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Commercial Geoduck harvester with hookah gear and a "stinger." *Photo from Southeast Alaska Regional Dive Fisheries Association.*

Dive Fisheries of Southeast Alaska — Research and Management Challenges

Kyle Hebert

On a typical morning aboard the Alaska state research vessel *Kestrel*, research divers begin the day bustling about, checking gear, and wondering what they may see along the ocean floor that day. Recent trends show troubling declines in populations of some benthic marine species that share habitats with sea otters. The impacts are uncertain until divers collect the data used to determine allowable harvest levels, levels intended to protect the long -term viability of the commercial dive fisheries.

The Alaska Department of Fish and Game (ADF&G) Southeast Alaska dive team, comprised of six scientific divers, sets out on the *Kestrel* from its homeport of Petersburg every other week during spring and summer to perform surveys required by law before commercial dive fisheries may occur. The surveys focus on an unusual group of benthic marine species that includes California Sea Cucumbers, Red Sea Urchins, and Pacific Geoducks (pronounced "gooey ducks"). The *Kestrel* serves as workspace, transportation, and home during week-long outings from April to September. The target species are destined for Japanese and other Asian markets for sale as delicacies or for medicinal uses. Pacific Geoducks are prized for their meat, Red Sea Urchins for their roe, and California Sea Cucumbers for their meat and skin.

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Fisheries Training Goes International

For three weeks this past summer along the pristine shores of Lake Aleknagik in Bristol Bay, Alaska, fisheries graduate students from the University of Alaska Fairbanks (UAF), the University of Washington (UW), and Kamchatka State Technical University (KSTU) came together during the height of the Bristol Bay sockeye salmon commercial fishery to learn quantitative fishery management techniques. The course, co-taught by Milo Adkison (UAF) and Ray Hilborn (UW), provided students an opportunity to learn quantitative methods used in Alaska and in other jurisdictions to estimate salmon abundance, forecast run size and timing, and evaluate harvest strategies. The course took full advantage of its proximity to the commercial sockeye salmon fishery, with students tracking the return of the salmon to each fishing district in Bristol Bay, estimating the total run as it developed in real time, and, in teams of two or three students, role-playing the decisions of district fishery managers each day.

While UAF and UW have been teaching this graduate student class together for 12 years, the inclusion of international students has been rare. Two graduate students from Kamchatka, Russia, Anna Shatrova and Kerim Aitukaev, traveled across the Pacific to visit the Alaska on their first visit to the USA. Translator (and unofficial teaching assistant) Viktoria Chilcote was integral to the success of the learning by all parties. Guest lectures by locals, and field trips to processing plants, an ADF&G counting tower, and the fishing districts, allowed the students to experience firsthand what goes into management decisions and the real-world impacts of the fishery.

Bearded and beardless fashion in a processing plant visit. Photo by John Simeone.

Alaska and Kamchatka are the last strongholds of healthy, wild Pacific salmon populations. Establishing a generation of salmon ecologists and fisheries managers that are able to draw from both Russian and American scientific expertise and management tactics will only serve to enhance the ability for both countries to maintain healthy salmon populations. World Wildlife Fund (WWF) provided the funding to bring the two Russian students together with their US colleagues this summer. The WWF seeks to deepen collaborations with Russian and US scientists and managers in order to ensure sustainable management of wild Pacific salmon. In 2016, WWF helped fund an initial exchange between UAF and KSTU by supporting fisheries students and professors (Megan McPhee and Peter Westley from

Russian and American shadow management team agonizes over whether to open their district tomorrow. Photo by John Simeone.

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Fisheries Training Goes International, continued

UAF and Alexander Bonk from KSTU) to participate in a field-based Alaska-Kamchatka exchange. The four-week exchange provided opportunities for Russian and American participants to study salmon, field research techniques, and fishery management on Alaska's Kenai Peninsula and Bristol Bay watersheds, and on Kamchatka's Kol River, which flows in to the Sea of Okhotsk.

All sides of the KSTU, UAF, UW, and WWF collaboration hope that this partnership will blossom and foster joint research and conservation efforts between students and faculty in the coming years. With new generations of well-prepared leaders working on both sides of the Bering Sea, we can hope for healthy, sustained salmon runs long into the future.

Marine Debris Funding Opportunities

The NOAA Marine Debris Program is providing several grant funding opportunities for FY2018 related to marine debris. The amount of finding available and the application deadline varies by project type. For more information, contact Peter Murphy (*peter.murphy@noaa.gov*) or go to *http://marinedebris.noaa.gov/funding/funding-opportunities.*

FY2018 Community-Based Marine Debris Removal

The NOAA Marine Debris Program (MDP) announces grant funding available in FY2018 for the development and implementation of locally-driven, marine debris prevention, assessment, and removal projects that benefit coastal habitat, waterways, and NOAA trust resources. Funded projects will create long-term, quantifiable ecological habitat improvements through on-the-ground marine debris removal activities. Priority will be given to projects targeting derelict fishing gear and other medium- and large-scale debris. Another focus will be projects that also foster awareness of the effects of marine debris to further the conservation of living marine resource habitats, and contribute to the understanding of marine debris composition, distribution, and impacts.

Funding of up to $2,000,000 is expected to be available for Community-based Marine Debris Removal Project Grants in Fiscal Year 2018. Typical awards will range from $50,000 to $150,000. Applications must be submitted no later than November 1, 2017. For more information, go to *https://marinedebris.noaa.gov/funding/funding-opportunities.*

Diversity and Inclusion Symposium

The NOAA Fisheries' Alaska Regional Office (AKR), the Northeast Fisheries Science Center (NEFSC), the West Coast Regional Office (WCR), and the Office of Equal Employment Opportunity sponsored and convened a very successful and well-attended symposium at the national American Fisheries Society meeting in Tampa, Florida on August 22, 2017. The symposium was entitled "Harnessing the Power of Diversity and Inclusion: Game Changing Solutions for Enhancing Diversity and Inclusion in the Fisheries Profession."

Speakers from NOAA included Dr. Richard Merrick (retired), Dr. Kaja Brix (AKR), Melanie Okoro (WCR), and Todd Christenson (NOAA Office of Education). There were other speakers representing academic institutions, NGOs, and other Federal and state agencies. The symposium and the roundtable discussions that followed were facilitated and moderated by Tony Chatman, a well-regarded expert on diversity and inclusion.

In his opening remarks, the incoming AFS president, Steve McMullin, agreed to incorporate the content and recommendations from the symposium in an upcoming edition of the AFS journal *Fisheries* and in his three-year work plan for AFS. A summary of the symposium and recommendations will be provided to NOAA Fisheries Leadership and to the symposium participants when completed.

For more information contact Doug Mecum (*doug.mecum@noaa.gov*); Shivonne Nesbit (*shivonne.nesbit@noaa.gov*), or April Croxton (*april.croxton@noaa.gov*).