



AQUATIC INVASIVE SPECIES NEWS

12/21/2018

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RECOMMENDED

[Do non-native species count as biodiversity? An Open Letter to the IUCN by Dan Simberloff](#)

There have been calls for biodiversity and ecosystem assessments to count non-native species as well as their native counterparts as positively contributing to biological diversity. Daniel Simberloff, Gore Hunger Professor of Environmental Studies at the University of Tennessee and member of the Invasive Species Specialist Group of IUCN's Species Survival Commission, explains why this approach is misguided and would hinder our ability to achieve international conservation and development goals. [\[Full letter here\]](#)

PUBLIC INPUT

Greetings from Montana! Even though the snow has arrived, aquatic invasive species prevention are efforts just don't quit! In an effort to assess the efficacy and success of Montana's efforts to prevent the introduction and spread of aquatic invasive species (AIS), the Upper Columbia Conservation Commission (UC3) is conducting an evaluation of the 2018 Montana Aquatic Invasive Species Program. On behalf of the UC3, I am requesting your participation in a brief survey to share your experience and thoughts on the AIS Program during the 2018 season. The survey should take approximately 15 minutes to complete. Your feedback will provide valuable information that can enhance the AIS Program to best protect Montana's water resources. This is a public survey, so we would really appreciate your assistance in sharing the link with your

groups, constituents, listservs, etc. if possible. (Survey link is hyperlinked above, but can also be accessed, copied by link: <https://www.surveymonkey.com/r/QW7JCXV>)

The Northwest Power and Conservation Council invites your review and comment on the recommendations the Council received to amend its 2014 Columbia River Basin Fish and Wildlife Program. Please submit your comments on the [recommendations](#) no later than **February 4, 2019**. Consistent with the Northwest Power Act of 1980, the Council develops and periodically amends its fish and wildlife program for the Columbia River Basin to protect and enhance fish and wildlife affected by the development and operation of hydroelectric facilities, while assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. The Act requires the Council to call for recommendations to amend the program at least every five years prior to the Council's review of its regional electric power and conservation plan. Last May, the Council issued a call for program amendment recommendations. The deadline for submissions was December 13, 2018. [The Council now seeks public comment on the recommendations, as required by the Northwest Power Act.](#) We appreciate your interest in the Council's fish and wildlife program.

NEW SPECIES SIGHTINGS

DRESISSENIDS

OTHER AIS

[Great Lakes]

[Diaphanosoma fluviatile](#) (a cladoceran) was found in Lake [Michigan](#) [USGS NAS Report]

[Montana]

[Potamopyrgus antipodarum](#) (New Zealand mudsnail) was found in a creek in Bozeman, tributary of the Gallatin River [USGS NAS Report]

[South Dakota]

[Potamogeton crispus](#) (curly-leaf pondweed) was found in [Roosevelt Lake, SD.](#) [USGS NAS Record]

[Texas]

[Nymphoides cristata](#) (crested floating-heart) was found in [Lake Athens, TX.](#) [USGS NAS Record]

[Alternanthera philoxeroides](#) (alligatorweed) was found in [Sulphur Springs Reservoir, TX.](#) [USGS NAS Record]

DREISSENIID MUSSELS

[Montana waters test negative for mussels \(12/19/18\)](#)

HELENA – This year was record-setting for Montana Fish Wildlife and Park’s statewide partners in the rigorous battle against Aquatic Invasive Species. “Our AIS staff and partners have done fantastic work to increase our watercraft inspection and monitoring efforts,” said Tom Woolf, AIS bureau chief for the FWP in a press release. “And we are doing a better job informing boaters, anglers, irrigators and others about what they can do to help stop AIS.”

[Michigan trying to fix damage from invasive mussels \(11/30/18\)](#)

The strategy is intended to guide investments, policies and research into zebra and quagga mussels. The mussels arrived in the lakes in the 1980s and have spread across much of the nation... The strategy sets goals to guide development of methods to restore damaged ecosystems.

[\[South Dakota\] Zebra Mussels Summit Set For Yankton \(12/10/18\)](#)

A one day summit on the invasion of zebra mussels into our area lakes and rivers will be held this Thursday in Yankton. Mike Greiner of the South Dakota Game, Fish & Parks Department, says they want to bring together different groups impacted by the spread of the zebra mussel...

Related: [Taking On Mussels; Summit Explores Efforts, Partnerships To Slow Spread Of Zebra Mussels \(12/14/18\)](#)

[Invasive Mussels: review and economic analysis associated with the state of Montana's response to the detection of invasive mussels in 2016 \(December 2018\)](#)

[The 2016-2018 National Invasive Species Council Management Plan](#) called for the Council to “promote pilot projects across a variety of U.S. ecosystems that explore innovative, multi-stakeholder approaches to the early detection of and rapid response to invasive species.” This Contractor’s Report is the output of one of three pilot projects responding to priority action 2.5.4.

BOAT INSPECTION/DECON/TECH NEWS

[The National Sea Grant Law Center is pleased to announce the release of the “Model Memorandum of Understanding for Watercraft Inspection and Decontamination Programs.”](#)

The Model MOU provides a model framework for the formalization of interstate and regional collaborations through the development of written agreements. It outlines key

considerations that should be addressed by the parties during negotiations and provides template language for major provisions. With the publication of the Model MOU, policymakers and regulators now have access to a model legal framework identifying model WID provisions from legislation through implementation. The document is available at <http://nsglc.olemiss.edu/projects/model-legal-framework/files/modelmou.pdf>.

[Evaluating boat cleaning station efficacy on the removal of residual water from recreational boats \(11/18\)](#)

A risk factor for the spread of aquatic invasive species is the residual water left in a watercraft after it leaves a waterbody. This water can be transported and potentially released into another waterbody. One option to reduce residual water in recreational watercraft are cleaning stations. These multifunctional units are permanently installed at boat launches and supply boaters with tools and equipment to thoroughly clean their boat. This study evaluated the practicality and effectiveness of a CD3 Cleaning Station vacuum for removing residual water from various recreational boats.

[\[Colorado\] Boating season on Three Lakes ends as state closes last two ramps \(12/3/18\)](#)

... The official closure of boat ramps across the Three Lakes is new this year and is a direct result of the state's concerns about two invasive species of bivalves, zebra mussels and quagga mussels. For the past several years Colorado Parks and Wildlife and other partners have funded a boat inspection regime at boat ramps throughout the Three Lakes and at dozens of other water bodies across the state. The inspection program would traditionally operate from mid-May to mid-October...

MARINE

[Scientific Publication] D. A. Abdo, R. L. Duggan. 2018. [Sounding out pests: the potential of hydroacoustics as a surveillance and compliance tool in aquatic biosecurity](#). Biological Invasions Volume 20, Issue 12, pp 3409–3416

BALLAST WATER/BIOFOULING

[Scientific Publication] Josephine C. Iacarella, Ian C. Davidson, Anya Dunham. 2018. [Biotic exchange from movement of 'static' maritime structures](#). Biological Invasions pp 1–11. Open Access. Original Paper. First Online: 30 November 2018

[Little Regulation on Top Path for Invasive Species Coming to Hawaii \(12/13/18\)](#)

The number one vector for invasive species coming to Hawaii is not well regulated. Hawaii is not unique in the lack of regulation concerning biofouling, which is the transfer of organic marine life on the underside of ship hulls. Much more attention is given to the agricultural products being transported on board those ships. The State of Hawaii already spends millions of dollars every year dealing with the impacts from invasive species.

Most of the money is spent on containment and remediation after an alien species has established itself. But the focus is now shifting to preventing invasives from getting a foothold in the first place.

[Marine Safety Center issues Ballast Water Management System Type Approval Certificate to De Nora Water Technologies Texas, LLC \(12/19/18\)](#)

The Coast Guard Marine Safety Center issued the 15th Ballast Water Management System Type Approval Certificate to De Nora Water Technologies Texas, LLC, after a detailed review of the manufacturer's type approval application determined the system met the requirements of 46 CFR 162.060. The treatment principle of the BALPURE BWMS consists of filtration with electrolysis during uptake and neutralization during discharge. This approval covers models with maximum treatment rated capacities between 400 m³/h and 8,570 m³/h.

[Ballast water treatment system operating issues - a manufacturer's perspective \(12/12/18\)](#)

Operational issues with many installed ballast water treatment systems (BWTS) have been highlighted by both Intertanko and ABS, but is it all the fault of the manufacturers?

[Ballast water treatment UV doses must be consistent \(12/10/18\)](#)

Ballast water treatment manufacturer BIO-UV Group has noted the U.S. Administration's approval of the Vessel Incidental Discharge Act (VIDA) and the possible acceptance of the Most Probable Number (MPN) methodology, the method currently used by the International Maritime Organisation (IMO) to test BWMS treatment efficiency. However, while the US Coast Guard now has to draft policy detailing reproductive methods, BIO-UV Group's President and CEO Benoît Gillmann says it is important to remember that the process of acceptance of a viability method is not immediate, and that there is no guaranty that methodologies coming out of this process will be the same as the MPN as currently used.

[Marine Safety Center issues 14th Ballast Water Management System Type Approval Certificate \(12/14/18\)](#)

The Marine Safety Center issued the 14th U.S. Coast Guard Ballast Water Management System Type Approval Certificate to Panasia Co., Ltd., after a detailed review of the manufacturer's type approval application determined the system met the requirements of 46 CFR 162.060. The treatment principle of the GloEn-Patrol BWMS consists of filtration with UV treatment at uptake and discharge. This approval covers models with maximum treatment rated capacities between 50 m³/h and 6,000 m³/h.

[Marine Safety Center receives 22nd application for Ballast Water Management System Type Approval \(12/14/18\)](#)

The Coast Guard Marine Safety Center received its 22nd application for type approval for the Semb-Eco LUV U1 Ballast Water Management System manufactured by Semb-Eco Pte, Ltd.

[U.S. to Reconsider Type Approval for Ballast Water Treatment Systems \(12/8/18\)](#)

The U.S. Coast Guard Authorization Act was passed by the Senate last week with a Vessel Incidental Discharge Act (VIDA) bill that could potentially simplify the nation's approach to ballast water treatment and align its type approval of ballast water treatment systems to that of the IMO. The VIDA Bill amends the regulations to allow for the use of reproductive methods for the testing and approval of ballast water management systems by explicitly expanding the definition of “living” to ensure that organisms that can't reproduce (nonviable) are not considered to be “living” (page 41 of the bill)

[New DNA tool 'changes everything in marine science' \(12/3/18\)](#)

In Wisconsin, researchers documented five invasive species of marine zooplankton in the ballast water of ships plying Lake Superior, including the eDNA of a bloody red shrimp originally from the Black Sea area. "eDNA opens the door to cheap, frequent, widespread, potentially automated monitoring of the diversity, distribution, and abundance of aquatic life," said Paul Gaffney, a retired Navy Vice-Admiral and former president and Urban Coast Institute Ocean Policy Fellow at Monmouth University. "Government agencies need to take notice."

FISH

[‘Carp cowboys’ round up invasive Asian carp as Illinois, federal officials debate costly measures to protect Lake Michigan \(12/6/18\)](#)

Irons has shared this technique with commercial fishermen contracted by Illinois who have added their own twist. In China, they fish quietly, but Illinois’ “carp cowboys” are exploiting the species’ fear of loud noises using golf clubs, baseball bats and even plungers to bang on the sides of their boats, essentially herding the fish into their nets — often tens of thousands of pounds at a time. “Our fishermen didn’t quite have the patience. It’s kind of like a cattle drive in the water,” he said.

[Scientists think this exotic fish hitchhiked from Japan to California in tsunami debris \(12/13/18\)](#)

Divers swimming in the cold, murky waters of Monterey Bay, California, say they've spotted a fish that's a long way from home. It's called a barred knifejaw, and it's native to Japan, Korea and China... Scientists believe the fish made the 5,000-mile trip across the Pacific Ocean in debris from the 2011 tsunami caused by a 9.1-magnitude earthquake in Japan.

[Lamprey pie, anyone? Which aquatic invasive species can you eat? \(12/7/18\)](#)

The Illinois Department of Natural Resources wants more people to join in the fight to keep Asian carp out of the Great Lakes, and the only tools required are a fork and knife... Now, the Illinois DNR is attempting to establish a domestic food market for Asian carp in hopes that rising demand could encourage more commercial fishermen to sign up to remove them out of Illinois waterways.

[Asian carp threat stymies plans for fish passage on 100-year-old Wisconsin River dam \(12/3/18\)](#)

A plan to improve fish populations by letting them swim through a Wisconsin River dam has languished for years as officials wrestle with the possibility that Asian carp could also unwittingly slip through...

[\[Ohio\] Exotic fish threaten our waters when careless hands set them free \(12/4/18\)](#)

“It was the craziest-looking thing I’d ever seen,” Vogel said. “It had kind of a hard outside shell. I know there are some unusual species that are native to Ohio, but I’d never seen anything like this before.” ... How it got to Florida, and Upper Sandusky, is the nightmare scenario we unfortunately live with every day. Careless releases of exotic pets, aquarium dumping, and even the discarding of domesticated pets and animals wreaks havoc on the ecosystem and sends nature’s delicate balance into a pogo stick ride.

[Scientific Publication] Ivor G. Stuart Anthony J. Conallin. 2018. [Control of Globally Invasive Common Carp: An 11-Year Commercial Trial of the Williams’ Cage](#). North American Journal of Fisheries Management. <https://doi.org/10.1002/nafm.10221>

[Scientific Publication] Michael B. Courtney, Erik R. Schoen, Andy Wizik, and Peter A. H. Westley . 2018. [Quantifying the Net Benefits of Suppression: Truncated Size Structure and Consumption of Native Salmonids by Invasive Northern Pike in an Alaska Lake](#). North American Journal of Fisheries Management. ISSN: 0275-5947 print / 1548-8675 online. DOI: 10.1002/nafm.10231

AQUACULTURE

[Canada to move ahead with a Federal Aquaculture Act \(12/7/18\)](#)

Fisheries Ministers across Canada have decided to move towards a Federal Aquaculture Act that will govern a sustainable seafood farming industry already generating an estimated \$5.16 billion in economic activity and 25,000 full-time jobs for Canadians. Aquaculture was a key topic of conversation at this week’s Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) meeting in St. John’s, Newfoundland and Labrador. “Ministers directed officials to develop federal legislation with limited scope that respects Federal, provincial and territorial jurisdiction and provides greater clarity to the sector. Such federal legislation would continue to ensure that Canada’s aquaculture industry is a global leader in producing high-quality aquaculture products in an environmentally sustainable manner,” a government communique said.

Related: [Canada takes new tack on aquaculture with new approach to managing industry \(12/10/18\)](#)

[New aquaculture act makes waves in Canadian waters \(12/14/18\)](#)

[17 fish farms could all be phased out under new agreement between B.C. government, First Nations \(12/14/18\)](#)

Seventeen open-pen fish farms in B.C.'s Broughton Archipelago could all be phased out by 2023 under a new agreement between First Nations and the provincial government, the premier announced Friday. However, under the terms of the agreement, seven of the sites could be spared. The plan includes room for aquaculture companies to come to agreements with First Nations to continue operations beyond 2023 at those seven sites, according to the province.

Related: [Controversy lurks in Canadian waters \(12/18/18\)](#), [Shutting down fish farms a simplistic solution, says fish farmers group \(12/17/18\)](#)

[A planned salmon farm, which would be among the world's largest, raises hopes and fears in Maine \(12/6/18\)](#)

... As she passed the now-closed canneries and processing plants, her rowboat drifted to a stop near the outfall of the Little River, where a proposed new factory would release an estimated 7.7 million gallons of waste water a day into the cleaned-up bay — 90 percent more than the small city now produces...

[GMO salmon undergoing another federal risk assessment \(12/5/18\)](#)

CBC News has learned AquaBounty's genetically modified salmon is going through a new federal risk assessment. Environment and Climate Change Canada says the risk assessment comes after the company notified Ottawa in July about its plans to build a new egg production and grow-out facility in Rollo Bay West, P.E.I.

WEEDS

[\[Texas\] Giant salvinia clears substantially at Caddo Lake thanks to weevils and freeze \(12/16/18\)](#)

The invasive giant salvinia plant is under control and seeing a dramatic decrease at Caddo Lake thanks to the efforts of the Uncertain Morley Hudson Weevil Greenhouse in conjunction with the Texas Parks & Wildlife Department.

[Scientific Publication] National Park Service: "[Invasive Plant Management Planning: Technical Considerations](#)", a document that provides an overview of key technical concepts and critical information needed to develop the content of an effective invasive plant management plan, has been published and is available through the Integrated Resource Management Applications (IRMA) Portal (IRMA listing here). It does not address the specifics of the planning process and environmental compliance requirements as that guidance is provided by the NPS Environmental Quality Division. Invasive plant management needs to be strategic and based on the best available science. Invasive plant management planning is critical for successful implementation of an invasive plant management program that serves to protect park values at risk from invasive plants.

CLIMATE CHANGE

[Federal Climate Report Suggests More Warm Years Such As 2015 Will Be A Reality For Columbia Basin \(11/30/18\)](#)

...The until now unusually warm and dry year also resulted in irrigation shortages and crop losses, fish die-offs, large wildfires, record cases of infectious diseases and reduced recreation. That scenario could become the new normal or worse, says a [federal report on climate change](#) released the day after Thanksgiving, Nov. 23.

Related: [Drought Conditions Continue In Columbia Basin As El Nino Chance Now 90 Percent; Warmer, Drier Winter \(12/13/18\)](#)

[The Baltic Sea offers a preview of what's to come with global warming \(12/2/18\)](#)

And sometimes, as if to make up for a loss, a new species will appear in the Baltic for the very first time, said Björn Fischer, a 53-year old fisherman who is as proud of his apropos name as he is of the seven generations of fishermen before him. Fischer noted that species such as sardines, sea bass and mackerel have migrated from southern waters that have become too warm for them.

[Climate change has varying effect on wildlife, plant species \(12/18/18\)](#)

... "There are direct impacts to wildlife like heat stress, but a lot are indirect impacts— invasive species, disease or changes in habitat," LeDee said. "Each species will have their individual responses to climate change based on their life histories."...

OTHER

[Forget 'needle in a haystack.' Try finding an invasive species in a lake. \(12/4/18\)](#)

When the tiny and invasive spiny water flea began appearing in University of Wisconsin–Madison researchers' nets in 2009, scientists began to wonder how Lake Mendota, one of the most-studied lakes in the world, went from flea-free to infested seemingly overnight. Subsequent studies found the invader had persisted for years at low population densities that went undetected even as the lake was routinely sampled by trained technicians. Now a [new report published in the journal Ecosphere](#) says Lake Mendota's story may be the rule, rather than an exception.

[Online tools deployed to detect Great Lakes invasive species \(12/17/18\)](#)

A program designed to keep policymakers up to speed on threats to the Great Lakes has created online tools to support early detection of exotic species. Blue Accounting is an initiative led by the Great Lakes Commission and The Nature Conservancy, with help from other government agencies and private organizations. They've developed a "watch list" of species poised to invade the lakes, along with priority surveillance locations and guidelines for monitoring the waters for signs of unwanted fish, plants and invertebrates. An interactive, GIS-based tool let users explore the data behind risk calculations for locations across the Great Lakes watershed.

[Hawaii importing invasive snakes to train dogs to find them \(12/10/18\)](#)

The Hawaii Department of Agriculture is importing four brown tree snakes to be used to train dogs to detect the dangerously invasive species and hopefully prevent the snakes from establishing themselves in the islands.

Related: [Experts: Snakes no problem \(12/18/18\)](#)

[Guam's invasive bird-destroying snake less unique than thought \(12/3/18\)](#)

The highly toxic brown tree snake, which has killed off most of the native birds on the Pacific island of Guam, was once thought to have its own distinctive venom. However, [scientists have now proven](#) that other snakes are armed with the same poison...

Related: [What Guam can teach us about rescuing a destabilized ecosystem \(12/4/18\)](#)

[New DFO App helps protect Ontario waterways from invasive species \(11/30/18\)](#)

[The Baitfish Primer](#), a key guide from Fisheries and Oceans Canada that allows recreational fishers to identify legal and illegal live bait, is now available as a mobile app. The new app allows fish harvesters to take the guide with them anywhere and to easily identify which baitfishes are legal to use in Ontario's waters.

[Scientific Publication] M. G. Glon, L. S. Reisinger, L. M. Pintor. 2018. [Biogeographic differences between native and non-native populations of crayfish alter species coexistence and trophic interactions in mesocosms](#). Biological Invasions. Volume 20, Issue 12, pp 3475–3490 |

[Scientific Publication] Randall K. Kolka et al. (Eds.). 2018. [Understanding and Managing Emerald Ash Borer Impacts on Ash Forests](#) [Download] (This book is a printed edition of the Special Issue Understanding and Managing Emerald Ash Borer Impacts on Ash Forests that was published in Forests)

[Florida man's 18-foot, 150-pound python breaks record in state \(12/20/18\)](#)

The SFWMD's program helps to eliminate the “invasive” species from the Everglades ecosystem, as Burmese pythons there have “decimated native ...

JOBS/GRANTS

JOBS

[Associate Governmental Program Analyst \(\\$4,975 - \\$6,228\) – California Division Of Boating And Waterways / Aquatic Invasive Species/ Mussel Grant Program](#) The reporting location for this position is at the Headquarters of the Division of Boating and Waterways in Sacramento,

[Return to top](#)

CA. This position will work under the direction of the Senior Environmental Scientist (Supervisory). Would you like to be part of an integrated team charged with collaborating and coordinating infestation prevention for invasive quagga and zebra mussels (QZ) statewide? If you are, then consider applying for the QZ Team Analyst position with California State Parks Division of Boating and Waterways (DBW)! As part of the California Natural Resources Agency, DBW is a division dedicated to bring together a body of knowledge as the state's expert in recreational boating-related matters, including public access, safety and education, marine law enforcement and consumer and environmental protection. DBW's QZ Grant Program provides reimbursement funding for grantees each year, for all aspects of QZ infestation prevention. DBW offers a progressive, friendly and cooperative work environment that values innovative thinking, team approaches, enthusiasm for learning and continued job growth. Located at One Capitol Mall in Sacramento, our location has many great amenities including the Sacramento River waterfront, Old Sacramento, on-site cafe and fitness center, local eateries, public transit including suburban bus lines, Amtrak nearby, transit incentives, nearby public parking and more.

Last Day to Apply December 21st, 2018

[Post-Doc: Endangered Species Research and Invasive Species Impacts in Florida, University of Florida.](#) **Last day to apply 1/15/19 (start date as early as 11/01/18 position open until job filled).**

We are looking for a dynamic Postdoctoral Researcher to oversee three conservation ecology projects in Florida. The projects will examine the loss of ecological functions (scavenging, frugivory, granivory) in the Everglades from invasive pythons and the factors limiting the population and two rarely-studied endangered species, the Florida salt marsh vole and the silver rice rat. The selected applicant will hire, train and supervise a team of technicians on each project and be responsible for managing permits and coordinating with state and federal agencies. They will also be asked to conduct statistical and spatial analysis and to generate manuscript from the projects. The job will require some travel and field work during the first year of the projects. The selected applicant will be given the flexibility to expand these studies to accommodate their interests and skills. By taking the lead on three important conservation ecology projects, this job provides an outstanding opportunity for professional growth. The postdoc will work closely with and be supervised by the principle investigator (Dr. McCleery <http://www.themccleerylab.org/>) and will be housed at the University of Florida.

[Forestry/Wildlife Technician - Missouri Department of Conservation Clinton, MO](#)

Requisition Id: 256

Position Number: 0001015A

Salary: \$26,172 - \$29,124

Job Location: Clinton Office (CLINT1)

Closing Date: January 16, 2019

- Provide assistance in wildlife management activities, including prescribed burns, invasive species control, wetland management, early subsectional habitat management and food plots.
- Assist with wildlife surveys and CWD sampling.
- Perform area maintenance, posting boundaries, parking lot, trash removal, archery and shooting range maintenance.
- Performs minor equipment maintenance on tractors, implements and small engines.

- Assist other Divisions and Districts with wildfire suppression, prescribed burns and Fisheries management.
- Assist with spraying herbicides throughout District to control invasive species, sunflower plantings and marsh management.
- Supervise hourly staff in performing daily tasks.

[2019 Application Process Open for NMFS-Sea Grant Joint Fellowship Program](#)

The NMFS-Sea Grant Joint Fellowship Program in Population and Ecosystem Dynamics and Marine Resource Economics is designed to help Sea Grant fulfill its broad educational responsibilities and to strengthen the collaboration between Sea Grant and the National Marine Fisheries Service (NMFS). Since 1999, Sea Grant and NMFS have partnered to train students through this joint fellowship program in two specialized areas: population and ecosystem dynamics as well as marine resource economics. Population and ecosystem dynamics involve the study of fish populations and marine ecosystems to better assess fishery stock conditions and dynamics. **Student Applications due January 30th**

The goals of the NOAA Fisheries/Sea Grant Fellowship Program are:

- To encourage qualified applicants to pursue careers in either population and ecosystem dynamics and stock assessment or in marine resource economics
- To increase available expertise related to these fields
- To foster closer relationships between academic scientists and NOAA Fisheries
- To provide real-world experience to graduate students and accelerate their career development.

Three Fellowship Opportunities with Sea Grant:

[Coastal Management Fellowship](#) (**Application Deadline: January 18, 2019**)

[NMFS—Sea Grant Fellowship in Population and Ecosystem Dynamics](#) (**Application Deadline: January 30, 2019**)

[NMFS—Sea Grant Fellowship in Marine Resource Economics](#) (**Application Deadline: January 30, 2019**)

[Director of the Western IPM Center](#) (**application review begins on February 15.**)

This is a unique opportunity. One of the most interesting aspects of our work is its regional nature. Often in integrated pest management, folks focus on one geographic area, one category of pest or even one particular crop. But because the Western Region encompasses 17 Western states and territories, from the Northern Mariana Islands to Alaska to New Mexico, we work across state lines, across academic disciplines and across land-use patterns. We promote IPM in agriculture, natural areas and communities, with an overall vision of creating a healthier West with fewer pests. The [link to the job posting](#) lists the minimum and preferred qualifications for the job. Generally, the director needs a strong background in integrated pest management to be able to help identify needs and establish IPM priorities in the West, but this is not a research job. It's a connections job – a people job – and a successful candidate is going to have demonstrated experience working in collaborative teams, connecting people and managing professional staff.

The Western IPM Center plays an important coordinating and support role for the IPM research and extension efforts conducted by state programs, tribal entities and individual labs across the region. Our job is to add value and be helpful, and our director should have that mentality. The staff the director will manage are career professionals who don't need hand-holding and do appreciate collaborative leadership. We're a pretty easy group to get along with (even me, I promise...) and we all value the opportunity to do good work and make a difference.

https://ucanr.edu/Jobs/Jobs_990/?jobnum=1486

To learn more about the position, you can contact either of our past two directors:

[Jim Farrar](#), Director of the University of California Statewide IPM Program, or [Amanda Crump](#), UC Davis Teaching Professor in International Ag Development

The State of Hawai'i's Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) is seeking [Habitat Restoration Volunteers](#) for work at Kure Atoll Wildlife Sanctuary in the Northwestern Hawaiian Islands. Kure Atoll is a part of the Papahānaumokuākea Marine National Monument and is located 1,400 miles northwest of O'ahu. Kure Atoll provides important habitat for wildlife, including the endangered Laysan teal (*Anas laysanensis*) and Hawaiian monk seal (*Neomonachus schauinslandi*). Eighteen species of seabirds nest on Kure including Black-footed albatross (*Phoebastria nigripes*) and Christmas shearwaters (*Puffinus nativitatis*). Currently native plant species are outnumbered by non-native and invasive plant species. DLNR is committed to eradicating invasive plant species such as Golden crown-beard (*Verbesina encelioides*) from the atoll. Invasive plants are a significant management concern because they displace native plant habitat and nesting areas and may cause harm to wildlife. Native plants are an integral resource for nesting habitat and dune stabilization. This position is a unique opportunity to protect and recover important habitat while living in an intact wildlife sanctuary! Kure Atoll is an extremely remote work location and transportation to the atoll is limited and infrequent. Deployment to a remote field site is a serious undertaking. Delays in travel dates due to weather or ship mechanical issues may occur. Due to Kure's remote location and difficult access response times for emergencies, including evacuation, may be long and uncertain. The ability to live and work in close quarters with a small group of people for an extended period of time is of the utmost importance. Field teams typically consist of 6 to 8 personnel. There are only 2 six-month field seasons per year. There is no Internet or cell phone service available. Contact with friends/family is limited to text only email (no pictures or attachments) through the field station's satellite phone.

GRANTS

California State Parks Division of Boating and Waterways (DBW) will open the application window for the 2018/19 [Quagga and Zebra Mussel Infestation Prevention Grant Program](#) in February 2019. To receive future QZ Grant notices, click [here](#).

The application window for the 2018/19 Quagga and Zebra Mussel Infestation Prevention Grant Program will be: February 25, 2019 - April 5, 2019

A Solicitation Notice containing additional information regarding the workshop date (expected in March 2019), the posting of the Guidelines and other pertinent grant documents, and the accessibility of the On-Line Grant (OLGA) Application system, will be sent prior to opening of the grant application window stated above. The Notice will also be posted on the DBW website.

Minimum Eligibility Requirements:

Grant applicant must own/manage any aspect of the water in a reservoir where recreational activities are permitted; Grant applicant must demonstrate that the reservoir is uninfested with dreissenid mussels; and the reservoir must be open to the public.

What's New?

- SB 790 broadened the eligibility of implementation grants to entities that own or manage any aspect of the water in a reservoir.
- To demonstrate that the reservoir is uninfested, applicants must provide mussel monitoring data collected since March 2018. Monitoring data can be from surface surveys, artificial substrates, and plankton tows.

FEDERAL/STATE/PROVINCIAL LEGISLATION, RULES, ACTIONS

NEW: An AIS legislative table is now up on the web on the www.westernais.org website... go to <https://www.westernais.org/regulations> and scroll all the way to the bottom

Advocacy

[\[British Columbia\] OBWB calls on province to close loophole that could allow spread of invasive mussels \(12/4/18\)](#)

Anna Warwick Sears, executive director of the OBWB, last week wrote to George Heyman, B.C. minister of environment and climate change, reminding him that closing this loophole was the number one priority on a list of action items the OBWB gave to his ministry more than a year ago. The loophole means that out-of-province boats can be launched in B.C. waters without being inspected if they enter the province without passing an open inspection station.

Related: [Regional district wants more done to prevent quagga mussel spread \(12/11/18\)](#)

[Gov. Ige calls battle against invasive species the 'right thing to do' and work that makes 'economic sense' \(12/10/18\)](#)

Hawai'i Gov. David Ige described his state's significant work to battle invasive species as not only the "right thing," but work that makes "economic sense" at the final workshop of the Western Governors' Biosecurity and Invasive Species Initiative, which focused on "Biosecurity and Agriculture."

[DeWine said Trump listened 'very carefully' to newly elected governors \(12/13/18\)](#)

Joining 12 other newly elected governors at the White House Thursday, Gov.-elect Mike DeWine said President Donald Trump “listened very carefully and was very engaging” as they talked about constructing new roads and bridges, combating drugs, and keeping Lake Erie clean... DeWine said he and Michigan Gov.-elect Gretchen Whitmer warned the president about the danger of “invasive species and (Asian) Carp threatening the Great Lakes,” referring to the species trying to enter the Great Lakes through the Illinois River.

Related: [Whitmer in Trump meeting emphasizes infrastructure, carp \(12/13/18\)](#)

[US commercial fishermen take their aquaculture concerns to Capitol Hill \(12/13/18\)](#)

Commercial fishermen and their supporters let Congress know where they stand on a bill that would grant NOAA Fisheries the ability to regulate aquaculture operations in federal waters. The [letter](#), signed by 100 fishermen and supporters and sent to elected officials last week, claims each fish farm in the exclusive enterprise zone would restrict access to “hundreds of acres of marine space” to commercial fishermen. They also believe fish farms would produce lower-cost and lower-quality fish, which they believe would deter consumers from paying more for wild fish. Further, the letter raises concerns about the impact that farmed fish escapes and pollution stemming from fish feed and antibiotics might have on fishing stocks.

[Congress Commits Epic Failure in Not Passing Wildly Popular, Widely Supported Land and Water Conservation Fund \(12/20/18\)](#)

Washington, D.C. — The National Wildlife Federation lamented Congress’s failure to act to revive the Land and Water Conservation Fund in the face of [broad bipartisan support](#) and popular outcry. Congressional inaction on the landmark conservation program — which invests in local parks, trails, public lands and outdoor spaces in communities [in every state](#) — followed widespread agreement from the public and within the halls of Congress before and after it [expired in September](#).

[State/Province](#)

[\[Michigan\] Legislators try for round two on ballast water bill \(12/10/18\)](#)

After Gov. Rick Snyder vetoed a controversial bill this summer which would have weakened Michigan ballast water regulations, state lawmakers are now looking at a nearly identical bill during this year’s lame-duck session. The bill, House Bill 6465, would loosen the maintenance requirements for ships moving between freshwater and saltwater conditions, and loosen requirements on how those ships dispose of their ballast water, aligning them with EPA standards.

Related: [Michigan Legislature OKs bill to limit tougher regulations \(12/12/18\)](#)

[No stricter than federal bill heads to the governor \(12/12/18\)](#)

[Michigan governor seeks Illinois' help with Asian carp plan \(12/11/18\)](#)

Michigan Gov. Rick Snyder is urging his Illinois counterpart to help pay for a project to keep invasive carp from establishing themselves in the Great Lakes. Snyder sent a letter Tuesday to fellow outgoing Republican Gov. Bruce Rauner, seeking support in fortifying

a waterway. Snyder says Michigan would provide up to \$8 million for upgrading the Brandon Road Lock and Dam near Joliet, Illinois.

Related: [Illinois to Michigan: Put your money where the carp is \(12/17/18\)](#)

[Montana FWP won't seek fee hike from Legislature, but needs \\$1M for ailing parks \(11/29/18\)](#)

Williams said she will also ask the Legislature for permission to restore the \$1 million she cut from the fisheries budget; add to the wildlife budget so wolf and bear specialists can be hired on a more permanent basis; create a fleet system for boats and aircraft; and upgrade the FWP automated licensing system so it can handle parks reservations. Finally, Williams and her staff know FWP faces a challenge in renewing the Aquatic Invasive Species program funding, which sunsets in 2019. The 2017 Legislature approved about \$6 million a year for the program, which inspects boats around the state for tiny zebra and quagga mussel stowaways. If these species get into Montana's waters, they could spread rapidly, encrusting every surface to cause millions of dollars of damage to pipes, turbines, boats and fisheries. The problem is that the hydropower industry, which chipped in about half of the money, doesn't want to have to contribute any more, even though it has a lot to lose if mussels invade. Curdy, sponsor of the AIS funding bill, said the interim Environmental Quality Council is honoring the hydropower demand. But that could change once the bill gets to the Legislature because people researching funding sources are "still kicking the tires," Curdy said.

[\[Montana\] New funding bill filed for aquatic invasive species \(12/12/18\)](#)

Some \$6.5 million worth of boater fees, angler fees and general fund money are Montana's latest answer to the invasive-mussel threat facing the Pacific Northwest. Those fees would be created by an aquatic invasive species funding bill recently filed by Rep. Willis Curdy, D-Missoula.

Current list of potential legislation for 2019 MT Legislative Session – Not all of these have text yet

LC0060	Jim Keane (D) HD 73	(C) Draft On Hold	11/21/18	Generally revise invasive species laws
LC0063	Jim Keane (D) HD 73	(C) Draft On Hold	11/21/18	Generally revise invasive species laws
HB 32	Willis Curdy (D) HD 98	(H) Hearing -- (H) Natural Resources	1/14/19	Revise laws related to aquatic invasive species programs
LC1379	Ryan Lynch (D) HD 76	(C) Draft Request Received	11/16/18	Revise laws regarding aquatic invasive species expenditures and funding
LC1510	Shane A Morigeau (D) HD 95	(C) Draft Request Received	11/21/18	Revise aquatic invasive species laws
LC0703	Llew Jones (R) HD 18	(C) Draft Request Received	11/2/18	Revise county weed laws

LC1746	Ray L Shaw (R) HD 71	(C) Draft Request Received	11/29/18	Revise weed control laws
LC1879	Derek Skees (R) HD 11	(C) Draft Request Received	12/3/18	Generally revise aquatic invasive species laws
LC1968	Greg Hertz (R) HD 12	(C) Draft Request Received	12/4/18	Standardize penalties for aquatic invasive species
LC2023	Willis Curdy (D) HD 98	(C) Draft Request Received	12/4/18	Joint resolution to congress asking to fund aquatic invasive species programs

Executive

[Interior Secretary Zinke resigns amid investigations \(12/15/18\)](#)

... As the leading advocate for Trump’s push to expand domestic energy production, the former Navy SEAL and congressman from Montana became a lightning rod for controversy. He was hailed by energy industry officials for relaxing Obama-era environmental rules and opening up large areas of federal land and waters for oil and gas prospecting. But environmental groups assailed his policies and conducted opposition research into his management practices and financial dealings...

[EPA and Army Propose New "Waters of the United States" Definition](#)

WASHINGTON (December 11, 2018) — Today, the U.S. Environmental Protection Agency (EPA) and the Department of the Army (Army) are proposing a clear, understandable, and implementable definition of “waters of the United States” that clarifies federal authority under the Clean Water Act. Unlike the Obama administration's 2015 definition of “waters of the United States,” today’s proposal contains a straightforward definition that would result in significant cost savings, protect the nation’s navigable waters, help sustain economic growth, and reduce barriers to business development.

The agencies will take comment on the proposal for 60 days after publication in the Federal Register. EPA and the Army will also hold an informational webcast on January 10, 2019, and will host a listening session on the proposed rule in Kansas City, KS, on January 23, 2019.

More information including a pre-publication version of the Federal Register notice, the supporting analyses and fact sheets are available at: <https://www.epa.gov/wotus-rule>.

Congressional

BUDGET

[McConnell: Funding talks with Trump 'to continue' \(12/21/18\)](#)

Senate Majority Leader [Mitch McConnell](#) (R-Ky.) says he will continue negotiations with [President Trump](#) this afternoon and plans to begin Senate debate on a House-passed spending bill that includes border wall funding.

Congress

[Signed into Law: Vessel Incidental Discharge Act of 2018 \(12/19/18\)](#)

On December 4, 2018, President Trump signed into law the [Frank LoBiondo Coast Guard Authorization Act of 2018](#), which includes as Title IX [\[see page 131\]](#) the Vessel Incident Discharge Act of 2018 (“VIDA”). Among other things, VIDA repeals the United States Environmental Protection Agency’s (“EPA”) 2014 Small Vessel General Permit (“SVGP”), amends the Clean Water Act to establish “Uniform National Standards for Discharges Incidental to Normal Operation of Vessels,” and authorizes the EPA to promulgate new regulations to establish federal standards of performance for marine pollution control devices for each type of discharge incidental to the normal operation of covered vessels, including ballast water and graywater. The new regulations will replace the EPA’s 2013 Vessel General Permit (“VGP”). The EPA has two years to promulgate the new regulations, and the United States Coast Guard will administer and enforce the new regulations.

For more detail on the new law see the [11/16/18](#) and [11/30/18](#) AIS News

Related: [USCG has 180 days to detail its methodology for MPN analysis \(12/7/19\)](#)

[Trump signs Coast Guard bill with Great Lakes provisions \(12/4/18\)](#)

[The Vessel Incidental Discharge Act \(VIDA\) - Immediate Implications of the New Law \(12/7/18\)](#)

[H.R.7170 - To amend the Federal Power Act to require the consideration of invasive species when prescribing fishways, and for other purposes.](#)

Wisconsin lawmakers introduced legislation aimed at keeping Asian carp from swimming through a proposed fishway and into the Great Lakes. [H.R. 7170](#), from Wisconsin Reps. [Glenn Grothman \(R\)](#) and [Mark Pocan \(D\)](#), would amend the [Federal Power Act](#) to require the Fish and Wildlife Service to consider invasive species when authorizing the construction of new fishways.

Farm bill dedicates \$75M to capture feral hogs (12/18/18)

Congress is picking up its fight against feral pigs, estimated to cause \$1.5 billion in damage to agriculture annually. In the 2018 farm bill [[HR 2](#)] awaiting President Trump's signature, lawmakers set aside \$75 million for a feral pig eradication pilot program, which the Department of Agriculture would use to explore ways to control the population and to help farmers who've suffered crop damage [See Section 2408 in the [Bill Report](#) language] . The program, pushed by House Agriculture Chairman Mike Conaway (R-Texas), addresses a growing threat to farms in Texas and other Southern states, although they've spread to some Northern states, as well. The Department of Agriculture has put the population at more than 5 million. Feral pigs came to North America from Europe and Asia, as far back as the 1500s with explorer Hernando de Soto. Eurasian wild boars were introduced in the 1890s for hunting purposes, according to the Texas AgriLife Extension Service at Texas A&M University. Inevitably, some animals escaped confinement, laying the groundwork for a native population throughout much of the Southeast. As many as 13 national parks report populations of feral pigs. [Source: Reprinted from *E&E Greenwire*, 12/18/18, with permission from Environment & Energy Publishing, www.eenews.net; 202/628-6500].

Update: President Trump signed into law the 2018 farm bill on 12/20/18.

Related: [NWF: Newly Signed Farm Bill Delivers Wins for Wildlife, Conservation Funding \(12/20/18\)](#)

TRAININGS, WEBINARS, CONFERENCES AND MEETINGS



CALL FOR ABSTRACTS



Aquatic Invasions in the Anthropocene

The Technical Program Committee invites the submission of 300-word abstracts for oral and poster presentations addressing invasive species issues in freshwater and marine environments.

Abstract Submission Deadline: **January 14, 2019**

[Click here](#) for details or click on the the image to download the Call for Abstracts in PDF format.

Events: Webinars, Trainings, Conferences and Meetings

HACCP Trainings

The U.S. Fish and Wildlife Service has Hazard Analysis Critical Control Point courses upcoming this fall and winter. HACCP plans are a tool to help natural resource professionals prevent spread of invasives while conducting their field work.

[HACCP](#) and [HACCP Train the Trainer](#) - January 14-15 and January 16-18, 2019, respectively, at the National Conservation Training Center in Shepherdstown, WV - Instructors may include Susan Pasko, Barak Shemai, Jonathan Thompson and Joanne Grady

Watercraft Inspection and Decontamination Trainings

Fall 2018 / Spring 2019 Lake Mead & Lake Powell

The Pacific States Marine Fisheries Commission and its 100th Meridian Initiative partners are announcing and sponsoring several types of WIT Trainings.

ONLINE REGISTRATION HAS BEGUN for the following:
2/5 – 2/7, 2019 Lake Powell WIT III

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3/26 – 3/27, 2019	Lake Mead	WIT II
4/23 – 4/24, 2019	Lake Mead	WIT II

Openings are limited!!! Availability will close when class becomes full. An acceptance email will be sent for WIT III

TO REGISTER: Go to <http://www.westernais.org> for more information. There are different registrations for Advanced Decontamination and Trainer Training (WIT III) classes. Click on the training tab of class you are interested in attending and register on that page link. These trainings do cost money and it is important that we fill all available openings. Please try to make sure that when you sign up for the class that you can attend so that we don't end up paying for empty seats that could be used by others.

QUESTIONS? Should you have any questions or would like to host a training, please contact WIT Trainer Quagga D Davis at (702) 236-3814 or quaggadee@cox.net

2019

JANUARY

[USDA Interagency Forum on Invasive Species](#) January 8-11, 2019, Annapolis, Maryland

The Oregon Invasive Species Council would like to invite you to attend the upcoming webinar titled Emerging Insect Pests: Threats to Oregon's agriculture, forests, and plant trade. In this 1-hour long, FREE webinar, you can learn about key emerging invasive insect threats that could cause significant impacts, as well as what you can do to help address the issue.

Thursday, January 17, 2019

11:00am–12:00pm

Up to 30 min Q&A to follow

[Registration required at no cost](#)

[Slowing Aquatic Invasive Spread in 2019: NY Sea Grant Watercraft Inspection Webinar Series Starts January 17](#)

The 2019 edition of the Watercraft Inspection Program Leader educational webinar series developed by New York Sea Grant and featuring coastal science and AIS specialists begins on January 17 and will connect participants from multiple states. Four sessions in the webinar series will address issues associated with recreational boating as a key pathway in the spread of aquatic invasive species (AIS), making watercraft inspection a critical contributor to limiting the spread of AIS among the more than 7,000 lakes, ponds, and rivers in New York State and waters elsewhere. Participants can join any or all of the one-hour, free-access webinars available from 10 am to 11 am. Register at <https://goo.gl/QzjodX>. For more information, contact New York Sea Grant at 315-331-8415, <http://www.nyseagrant.org/watercraftinspection>

- January 17: Applying Behavioral Psychology to Stop AIS: Learn the fundamentals of creating behavior change through simple and proven methods of applied behavioral psychology. Present: Ken Donnelly, president, Beyond Attitude Consulting;

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- January 24: NY Watercraft Inspection Steward Program Application 2018 Data Overview: Methods, Statistics, Analysis: Learn the latest information about a real-time data collection tool launched in New York State in 2017 to track and analyze AIS trends to aid prevention, education and response statewide. Presenters: Cathy McGlynn, Ph.D., Aquatic Invasive Species Coordinator, New York State Department of Environmental Conservation; and John Marino, GIS Applications Developer, and Forest Swaciak, Intern, New York Natural Heritage Program iMapInvasives Project Team;
- January 31: Assessing the Risk of Future Aquatic Invasive Species Establishment in a Changing World: Using projected changes to temperatures and precipitation patterns in Pennsylvania as new and complex challenges to those working in aquatic invasive species management, learn a process for assessing the risk of new AIS establishment under these climate scenarios and species that have already become threats. Presenter: Sara Stahlman, Extension Leader, Pennsylvania Sea Grant; and
- February 7: Dealing with the Public: Handling Harassment and Other Issues: Learn how training, awareness, and strong support from management serve as critical tools to keep watershed stewards safe throughout the boating season. Presenter: Sue O'Reilly, Data Manager, Adirondack Watershed Institute at Paul Smith's College.

A symposium titled [“Dreissenid Mussels: Advancements in control, detection, management, and biology”](#) is being organized at the 79th annual Midwest Fish and Wildlife Conference which will be held in Cleveland, OH on January 27-29, 2019 and abstracts will be accepted online for presentations until September 17th. Questions regarding the symposium can be directed to Jim Luoma at jluoma@usgs.gov.

Willamette Aquatic Invasives Network Meeting January 31, 2019
 10:00 am - 1:00 pm Oregon Department of Fish and Wildlife Headquarters Commission room
 4034 Fairview Industrial Drive SE Salem, OR 97302 For more information
<mailto:marci@willametteriverkeeper.org>.

FEBRUARY

Every year the Invasive Species Council of BC holds an Annual Public Forum & AGM. The [INVASIVES 2019](#) Forum takes place Feb 5 - 7, 2019 at the Pacific Gateway Hotel in Richmond, BC

[Canada: 4th Annual National Invasive Species Forum](#) Where: Delta Hotels Ottawa City Centre
 When: February 12-14, 2019

MARCH

Registration is open for the [84th North American Wildlife and Natural Resources Conference](#). We invite you to join us in Denver, Colorado on March 4-8, 2019.

[Aquaculture 2019](#). Date: Mar 06, 2019 to Mar 10, 2019 Sponsor: World Aquaculture Society

Venue: Marriott New Orleans

1st Call for Papers [2019 MRNRC Missouri River Conference](#) “Theme TBD” March 5-7, 2019
Ramkota Conference Center, Pierre, SD

[Montana Lakes Conference](#), March 13 -15, 2019. The Montana Lakes Conference will gather diverse resource professionals to exchange information, scientific advancements, and management strategies that promote clean and healthy lake and reservoir ecosystems.

[Washington Invasive Species Council](#): March 28, 2019, Olympia, [Natural Resources Building](#) Room 172.

April

The Washington State Salmon Recovery Funding Board will hold its [seventh biennial conference](#) April 8-9, 2019 at the Greater Tacoma Convention Center in Tacoma, WA. Abstracts for presentations and posters are being accepted December 21, 2018 — January 31, 2019

June

[Washington Invasive Species Council](#): June 6, 2019, Olympia, [Natural Resources Building](#) Room 172.

July

[2019 Western Aquatic Plant Management Society and Aquatic Plant Management Society Joint Meeting](#) Date: Jul 13, 2019 to Jul 19, 2019 Venue: Double Tree Hilton Hotel Location: San Diego, California

Join [PNWER in Saskatoon, Saskatchewan for our 29th Annual Summit](#), July 21-25, 2019

August

[2019 104th Ecological Society of America Annual Meeting](#)

Date: Aug 11, 2019 to Aug 16, 2019 Venue: Kentucky International Convention Center
Location: Louisville, Kentucky

September

[Washington Invasive Species Council](#): September 26, 2019, Olympia, [Natural Resources Building](#) Room 172.

SAVE THE DATE: [The 6th International Columbia River Transboundary Conference](#) WHEN: September 26, 2019 – September 28, 2019 WHERE: Kimberley, BC

Join Columbia Basin Trust and the Northwest Power and Conservation Council from September 26 to 28, 2019 in Kimberley, B.C. to connect and collaborate on the future of the Columbia River. The conference will cover topics including:

- Renegotiation of the Columbia River Treaty

- Reintroduction of salmon to the Columbia River above Grand Coulee Dam in Washington and British Columbia
- **Impacts of and response to invasive species including northern pike and invasive freshwater mussels**
- Energy issues including: hydropower, energy efficiency, transmission and renewable resources in the United States and British Columbia
- Climate change-related impacts on Columbia River water resources and resulting impacts on communities, ecosystems, the economy and hydropower generation.

The conference themes and agenda will include the interests and issues of First Nations and US Native American Tribes, as well as art, culture and history as it relates to the Columbia River. The conference format will be interactive with workshop formats encouraging participants to actively explore a wide range of technical, environmental, political and community issues. Watch for more details in early 2019 about how to register and information on speakers. For more information, contact Caitlin Hinton, Columbia Basin Trust, at 1.250.344.2445 or chinton@cbt.org

[2019 26th Annual Wildlife Society Conference](#) Date: Sep 29, 2019 to Oct 03, 2019 Location: Reno, Nevada

October

[The 21st International Conference on Aquatic Invasive Species](#) (ICAIS) will be held at Le Centre Sheraton Montreal, Montreal, Canada. October 27-31, 2019

December

[Washington Invasive Species Council](#): December 19, 2019, Olympia, [Natural Resources Building](#) Room 172.



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