



LONGLINES

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**HERE WE GROW!
PCSGA'S MEMBERSHIP EDITION...**



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Olympia, WA 98501
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(360) 754-2744

The PCSGA strives to
ensure a healthy industry
and environment for
shellfish farming on the
Pacific Coast.

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What The Tide Brought In

Notes from the Director

While I'm still very much a rookie in my role as executive director of the Pacific Coast Shellfish Growers Association (PCSGA), I am not new to the world of aquaculture. I have spent a lot of time with many different stakeholders engaged in aquaculture discussions. I have studied how communities and stakeholders perceive and engage with aquaculture farmers seeking permits to start or expand their farms. It is through this outside perspective that I hope to shed some light on the critical importance and value of the collaborative voice that is PCSGA.

From a consumer standpoint, there is a great deal of support for bivalve shellfish as a sustainable food (though we would all love to see more consumption!). However, public and policy discussions about shellfish aquaculture take shape in many different contexts beyond food. If you are seeking a permit to develop or expand a farm, for example, you are entering a discussion about human development in the marine environment. As the ocean becomes a busier place, the opposition to any new development that may encroach on natural ocean ecosystem functions or other existing uses is growing. This social opposition feeds into political opposition, as the political will of legislators and agencies is fueled by their constituents.

Even if you don't need a permit now and have not yet had the pleasure of regulators knocking on your door, it doesn't mean you won't. In fact, it is inevitable that at some point you will. The question is when and in what circumstances. Social and political will is critical for the future of our industry. This is where the investment in PCSGA really pays off.

For many reasons it is hard for most of you to focus on the 'what if' scenarios when you are focused on the day-to-day minutia of running your businesses...managing staff, keeping your stocks healthy, finding and serving markets, or even just keeping the lights on. PCSGA does the heavy lifting for you. We are a resource when you have questions about navigating opposition or sticky regulations, a facilitator of broader education and engagement to build trust and support for our industry, and a champion for more consistent and clear permitting processes and regulations that support a viable, sustainable shellfish sector. Our collaborative work behind the scenes will help you and your staff do what you do best...farm shellfish!

We thank all of our members for their continued support and hope that those of you who are not yet members will consider joining our collaborative efforts to ensure a healthy social, regulatory, and natural environment for shellfish farming on the West Coast.

Kim Thompson
Executive Director, PCSGA

Cover Photo: PCSGA: Jorstad Creek Farmstand started in Spring of 2021 serving Fresh oysters along Hwy 101.

My Ride is Over, and Dang It Was Good!

Connie Smith Says Goodbye

It's hard to put into words how I feel about retiring at the end of this month. Some words that have been swirling in my head are apprehensive, uncertain, anxious. Other words competing for space are giddy, buoyant, tickled. But the words that reverberate the most are gratitude, cherish, and friendship. And love. Yes, most definitely love. That's what I'm taking with me on Dec 31.

My association with PCSGA started in 1988 (then PCOGA) when my husband Tim accepted the position as the first ever executive director. I was a young pup of only 24, and we were a family of three. Back in the day, PCOGA didn't have a budget for an office, staff or supplies, which meant the back bedroom of our home doubled as the industry headquarters. I volunteered with administrative duties in my spare time as our family grew to five. When Tim's tenure ended 11 years later, PCOGA hired Robin Downey as their second executive director. The name of the association changed to PCSGA, and I officially joined the payroll. I worked with Robin for 11 years, and the next director, Margaret



*Bill Taylor, Connie Smith, Margaret Pilaro
Photo by: PCSGA*

Pilaro, for another 12 years. When we recently hired our fourth and current director, Kim Thompson, I decided I did not have another 10+ years in me.

I owe a lot to PCSGA. The association has been oh-so-good to me. It afforded me the flexibility to put my family first while working, and gave me opportunities to grow within the industry, travel far and wide, and to have fun. *And boy, did I have fun!* Oh yes, and to slurp a few oysters – preferably with a squeeze of lemon and a drop of hot sauce. I've consumed more than my share of oysters, mussels, clams and geoduck, and I'm grateful for every bite.



*Connie Smith, Jim Gibbons, Duane Fagergren
Photo by: PCSGA*

But the word 'grateful' extends far beyond the briny bivalves I've come to love. More than anything, I am grateful for the friends I've made – friends who I regularly trade family photos with, friends who I travel to visit, friends who join me for the holidays. Lifelong friends.

Continued on page 15...

MONTHLY ECOSYSTEM SERVICES PHOTO CONTEST WINNERS!



October: Amber Taulbee: At Kamilche Seafarms, our suspended mussel lines are home and habitat for a plethora of South Puget Sound invertebrates. Anemones, Tunicates, Sponges, Hydroid Jellyfish, Skeleton Shrimps, and Sea Stars.



November: Lisa Carleton-Long: Hundreds of shore crab using our bait bag for their drive-in diner! As they feast on the purging processes of the clams inside... always cleaning and eating.



December: Daniel Leon: The cultch seed I helped spread in 2017 at one of the farms has created BBQ sized oysters for us to harvest and it provides a habitat "home" for the Midshipman and other aquatic life.

Remembering Ken Chew



Maegan and Ken Chew. Photo by: caringbridge website

FROM OUR MEMBERS:

Joth Davis, Baywater, Inc.

The world of shellfish aquaculture and biology has lost one of the true pioneers. Almost any interaction with Ken Chew over his long career at the University of Washington was noteworthy for his unbridled enthusiasm for shellfish, teaching & research, and for all the students he cared for deeply. As an academic, Ken published frequently in primary journals, often contributing to books and popular publications focused on shellfish culture. He was very involved with the National Shellfisheries Association over his career, serving as President (1971-72). In 1989 he was recognized as an Honored Life Member. NSA's Neil Bourne-Kenneth K. Chew Award was established in 2015 in his honor

and is given to individuals in recognition of outstanding contributions to education, outreach, extension, aquaculture or shellfisheries. Ken was also instrumental in involving his many graduate students with NSA, encouraging them to attend meetings, meet other scientists and students and give scientific papers. He was instrumental in bringing the Pacific Coast Section of the NSA to life as he believed that the west coast was getting short shrift for an Association that in its early days was more east and Gulf Coast centric.

I first met Ken in 1978 as a prospective graduate student at the UW School of Fisheries – later the School of Aquatic and Fisheries Sciences, and later worked with him as a graduate student in the 1980's. I came from New England wishing to study shellfish and he was "the man" on the west coast. I was one of many of Ken's students, but on a much shorter list for his doctoral students. Ken was an important mentor and a wonderful friend. He actually encouraged me to prolong my graduate career at the School of Fisheries in order to have a family and found a shellfish business. My first customer came from a phone call Ken made to a friend of his who owned a shellfish wholesaler in Seattle. I think that will be Ken's enduring legacy. He knew everyone and was so generous with his time and contacts to the benefit of his students and the shellfish industry. He was always advocating for us in the industry, whether it was through his work with the WRAC, the World Aquaculture Society, NSA or the WDFW Fisheries Commission. Ken particularly focused on collaborating his student's work with the Pacific Coast Shellfish Growers Assoc. He always encouraged his students to think about research that could benefit the shellfish industry. At shellfish meetings he would often ask all of his former students to stand up – there were a lot of us! Ken had an infectious manner of bringing his

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unique brand of enthusiasm to life. We co-taught Ken's course in shellfish in the mid-nineties for a number of years while he was busy with the WRAC and planning for the new SAFS building. Our meetings to organize lectures were always fun and I learned a lot about what he felt was important for students to learn about shellfish. I will treasure his frequent phone calls 'just to check in' over many years. "Hey Jotho!....what's going on....." Ken was on the very short list for receiving a lifetime supply of Baywater Shellfish oysters and clams. Needless to say, he used his account frequently. There may actually be ruts in his driveway from our delivery truck dropping oysters for he and Maegan and his family...

At the end, all I can say is that I was so privileged to have a long friendship with Ken Chew. So many conversations stand out for me, and so many stories. He was simply a larger-than-life presence in my life and I will deeply miss his humor, wisdom, story-telling and especially his enthusiasm for life. He cared about Puget Sound, its resources and how to conserve and build upon a place where we can still enjoy food from the sea, believing strongly that research was the key to both the shellfish industry and conservation worlds having the capacity to adapt to the changes we were all seeing. Others have expressed similar words, and I can only amplify the impact he had. Thank you Ken for your many contributions to the lives of so many of us.

Betsy Peabody, Puget Sound Restoration Fund

Ken Chew had an irresistible knack for gathering people around shellfish and making us all feel like we were rowing in the right direction, for the right cause. Ken will be dearly missed. But he would absolutely want us to keep rowing in celebration of the tide and all that it provides.



Ken Chew with his dog. Photo by: caringbridge website

To remember Ken, I've taken myself to a spot where I can look out over the water, see the fish jumping, hear the clams squirting, and be awash in the abundance that Ken soaked up every day of his life. He loved this beautiful world. His enthusiasm was magnetic, infectious, and seemingly without end.

I first crossed paths with Ken in the late 90s when I started Puget Sound Restoration Fund (PSRF) and began working on Olympia oysters. Restoring native oysters was right up his alley. When I joined the Board of Pacific Shellfish Institute in 2006, I was pulled further into his orbit. Later, we bonded over a shared commitment to help restore shellfish growing areas affected by pollution. It was (and still is) a huge, seemingly intractable challenge in the face of population growth. But the vision of productive, beautiful bays growing a bounty of world-class shellfish has been a clarion call for many in the shellfish community. Ken championed this cause with gusto.

Continued on page 7...

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JJ Brenner Oyster Co Making Changes!

by: Valerie Brenner

The year was 1893. A new president, Grover Cleveland, took office; the World's Fair in Chicago opened; and locally, a relative newcomer from Wisconsin took a chance and opened an oyster business in Olympia, WA. That man was John Joseph Brenner. Today, JJ Brenner Oyster Company continues under the management of a 4th generation, Bruce Brenner, and a dedicated team of employees, some of whom are also generationally linked. Next year, we will celebrate 130 years in business.

Our company has weathered many a challenge throughout the decades, but we have persevered and met those challenges. Whether that be fighting the pulp mill polluters in the late 1920's, or staying off and adapting to climate interruptions, we continue to thrive and prosper.

We grow, harvest and wholesale Manila clams, Pacific and Kumamoto oysters and a select number of Olympia oysters. Our plant is located outside of Shelton on the northwest side of Little Skookum Inlet. We own tidelands at Little Skookum and Eld Inlets as well as several leased areas in Totten and Hood Canal. Due to changing environments, our growing methods are moving from bottom culture (which historically utilized dike walls) to rack and bag and off bottom tubes.

Because our farms are so sensitive to the changing climate, we are in the process of incorporating a seaweed line which could help reduce the impact of carbon infiltration within our waterways. And as always, we strive to provide exceptional quality to all who enjoy our shellfish.



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Shellfish Growers Climate Coalition



"Like many shellfish growers, I got into this business because I love the ocean - and because I'm deeply concerned about its future."

- Weatherly Bates, Co-Owner and Operator
Alaska Shellfish Farms in Halibut Cove, Alaska

Help us protect the shellfish we love and the waters that sustain them at nature.org/shellfish4climate

Remembering Ken Chew

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FROM OUR MEMBERS:

Betsy Peabody, Puget Sound Restoration Fund

My collaborations with Ken expanded in 2014, when I had the great honor of working with NOAA and Joth Davis to establish the Kenneth K. Chew Center of Shellfish Research and Restoration, located at NOAA's Manchester Research Station. Operated by PSRF, the Chew Center revived shellfish research initiated by Ken in the 70s and created a hub for native shellfish restoration. To advance the field of restoration aquaculture, the Chew Center has since diversified to include Olympia oysters, pinto abalone, basket cockles, native little necks, sea cucumbers, bull kelp and sugar kelp. Ken relished it all with his trademark enthusiasm.

PSRF is committed to keeping the Chew Center humming along, bustling with activity, just like its namesake. To honor Ken's spirit, I will love this beautiful world, every day, and soak up the bounty of the marine waters around us. I can say, truly, that I treasured every conversation and every encounter I ever had with Ken Chew. He connected with each one of us, one human being to another, living in a world that abundantly provided for us.

Duane Fagergren, Calm Cove Oyster Co.

Dr. Chew was my major professor at the UW School of Fisheries in the late '60s, and by far the best I had in four years.

Classmate Jim Jenkins (New Zealand innovator of Green Mussel farming) and I felt a little guilty when Ken encouraged us to continue in grad school. We could hardly wait to get out and road test what we learned. Ken was a friend, mentor and colleague to us both ever after. I will miss him and Mae, and the conversations we had up to the end.



Ken Chew on the beach. Photo by: PSI



Ken Chew speaking. Photo by: NOAA/NWFSC/Su Kim



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WHAT DOES PCSGA DO?

We are your **advocate** and work with local, state and national partners to help define policies and regulations that affect your business.

We work with a team of consultants and scientists from leading universities and marine institutes to support **cutting-edge research**.

We believe **outreach** is key. We invite you to join our beach cleanup efforts, our annual community event (SLURP), and various festivals to help build relationships with the public that are vital to our success.

We recognize **education** is essential in achieving our long-term goals. We support programs that teach the value and benefits of our industry.

We organize an annual **conference and tradeshow**. You'll learn about current and emerging issues facing our industry - all at a discounted member rate.

We urge you to **get involved**. Volunteer at local festivals, join a committee, participate in our annual lobbying trip to DC and your state, or represent your region on our Board of Directors.



GROWER MEMBERSHIP BENEFITS:

- *Guidance navigating local and national permitting processes*
- *Legal representation concerning industry-wide issues*
- *Member-exclusive trainings, workshops, and educational opportunities*
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- Subscription to quarterly newsletter, *Longlines*
- Access to PCSGA membership list
- Membership rates to PCSGA Annual Conference

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- 2.25" x 2" (w x h) display ad in quarterly newsletter, *Longlines*
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ATTENTION GROWER AND ALLIED MEMBERS!

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PCSGA Grower Membership Application

*or join online pcsga.org/join-pcsga/

Company: _____

Designated representative, for voting purposes: _____

Number of years in shellfish business? _____

Mailing address: _____

Geographic location of farm (e.g. west side of Hood Canal near Brinnon): _____

Phone: (____) _____ Email: _____

Name(s) of another grower near your farm location (if known): _____

Species you farm (check all that apply): ☐ Oysters ☐ Manila Clams ☐ Geoduck ☐ Mussels

In case of a toxic spill or other marine emergency, list the counties where you farm so we can notify you quickly: _____

Calculate Your Dues:

Membership dues are based on your annual sales. Calculate your dues amount by taking 1% of the annual farm-gate value of your shellfish. Farm-gate is the value received when selling product to a buyer or to a processor for further value-added processing.

Example: You harvest and sell clams directly to a distributor for processing. The distributor pays \$100,000. Your dues are 1% of \$100,000, or \$1,000. (.01 x \$100,000 = \$1,000)

Annual farm-gate sales of \$ _____ x .01 = \$ _____ dues (Minimum \$250)

Check one: ☐ 1 payment of _____
☐ 4 payments of _____ (due Jan, Mar, Jun, Sep)

☐ Check ☐ VISA/MC # _____ Expiration Date: _____

*Payment will be charged to the above credit card once membership has been approved by the Board

SIGNATURE REQUIRED:

- I affirm that my membership dues amount is an accurate reflection of my annual production.
- I agree to comply with best management practices outlined in PCSGA's Environmental Codes of Practice (ECOP).

Signature _____ Date _____



Enrichment & Development Fund Helps Our Grower Members

The Enrichment and Development Fund provides financial assistance to members of PCSGA for expenses related to education opportunities, experimental practices and attending PCSGA events such as the annual conference or Walk the Hill.

Proceeds from the PCSGA Silent Auction which occurs during the annual conference are directed to replenish the fund. In addition, PCSGA members are invited to contribute to the fund throughout the year. The goal of the fund is to sustain the shellfish industry into the future, encourage members to enhance skill sets through experiential learning, and provide opportunities to share information among members.

Funds are available to members or direct family members in good standing with PCSGA. If you would like to apply for funds, please submit a letter to the PCSGA Executive Committee detailing your request for funding. The letter should include your information, information about the event/opportunity for which you are seeking funding, how information gained will be shared with PCSGA and how it might be applied to the shellfish industry, and the amount of funds requested as well as the total cost associated with the event/opportunity.

Once your request is received, the Executive Committee will review your letter of application and make a recommendation to the full board regarding expenditure of funds.

Award recipients are required to share information about their experience either during PCSGA's Annual Conference or through an article in the Longlines Newsletter.

Please submit your request today to see how we can help each other and the industry thrive.

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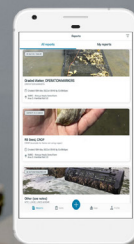
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Grower Members Benefitting From PCSGA Membership

by: Ryan Perkins, Perkins Family Farms

We have been a member of PCSGA for a few short years in some extremely challenging times, from evolving regulatory requirements to unique economic hurdles and the ever-changing environmental conditions. In each of these situations, the association has been there to provide support for each of these potentially crippling scenarios.

The drawn-out battle on the NWP 48 brought its own set of challenges and uncertainty for our farm. PCSGA Staff, Executive Committee, Board of Directors and permit committee members composed of other grower members spent countless hours (week in and week out) to move along the permitting process for the industry. Most of those volunteer hours were spent away from their companies to protect growers and our industry. The dedication did not go unnoticed.

Amidst the regulatory battle happening in the background, a worldwide pandemic was right around the corner. Pretty grim circumstances faced us as our distribution came to an abrupt halt. I have learned that the accepted definition of a farmer is to be creative and do what we can to survive and thrive. This mirrored the same tenacity that Margaret and Connie displayed in this dire time. As problem solvers, PCSGA was able to find funding for seed grants. We submitted and received two rounds of seed grants that helped us through the long COVID winter.

As the permitting pipeline was starting to clear and restaurants opening up, the summer of 2021 had a surprise; the heat dome hovering over the Puget Sound would crush our soon-to-be fall 2021 crop. The even bigger surprise was three weeks prior to this event, aquaculture was grouped in with land-based agriculture. This meant that we were able to apply for a crop loss claim through USDA. Although it was not an immediate solution, the option was there and presented to our farm because of our participation in the association.



Ryan Perkins at his family farm. Photo by: PCSGA

We are extremely grateful for the passion and time that it takes to make this a successful association. It couldn't be done without the people behind the scenes putting in the work. Perkins Family Farms is proud to be a member of the Pacific Coast Shellfish Growers Association.

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California shellfish farmers adapt to climate change

by: San Diego State University, Phys.org

Because of their proximity to the ocean, Californians get to enjoy locally-sourced oysters, mussels, abalone and clams. Most of the shellfish consumed here come from aquaculture farms along the coast—from San Diego to Humboldt County. And because the animals are filter feeders that siphon tiny plankton out of seawater, growing them is environmentally sustainable. But due to rising greenhouse gas emissions, the ocean has become more acidic, conditions hostile to shellfish growth.

“There have been calls across the state and across the U.S. to increase aquaculture output because it’s so sustainable. But then at the same time, it’s a very vulnerable industry,” said Melissa Ward, a postdoctoral fellow at San Diego State University. In a new study, SDSU and Oregon State University researchers interviewed California shellfish growers to find out how they perceive ocean acidification, and to learn what strategies they think will help their operations adapt to changing environmental conditions.



Hog Island Oyster Farm. Photo by: Remy Hale/Hog Island Oyster Co.

“This study is fairly unique in that we’re getting information directly from the people who are being affected by change and learning directly from their experiences,” said geographer Arielle Levine, director of the sustainability program in SDSU’s College of Arts and Letters..

Ward added that “they’re on the front lines of observing climate change and they also are going to be most well-suited to describe what they think they need to adapt to those changes.” Burning coal, oil and natural gas emits carbon dioxide and other greenhouse gases into the atmosphere. About a third of that CO₂ is absorbed by the ocean, reducing pH levels. As the water becomes more acidic, the calcium carbonate shellfish need for their shells is less abundant. “And so they’re basically running out of building blocks to build shell with,” said Ward. “And that can be particularly challenging for a very very small shellfish that’s just forming.”

Most shellfish are spawned in land-based hatcheries. When they’re about the size of a fingernail, they’re moved to floating nurseries in the ocean. “And at that point, they’re just sort of subjected to whatever conditions and whatever food floats by in the water,” said Ward. If the water is acidic, the baby shellfish may grow more slowly, or even die, making it harder for aquaculture farms to remain viable.

Interviews with shellfish growers revealed that while they are concerned about the impact of ocean acidification on their operations, they often lack the scientific instrumentation to know when it’s happening. Growers also worry about other environmental threats such as warmer water, heavy rainfall and pollution—which all contribute to the spread of marine diseases—as well as toxic algal blooms. “Sometimes, growers would lose 90, 100% of their shellfish in a given area, and they won’t really know why,” said Ward. “It’s sort of a story of multiple stressors; you can imagine a time when the water is particularly warm or there’s a rainfall event, and ultimately you may reach a tipping point that the shellfish in the water just can’t remain resilient to.”

Many growers said they need access to scientific resources to pinpoint the environmental factors involved in large die-off events, and to potentially prevent them. All of the shellfish growers felt that regulatory and permitting requirements for shellfish operations need to be adjusted to respond to the rapidly changing environment. For example, it might

be wise to diversify a shellfish operation by growing a new species that is better adapted to ocean acidification. But obtaining the required permits for that can be onerous.

“California is likely the hardest state to get a permit for shellfish aquaculture, which is seemingly at odds with the messaging that’s coming down from the top,” Ward said. While state leaders recognize that shellfish aquaculture is sustainable and an opportunity for economic growth, it can take years and hundreds of thousands of dollars for a grower to obtain a permit for a new species. “And they just can’t afford that time and money,” she added. “We need to maintain the environmental protections that we have in California, but if we really want the industry to be resilient to environmental change, we have to kind of allow for flexibility in farm management.”

Another adaptive strategy identified by shellfish growers was a need for more networking opportunities—not only with other growers, but also with managers, scientists and policymakers—to share information and best practices for adapting to environmental change. The study is published in the journal Ocean & Coastal Management. The researchers hope it will serve as a roadmap for improving the resilience of the aquaculture industry in California.

“This work really draws a connection between environmental change that’s happening and will continue to happen, and how that’s not just affecting the species in the ocean, but also the people who rely on these species,” said Levine.

.....

Connie’s retirement continued from page 3...



Connie Smith, Terry Sawyer, Bill Taylor
Photo by: PCSGA



Connie Smith, Margaret Pilaro
Photo by: PCSGA

I look back on my time at PCSGA and I am overwhelmed with emotion. At age 24, I could never have known how this industry and the people in it would fill my heart and shape my life. I figuratively - and quite literally - grew up here. So did my three kids. I now have two grandkids. It’s time.

So with that, I bid a fond farewell to my home away from home. It’s been one helluva ride! I’m rich beyond measure because of the members of this association. Be good to the new staff I leave behind, and share with them your love. They’ll cherish it, as I do.



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National Fisheries Institute Statement on the Passing of John Connelly

Excerpts From: NFI Media

Today we mourn the loss of a fierce advocate, a loving father, a cherished husband, a beloved brother, an esteemed leader, and to so many a mentor and simply friend. John Connelly was the third President of the National Fisheries Institute (NFI) and a man who drove fundamental change with wit, foresight, and honesty. His impact and loss is immeasurable.

In early 2003 John stood before the NFI Presidential Search Committee, dug back to his history degree from his beloved College of the Holy Cross and made the analogy that the seafood industry was like the German states in the 1860s. Each industry sector fought their own battles, like pre-Bismarck Germany. He suggested a better approach was to unify the seafood industry – and with that – the posture of an industry changed forever. From those early days John began to transform NFI into an effective advocacy group that commands respect across a global industry.



Photo by: National Fisheries Institute

John was not afraid of hard work with a professional mantra of “no job too big, no job too small.” John was a master communicator who would weave in charming personal antidotes while breaking down complex issues like corporate responsibility, sustainability, free markets, and whatever was keeping the consumer awake at night – all in the manner of an affable sweater-wearing professor. The catalog of John’s achievements is lengthy, including the creation of the Better Seafood Board; the merger of the National Tuna Federation and subsequent development of the NFI Council system; plus, the annual Global Seafood Market Conference; the conception of the Seafood Nutrition Partnership; and contributing his steady voice on multiple industry Boards. NFI members will long remember John’s unwavering presence and leadership during the early days of the pandemic. These are just a few of the contributions that will have a lasting impact.

Even before falling ill, John had announced his retirement for February 2023 and spent 2022 preparing for a smooth transition of leadership. As they say when a naval commander departs his ship for the last time, “We relieve you, Sir.” Our sympathy and prayers are with his wife Margaret, his children Kate (Jack), Jack (Rui), Bridget (John) and Maggie (Ryan), his extended family, friends, and his colleagues from around the globe.

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The Importance of Your PCSGA Membership

By: Vicki Wilson, Arcadia Point Seafood, PCSGA Board Member*

Cutting to the chase – PCSGA needs your voice, your financial support, your active participation. Our strength lies in our numbers and diversity. Please, renew your membership or join us anew for 2023.

That is my message and I hope you will take it to heart. Go ahead, save yourself some time. Skip the rest of this column and go directly to the membership form. Fill it out, send it in, and get on with farming.

If you want to keep reading, here is what I want to tell you. The days of being off the radar of regulators and citizen observers are long gone, never to return. We need a vigilant, positive voice for the industry. PCSGA provides that voice through its staff, consultants, Board members, committee members, and you – when you volunteer at any of dozens of promotional and educational events, write letters in support of a fellow grower's permit application, testify during a public meeting, participate in federal, state, and county rulemaking, and on and on.

Think about the value of your membership in terms of what you get in return for every dollar you invest in dues. For example, in 2023, PCSGA is likely to spend around \$100,000 on legal and legislative support for our industry, primarily on regulatory issues that affect our ability to continue farming. If you pay dues at the \$250 level -- and about one-third of our membership does -- you get quite a deal. For every dollar you invest in dues, you get \$400 dollars of legal and legislative benefits. If you pay dues of \$1,000 (about 66% of our members pay \$1,000 or less), you get \$100 of legal and legislative value for every dollar in dues you pay. That's just the start. Add in the work of PCSGA's biological and political consultants, as well as the time that association staff spends in promoting, educating, lobbying, and negotiating on behalf of the industry, and your return on investment easily doubles.

The industry needs a seat at the table if we are to have a say in shaping the future of shellfish aquaculture. That seat relies on leverage, and leverage relies on having a critical mass of growers who are willing to work together and yes, willing to financially support activities that promote and define our industry. Don't let other growers pay for the work that helps keep you in business.

So I end with where I started -- PCSGA needs your voice, your financial support, your active participation. Please, renew your membership or join us anew for 2023.

**Reprinted from 2012 Longlines, stats updated to 2023 numbers, this message is as relevant, if not more so, today than it was 10 years ago!*

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Direct Oyster Sales Through Covid and Beyond

Excerpts from Jeff Desrosiers, Executive Vice President Vitsab International AB, Winslow, ME USA

Faced with the existential crisis of surviving the widespread restaurant shutdowns of the pandemic, many oyster growers were forced to pivot by selling directly to consumers. Fortunately, Vitsab makes an affordable, easy-to-use product that can show consumers immediately whether their product has undergone significant thermal abuse. We developed the Vitsab Freshtag™ Shell Safe Shipping Label. This small, color-changing label clearly tells customers if their oysters are fresh and safe to eat.



Easy to read tags

Over the past two years we at Vitsab have been working hard to gather information about how to make an effective direct-to-consumer eCommerce retail sales program. One especially helpful event was the meeting of the International Association for Food Protection (IAFP). We learned that successful direct-sales programs have three characteristics in common: they are simple (the simpler the better), easy to understand, and cost effective.

Once the shipment leaves your facility you are wholly at the mercy of the delivery carrier. Nothing puts a consumer who is already living in fear on high alert like a delay in their shipment of oysters. The FDA Risk Analysis on Vibrio bacteria tells us that if the temperature of the product inside the box remains below 50 degrees, Vibrio will not multiply. Just because the gelpacs might be melting by the time the box arrives, it does not mean that the product inside has warmed up significantly. Of course, forcing the consumer to pull out a thermometer is not a great solution. Shipment validation needs to be simple to include, easy for your customer to understand, and inexpensive.

The customer needs validation that the oysters are fresh and safe. Freshtag™ Shell Safe Shipping labels are easy to activate and stick on the inside of your packaging and they work like a stoplight, so anyone can understand them, and they cost no more than 70 cents each. The technology relies on a thermally driven reaction that drives a color change (from green to yellow to red) as the label is exposed to increased temperature. The color change lines up with the validated FDA time/temperature profile for Vibrio doubling times.

Companies that have started using our Freshtags™ have reported 20% to 72% fewer refunds and credits during the warmest months of the year because customers are able to quickly determine if their delayed shipments are still fresh and safe to eat. Since the Freshtag™ brand has other formulations, we have been gathering very helpful information. If you focus on these three elements – the simpler the better, easy to understand, and cost effective – I am confident you will have a successful and growing direct sales organization. Please contact Jeff Desrosiers if you want more details about successful eCommerce retail home delivery programs.



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Penn Cove Shellfish's Ian Jefferds Retires After 47 Years

By: Ian Jefferds, Penn Cove Shellfish

After 47 years of working in the shellfish farming business, Ian Jefferds and his wife Karen retired at the end of 2022. As a senior in high school he started out with his mother and father building mussel rafts in Penn Cove in 1975 for the new Penn Cove Mussel Company. After college and working in Alaska, Ian and Karen came back to Coupeville in 1986 when they purchased the Penn Cove Mussel farm from his Dad, Peter Jefferds.

In 1986, the farm was small and undercapitalized like many family shellfish farms, so in 1996 he partnered with Coast Seafoods Company to form Penn Cove Shellfish. The company grew steadily from a family size farm of a dozen company members up to 100 employees.

The company expanded into oyster and clam farming in Samish Bay in 2016 where they now lease over 150 acres of intertidal clam and oyster growing ground. The company grew from distributing just the mussels they grew, to become a shellfish wholesale distributor for many allied growers in the Pacific Coast Shellfish Growers Association.

Ian enjoyed working with other shellfish farmers over the years and appreciated the annual PCSGA meetings where he could commiserate with other growers over common problems and try to come up with solutions.

He will miss the fine staff of the PCSGA office and the many wonderful growers of the Association and the fine vendors and customers with whom he developed relationships over the years.



Ian Jefferds and Connie Smith. Photo by: PCSGA



*Ian Jefferds, Lissa James, and Sen. Murray
Photo by: PCSGA*



Photo by: Ian Jefferds

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Native Tech Could Bring Ocean De-acidification Breakthrough

by The Fish Site

Ocean acidification is a major concern related to climate change, with the oceans currently absorbing around a quarter of the carbon dioxide that is released into the atmosphere. The increased CO₂ that is absorbed by the ocean in turn decreases its pH, making the waters more acidic. These more acidic conditions put marine organisms that create calcium carbonate shells and skeletons at risk.

New research presented at the Geological Society of America's GSA Connects 2022 meeting evaluated a strategy based on Indigenous techniques that may help to mitigate the effects of ocean acidification on calcifying organisms.

Hannah Hensel, a PhD candidate at the University of California, Davis, led a study that tested whether adding shell hash—pulverised clam shells—to sediments could help raise the pH of pore waters and aid in calcification for infaunal marine organisms.

“One of the things that marine invertebrates have to deal with regarding climate change is ocean acidification,” said Hensel. “When researching marine invertebrates that build shells and skeletons out of calcium carbonate, I came upon some research by a diverse group of people up in British Columbia working in clam gardens, an Indigenous shellfish management practice.”

Clam gardens are a longstanding form of Indigenous coastal management in Alaska, British Columbia, and Washington State that typically involve building a rock wall in the intertidal zone that creates a level beach terrace.

Clam gardens expand the habitat where clams thrive and increase productivity. Shell hash is also sometimes added to these environments to help promote clam growth.

“I reached out to people from the Clam Garden Network and also started looking into Indigenous management techniques in California to see if there were connections that could be



Photo by: NOAA. Shell hash is sometimes added to farm environments to help promote clam growth.

made between the two geographic areas,” said Hensel. Adding additional pieces of shelly material to sediments may help buffer the water against acidification as they dissolve and release ions into the water. Hensel ran laboratory experiments using juvenile Pacific littleneck clams (*Leukoma staminea*), which are infaunal organisms that burrow within the sediment, to test how adding shell hash to the sediments may impact the pH and alkalinity of the water and calcifying conditions for the clams.

Hensel gathered dead clam shells from a local California bay to pulverise for the shell hash and then added the shell hash to juvenile Pacific littleneck clams that were grown for 90 days in acidified seawater and control seawater. Clams were also grown without the shell hash in acidified and control seawater.

By analysing the pH and alkalinity of the pore water in the sediments and the overlying water, Hensel found that adding shell hash increased the pH and alkalinity of the pore fluids both in the acidic and control seawater conditions.

The added shell hash thus worked to alter the chemistry of the

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pore fluids, helping to buffer against acidic conditions, which can help promote biologic calcification.

While these tests using shell hash were conducted in a laboratory, a next important step will be seeing how the technique fares in a natural environment.

“Next summer we’re going to mimic this experiment in the field to see if we get a similar trend,” Hensel said.

Given the longstanding Indigenous knowledge regarding the many benefits of adding shell hash and now experimental data showing its ability to help buffer against acidic conditions, shell hash may be a useful tool for combatting the local effects of ocean acidification.

“With more research and collaboration between local resource managers, Indigenous scholars and citizens and the aquaculture industry, I do think it could be used in commercial aquaculture as a pointed and direct method to protect specific organisms that are known to do poorly in acidic conditions. The influence of shell hash on the pore fluids is very local,” Hensel said.

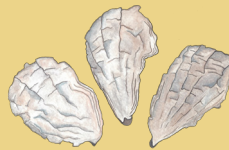


Robotitrator that is used to measure alkalinity of the water. Photo by: Hannah Hensel.

Oyster Stew

Ingredients

- 2-1/2 tablespoon fresh bacon fat
- 1 pound onion chopped
- 2 pints fresh shucked oysters with liquid
- 3 cups milk heated
- 1 handfull parsley and onion tops chopped



Instructions

Put fat in a 3 quart saucepan and when hot, add chopped onions. Cook onions until clear but not brown, on slow flame. Add oysters, with liquid, and cook until oysters curl. In meantime, add a handful of chopped onion tops and parsley. Add hot milk. Serve immediately.

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Invasive Green Crab Numbers Soar

by: Racquel Muncy, Skagit Valley Herald

Skagit County has seen a large uptick of invasive European green crabs. As of Oct. 21, 109 European green crabs have been caught in Samish Bay since the start of 2022, according to Northwest Straits Commission Project Coordinator Jeff Whitty. The majority of the crabs were caught between late September and early October.



Photo credit: Steve Ringman, Seattle Times

The Northwest Straits Commission has been working with others, including Taylor Shellfish, to capture the crabs. Up until these recent catches, Taylor Shellfish Director of Public Affairs Bill Dewey said the low summer catches were encouraging. Throughout the summer, only 25 European green crabs were caught in front of the Taylor Shellfish facility in Bow, which is where the majority of the crabs are being caught, said Dewey.

Based on research done on the invasive species, Dewey said he thinks there might be a fall or winter migration out of Colony Creek lagoon into the bay. "This is a pattern shellfish growers in the coastal estuaries are noticing," he said. "We moved some of our traps to the mouth of Colony last week thinking we might catch some of that migration."

According to the research cited by Dewey, titled "Seasonal estuarine movements of green crabs revealed by acoustic telemetry" in the January 2022 edition of Marine Ecology Progress Series, most crabs stay in a specific region. Because of this, the hope is that if hot spots can be found, a larger number of crabs may be caught.

"We are thinking by focusing on areas where we are catching them that we actually might get an upper hand on them," Dewey said. Crabs are moving from



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the shallow water to the deeper sections of the bay to spend the winter. Dewey is hoping that by moving pots to the mouth of Colony Creek many crabs can be caught during that migration.

Unfortunately, the weather this time of year will likely put an end to trapping efforts. "It's hard to service those pots this time of the year when the weather gets rough," Dewey said.

According to Whitty, the Commission's efforts in Samish Bay are likely done for the year and will restart in April. Padilla Bay has also had a disturbing uptick in the number of green crab being found, said Roger Fuller, natural resource coordinator at the Padilla Bay National Estuarine Research Reserve. The total number caught in Padilla Bay is up to 49.

"Last year we had 10, and the total since the first capture in 2016 up through 2021 was 23 crabs," Fuller said in an email. "So far this year we've more than doubled everything we caught the previous six years combined."

All of the crabs caught this year have been less than two years old, with the majority being under a year old, Fuller said.

"Interestingly all the European green crabs we've caught this year have been near pilings and rock rip rap," he said. "Last year they were mostly in saltmarsh areas, so it's clear that they use different kinds of habitat, as long as there's something that provides some cover to hide in." Rip rap is rocks or rocky material placed along shorelines to protect them from erosion.

This time of year, it is much harder to trap green crabs, but the efforts will continue as long as the Padilla Bay team is able, Fuller said.

The European green crab is considered one of the world's worst invasive species because of how it feeds on shellfish, small fish and Dungeness crab. They also are known to destroy eelgrass beds and estuarine marsh habitats, according to the Department of Fish and Wildlife website.





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Calendar of Events

January

- 11-12: Live Board Meeting, Portland, OR
- 15: Ecosystem Services Photo Contest Submission Due
- 15-19: Global Seafood Conference, Palm Springs, CA

February

- 14: PCSGA Board Meeting - via Zoom
- 15: Ecosystem Services Photo Contest Submission Due
- TBD: Legislative Day Feb or March TBD

March

- 3-5: Penn Cove Musselfest
- 15: Ecosystem Services Photo Contest Submission Due
- 22: Beach Clean-Up
- 28: PCSGA Board Meeting - via Zoom



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OUR CALL FOR
PRESENTATIONS
FOR OUR
77TH ANNUAL CONFERENCE
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**PCSGA Grower Enrichment
and Development Fund**

The fund provides financial assistance to members of PCSGA for expenses related to educational opportunities, experimental practices, and attending PCSGA events such as the Annual Conference or Walk the Hill in Washington, DC

Apply for funds at: www.pcsga.org