various aspects of fish populations, and to ultimately provide useful information both fisheries managers and fishermen. We currently supply about 10,000 fishing professionals (charter boat captains and mates) with streamer tags, applicators, data cards, and proper-tagging-education. And in addition to the streamer tag data, we have developed five satellite-tagging initiatives for 2019 which include the following: (1) Migration and habitat utilization of striped marlin in Cabo San Lucas, Mexico; (2) habitat utilization and long-term distance of roosterfish in Quepos, Costa Rica; (3) vertical habitat and fine-scale movement of swordfish in Florida, USA; (4) habitat utilization and spawning aggregations of Atlantic striped bass; and (5) connectivity among blue marlin caught on FADs and seamounts in Los Sueños, Costa Rica. All streamer and satellite tag data are completely open-access to the public, and all tag and recovery activity appear on the GFR website.

What got you started studying fisheries?

My father likes to joke that I could swim before I could walk. I grew up surfing and fishing in South Florida, and I developed a strong passion and tremendous respect for our marine world. It wasn't until I was a teenager when our class took a trip to a sea-camp that I realized "I can do this as a job!" From then on, I was hooked! (Forgive the pun).

***What do you enjoy most about being a fishery scientist?***

I love that the work has brought me to worldwide fishing destinations and has allowed me to establish cooperative relationships with other fishing/conservation organizations and academic institutions. I also thoroughly enjoy the science-communication aspect of my job and disseminating technical/scientific information in a manner that recreational anglers can readily understand. Overall, I find it very rewarding to be in a field that is working towards healthy and sustainable oceans.

What drew you to AIFRB, and what does AIFRB do for you?

I was first introduced to AIFRB at the 146th meeting of AFS in Kansas City, and I was immediately drawn to AIFRB for not only the networking opportunities, but also the mentorship aspect. Breaking into this world and finding a niche can be challenging, and I'm glad the institute is now available to current and future students.

Please contact Leah (lbaumwell@gmail.com) to continue the conversation!

Robert Boenish – New England District

***What is your current position and what do you do?***

In June, 2018, I began as a High Meadows Postdoctoral Fellow at the Environmental Defense Fund, co-appointed at the Atkinson Center for Sustainability Solutions at Cornell University. My projects are looking at trends and solutions in International fisheries, stock assessment, and survey design, with a particular focus on Chinese fisheries.

What is the focus of your research and/or work?

My not-so-distant in the past work at the University of Maine was focused on developing models to understand how American lobster fishery dynamics (including bycatch of Atlantic cod) change through space and time. Ultimately the work led to developing estimates of

Atlantic cod discards and simulating incorporation of those estimates into stock assessment scenarios.

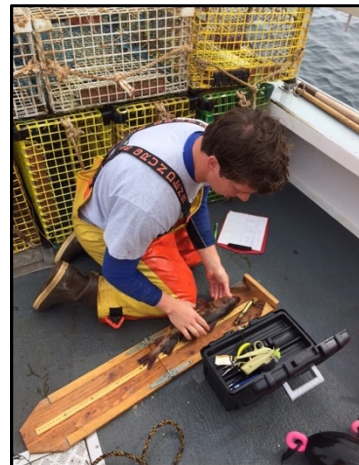
My current work is focused on studying the commercial fishing and ecological dynamics of China. Over the last few years, China has steered policy towards becoming an 'ecological civilization', and considering they are by far the biggest global player in wild capture fisheries and aquaculture, there are unprecedented opportunities for breaking new ground in terms of conservation, monitoring, and

assessment. I've been traveling back and forth to different Chinese provinces to collaborate with government scientists and academics on projects including designing fishery-independent surveys, developing stock assessments, and studying larval fish dynamics. In addition to all the fun work and meeting awesome folks, it has been especially exciting to learn about a bunch of completely new species!

How does your research apply to fishery management—local, state or federal?

My Ph.D. work applied directly to the estimation of Atlantic cod bycatch, which may be used to improve future stock assessments. The work involved working with local fishermen, and alongside state and federal scientists. For me, getting to see different perspectives has been particularly valuable.

My current work in China involves partnerships with Chinese scientists and officials with a common goal improving the state and understanding of fisheries science for China's domestic fleets. Most recently I've been working on data-limited approaches to characterize multispecies fisheries. Unlike in the U.S, there are no discards in China; everything is used. You end up with a lot of small fish that have not traditionally been recorded. Fortunately, people are now working hard to sample the catches, but the scale is so large that interpretation of those data is tricky. Further, the policy world of China is very different from what I've worked with in the U.S or Europe, so it is a constant learning process.



What got you started studying fisheries?

Well, I grew up on Whidbey Island in Washington State and to the chagrin of my parents, I'd go fishing at the local ferry pier everyday as a kid. Soon I had a small boat, and I never looked back. Next, I spent nine summers as a commercial salmon fisherman in Bristol Bay, Alaska to help pay for college. It was there that I put together two of my favorite skills: fishing and math. I found I was good at interpreting stock assessment and management reports to fishermen. From about the age of 17, captains, crew, and employees at the processor would base decisions on my interpretations of the daily run summary reports. Somehow, a few years later I ended up on an ICES Atlantic Salmon working group, and soon after, I was studying cod lobster in Maine and reef fish in the Caribbean. Studying fisheries science lets me work on problems that affect the oceans and coastal communities around the world and for me, it is the best job.

What do you enjoy most about being a fishery scientist?

More than anything I love the ocean, and being a fishery scientist gives me a unique opportunity to help sustain the ocean as well as the livelihoods of people who depend on it. As a scientist I find myself always asking questions, and when your job involves studying the organisms that reside in 71% planet's surface area, there are copious opportunities to study the natural world and discover new things!

What drew you to AIFRB, and what does AIFRB do for you?

I first heard about AIFRB while wondering around the AFS conference in Portland, OR in 2015. Since, I've been drawn to the AIFRB-sponsored sessions at AFS meetings, educational workshops, professional networking, and the conversation/ comradery involved. All of the above makes AIFRB an amazing organization, and one I'm proud to be a part of.

Please contact Robert (rboenish@edf.org) to continue the conversation!

Upcoming Research

Creating a Bycatch Avoidance Tool for Cod in the Gulf of Maine Recreational Fishery

Micah Dean^{1,2}, Bill Hoffman^{1,2}, John Mandelman^{1,2}, Greg DeCelles², Doug Zemeckis², Emily Jones², Matt Ayer³, Emily Keiley³, Nate Ribblet^{3,4} and Kevin O'Maley^{3,4}

¹Co-Principal Investigators ²AIFRB Members ³Additional Participants ⁴Recreational charter captains

Funding provided by the Bycatch Reduction Engineering Program

Rationale

Gulf of Maine cod is highly exploited, and overfishing is occurring. As a result, fishery managers have enacted strict regulations to reduce mortality on this stock, including a prohibition on cod possession for the recreational fishery. At the same time, Gulf of Maine haddock is not overfished, and the stock has increased to record levels in recent years. However, cod and haddock often co-occur in the Gulf of Maine, and cod are frequently taken as bycatch in the recreational fishery. Recent recreational management measures have been designed to limit cod bycatch in the haddock fishery, and cod bycatch has constrained access to the abundant and rebuilt haddock resource. Therefore, the goal of this project is to translate the distribution and abundance data from the Massachusetts Division of Marine Fisheries Industry Based Trawl Survey into practical guidance for the recreational fishery to avoid cod while maintaining or increasing haddock catch.

Objectives

The project team is attempting to reduce the rate of cod bycatch in the recreational haddock fishery by:

- 1) Creating seasonally-resolved spatial models of cod and haddock abundance
- 2) Creating intuitive map products that identify times and areas where the catch rate of cod is low, yet legal sized haddock are abundant
- 3) Validating model predictions through standardized charter fishing trips
- 4) Broadly disseminating and promoting map products as a cod bycatch reduction tool for the recreational fishery

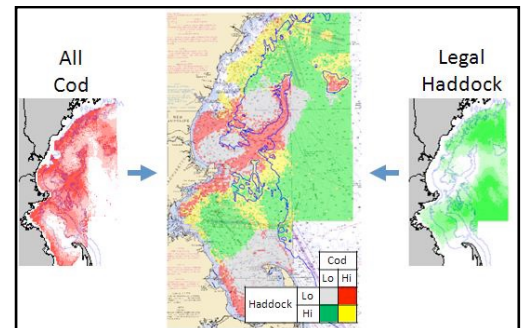


Figure: An example of how the cod and haddock abundance data will be translated into a fishery guidance map.

Approach

Observations from the Massachusetts Division of Marine Fisheries Industry-Based Cod Survey will be combined with environmental covariates (depth, T, and habitat rugosity) through regression kriging to produce monthly maps that predict the abundance of cod and haddock throughout the Gulf of Maine. The monthly predictions will be translated into simple fishery guidance maps that provide recreational fishermen with spatially specific information that can be used to avoid high bycatch areas. The project team will conduct extensive field testing to validate and further refine the map predictions. These maps will be combined with “best practice guidelines”, and widely disseminated to recreational fishermen in New England, allowing them to make better informed decisions about when and where to fish. Such voluntary bycatch avoidance programs have proven successful in other New England fisheries, and offer a novel approach to bycatch mitigation that is independent of fishery regulations.

Ventless Trap Survey of New Jersey's Artificial Reefs

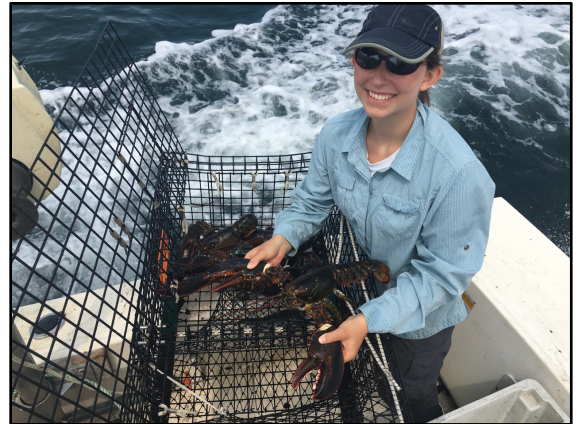
Olaf P. Jensen^{1,2}, Douglas Zemeckis^{1,2}, Mattea Berglund^{1,2}, Peter Clarke³, and Bill Maxwell³

¹Rutgers University, ²AIFRB Members, ³New Jersey Department of Environmental Protection

Funding provided by the New Jersey Department of Environmental Protection

Fishery-independent surveys provide relative abundance and biological data that are critical inputs for stock assessments and fishery management plans. Bottom trawls are the most commonly employed fishing gear for surveying marine fishery resources, but they are often limited because structured habitats are generally avoided. Fish traps are a promising alternative or supplementary survey gear type, particularly for structure-associated species that may be inadequately surveyed by bottom trawls.

From 2016-2018, researchers from Rutgers University have partnered with scientists from the New Jersey Department of Environmental Protection's (NJDEP) Artificial Reef Program to conduct a pilot ventless trap survey of three artificial reefs off the coast of New Jersey. The goals of this survey are (1) to characterize the



Mattea Berglund (Rutgers University) sampling American lobsters caught on an artificial reef off New Jersey.



Dr. Douglas Zemeckis (Rutgers University) hauling traps off the coast of New Jersey.

seasonal and spatial variation in community composition and relative abundance of structure-associated species on the artificial reefs and (2) to provide the information necessary to design a statistically robust trap survey for New Jersey and the Middle Atlantic. The survey's target species are black sea bass (*Centropristis striata*), tautog (*Tautoga onitis*), and American lobster (*Homarus americanus*), which all support important commercial and recreational fisheries in the Middle Atlantic and New England.

The trap survey catch data documented seasonal (i.e., spring, summer, fall) and spatial variation in the relative abundance of the target species and several additional species that have expanding fisheries (e.g., Jonah crab: *Cancer borealis*; rock crab, *C. irroratus*).



Researchers sampling American lobster. Photo credit: Susan Allen Photography.

Data analyses are ongoing, but results from this survey will continue to be valuable for informing activities of the NJDEP Artificial Reef program and fisheries



Mattea Berglund and Shawn Hazlett (Rutgers University) sample black sea bass.

management in New Jersey. For example, a key question is which materials provide the highest catch rates of target species. The two most widely utilized classes of artificial reef materials are concrete (e.g., reef balls, castings, and demolition concrete) and metal (e.g., steel-hulled ships and tanks). Variation in trap catch by species on metal, concrete, and sand substrates provides evidence of species' habitat preferences that are being used to inform reef building efforts.

Interpretation of survey data relies on understanding the relationship between catch-per-unit-effort and actual abundance. Several factors can influence the shape of this relationship. Field experiments conducted along with this survey have revealed that both soak time and priority effects (i.e., when the first organism to enter a trap affects subsequent catch rates) influence trap catch rates. Recommendations are being developed for considering these factors during survey design and interpretation of survey catches to help develop trap surveys that produce robust results for inclusion in stock assessments and consideration in fisheries management.



Barge deployment on New Jersey artificial reef. Photo Credit: New Jersey Department of Environmental Protection.



Deploying concrete culverts on an artificial reef off New Jersey. Photo Credit: New Jersey Department of Environmental Protection.

For additional information, please contact project team members at ojensen@marine.rutgers.edu (Dr. Olaf P. Jensen), zemeckis@njaes.rutgers.edu (Dr. Douglas Zemeckis), mattea.berglund@gmail.com (Mattea Berglund), peter.clarke@dep.nj.gov (Peter Clarke).

Emeritus Fellow Spotlight

Dr. Frieda Taub – Emeritus Fellow since 2004

I was introduced to science through the Newark Museum (Newark, NJ) starting at age 4; by age 7, I knew I wanted to be scientist, probably a biologist, maybe a chemist. Of the children in the Newark Museum Nature Clubs with me, at least three of us did PhD degrees on salamanders. The Newark Museum had a major impact on our lives. I majored in both Biology and Chemistry at Newark College of Arts and Sciences (a small, commuter branch of Rutgers University), graduating in 3.5 years in 1955. I did my graduate work at the Rutgers New Brunswick campus, “The Men’s Campus,” although there were other women in the Graduate School program, earning my master’s in 1957 and my PhD in 1959 from the Zoology Department.

I recall with fondness my interview with Richard Van Cleve, dean of the College of Fisheries, arranged by Zoology Professor Richard Snyder, in autumn 1959. I had recently completed my PhD, and Professor Snyder did salamander research at UW. Dean Van Cleve learned of my previous work on Tilapia (an unsuccessful summer student project) and suggested that I interview with Drs. Sparks and Liston, who were involved with a project to grow fish (Tilapia) on human fecal material for feeding future astronauts (funds and fecal matter supplied by Boeing). I was very interested in the concept of closed ecological systems because my research on salamanders

had been so open and frustrating, and the concept of the “ecosystem” was then new and exciting. An ecosystem needed to have boundaries and measurable inputs and outputs, exactly what my salamander research lacked. There was interest in biological life support systems for space habitations that would mimic earth’s elemental recycling. Dean

Van Cleve warned them that I would never leave if they hired me (and he was right). I started as a part-time fisheries biologist (which didn’t require a college degree). I was paid less than I had been as a graduate teaching assistant at Rutgers, but I was happy to work on this project and to be associated with the UW. This position allowed me to use the UW library, where I had been denied access without a UW affiliation, and the Seattle Library didn’t have the journals I needed to publish my graduate work.



To truly experience what it was like to be a woman professional then, one needs to see the movie “The Notorious RBG” (Ruth Bader Ginsburg, Supreme Court Justice, who received her law degree from Columbia in 1959, the same year I received my PhD). Most professional organizations at that time only hired women to be secretaries, laboratory technicians, or possibly, librarians. Women with advanced degrees were viewed with suspicion! The only woman that I knew on the UW faculty was Dixie Lee Ray (Zoology), and although a fine teacher, she was controversial.

Dr. Melvin Dollar was active on the Boeing project; he became my mentor and taught me to write fundable proposals, and in 1961, he was PI and I was co-PI on a grant on the nutritional quality of algae and its effect on grazer populations. I became a member of the research faculty as an instructor as a result of being a co-PI. Dean Van Cleve allowed me to submit a grant to NASA as a PI even though research faculty members were not allowed to be PIs at that time. Grant and Contract Services, seeing his signature, allowed it to be submitted, and the proposal was funded. I became a research assistant professor in 1962. Dr. Dollar was an important mentor for me, involving me in his research on trout liver tumors and improving my writing and research skills (and I learned that being a PhD didn't mean I knew it all). After he left, Dr. John Liston became my mentor and supported my eventual promotion to research associate professor in 1966 and to full professor in 1971.

Initially, the Boeing project focused on fish growth, in theory supported by an aquatic food chain of feces (via microbial action to dissolved inorganics) to algae, to Daphnia, to fish, but the fish were smarter and ate the freeze-dried fecal material directly (which looked like commercial pet fish food). Along the way, I was taught to culture algae—because I killed numerous young fish by trying to randomize them for experiments in (unknown to me) toxic plastic medicine cups. This project introduced me to aquatic food chain dynamics. For several years, my research interests were focused on algal chemical composition and its impacts on grazers, both as potential single-cell protein sources and as ecological phytoplankton-grazer interactions. My research grew to developing model ecosystems: open to the atmosphere, but with all organisms known, including the bacteria (gnotobiotic ecosystems). The research then moved from batch to continuous cultures that lent themselves to mathematical models, developed beyond my modelling capabilities by Daniel McKenzie (PhD, 1975). The continuous cultures of algae also were applied to

producing shellfish food, via Sea Grant funding. The Western Coniferous Biome of the International Biological Program gave me an opportunity to experience middle management of “big” research and mathematical modelling during 1969–1974, which introduced me to more sophisticated modelling and modellers. I edited a book, *Lakes and Reservoirs* (1984), part of the series of *Ecosystems of the World*!

In 1976, I was asked if I could develop synthetic communities of organisms to display the effects of test chemicals, such that the communities could be replicated in different laboratories, and provide similar results. This work led to the “Standardized Aquatic Microcosm,” (ASTM E1366), which has been re-balloted every five years and continues to be active. Along with the development of the biological ecosystems, US EPA funded mathematical models by Gordon Swartzman and his student Kenneth Rose (PhD, 1985).

Subsequent research included developing fish habitats for space research for NASA—the challenge being to keep a group of fish in a small container for 100 days without changing the water. As is often the case, NASA funded two groups to work independently; the other group proved it couldn't be done (in a clean beaker), and we did it by using a complex aquatic food chain. I spent two summers at NASA's Ames Research Center studying protozoa, rotifers, and brine shrimp as “instant fish food” for baby fish, given their goal to have three generations of fish born at null gravity and the need of baby zebrafish to have live food after hatching. Our laboratory also tested a “cell culture unit” for NASA using *Euglena* as the test organism. The purpose of the project was to find all the ways the equipment could fail, and we made it work, so our contract was terminated earlier than those testing other organisms. Ultimately, the project was cancelled, and the private sector has now developed multiple cell culture units.

Although I was a research faculty member, I also had the opportunity to teach: initially in 1961, Zoology 118 Physiology (non-major) at UW's Continuing Education (night school), when a graduate student who was scheduled to teach it got a fellowship, and later, I taught "Space Biology: Sealed Life Support Systems" (1961–1969), also as part of the Continuing Education program. When I became a member of the teaching faculty, Dean Van Cleve asked me to teach about water pollution (another long story), as well as aquatic food chains, and I was delighted to do so. So, for many years, I taught Aquatic Food Chain Ecology (Fish 459), Community Responses to Toxic Chemicals (Fish 527), and Biological Problems of Water Pollution (Fish/Civil Engineering 430/431) along with a few other courses from time to time.

From 1971 to 1973, I was chair of the UW Affirmative Action Committee. With the help of Dean Doug Chapman, I conducted an Affirmative Action Report in 1973. All 23 fisheries biologists were men; of the other non-academic staff, 50% of the 39 females earned less than or equal to the lowest paid of the 19 males although their qualifications were greater. Of the graduate students, there were 66 males, 50% of whom were supported and 14 females, 14% of whom were supported. At one time, I was on at least 18 school committees (because suddenly every committee needed a woman, and I was the only women faculty member in Fisheries and most academic units had no women faculty). Eventually, I received a letter from Dean Douglas Chapman saying that I only had to serve on committees of my choice—an envy of other faculty members.

When I retired in 2000, I felt I should exercise other options for research besides those that were funded by outside agencies. Since being "theoretically retired," I have focused on my closed ecological systems research,

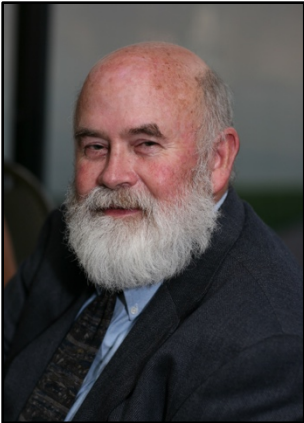
developing the methods that allow algae, grazers, and associated undefined microorganisms to maintain active populations for weeks or months, while in some cases, recording O₂, pH (and calculated CO₂), pressure, etc. every five minutes. I have two research objectives: 1) to better understand the metabolism (O₂ and CO₂ dynamics) and relate these laboratory findings to natural ecosystems, and 2) to publish on the techniques by which students can use closed ecological systems for self-designed experiments that have a reasonable chance for success. The hardest part is getting students to equate a canning jar incubated with a lights on/off pattern with the Earth's biosphere, although both have similar element cycles.



I married Jack H. Taub during spring break in 1954, during my junior year—three of my faculty members insisted on interviewing him—faculty took "in loco parentis" very seriously in those days! They worried that they had not seen me dating him at the School's Friday night dances where they were chaperones. (Jack was a sailor stationed in Boston at the time, so we dated only Saturdays and Sundays.) He was discharged from the Navy in 1955, and we headed for married-student housing at Rutgers. Jack finished his undergraduate degree in mathematics and did some graduate work developing Rutgers' new computer (IBM 650) while I did my graduate studies. After my PhD degree ceremony in 1959, we headed out for Seattle, where Jack had accepted a position as a systems analyst at Boeing. He later worked for the U.S. Navy doing statistics and quality control at Keyport, Washington, retiring as head of their Math Sciences unit. Our children, Beth 1965, Alex 1968, and Gordon 1971, completed our family. Unfortunately, Jack died in 2016; we had been married 62 years. Currently, I am fortunate to have our 3 children and 3 grandchildren living in Washington State.

A Celebration of Life

By E.T. Jarvis Mason, M. Golden, and eds. K. Anthony, H. Gliniak, S. Moore, and D. Heilprin



AIFRB Fellow, friend, mentor and colleague, Dr. M. James (Jim) Allen, passed away on September 2, 2018. During his 40+ year career, Jim specialized in studies on marine fish ecology and fisheries, including studies of biogeography, community organization, natural and human impacts to populations, feeding habits, taxonomy, contaminant levels in fishes and fish consumption rates of anglers. Jim leaves behind a legacy of friendship, humor, dedication, and a tremendous contribution to the fields of marine fish ecology and fisheries.

Jim received his Ph.D. in Marine Biology in 1982 at the Scripps Institution of Oceanography (SIO) in La Jolla, CA, where he developed a baseline model of the functional organization of soft-bottom fish communities in southern California. Jim was highly regarded by those who knew him for his taxonomic expertise in the identification of most coastal marine fishes in southern California, and on demersal fish species from the Bering Sea and Puget Sound. He wrote life history descriptions of nearly 100 species of fishes and invertebrates for the West Coast of North America. In addition to his extensive publication record, two of his largest contributions were a zoogeographic atlas of demersal fishes from the Arctic Ocean to southern California and an atlas of living resources (fishes and invertebrates) for the West Coast of North America (Arctic Ocean to Gulf of California).

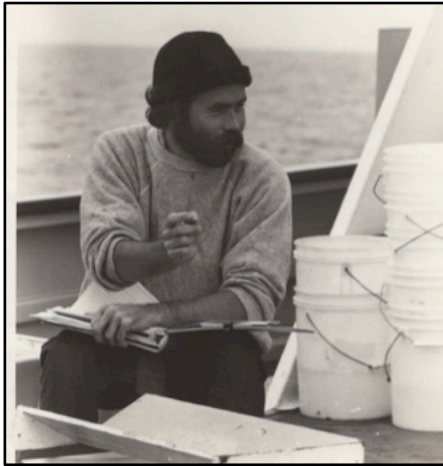
In his professional career, Jim served as Oceanographer for the National Marine Fisheries Service (1984-1986), Senior Scientist for MBC Applied Environmental Sciences (1986-1993), Principal Investigator for the Fish Biology Department, Southern California Coastal Water Research Project (SCCWRP, 1993-2009), and as a consultant with ECORP Consulting Inc. (2010-2012). He also served as Adjunct Professor in the Department of Biological Sciences at California State University, Long Beach from 1996 to 2012.

Jim's contributions to the public were many, including serving on numerous graduate student thesis and dissertation committees, the Board of Directors for the Southern California Academy of Sciences (SCAS) for over a decade, as member and founder of the Southern California Association of Ichthyological Taxonomists and Ecologists (SCAITE), and as Director of the AIFRB Southern California and Baja California, Mexico District from 1991 to 1993. Using his influence as a SCAS Board member, he helped his local AIFRB district establish an "AIFRB Best Student Paper" award at the SCAS annual meetings and often served as a judge. In 2018, SCAS established the Dr. M. James Allen Best Student Presentation Award in his honor.

A Celebration of Jim's Life* was held at SCCWRP in Costa Mesa, CA on November 14, 2018 and was attended by many whose lives he touched. His remaining family (brother Dennis and sister-in-law Lynn Allen, nephew Jason Allen, and niece and nephew-in-law Jenna and Marc Cittadino) have arranged to honor Jim with a permanent memorial plaque at a bench overlooking the Ellen Browning Scripps Pier at SIO. Jim will be greatly missed and never forgotten.

Goodbye to a Dear Friend

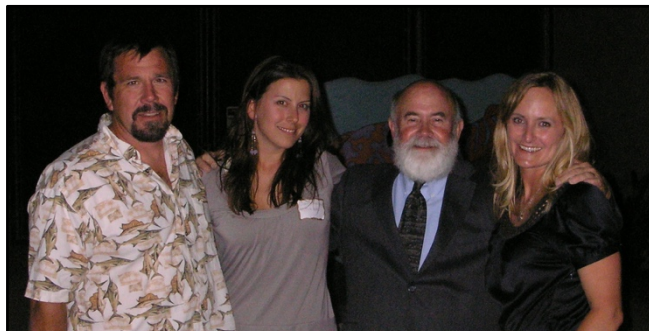
Marty Golden – NOAA National Marine Fisheries Service Retiree



Jim was a very special person to me (and many other fisheries scientists), a friend, and colleague. I met him in about 1980 at an American Institute of Fishery Research Biologists (AIFRB) meeting and we were friends ever since - we often carpooled to meetings in San Juan Capistrano. Jim played a key role as a Member, Fellow, and past Director of the Southern California Chapter of AIFRB - giving scientific presentations on various fisheries research projects and helping with a number of symposia. Jim was also a Member of the Southern California Academy of Sciences (SCAS) and used his influence to help the

AIFRB establish a "Best Student Paper" award at the SCAS annual meetings and often served as a Judge.

I also had an opportunity to work closely with Jim while he was employed at MBC Applied Environmental Sciences. While I was employed by the US Dept. of Interior, Minerals Management Service, I supervised several fisheries projects with MBC where Jim was the lead fishery biologist. All of these projects were significant contributions to fisheries science - I especially remember his report entitled



"Ecology of Important Fisheries Species Offshore California." This 251-page document was a compendium of 32 of the most important fisheries (fish and shellfish) species (species profiles) in California and served as guidance for many of the environmental

assessments that the DOI conducted in southern California waters.

Jim's smile, knowledge and friendship will be missed by me and all those that knew him.



**Videos of some of the speakers from The Celebration of Jim's life have been made available with the following link:*
<https://drive.google.com/drive/folders/1Hge0sBkdGc86WWF1ZeLndo0elyykZI7S?Usp=sharing>

Past Events

New England District Social

The New England District held an evening social event on November 14th, which was co-hosted by District Director Greg DeCelles and Dr. Lisa Kerr in Portland, Maine. The Gulf of Maine Research Institute graciously provided their facility for the social, at no cost to AIFRB. Turnout was strong as approximately 20



AIFRB members gathered to network and reconnect with their colleagues. Scientists from the Canadian Department of Fisheries and Oceans (Kent Smedbol, Irene Andruschenko, and Yanjun Wang) were also in attendance, giving AIFRB members an



opportunity to interact with the colleagues from north of the border. Attendees enjoyed refreshments and gourmet pizza.




Capital District Fall Crab Fest

On October 27th, 2018 the AIFRB Capital District and the Potomac Chapter of the American Fisheries Society (AFS) jointly convened a classic Maryland crab feast as a great way to mix and mingle with fisheries professionals from across the region, including students who wish to join our profession. The event took place at the AFS headquarters in North Bethesda, MD.




Upcoming Events

2019 Bevan Symposium and SAFS Centennial Celebration




SCHOOL OF AQUATIC & FISHERY SCIENCES | COLLEGE OF THE ENVIRONMENT

Join the celebration



100 SAFS
1919-2019
UNIVERSITY OF WASHINGTON

SAVE THE DATES
APRIL 16-18, 2019



The Bevan symposium and SAFS Centennial Celebration will take place in the School of Aquatic & Fishery Sciences at the University of Washington. For more details or to register, please click [here](#).

70th Tuna Conference

The 70th Tuna Conference will take place on Monday, May 20th – Thursday, May 23rd, 2019 in Lake Arrowhead, California with the theme: **Data collection: emerging tools that address fundamental challenges in the research and management of large pelagic species**. Registration must be submitted by Wednesday, February 27th, 2019. Student scholarships are available. General conference and registration information and application and applicability for student scholarships can be found [here](#).



Upcoming Events

11th International Flatfish Symposium - Interdisciplinary Fisheries Science & Solutions

AIFRB is sponsoring the 11th International Flatfish Symposium, which will take place on November 15-20, 2020 at Wentworth by the Sea in New Castle, New Hampshire. Since 1989, the International Flatfish Symposium has offered a platform for the exchange of high quality, scientific ideas and results, and for strengthening international cooperation and collaborations (www.flatfishsymposium.com).



The 11th International Flatfish Symposium will be focused on interdisciplinary research to solve persistent challenges of flatfish ecology, conservation and sustainable utilization, including climate change, essential habitat, bycatch and population structure. The program is being developed as

a single session with keynote speakers for each theme. If you are interested in getting involved, please contact AIFRB members Elizabeth Fairchild (University of New Hampshire, elizabeth.fairchild@unh.edu) or Steve Cadrin (University of Massachusetts, School for Marine Science & Technology, scadrin@umassd.edu) for more information.

Award Winners

2018 and 2019 Outstanding Achievement Award

The Committee for the Outstanding Achievement Award has deliberated and come to a tie vote for two stellar candidates, Marc Mangel, Department of Applied Mathematics and Statistics of the University of California, Santa Cruz and Terry Quinn, Juneau Center College of Fisheries and Ocean Sciences of the University of Alaska, Fairbanks. The Committee has agreed that Marc and Terry should be awarded with the 2018 and 2019 awards, respectively.



2018 and 2019 recipients of the AIFRB Outstanding Achievement Award, (2018) Marc Mangel from the Department of Applied Mathematics and Statistics of the University of California, Santa Cruz (left) and (2019) Terry Quinn from the College of Fisheries and Ocean Sciences of the University of Alaska (right).

Award Nominations

2019 Kasahara Early Career Award

Steve Cadrin – Chair, Kasahara Award

The American Institute of Research Fishery Biologists established the **Kasahara Early Career Award** in 2006 to honor the memory of Dr. Hiroshi Kasahara and the lasting contributions made by Dr. Hiroshi and Mrs. Toshiko Kasahara to fisheries science and the work of the Institute. The Kasahara Award is intended to recognize the Institute's most promising young associates and members early in their research careers. A committee comprised of five individuals was appointed by the President to determine guidelines and procedures for the award. The award and \$2,500 were presented to Jamal Moss in 2007 and to John Field in 2010. After a long hiatus, AIFRB is now soliciting nominations for a 2019 award.

Candidates must

- be accomplished researchers in fisheries science, with competence in conservation and proper utilization of fishery resources
- demonstrate potential for leadership in scientific frontiers
- have received a PhD within the last seven years (exceptional scientists who do not have a PhD should have received their BS within the last fifteen years)
- be a professional associate or member of the Institute in good standing
- be nominated by a professional associate, member, or fellow of the Institute

Criteria for evaluating candidates: preference will be given to candidates who

- develop innovative approaches to fisheries science
- promote connections between basic and applied research
- integrate science and policy for sustainable management of fishery resources
- active involvement or leadership in research and science organizations

Evaluation

- All nominees will be contacted by the committee chair and requested to submit a curriculum vitae, including a list of publications, and a one-page summary of how the award would be used to promote the nominee's research
- The committee will work by correspondence to evaluate all nominees who submit the required information
- The committee will recommend an award recipient to the Board of Control

Please send nominations to the committee chair, Steve Cadrin (scadrin@umassd.edu). All nominees will be contacted and requested to submit a curriculum vitae, including a list of publications, and a one-page summary of how the award would be used to promote the nominee's research. The committee will work by correspondence to evaluate all nominees who submit the required information and recommend an award recipient to the AIFRB Board.

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We need District Directors!

Plan fun networking events
Raise funds for students
Recruit new members
Contact: Kim Anthony at
kim.anthony@aifrb.org

Vacant District Director Seats

Alaska
Carolinas
Great Lakes
Northern Alaska
Northeast Mississippi
Oregon (*sub-district to Pacific Northwest*)
Southeast Arizona/New Mexico
South Central Gulf of Mexico
Texas