People & Places

Quest for sustainable aquaculture

Ron Hardy built a fisheries research program respected around the world

By CAROL RYAN DUMAS
Capital Press

Carol Ryan Dumas/Capital Press
Ron Hardy, director of the University of Idaho Aquaculture Research Institute, examines a sample at the Hagerman Fish Culture Experiment Station on Nov. 27.

Ron Hardy has built a world-class fish research facility at the University of Idaho and is one of the top scholars in his field worldwide. His work has advanced the scientific knowledge of fish nutrition and genomics and sustainable aquaculture and has contributed substantially to fisheries management.

His dedication, commitment and tenacity no doubt have played a huge part in that success — but it might not have happened without fate's intervention.

"I wanted to be a doctor, or I thought I wanted to be a doctor," Hardy said, sitting in his office at the University of Idaho Hagerman Fish Culture Experiment Station.

He enrolled in a pre-med program at the University of Washington and worked at the Northern Pacific Railroad moving boxcars to pay his way through college.

After earning a bachelor's degree in zoology in 1969, he went to work at the university's medical school as a research technologist for doctors working with patients with kidney diseases. He worked there for two years but decided medicine was not for him.

He instead wanted to go into agriculture like his father, who had moved the family from Canada to Washington when Hardy was a baby to manage Washington State University's poultry farm.

Zoology was a little too academic for his taste, however, and he wanted to pursue practical research. That took him to Washington State University to work on an interdisciplinary degree from the departments of animal sciences, biochemistry and food and human nutrition.

The book

And it was there, on a routine trip to the library, he happened upon a book that would change his life.

That book — "Fish Nutrition" by John Halver — had never even been checked out, but it was groundbreaking, he said.

The state of knowledge about fish nutrition at the time was "zip" and 30 years behind the progress that had been made on nutrition for other animals, he said.

The concept was "something new" and the book was a "gold mine," he said.

Halver's book was pretty advanced for fish nutrition, but research on nutritional needs and requirements was just getting started in that arena.

Halver was a biochemist working for U.S. Fish and Wildlife Service and approached fish nutrition from a biochemical and physiological standpoint. He was the first person to put fish nutrition in line with pigs, chickens and humans, Hardy said.

"So that appealed to me a lot. He was a visionary," he said.

Halver's knowledge would make it possible to develop fish feed in pellet form to efficiently raise fish on farms.

"I saw that right off the bat when I read his book," he said.

After earning a master's degree in nutrition in 1973, Hardy went back to the University of Washington to study fish nutrition in a doctoral program. In the middle of his studies, Halver took a position as a professor at the university and was a member of Hardy's supervisory committee. He was Hardy's main adviser on his Ph.D. research project on fish nutrition, and Hardy was his teaching assistant.

Their association would last decades and result in their publishing a third edition of Halver's book together.

In the field

After earning a Ph.D. in fisheries in 1978, Hardy joined the university's fisheries research faculty, taught some classes — including Halver's introductory class for undergraduates — and procured grants and contracts.

A federal fisheries laboratory — with nice equipment — was nearby, and he started going there to use that equipment. Eventually, he was invited to work there at the Northwest Fisheries Science Center in a two-year intergovernmental exchange program. Upon completion, he was offered a permanent position at the laboratory.

He was advised to take a leave from the university without pay so he could return and take over Halver's position when he retired, which was expected in the not-so-distant future.

"There was just one flaw — Halver didn't retire," he said.

Hardy remained at the Northwest Fisheries Science Center for 12 years and was being groomed for an executive position when he got a call from an associate at the University of Idaho who wanted him to apply for a position with the university.

He wasn't interested, but at the associate's insistence reluctantly visited the university, where a meeting had been arranged — unbeknownst to Hardy — with the university president.

What was presented was a brief synopsis of what universities in the West were doing in aquaculture and what the University of Idaho was aspiring to do.

"I was blown away. I was amazed," he said.

Later, the university flew him in to meet with legislators and industry people and to see a federal laboratory in Hagerman that had been mothballed by U.S. Fish and Wildlife.

"The university had leased it and wanted me to create something out of it," he said.

It was a small cinder-block facility that didn't even meet fire codes, but Hardy would have money to get started and the university's blessing to do whatever he wanted.

"How can you resist that? So I took the job," he said.

He was set at his job in Washington, was offered the directorship of the fisheries center if he stayed, and no one could believe he walked away, he said.

"But I decided it was time for a change. I jumped at it. Six months later, I thought I made the biggest mistake of my life," he said.

Creating something out of nothing — something new that's not bumping up against entrenched, successful laboratories — and making it work is not easy, he said.

"That's when I decided to put the emphasis on genomics," he said.

Technology and equipment to study genes was just becoming available, and genomics could be used to measure how the body responds at the gene level, he said.

"It's going down a whole other level to see how life works," he said.

But getting a start-up program off the ground wasn't easy.

Growing an institute

The research program Hardy was trying to develop came under the university's Aquaculture Research Institute. A research institute operates outside the culture of colleges within the university, which each have a dean and their own faculty positions. It's meant to facilitate interdisciplinary science programs and research efforts, and there are no positions just sitting there, he said.

He was unable to get faculty positions for the program within the colleges, making it hard to hire top people. The fledgling research station was operating with post-doctoral graduates and temporary positions. Undeterred, Hardy contacted USDA and proposed setting up an Agricultural Research Service fish program at the station.

The response was "we'd love to do that if you can find the money," he said.

He found that money in 1999 through then-Sen. Larry Craig, who created an earmark for that funding in the federal budget and over time moved into base funding for USDA and four full-time research positions at the station.

The station's work in population genetics for Native American tribes, hoping to bring back salmon populations in the Columbia River, also created positions at the station. That work proved so useful the Columbia River Inter-Tribal Fish Commission set up its own program in collaboration with the station in 2004.

The university's partnerships with USDA-ARS and CRITFC expanded the station's capacity and technology, particularly in genomics, which has been its driving force.

Genomics has a fundamental capacity to allow researchers to go in different directions, such as population genetics to better manage fisheries, enhanced food fish production, selective breeding and sustainable aquaculture, Hardy said.

And those are exactly the things Hardy and the teams at the station have been doing for the past two decades.

Hardy's research has been focused on fish nutrition, including developing sustainable feed sources for the global aquaculture industry.

"We're really known for that, and we're really known for the trout selective-breeding program with USDA," he said.

Research at the facility has doubled the growth rate of trout, enhanced disease resistance and led to fish that can thrive on a vegetarian diet — all geared at sustainable aquaculture.

"The things we do here are applicable worldwide," he said.

What's next

Hardy's goal is to integrate nutrition and genetic selection into a holistic program to address all components of fish health across the globe. He also wants to expand the university's efforts into fisheries health management, and a new facility on the Moscow campus for research into salmon and marine species is set to come online next year.

The most rewarding part of his career is "making this happen out of nothing," and he's had a lot of support in that endeavor from the university, elected officials and industry, he said.

"When you have that support, you can do a lot," he said.

"To build a sustainable, smoothly running, respected research laboratory is just a dream come true," he said.

What he's most proud of, however, is training graduate students and researchers from all over the world, he said.

In addition to directing the university's Aquaculture Research Institute since 2002, Hardy also works on salmon and steelhead hatchery and recovery issues in the Pacific Northwest with state and federal agencies and Native American tribes.

He has traveled extensively throughout the world to present lectures, consult and work on behalf of international organizations, such as the Food and Agriculture Organization of the United Nations and the European Commission.

Just recently, he was recognized for his contributions with a lifetime achievement award from the World Aquaculture Society.

As for the future, he's committed to getting the new research facility at Moscow up and running and will probably do a "soft" retirement until he's sees that through. He's also planning to put out a new edition of "Fish Nutrition" and fully retiring "someday."

Western Innovator

Ron Hardy

Occupation: Director, University of Idaho Aquaculture Research Institute since 2002

Career: 1996 to present — University of Idaho, professor, animal and veterinary sciences; director of Hagerman Fish Culture Experiment Station (until 2016). 1984-1996 — Supervisory research chemist, Northwest Fisheries Science Center, NOAA Fisheries, Seattle. 1984-1996 — research assistant, associate and full professor, University of Washington School of Fisheries, Seattle

Education: Ph.D. in fisheries, University of Washington, 1979; master's degree in nutrition, Washington State University, 1973; bachelor's degree in zoology, University of Washington, 1969

Author or co-author: More than 300 scientific papers on fish nutrition

Honors: World Aquaculture Society lifetime achievement award; Jean'ne Shreeve National Science Foundation EPSCoR research excellence award; University of Idaho innovation award.

Calendar

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Tuesday, Dec. 12

Managing Family Leaves, Oregon Sick Leave, Disability Leave, Workers' Compensation. 10 a.m.-3 p.m. Chemeketa Center for Business and Industry, 626 High St. NE, Salem, Ore. Leave laws are complex and overlapping. There are good reasons why it's sometimes referred to as the "Bermuda Triangle," because once you're in it's often confusing how to get around and out. In this all-day meeting, we'll provide a solid overview of these various laws, how they interplay or overlap, and give practical advice to avoid problems. We'll have scenarios for you to work through for experience. We'll even provide lunch. Cost: $49 per person, includes lunch. Open to Saalfeld Griggs clients and voting/supporting members of Oregon Farm Bureau Federation. Website: http://oregonfb.org/events-2/

Wednesday, Dec. 13

Developing or Expanding Your Farm Stand or Agritourism Operation, Part 2. 9 a.m.-4 p.m. OSU Extension, Auditorium, SOREC, 569 Hanley Road, Central Point, Ore. Social Media Training for Small Farms. Website: http://bit.ly/JacksonSmallFarms

Thursday, Dec. 14

Four-Part Farm and Ranch Succession Workshop 6-8:30 p.m. Online or Clackamas Community College Harmony Campus, 7738 SE Harmony Road, Milwaukie, Ore. Learn from an attorney, an accountant, an appraiser, a banker, the director of Oregon State University's Austin Family Business Program and farmers who've been through the process. Receive free one-on-one succession counseling sessions between each event. Part four of four parts. Cost: Free. Website: http://bit.ly/2elYcPx

Thursday, Jan. 4

Ag Tech Boot Camp. 9 a.m.-4 p.m. Roy F. Christensen Building, Idaho State University campus, Pocatello, Idaho. Presenters will feature the latest innovations in crop and livestock production. Sponsored by University of Idaho Extension officials, private industry representatives and state commodity group leaders. Cost: $30

Friday-Wednesday Jan. 5-10

2018 American Farm Bureau Federation Convention and IDEAg Trade Show. Gaylord Opryland Resort and Convention Center, 2800 Opryland Drive, Nashville, Tenn. Celebrate the accomplishments of leaders in agriculture and witness powerful keynote speakers in the general sessions. Explore the IDEAg Trade Show floor to gain a stronger industry network, shop featured products, learn about innovative technologies, and enjoy TED-style talks on the Cultivation Center stage. Website: http://bit.ly/2iJS9t3

Wednesday, Jan. 10

Developing or Expanding Your Farm Stand or Agritourism Operation, Part 3. 5-8 p.m. OSU Extension, Auditorium, SOREC, 569 Hanley Road, Central Point, Ore. Are you interested in developing or expanding a farm stand or agritourism operation? Jan. 10 is Accepting Food Stamps/SNAP/EBT at a Farm Stand or CSA and Feb. 6 is Starting a Farm Stand/Agritourism Operation. Website: http://bit.ly/JacksonSmallFarms

Wednesday-Friday Jan. 10-12

Potato Expo 2018, 7:30 a.m.-9 p.m. Rosen Shingle Creek, 9939 Universal Blvd., Orlando, Florida. Over the last 10 years, the Potato Expo has gained the reputation as the best setting for conducting business and getting caught up on industry issues. Talk about new equipment, products, technology and innovations in the potato industry. Hear from thought-provoking speakers and opinion leaders in agriculture. Discover new solutions on how to deal with on-farm challenges. Website: potato-expo.com

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An independent newspaper published every Friday.

Capital Press (ISSN 0740-3704) is published weekly by EO Media Group, 1400 Broadway St. NE, Salem OR 97301.

Periodicals postage paid at Portland, OR, and at additional mailing offices.

POSTMASTER: send address changes to Capital Press, P.O. Box 2048 Salem, OR 97308-2048.

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Capital Press
P.O. Box 2048
Salem, OR 97308-2048

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