Employers need to go the extra mile to attract the young

450 unfilled positions mean an 11-percent vacancy rate in Canadian aquaculture

BY MATT JONES

A recent report issued by the Canadian Agriculture Human Resources Council (CAHRC) indicates that the Canadian aquaculture industry is suffering from a labour shortage. With approximately 4,000 people working full-time in the industry, there are 450 unfilled positions, which translate to an 11-percent vacancy rate, and millions of dollars in lost revenue. There are a variety of causes for the shortage, which experts say will only get worse as aquaculture becomes a more important source of protein going forward.

The report was compiled through analysis of Logistics Canada information, including the Census and the Labour Force Survey. CAHRC also conducted a large-scale survey of over 1,000 respondents across agriculture and aquaculture, interviewed 80 key opinion leaders, conducted six focus groups and seven commodity-specific webinars. This information has gleaned key insights into the Canadian aquaculture labour shortage.

“Part of it is that aquaculture businesses are in rural and remote areas and people are leaving rural areas, so it’s difficult to get people to come to smaller rural areas,” Debra Hauer, project manager with CAHRC, told Aquaculture North America (ANA).

This has been a pressing concern for the industry, notes Susan Farquharson, executive director of the Atlantic Canada Fish Farmers Association (ACFFA).

“Our members continue to be challenged with accessing a sustainable workforce,” says Farquharson. “Our industry is based in rural, coastal communities in Atlantic Canada where there is a population deficit, and we have a limited workforce. In our region, people often have to travel longer distances to get to work and to access training, so recruiting, retention and retraining staff can be tough.”

GOING THE EXTRA MILE

“It’s not always easy to keep them,” says Cyr Couturier, president of the Canadian Aquaculture Industry Alliance (CAIA), of workers in rural areas. “That may be related to the fact that they don’t have access to other things like internet or whatever. A young person coming into aquaculture, you typically want to be able to have access to recreational services, internet, otherwise you’re not going to be happy. There are still areas in the country where we don’t even have basic internet access.”

In some cases, Couturier notes, companies and even the government have made investments in that type of infrastructure to make working in rural areas more palatable to young potential employees.

“The companies have gone the extra mile and made sure they put boosters in and things like that so they could have broadband access. Companies have invested a lot to try and keep people satisfied in their employment.”

The industry and government have also taken some other approaches to bring potential workers into these communities, says Hauer. In some cases, it has involved bringing the workers to the community before they even have the job.

“There have been a couple of instances, one in Quebec and one in Alberta – in one case it was an employer, and in another case it was the government – arranged for buses or vans of people to come out and actually see an operation. They have both had great success. They can see school where their kids will go and understand that there is a community with activities. They can see that it’s not moving to a rural community for the job only, but it’s also for the way of life. There have been successes in that regard, where bus tours that involve visiting not only the place of employment, but also the town, have led to people accepting job offers.”

SEASONAL WORKERS

Another major contributor, the report says, is that aquaculture is not on the National Commodities List, which grants employers access to the Seasonal Agricultural Worker Program (SAWP) and the Temporary Foreign Worker Program (TFWP).

“That is a program designed for agriculture, for workers that are seasonal in nature,” says Hauer of the SAWP. “Aquaculture is not considered to be seasonal in nature.”

Hauer says that access to workers through such streams would be helpful, based on the experience of agriculturalists. For instance, while there were 26,400 vacancies in agriculture across the country, producers in other industries allowed to make use of foreign workers reported a lower number of vacancies.

“In terms of foreign labour, or programs, aquaculture does have access to some of those, particularly for processing programs,” said Couturier of the CAIA.

Julia Sullivan, chief of media relations for Employment and Social Development Canada, however, disputes this aspect of the report. She said there’s no stopping fish farmers from hiring foreign workers under the two programs.

“There are no program barriers to aquaculture employers being considered for an LMIA (labour market impact assessment),” says Sullivan. “Any employer can submit an application for an LMIA and can receive a positive assessment provided they meet program criteria and can demonstrate a legitimate need for a temporary foreign worker. If the industry
RAS and aquaponics workshop attracts big turnout

Fresh from the success of its workshop on indoor tilapia and shrimp RAS, and aquaponics in March, the Kentucky State University-Department of Aquaculture held a follow-up session, featuring outdoor production systems, in April at KSU’s Aquaculture Research Center.

The March event concluded on a high note, with over 70 people attending the event. The participants came from the states of Kentucky, Indiana, Ohio, Georgia, Tennessee, Michigan and Iowa.

The workshop is aimed at helping producers better understand all aspects of indoor recirculating aquaculture systems (RAS). Presentations from industry experts ranged from production technologies, water quality monitoring, proper nutrition, to marketing strategies.

Participants were also provided tours of the Aquaculture Research Center, including its new Aquaculture Production Technologies Laboratory, which houses a state-of-the-art genetics lab, replicated aquaponics research, biofloc marine production systems, and other indoor RAS. Tours of commercial aquaponics facilities in the area were also offered.

The goal of the program was to update current and prospective aquaculture producers on developing indoor production technologies and to enhance their ability to market their products.

Hands-on experience just one part of the learning process

Idaho is the nation’s largest commercial producer of rainbow trout and is central to the recovery of many endangered and threatened fish stocks. The University of Idaho believes it is therefore in a uniquely position as a destination institution for student training and research opportunities in Aquaculture and Fisheries.

The Aquaculture Research Institute at the University of Idaho is nationally and internationally recognized as a leading institution that provides academic and research training in all areas of Fisheries and Aquaculture. Undergraduate and graduate degrees are linked to Fisheries and Aquatic studies within various colleges and departments including Fish and Wildlife Sciences, Biology, Animal and Veterinary Sciences, etc. This creates exciting opportunities for students seeking careers in Aquaculture and Fisheries Sciences, says the school.

There are four fisheries laboratories (three on campus and one in Southern Idaho) that set the university’s programs apart from other peer institutions. Such unique facilities allow hands-on training for students at the University of Idaho and expand capacity to address the research needs of state and federal agencies, private industry, and Native American tribes in the Pacific Northwest. Current strengths and specific areas of expertise of associated faculty are focused in many areas of research, including:

- Fish Nutrition
- Fish Health/Immunology
- Fish Ecology
- Fisheries Management
- Fish Reproductive Biology
- Fish Genetics
- Fish Physiology
- Limnology
- Water Resources/Hydrology

Continued from page 2

The next couple of years will be exciting to see the strategies and actions that are taken, trying to resolve the shortage.”

Farquharson says that ACFFA’s members are investing in technology in their plants and on farms that would help address some labour needs. Some companies have in-house training programs.

“We needed a program that was more responsive to our evolving sector and would support the attraction, training and retention of a labour force in remote locations,” says Farquharson. “As a result, we are investing in training programs in partnership with universities and colleges and are targeting co-op and university/college students and graduates to expose young people to the career opportunities in aquaculture.”

CAHRC is currently developing a series of industry-validated National Occupational Standards (NOS) in order to define the skills required across the sector, which will be available by fall of 2017. CAHRC also offers an online interactive career path tool and a database of agriculture and aquaculture training programs offered by educational institutes and associations across Canada.
US will miss ‘aquaculture revolution’ without skilled manpower, say experts

Efforts needed to attract and retain the young to the industry

BY AARON ORLOWSKI

The US aquaculture industry faces numerous hurdles: a negative image, a difficult regulatory environment and, crucially, a shortage of educated, skilled workers.

That lack of professionals, in turn, threatens to hold back the industry even as demand for farmed seafood and fish is rising and Americans grow increasingly aware of the origin of the food on their plates.

Well-trained workers with the necessary skills are hard to come by, Michael Schwarz, a past president of both the World and United States Aquaculture Societies, told Aquaculture North America (ANA). In the 25 years he’s been in the industry, Schwarz has seen only attrition.

“As soon as you start looking for experience in fish culture and fish hatcheries, biosecurity, we’re not getting the next generation jumping in,” said Schwarz, who is also the director of Virginia Tech’s Virginia Seafood and Agricultural Research and Extension Center. Even though investors are beginning to funnel money into domestic aquaculture projects and customers are demanding more fish and seafood, qualified employees aren’t there to fill skilled jobs.

The problem stems, in part, from a general apathy among young people about the sources of their food, Schwarz said. An indoors culture and urban-centric society disconnects young people from the food they eat.

“We’re going through a generation where they don’t think much about food, where it comes from, how we get it, how we grow it,” Schwarz said.

And that affects the types of jobs they’re pursuing.

“With the current folks that are in college or going into college, they’re looking at IT jobs, they’re looking at computer skills. There’s not many going into agriculture, and aquaculture is a skills are hard to come by, Michael Schwarz, a past president of both the World and United States Aquaculture Societies, told Aquaculture North America (ANA). In the 25 years he’s been in the industry, Schwarz has seen only attrition.

“As soon as you start looking for experience in fish culture and fish hatcheries, biosecurity, we’re not getting the next generation jumping in,” said Schwarz, who is also the director of Virginia Tech’s Virginia Seafood and Agricultural Research and Extension Center. Even though investors are beginning to funnel money into domestic aquaculture projects and customers are demanding more fish and seafood, qualified employees aren’t there to fill skilled jobs.

The problem stems, in part, from a general apathy among young people about the sources of their food, Schwarz said. An indoors culture and urban-centric society disconnects young people from the food they eat.

“We’re going through a generation where they don’t think much about food, where it comes from, how we get it, how we grow it,” Schwarz said.

And that affects the types of jobs they’re pursuing.

“With the current folks that are in college or going into college, they’re looking at IT jobs, they’re looking at computer skills. There’s not many going into agriculture, and aquaculture is a
sector of agriculture,” Schwarz said. “We have less farms, we have fewer children of farmers willing to work the farms. They’re going to the cities. They’re getting computer jobs, office and business jobs.”

Many millennials are growing more interested in ensuring their food is sustainably harvested and grown, and Schwarz sees some hope in the younger generation, especially kids in grade school now. These young people seem to be more interested in where their food comes from and where it’s grown. A slightly older generation accustomed to popping open soda cans and scarfing down potato chips is giving way to a generation concerned more about nutrition and the origin of the food on the table.

“We’re getting more young students that are coming back to: where does food come from? Why do we grow it? Why is it important?” Schwarz said.

But even as interest in aquaculture grows, educational institutions haven’t caught up. Programs to train potential workers are still declining.

Educational institutions will have to change course to make aquaculture programs strong again, Schwarz said. That will require increasing grant funding or attracting new students — the two sources of stability and growth at educational institutions. But with grant funding for aquaculture limited, colleges and training programs will have to make more efforts to attract more students, Schwarz said.

TRENDS

Already, foreign students are filling that gap — coming to the US for high-tech aquaculture education and training at US institutions.

Three quarters of the interns Schwarz helps place in jobs in the US come from abroad with rapidly growing aquaculture sectors, such as the Middle East, India, Africa, Southeast Asia and South America. These students then return to their home countries to help expand those aquaculture industries.

“We need this same interest from US students to help drive expansion of our domestic industry,” Schwarz said.

People are needed to fill technical jobs as extension specialists, government regulators and experts, scientists and business owners, according to a 2015 study outlining the status of aquaculture education in the US.

Compared to terrestrial agriculture and capture fisheries, aquaculture as an industry is a newer field of science, blending several scientific fields with technical skills.

Before the 1970s, few colleges or universities offered aquaculture training. Since then, many universities, vocational schools and community colleges have developed programs.

The need for aquaculture jobs rose from the 1970s to 1990s, with most early programs focused on freshwater systems, while marine systems came later. Today, emerging science fields have superseded some historically strong aquaculture programs, the study said.

A 2003 United States Department of Agriculture and National Sea Grant study found the average aquaculture extension educators were in their 50s. Now, the current coterie is in their 60s and is aging out.

“New generations of aquaculture professionals are needed to replace retiring ‘boomers’ and fill professional positions,” the study authors wrote in their paper, titled “National Assessment of Aquaculture Education at Postsecondary Institutions in the United States.”

Professors that started aquaculture programs in the 1970s and 1980s are retiring, and the faculty that are replacing them are professors that do other types of science, said Jesse Trushenski, the president-elect of the American Fisheries Society.

Some university administrators seem to favor basic science programs, believing they’re better at securing grants and publishing papers, Trushenski told ANA.

Programs that once provided training in fisheries management and aquaculture now offer programs in evolutionary research or physiological ecology. Though basic research helps advance scientific knowledge, it doesn’t offer the expertise that is more often needed by state agencies and the private sector, Trushenski said.

“Public fish hatcheries and private fish farms have an increasingly tough time finding and hiring people with appropriate education and, especially, hands-on experience in raising fish and other aquatic species,” said Trushenski, who is also the supervisor of the Eagle Fish Health Laboratory in Idaho. “Sourcing talent is an ongoing challenge.”

The existing cohort of aquaculture professionals in both the public and private sectors is approaching retirement. “We are all wondering about workforce readiness and whether the next generations of aquaculturists will be adequately prepared to assume the positions vacated by the ‘old guard,’” Trushenski said.

The United States has been a leader in aquaculture research and development, if not industry growth. “Because growth of the aquaculture industry has been relatively slow in the US compared to other parts of the world, we tend to be a net exporter of aquaculture advances and talent,” Trushenski said.

To raise interest in aquaculture careers, the industry must first improve its image by educating people on ability to meet food security needs and aid in the conservation of wild aquatic species.

The demand is there. Increasingly, restaurants are advertising farm-raised fish and customers are asking for it. Seafood prices are rising, and high-intensity cultivation systems should be able to aid the industry, as well as large, turn-key systems that can produce significant volumes of seafood, Schwarz said.

“We are in an aquaculture revolution. It’s just this country is missing it,” Schwarz said.

continued from page 4
West Coast fish farming companies address need for skills training, better living standards for workers

Demand for workers rises along with market demand for seafood

Anticipating future labor shortages based on current population trends, the British Columbia Salmon Farmers Association (BCSFA) is working to increase skills training to ensure that they have the best-trained workers in the world. “It’s really a requirement in a sophisticated modern aquaculture,” BCSFA executive director, Jeremy Dunn, told Aquaculture North America (ANA).

“Over the past 30 years, the industry has seen exponential advancements in technological innovations to bring fish from egg to plate and meet market demand. With this increase in innovation has been the demand for more highly trained and technical staff,” Dunn noted in the abstract of his presentation, West Coast perspective on aquaculture labor challenges and programs to address these gaps, at Aquaculture Canada and Cold Harvest 2016 held last September in St John’s, Newfoundland.

“A wide range of opportunities exists for highly skilled staff in coastal locations around BC, from veterinarians, to biologists to engineers. With these opportunities come the challenge for salmon farming companies to find and retain such talent,” he said.

For solutions, they are looking at education and skills training, and employee retention and community development. Enhancing education and skills training will strengthen aquaculture as an industry with a long-term future in BC. The companies are also working with colleges and universities to promote a culture of learning among their staff.

There is a small community-focus among the companies’ activities that is First Nations-specific. “As of July 2016, BCSFA members have engaged in 20 social and economic partnerships with coastal First Nations, and are working towards many more. According to the Aboriginal Aquaculture Association, 78 percent of the salmon raised in the province of British Columbia is done in partnership with First Nations,” BCSFA said in a press statement.

R O B U S T   A Q U A C U L T U R E   E N R O L M E N T

Interest in fisheries and aquaculture programs in the West Coast is robust, according to the Vancouver Island University (VIU).

The Department of Fisheries and Aquaculture has over 80 students in their fisheries and aquaculture program. “Our program is fully subscribed and we have a waiting list. The interest in our program – both nationally and internationally – and the number of applicants has increased dramatically over the past few years. In terms of numbers and quality of applicants, this is our most successful year to date,” Jean McGarrigle, Communications Officer of Communications and Public Engagement, told ANA.

The latest batch of graduates was practically employed even before they applied for jobs. “Last year we had more jobs than students. The range of employment opportunities is great and our graduates are well-trained, enthusiastic, diverse, professional and sought-after,” McGarrigle said.

To address employee retention and community development, BCSFA members will work on building desirable rural communities for staff, develop programs to encourage living in smaller communities and ensure that industry benefits go back to farming areas.

“Our members are working to make the communities they operate, and their staff live in, better places. Cermq Canada is investing $75,000 ($C100,000) in to help improve recreational facilities in Campbell River, and Marine Harvest has committed $188,000 ($C250,000) to help build a new aquatic center in Port Hardy,” Dunn said.

Last year, he said two of BCSFA members were awarded a prestigious award recognizing their commitment to their employees.

Employers put emphasis on incentives and benefits. Such practices have been nationally recognized. “Our members are all very focused on ensuring they are providing fantastic places for career employment with an emphasis on having a healthy and safe workplace,” he said.

On the average, BC’s salmon farming sector provides stable year-round employment that pays 30 percent above the provincial median income.

BC’s farm-raised salmon farms contributed $825.73 million ($C1.1 billion) to the provincial economy in 2014, with produce totaling $356.57 million and economic impact study 2014.

Of the 109 salmon farms, 60 to 70 are active at any given time. These provide 2,400 direct jobs and 2,500 indirect and induced fulltime jobs in six regions around coastal BC.

— Ruby Gonzalez
The Institute of Aquaculture at the University of Stirling, Scotland, is the leading international centre in its field. Our world-renowned research informs our teaching, and we offer a range of innovative and flexible postgraduate degree courses.

- MSc Sustainable Aquaculture
- MSc Aquatic Food Security
- MSc Aquatic Pathobiology
- MSc Aquatic Veterinary Studies
- MSc Marine Biotechnology

Find out more at stir.ac.uk/redefine-aquaculture
AQUACULTURE NORTH AMERICA

AQUACULTURE NORTH AMERICA

PROSPECTS IN AQUACULTURE
Special Feature On Training And Education

The Atlantic Veterinary College has expanded opportunities for its students to gain valuable experience in research, including in the field of aquaculture health. Recognizing the importance of a solid foundation in research for veterinary students, AVC has established a new program called VetSRA (veterinary student research awards). The program enhances the engagement of veterinary students in research and complements several other research-oriented opportunities for students, including the long-established NSERC-USRA (undergraduate student research awards) program.

Under the VetSRA program, students will work with faculty members on a variety of research projects, including salmon aquaculture. Adele Doucet (Class of 2019) will work with Dr Larry Hammell, professor and AVC Associate Dean of Research, to assess the different transport media to culture *Renibacterium salmoninarum*, which causes BKD (bacterial kidney disease) in Atlantic salmon. Using samples taken from the kidneys of harvested fish with BKD, Doucet will investigate the optimal survival of bacteria cultured under different transport conditions.

Under the supervision of Dr Mark Fast, associate professor of fish health, Tyson Hay (Class of 2020) will participate in a study to determine whether therapeutic feeds are effective in controlling multiple infections in Atlantic salmon. He will examine therapeutic diets for salmon that have been exposed to sea lice and co-infected with ISAv, and investigate host immune responses under different conditions of use.

Working with Dr Sophie St-Hilaire, Canada Research Chair in Integrated Health Research for Sustainable Aquaculture, Kris Valerio (Class of 2020) will examine antibiotic treatment efficacy against ulcer disease in Atlantic salmon raised in net pens. Valerio will help St-Hilaire and her team assess treatment responses and whether certain factors were associated with success or failure. She will also work with an aquaculture company in British Columbia for several weeks.

AVC students also have other opportunities to work on research projects in terrestrial and aquatic animal health supported by faculty research programs and organizations such as NSERC (Natural Sciences and Engineering Research Council of Canada) and Merial.

(Left to right) AVC students Adele Doucet, Tyson Hay and Kris Valerio will spend the summer working on research projects related to aquaculture health through the College’s new VetSRA program.

AVC launches new program on aquaculture health research

T he Atlantic Veterinary College has expanded opportunities for its students to gain valuable experience in research, including in the field of aquaculture health. Recognizing the importance of a solid foundation in research for veterinary students, AVC has established a new program called VetSRA (veterinary student research awards). The program enhances the engagement of veterinary students in research and complements several other research-oriented opportunities for students, including the long-established NSERC-USRA (undergraduate student research awards) program.

Under the VetSRA program, students will work with faculty members on a variety of research projects, including salmon aquaculture. Adele Doucet (Class of 2019) will work with Dr Larry Hammell, professor and AVC Associate Dean of Research, to assess the different transport media to culture *Renibacterium salmoninarum*, which causes BKD (bacterial kidney disease) in Atlantic salmon. Using samples taken from the kidneys of harvested fish with BKD, Doucet will investigate the optimal survival of bacteria cultured under different transport conditions.

Under the supervision of Dr Mark Fast, associate professor of fish health, Tyson Hay (Class of 2020) will participate in a study to determine whether therapeutic feeds are effective in controlling multiple infections in Atlantic salmon. He will examine therapeutic diets for salmon that have been exposed to sea lice and co-infected with ISAv, and investigate host immune responses under different conditions of use.

Working with Dr Sophie St-Hilaire, Canada Research Chair in Integrated Health Research for Sustainable Aquaculture, Kris Valerio (Class of 2020) will examine antibiotic treatment efficacy against ulcer disease in Atlantic salmon raised in net pens. Valerio will help St-Hilaire and her team assess treatment responses and whether certain factors were associated with success or failure. She will also work with an aquaculture company in British Columbia for several weeks.

AVC students also have other opportunities to work on research projects in terrestrial and aquatic animal health supported by faculty research programs and organizations such as NSERC (Natural Sciences and Engineering Research Council of Canada) and Merial.
Newfoundland enhances efforts to reel in future workforce

Recruitment and retention strategy for the aquaculture industry in the works

Based on demographic forecasts, it will become increasingly difficult for Newfoundland’s aquaculture industry to meet its labor requirements, said Keith Rideout, instructor at Fisheries and Marine Institute of Memorial University.

Rideout presented An educator’s perspective on addressing labor market needs in the Newfoundland aquaculture industry at Aquaculture Canada and Cold Harvest 2016 in St John’s, Newfoundland.

Potential solutions, he said, include recruiting from overseas, offering competitive wage-and-benefit packages as well as ongoing training and education. Rideout said the latter has be developed in conjunction with the industry and informed by the most up-to-date labor market information available.

The Marine Institute, based in that province, is one of the industry partners of the Newfoundland Aquaculture Industry Association (NAIA).

“Currently, the Newfoundland and Labrador aquaculture industry is conducting a Labor Market Study and an international Training Capacity Review in partnership with the provincial and federal governments. Ultimately, the findings of these initiatives will enable the association to develop a comprehensive recruitment and retention plan for the aquaculture industry,” NAIA Executive Director Mark Lane told Aquaculture North America (ANA).

Lane continued, “To ensure that secondary school students are aware of the wide array of career opportunities in the aquaculture industry, we continue to promote these opportunities through public outreach. We are currently developing a proposal to incorporate an aquaculture module in the formal educational curriculum of all schools in the province.

As well, we are refining a program called Aquaculture in the Classroom that will educate primary, elementary and high school students about the industry and the career opportunities that exist within it.”

Lane was also at Cold Harvest, where he presented An East Coast perspective on aquaculture labor challenges and initiatives to recruit and retain a skilled workforce for the future.

For post-secondary education programs, NAIA has gone into partnership with the industry and several organizations and has developed two comprehensive training programs: Technical Certificate in Aquaculture and Certificate in Aquaculture Management. All courses were developed from the national occupational standard validated by the Canadian Agricultural Human Resource Council (CAHRSC) and the Canadian aquaculture industry.

In addition to the Marine Institute, NAIA’s other partners are Atlantic Canada Opportunities Agency (ACOA) and the Government of Newfoundland and Labrador.

“In the provision of this training today, we are investing in a skilled workforce and its leaders of the future. A skilled workforce further enables future development, expansion and growth of the aquaculture industry; providing high quality jobs to rural coastal communities and premium seafood to the world,” he said.

NL’s aquaculture industry has grown from approximately $225.2 million (C$3 million) in 1995 to a commercial industry worth more than $275 million in 2016.

The rural coastal sites of the aquaculture farms are usually not appealing for potential workers from outside of the area. Finfish farms are on the South Coast, whereas shellfish farms are primarily on the North Coast of the Island. Both areas are about 600 to 700 km from the city of St John’s.

“In some cases, the amenities for families in terms of health and recreation are limited and, thus, makes it more difficult to attract young people from outside the area,” said Lane.

But those who came indicated that they are happy with the decision to move in a rural area and the perks that go with it, such as a sense of community, natural areas, appreciation of environment and outdoor recreation opportunities, he said.

— Ruby Gonzalez
Stirling celebrates its community’s diversity and graduate employability

The Institute of Aquaculture at the University of Stirling says its reputation as a leading international centre of expertise for aquaculture research and education attracts postgraduate students from all around the world. The Institute brings together world-class researchers from a variety of disciplines to address the challenges faced as aquaculture grows to meet global demand. Research focuses on critical questions, such as how to develop strategies for sustainable aquaculture and aquatic food security for both rural and urban communities in the contexts of advancing technology, globalising trade and uneven economic development. Core areas of research cover breeding, genomics, and genomics, health and welfare nutrition, production systems, environments, markets, and social and economic impacts in aquatic animals. The Institute has grown steadily since its formation in 1971 and now has over 180 staff and postgraduate students and an annual operating budget of approximately $12.5 million (£10 million). The Institute is set in 300 acres at the foot of the Ochil Hills. In addition to extensive on-campus facilities, the Institute has separate off-site large-scale freshwater and marine research systems on the west coast of Scotland, and collaborates extensively with other research organisations in the UK, Europe, and globally.

There are around 90 postgraduate students at any time coming from all over the world, divided approximately equally between one-year taught Masters programmes and four-years research-based Doctoral studies, creating a vibrant and multicultural environment. The Institute also runs undergraduate programmes in Aquaculture and Marine Biology and offers short continuing professional development courses for people wishing to extend their knowledge in specialist areas. Studying aquaculture at the University of Stirling can be challenging, but also great fun as programmes are intensive and engaging with plenty of collaborative exercises that help consolidate knowledge, build confidence and foster interpersonal and communication skills that are highly valued by employers. The aim is to help all students to realise their full potential and ensure they are equipped with the knowledge and expertise need to succeed in their chosen career path.

As a University, Stirling is positioned 1st in Scotland and 3rd in the UK for graduate employability, with 97 percent of students in work or further study within six months of graduating. Throughout the taught programmes there are many opportunities to visit the local industry and meet professionals involved in a wide range of commercial and regulatory roles. Many MSc students undertake their three-month research project either with or in partnership with an aquaculture leading sector company, sometimes overseas. Taught programmes include an MSc in Sustainable Aquaculture, which aims to give a broad introduction to the principles of aquaculture and what drives the viability of aquatic production systems, including environment, nutrition, reproduction, genetics, disease, engineering and economics; MSc programmes in Aquatic Veterinary Studies and Aquatic Pathobiology with the former specifically aimed at students with a veterinary science qualification and the latter for those with other biological backgrounds who are looking to develop specialist expertise in aquatic animal diseases.

Study Aquaculture/Fisheries with us

University of Idaho

The Aquaculture Research Institute (ARI) provides undergraduate and graduate students with research experience and hands on fish culture experience at facilities on-campus and in the heart of the Idaho aquaculture industry.

A Bachelor of Science degree in Fisheries with an Aquaculture minor is offered through the Department of Fish and Wildlife Sciences in the College of Natural Resources.

For more information for Aquaculture Programs at UI, go to www.uidaho.edu/aquaculture, or contact director Ronald Hardy, rhardy@uidaho.edu, 208-837-9096, ext. 1105, or associate director Kenneth Cain, kcain@uidaho.edu, 208-885-7608.

Algal Culturing Techniques Workshops

Basic Culturing Skills and Techniques from May 14-16, 2017

Mass culturing for Algal Biotechnology from May 17-19, 2017

Location: Bigelow Laboratory for Ocean Sciences Research and Education campus in East Boothbay, ME

For: Graduate students, faculty members, industry aquaculturists, biotech professionals

Basic Culturing Skills and Techniques

Dates: May 14-16, 2017 Topics covered: History of algae media and media preparation, cryopreservation and much more

Mass Culturing for Algal Biotechnology

Dates: May 17-19, 2017 Topics covered: Scaling up the production chain, ‘mass scale sterile technique’ including filter sterilization and much more

Fee for each workshop: $1,500, and includes tuition, materials, lodging, meals, coffee and lunch every day, course certification.

Special Feature On Training And Education

Hands-on learning at BTC

Bellingham Technical College (BTC) in Bellingham, Washington State blends science with hands-on learning in the lab and in the field to give its Fisheries & Aquaculture Sciences students a strong foundation for future careers.

Much of this learning takes place at BTC’s Perry Center for Fisheries & Aquaculture Sciences, located in downtown Bellingham’s Maritime Heritage Park. Completed in 2013, the two-story, 8,000-square-foot building was designed and constructed to LEED silver standard for energy efficiency. It features specialized classrooms, wet and dry labs, a shellfish laboratory, student equipment lockers and interpretive hatchery displays for public viewing.

BTC’s Fisheries program operates a hatchery at nearby Whatcom Creek, allowing students to apply what they’re learning in the classroom and the lab to the real world. The facility’s location gives students access to the outdoors and an opportunity to see first-hand a variety of habitats, whether it’s fish in their life cycle in local creeks or thriving shellfish farms along Bellingham Bay.

Graduates of the two-year Fisheries & Aquaculture Sciences Associate of Applied Science program are trained for careers as fish hatchery specialists, fish culturists, fisheries technicians, net pen workers, shellfish hatchery workers, scientific aides, water quality technicians, or habitat restoration specialists.

BTC also offers a Fisheries & Aquaculture Science Associate of Applied Science – Transfer degree that allows programs to transfer to Western Washington University to earn their bachelor’s degree in Environmental Studies and Geography. For more information contact BTC’s Admissions department at 360.752.8145 or admissions@btc.edu.
Diver training

At DiveSafe International, headquartered in Campbell River, BC, the focus is first on safety, but the company says it also feels a responsibility to support its students in finding employment after graduation. The company notes that the aquaculture industry is “a great place for our graduates to get good paying fulltime dive employment, so... we have always incorporated the needs of aquaculture divers into our courses.” DiveSafe adds that all working divers in Canada are required to train to the current CSA Commercial Dive regulations. This allows for certification with DCBC (Diver Certification Board of Canada).

“However,” notes the company, “we don’t stop there... we know what the aquaculture industry needs in a diver and do extra training in rigging, net mending, nitrox dives and more. We focus on dive safety and dive accident management. We even invite dive companies to meet our grads and talk about the industry. So...if you are looking for some in-house dive training or contracting out your dive work and need training or have questions... give us a call.”

For dive audits or if you have a question about your company and the dive regulations call owner Kelly Korol at 250-287-3837 or by email at kelly@divesafe.com. www.divesafe.com

Custom Holding Systems

- Designed to maximize space and energy efficiency and minimize maintenance
- Preassembled, skid-mounted Life Support System with multiple options
- Full system monitoring available
- Salt water and fresh water versions available to suit any species e.g. crab, lobster, geoduck, tilapia and more

Call us today at 206.937.0392
www.AquaticEnterprises.com
Advancing aquaculture workforce development

Aquaculture is currently the fastest growing food production system in the world. Although the global aquaculture industry is increasing in size and production, the industry is lacking in educated and experienced individuals to support that growth. Availability of a skilled aquaculture workforce is becoming a major impediment for industry advancement.

The University of Wisconsin-Stevens Point has a robust workforce development program that utilizes two state-of-the-art research facilities for aquaculture and aquaponics to train and advance the industry. These facilities include the UWSP Northern Aquaculture Demonstration Facility and the UWSP Aquaponics Innovation Center. These aqua-business education courses and research facilities incorporate key concepts for educating future workforce, including hands-on experience and applied learning. Through industry-applied research projects, students work alongside expert staff to raise a variety of species at all life stages in various systems. This distinctive opportunity is achieved through internships and technician positions to create a skillset that is very much in demand in the industry. It is no wonder that UW-Stevens Point has a very high job placement rating of over 90 percent.

The success of this program is currently highlighted through UW-Stevens Point graduate, Brandon Gottsacker, who is now the COO of Superior Fresh, the first commercial-scale indoor Atlantic salmon RAS facility in the US. “UW-Stevens Point guided me towards the exciting new industry by providing me unique opportunities to learn about aquaculture,” says Gottsacker. He and his team have directly partnered with the UW-Stevens Point Northern Aquaculture Demonstration Facility for technical assistance, demonstration and coldwater species expertise to advance their facility and operations. “I can be confident in hiring the students that attended UWSP by understanding the rigorous curriculum in biology, fisheries and aquaculture. The UWSP Northern Aquaculture Demonstration Facility has provided opportunities most students wouldn’t get otherwise.”

For more information on UW-Stevens Point Aquaculture or Aquaponics education visit aquaculture.uwsp.edu.

Aquaculture technician training project bags funding

The British Columbia government and North Island College (NIC) on Victoria Island, BC, have partnered on a new $450,000 (C$600,000) project that will boost aquaculture in the province by providing training to future aquaculture technicians.

The three-year project will train up to 40 students at NIC’s campus in Campbell River, BC. The project includes the development of advanced levels of aquaculture technician training; different training delivery models; prior learning and skills assessment/recognition model; and a marketing strategy to promote aquaculture careers to First Nations, high school students and local job seekers.

In addition to in-person instruction, NIC is also working to create materials to deliver the training online to students. Materials that will assess the knowledge of individuals already working in the aquaculture industry are also being developed to help support their career development.

The project started in February this year and is expected to finish in spring 2020.

For more information, contact: 604-890-0033; On-Vocal@NIC.bc.ca; www.nic.bc.ca/aquatic-technician-training
Prospects In Aquaculture

Special Feature On Training And Education

Program’s novelty rooted in ‘real life’ operation of salmonid hatchery

Located at Fleming College’s Frost Campus in Lindsay, Ontario, the Aquaculture post-graduate certificate program includes interactive and hands-on learning opportunities in an on-campus cold-water hatchery. Food production/commercial applications using rainbow trout are coupled with a restoration focus, which includes Atlantic salmon and muskellunge stocking.

Fleming College believes the novelty of the program is rooted in the “real life” operation and maintenance of its own salmonid hatchery. Apart from theory-based lectures, students learn and eventually direct daily husbandry, operation and mechanical systems upkeep in the onsite fish hatchery.

Field trips to diverse private industry operations encompass various commercially produced species, and additional off-site experiences include visits to provincial government facilities and community-based operations. During the first semester students participate in a week-long trip to the Manitoulin Island area where they experience what a typical work day is like in the life of a fish farmer.

Course delivery highlights fish husbandry, biology, mechanical systems, safety, and supervisory training. Modern trends in the aquaculture industry are explored and students must design, budget and build their own mock aquaculture facility.

The final semester in the program consists of an eight-week co-op experience at an aquaculture related operation of the student’s choice.

Industry response to this program has been excellent and is evidenced by our job placement rate. Multiple industry partners from across Canada visit the campus for interviews every year and are instrumental in the development and design of curriculum, ensuring the program remains current with industry needs.

Program staff have wide-ranging backgrounds, including research, hatchery and net-pen operations in commercial and restoration capacities.

“I’m extremely happy with my choice in completing the Aquaculture program at Fleming College. It prepared me with the knowledge necessary to excel in the workforce immediately. Without the program I would not be where I am today. I highly recommend it to anyone who is passionate about Aquaculture,” said Scott Stangret, a graduate of the class of 2016.

“Taking the Aquaculture course at Fleming has opened my world to many new and exciting opportunities. I learned the fundamentals of aquaculture in the classroom but the learning never stops in this industry. I continue to learn every day and will have a bright future working almost anywhere I want in this booming industry,” said Aaron Denomme, also a 2016 graduate.

For more information visit https://flemingcollege.ca/programs/aquaculture or email jon.carter@flemingcollege.ca
BY TOM WALKER

Distance learning has come a long way from the days of the dreaded correspondence course arriving in the mail. Today, a distance-education student can view from anywhere a lecture in real time, or download a recorded version for later. They can discuss via the FaceTime app with a study group, or view a video of a field trip. A math problem can be held up to the camera and the instructor can tell the student where they went wrong.

But what if you don’t have an internet connection? That is one big question that faced Dr. Reid Brewer, Associate Professor and Program Director of the Fisheries Technology (Fish Tech) program at the University of Alaska Southeast (UAS).

Brewer recounts that when he was doing research work with fishermen as part of his PhD with the University of Alaska, Fairbanks. “Alaska has some of the most remote living and working situations on the planet,” he said. Fishermen often raised concerns that education wasn’t something they didn’t have time to do right now.

“I saw that we were missing a huge group of potential students and tried to figure out a way for fishermen to get university coursework when they were at sea,” says Brewer. The solution? Take the learning to the student on an Apple iPad. “When I moved over to UAS, all of the Fish Tech coursework being offered was distance delivery and require a significant amount of bandwidth on the part of the students,” says Brewer. “About two years ago we got a Department of Labor grant to find innovative ways to reach out to non-traditional students. We started building the program.”

Brewer says they began by specifically identifying the learning objectives they wanted the students to master. “If someone is applying for a hatchery job, we can list all the competencies that they have gained after taking the course.”

“The idea is that the student can log into the iPad — without needing internet connection — and begin watching course content saved in the iPad. “But besides just having the instructor waving his hands in the corner explaining about egg’s stages of development in a hatchery, we have a video that walks you through the hatchery and explains what is going on,” says Brewer.

“Instead of telling you about Bristol Bay salmon runs we have Go Pro footage and voice over. It gives you the feeling that you are there.”

The courses also use iBooks and Pages writing applications, both products from Apple, and pdf files for readings. There are periodic reviews and self-check activities.

“The student controls their learning pace and decides when to stop and go,” says Brewer. “Students can go back and review any of the learning outcomes as many times as they need to.”

When the student is ready, they use the ExamSoft application to take tests that are also loaded on the iPads. When students are taking exams, the Guided Access feature of the iPads locks the course content until the student is done taking their exam. Once a student is done, they save and close the exam, their results are saved to the iPad and the next time they have internet access, the exam is uploaded for Brewer to grade and give feedback.

“Student reviews for these classes are off the charts,” says Brewer.

The program now has seven classes on the iPad, all developed in-house. “We’ve looked for somebody to help us, so we don’t re-invent the wheel, but we haven’t really found anybody else that is doing stuff offline in fisheries,” says Brewer.

While the initial grant was for serving students in Alaska, Brewer says this semester they have 65 iPads out of state to students in California, Oregon, Utah, New Mexico and the east coast.

“We have working single parents interested in getting a degree, and we have deployed servicemen that are thinking about a career change,” says Brewer. “We are wondering about second-chance programs for inmates, because, of course, they are not allowed access to the internet.”

The program now has seven classes on the iPad, all developed in-house. “We’ve looked for somebody to help us, so we don’t re-invent the wheel, but we haven’t really found anybody else that is doing stuff offline in fisheries,” says Brewer.

While the initial grant was for serving students in Alaska, Brewer says this semester they have 65 iPads out of state to students in California, Oregon, Utah, New Mexico and the east coast.

“We have working single parents interested in getting a degree, and we have deployed servicemen that are thinking about a career change,” says Brewer. “We are wondering about second-chance programs for inmates, because, of course, they are not allowed access to the internet.”

The program now has seven classes on the iPad, all developed in-house. “We’ve looked for somebody to help us, so we don’t re-invent the wheel, but we haven’t really found anybody else that is doing stuff offline in fisheries,” says Brewer.
and college credit,” says Brewer. All a high school teacher needs to do is start a lecture and voila, an instructor appears. Brewer says, “These classes might be a great opportunity for someone looking for professional development. Our instructors are top notch and the content is fun and engaging.”

“If I would say 80 to 90 percent of the students couldn’t take these classes in a traditional sense even in distance delivery. Thirty-percent are working in remote hatcheries and they are taking classes in the middle of nowhere,” says Brewer.

For Brewer, there’s more exciting developments to come. “One of the fun things we are testing out this summer is an iPad case with a solar panel on it. A student could take a three-credit college course on the side of a hill, waiting for the helicopter to come and pick them up,” he says.

Regardless whether students are taking courses for dual enrollment in high school, professional development while working at a remote hatchery, or just interested about learning more about fish, the UAS Fish Tech program has set out some pretty good bait.

### Toronto farm teaches aquaponics to businesses and hobbyists

Founders of a recirculating aquaculture, hatchery, fish and aquaponics farm in Whitby just outside Toronto, Ontario are so confident in the future of aquaculture and aquaponics thus they have extended the farm’s training and education program into an on-line course with world renowned international experts.

Jason Oziel and his wife Tamar founded Noa Fisheries in 2010 and since then have held 13 three-day on-site courses across Canada for up to about 60 people at a time. Topics include developing aquaponics, plant and fish husbandry, tilapia breeding to harvest, bioreactor technology, biochar use in aquaponics, and agro ecology, for various products.

Oziel indicates he and his wife take some pride in the extensive list of fish farming experts from a broad range of colleges, universities and research institutions they’ve been able to involve in the program such as Dr. Nick Savidov and John Derksen of Lethbridge College.

More recently they began offering the program as an online course to encourage the development of the aquaponics and RAS aquaculture worldwide. With online education, people can learn on their own time and access it at a considerably reduced price of $370 (C$499), compared with $665 (C$899) for the on-site course, which includes and meals and refreshments.

Many who are serious about starting an aquaponics business need to take the course more than once, because it is so information intensive, says Oziel. Offering the course online gives people the opportunity to review the information over time rather than just three days, where they often cannot retain all of the information.

The couple meanwhile is also working officials from Cornell University in developing an entirely new online course — looking at everything from hatcheries to RAS systems. The course is being designed to cover any fish species that can be bred, grown and developed in hatcheries and college credit,” says Brewer. All a high school teacher needs to do is start a lecture and voila, an instructor appears. Brewer says, “These classes might be a great opportunity for someone looking for professional development. Our instructors are top notch and the content is fun and engaging.”

“If I would say 80 to 90 percent of the students couldn’t take these classes in a traditional sense even in distance delivery. Thirty-percent are working in remote hatcheries and they are taking classes in the middle of nowhere,” says Brewer.

For Brewer, there’s more exciting developments to come. “One of the fun things we are testing out this summer is an iPad case with a solar panel on it. A student could take a three-credit college course on the side of a hill, waiting for the helicopter to come and pick them up,” he says.

Regardless whether students are taking courses for dual enrollment in high school, professional development while working at a remote hatchery, or just interested about learning more about fish, the UAS Fish Tech program has set out some pretty good bait.

### Toronto farm teaches aquaponics to businesses and hobbyists

Founders of a recirculating aquaculture, hatchery, fish and aquaponics farm in Whitby just outside Toronto, Ontario are so confident in the future of aquaculture and aquaponics thus they have extended the farm’s training and education program into an on-line course with world renowned international experts.

Jason Oziel and his wife Tamar founded Noa Fisheries in 2010 and since then have held 13 three-day on-site courses across Canada for up to about 60 people at a time. Topics include developing aquaponics, plant and fish husbandry, tilapia breeding to harvest, bioreactor technology, biochar use in aquaponics, and agro ecology, for various products.

Oziel indicates he and his wife take some pride in the extensive list of fish farming experts from a broad range of colleges, universities and research institutions they’ve been able to involve in the program such as Dr. Nick Savidov and John Derksen of Lethbridge College.

More recently they began offering the program as an online course to encourage the development of the aquaponics and RAS aquaculture worldwide. With online education, people can learn on their own time and access it at a considerably reduced price of $370 (C$499), compared with $665 (C$899) for the on-site course, which includes and meals and refreshments.

Many who are serious about starting an aquaponics business need to take the course more than once, because it is so information intensive, says Oziel. Offering the course online gives people the opportunity to review the information over time rather than just three days, where they often cannot retain all of the information.

The couple meanwhile is also working officials from Cornell University in developing an entirely new online course — looking at everything from hatcheries to RAS systems. The course is being designed to cover any fish species that can be bred, grown and developed in
Two-Track Education and Training for Aquaculture

BY JOHN G. NICKUM

should a young person preparing for a career in aquaculture pursue a broad-based, biology-focused education program, or a highly specialized vocational training program in aquaculture? What about an older individual who wants to, or has to, change careers? There has been a lot of discussion within the aquaculture community about these questions. I am not aware of a consensus on these questions and I doubt there will be one; so much depends on individual interests and circumstances.

I suspect that opinions about “the best option,” including my own, are influenced by the path the speaker/writer followed for their career. My first experience with fish propagation involved rearing rainbow trout for a local restaurant 55 years ago when I was a graduate student. My education had been strictly academic, but my training in fish propagation was all “O-J-T” (on-the-job training). I like to claim that I have some experience with both training and education as it pertains to aquaculture, based on my own experience as a university teacher and career as a manager with the US Fish and Wildlife Service. I must acknowledge, however, I identify more strongly as an educator. Although the terms “education” and “training” are frequently used interchangeably, they are different; at least in the mind of this “old professor.” Training a student is frequently used interchangeably, they are different; at least in the mind of this “old professor.” Training a student is typically focused on developing a specific set of skills that are needed to do a specific job, or jobs, efficiently. Training is job-focused. Education typically takes a broader approach, including greater emphasis on critical thinking. An education program may enable students to acquire many of the same skills taught in training programs, but it usually is less job-focused. Education programs attempt to provide broad foundations that will be useful in many occupations, not just a few targeted jobs. Broad-based education programs typically include an array of formal courses to provide the background necessary for understanding principles behind the myriad aspects of propagating aquatic animals, or, increasingly, plants.

I probably am somewhat biased toward programs based on a broad foundation of academic coursework, followed by training in specific skills; that was the path I followed. I think a college education should be just that… an education; specialization comes later. Most young people in the age range of 18 to 20/21 really don’t know yet what they want in terms of employment; therefore, they need a broad foundation. When I entered college, I was trying to decide whether to be a high school football-baseball coach, or a nuclear physicist. It was only after being exposed to courses in math, physics, chemistry, and biology that I learned my real interests were in vertebrate zoology, ecology, and ultimately aquaculture and fish health. A broad educational program equips students, and workers, to deal with the ever-changing demands within specific jobs, as well as evolving job markets. An aquaculturist with experience in the methods used in 1900, or even 1950, would experience a very steep learning curve if placed in a present day aquaculture production facility, especially if that person had only hands-on skills she/he had learned on the job. A combination of “book learning” and O-J-T would make the individual much more adaptable to dynamic job requirements.

I suggest the first step for most students preparing for a career in aquaculture, whether their career goal is rearing fish, or shellfish, or crustaceans should start with basic coursework in biology. Biology provides the foundation for later specialization; however, becoming a competent biologist in today’s world requires more than just biology. Modern biology requires a foundation in mathematics, physics, and chemistry, as well as biology. Additional basic courses, such as animal physiology, vertebrate anatomy, embryology, genetics, and ecology strengthen the foundation before specializing in ichthyology, fisheries ecology, limnology, invertebrate zoology, algalogy/aquatic plants, marine ecology, and other courses pertaining to aquatic animals. Basic microbiology and pathogenic microbiology, plus, parasitology are needed to equip the student for solving disease problems. Inasmuch as feeds and feeding are typically the most expensive aspects of aquaculture production, at least one course in animal nutrition would be very useful. An argument can be made that the program I envision would require an undergraduate major in biology/ecology followed by a Master’s degree in some aspect of aquaculture.

Training programs usually do not require a long list of courses, but emphasize working environments in which the student learns about measuring and maintaining essential water quality parameters, spawning, recognizing early signs of disease conditions, normal feeding behavior, proper feed storage, signs of environmental stress; as well as, how to maintain and repair the mechanical and electrical systems of the facility. Whichever path a student follows, a few fundamental concepts must be central to his/her education and/or training: “Know your fish; or shellfish; or crustacean.” Also, “know the system/environment in which you are rearing them;” and “clean water equals few problems, but dirty water and stressful environments equals endless problems.” Whether an individual is trained, or educated, she/he must understand these basic concepts. Broad-based education programs help workers understand the “why” factors of their jobs, but without learning the “how to do it” skills, their “book learning” may leave them ill-equipped to meet the demands of their employment, and their employer.

Aquaculture is not a career for the ill-prepared.
Stakeholders fear Trump’s budget cuts would kill Sea Grant program

Move would ‘immeasurably hurt the domestic aquaculture industry’

BY ERICH LUENING

Aquaculture researchers and other stakeholders are worried that US President Donald Trump’s recently released fiscal 2018 budget proposal will cut funding to marine agencies and completely eliminate the national Sea Grant program, which acts as the federal extension and research service to fisheries, including shellfish and finfish farming.

The proposed cuts to the National Oceanic and Atmospheric Administration (NOAA), which oversees the Sea Grant program, would also eliminate funding for a variety of smaller programs including external research, coastal management, estuary reserves and “coastal resilience,” which seeks to bolster the ability of coastal areas to withstand major storms and rising seas.

According to a leaked memo from the federal Office of Management and Budget (OMB), first reported by the Washington Post, the budget plan would slash funding for a number of federal agencies, including NOAA, the US Coast Guard, Transportation Security Administration and the Federal Emergency Management Agency. The memo reportedly cites the Trump administration’s goal of redirecting the funding for rebuilding the US military.

NOAA would face the steepest cuts, including $126 million from its Office of Oceanic and Atmospheric Research. The $73 million Sea Grant Program would be eliminated entirely.

NOAA doesn’t comment on legislation of any kind and recommended contacting the Department of Commerce for further information. There’s been no response to several calls and emails sent to the public affairs office.

Sea Grant offices receive federal funds and tries to match it with private and state investment for research. But without a federal commitment, the program would be finished, MaryAnn Wagner, a spokesperson for Washington Sea Grant, told the online reader-supported news service grist.com.

Robert Rheault, the executive director of the East Coast Shellfish Growers Association (ECSGA) and longtime advocate for domestic aquaculture of all types, says the proposed elimination of the Sea Grant program would immeasurably hurt the domestic aquaculture industry in the US.

“I suppose the industry would continue to grow without the assistance of Sea Grant, but it would certainly slow the process, and states would be challenged to replace the educational outreach and research capacity that Sea Grant brings to the table,” Rheault tells Aquaculture North America (AN). “I view the proposed cuts to Sea Grant as job killers.”

He says his members rely on Sea Grant support in several ways.

Sea Grant supports 33 college programs and dozens of aquaculture extension agents around the country, he explains.

Sebastian Bell, executive director of the Maine Aquaculture Association says he’s concerned about the cuts. “It does not make a lot of sense to cut something that creates jobs,” he says. “The Sea Grant program has been important to the aquaculture industry across the country particularly on the shellfish aquaculture side. It’s not just the jobs part. There’s the research side as well. And Sea Grant research has been integral in building sustainable aquaculture in the US.”

Rheault agrees. “Especially now, as new entrants are jumping into oyster farming, we need extension agents to help these folks navigate the permit process and establish viable farms — just like county agricultural agents help start-up farmers in square states,” he says. “If we really want to create jobs we should double our extension capacity instead of eliminating it.”

The Sea Grant research program is a largely industry-driven request for proposals that funds work to solve key issues that constrain the growth of fisheries and aquaculture, explains Rheault.

The Sea Grant program cuts are part of a huge budget proposal by the Trump White House, but they are far from being in a final budget that has to go through Congress, where representatives from the 33 states that rely on the program have a final vote.

After concluding a long week in Washington DC where Rheault and some of his ECSGA members met with over 40 members of Congress, he is hopeful that the Sea Grant program will stay afloat in the final budget.

The first Focused Request for Proposals (Focus RFP) for the Sea Grant competitions aims to address barriers to aquaculture growth.

Under the threat of serious budget cuts, the US federal Sea Grant program in February announced a 2017 aquaculture initiative worth $15 million for research proposals targeting barriers to aquaculture development and domestic aquaculture production for the next couple of years.

If proposed cuts to financing the National Oceanographic and Atmospheric Administration (NOAA) Sea Grant program is stopped in Congress, the funding will be available for a few more years, according to the agency.

Depending on appropriations, NOAA Sea Grant expects to have available a total of $10 million to $12 million between fiscal years 2017, 2018, and 2019 for a national initiative to increase aquaculture production in the short-term (two to four years).

The competition is designed to boost expansion of sustainable US marine, coastal, and Great Lakes aquaculture. Successful applications must outline integrated projects that clearly address major constraints, barriers, or hurdles limiting US aquaculture production.

The first Federal Funding Opportunity provides information for applications requesting between $100,000 and $1 million in total federal funding for a two- to three-year period. Non-federal matching funds of at least 50 percent are required (for example, a project receiving $1 million in federal funding must include at least $500,000 in matching funds, for a total project budget of $1.5 million).

All project applications must focus on expanding domestic aquaculture in the US.

SECOND COMPETITION

The second funding opportunity under the Sea Grant aquaculture initiative calls for applications for projects that specifically explore impediments to the expansion of domestic aquaculture in the US.

Depending on appropriations, NOAA Sea Grant expects to have available a total of $3 million between fiscal years 2017 and 2018 for a national initiative focused on answering key questions impeding the development and expansion of sustainable US marine, coastal, and Great Lakes aquaculture.

Successful applications must outline small scale projects, business plans, workshops, etc, that seek to address key questions, barriers, or hurdles impeding the advancement of new or developing aquaculture initiatives that will contribute to the continuing growth of US aquaculture production.

Applications for the first funding opportunity were due May 9 while the applications for the second funding offer addressing obstacles to domestic aquaculture were due April 18.

— Erich Luening
Thanks for reading. We hope you’ve learned something!

This annual “Training & Education” supplement is part of the May/June 2017 issue of Aquaculture North America. We encourage you to forward the supplement to any friends, family or colleagues interested in a career in aquaculture.

To subscribe to Aquaculture North America, please visit www.aquaculturenorthamerica.com

Published by

Capamara Communications Inc.
4623 William Head Road,
Victoria, BC
V9C 3Y7, Canada