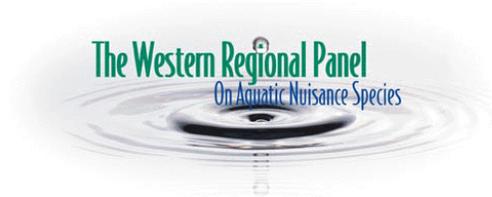


WRP MEMBER REPORTS – 2012

Salt Lake City, Utah



Federal Members

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Check here if you wish to give a verbal report.

Please provide a description of your top five AIS activities/accomplishments/priorities for the past year:

1. Began developing national BLM policy on AIS, including stipulations for recreational permits, protocols to prevent the spread of AIS during BLM field activities, guidance for developing reciprocal law enforcement agreements, and standard language for applicable permitted and contracted activities. Additionally, several BLM state offices have developed similar policy.
2. Supported implementation of state AIS plans through allocated funding to state BLM offices, including:
 - Provided funding to Idaho State Department of Agriculture (ISDA) to support their zebra/quagga sampling efforts across the state. Twenty-six of the water bodies they will be sampling are associated with BLM lands.
 - Provided funding to the ISDA to support the control and removal of Hydrilla from the lower Bruneau River, which provides habitat for the endangered Bruneau hot springsnail and is also designated critical habitat for bull trout.
 - Funding an intern to provide AIS information to recreational users of the Klamath and Trinity Rivers, Sacramento River Bend Area of Critical Environmental Concern, Keswick Reservoir and other popular recreational areas.
 - Contributing to the Oregon Invasive Species Council to support development and implementation of the statewide AIS management strategy and plan.
 - Funding inspection and decontamination staff in Colorado.
 - Funding for AIS brochures in Colorado.
 - Provided funding through a Cooperative Assistance Agreement with the Utah Division of Wildlife Resources for Aquatic Invasive Species Management Plan implementation.
3. Worked with state agencies and regional groups to coordinate AIS activities, including:
 - Coordinated the Lake Havasu Fisheries Partnership which has taken on information and cost sharing for AIS in the area. Activities have included public education, posting of signs and monitoring quagga mussel

concentrations and impacts. BLM also participated in discussions with state, local, and federal partners about implementation of decontamination of moored vessels leaving infested interagency waters.

- Participation on the DOI, interagency, and local coordination and response efforts for Japanese tsunami marine debris.
 - Participated in the California Interagency Team for Quagga/Zebra Mussel Management.
 - With Wildlife Forever, placed invasive species education advertisements in state game and fish regulations publications and regional outdoor magazine.
 - Continued to participate in state efforts in Arizona, Colorado, Idaho, Oregon, Montana, Nevada, New Mexico, Utah, and Wyoming.
4. Conducted projects on BLM lands to control and manage AIS, including,
- In California Sacramento River Bend Area of Critical Environmental Concern modification of wetland to control of American bullfrog and Louisiana red swamp crayfish
 - Continuation of bullfrog eradication in Montana on the Yellowstone River and tributaries with the USGS and other partners.
5. Began collecting and reporting invasive animal population occurrence and management data for the Department of the Interior Strategic Plan.

Name: Joe DiVittorio

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Updated the Reclamation Equipment Inspection and Cleaning Manual for 2012.
2. Over 374 Western waters were monitored in 2012, resulting in 8 new mussel detections.
3. Completed 20 facility vulnerability assessments to assess future mussel-related issues.
4. Partner with the Army Corps of Engineers to assess their water and hydropower facilities.
5. Q/Z mussel research: COX1 detection; USGS collaboration on UV systems; collaboration with MBI on ZequanoxTM; continued coatings field-testing; endothall mussel control tests; filtration systems testing; fish screen technologies; and resident predatory fish testing.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

The Ballast Water Management Final Rule went into effect on June 21, 2012 and establishes a Ballast Water Discharge Standard (BWDS) that is protective of the marine environment and is also consistent with the discharge standard adopted by the International Maritime Organization (IMO) in 2004.

This rulemaking was carried out pursuant to the authority of the Non-indigenous Aquatic Nuisance Prevention and Control Act, as amended by the National Invasive Species Act (NISA). The statutes do not give the Coast Guard authority to prohibit states from setting more stringent standards for state waters.

The **phase-one** standard is the same as what the IMO adopted in 2004:

Phase-two standard is 1000 times stringent than phase-one standard: (For details see additional print out material provided)

Vessels regulated:

All vessels currently required to conduct Ballast Water Exchange (Mid Ocean Exchange) and vessels that do not operate beyond the U.S. Economic Exclusion Zone, that take on and discharge ballast water in more than one Captain of the Port (COTP) Zone, and are greater than 1,600 GRT (3,000 IRT)) are also required to follow the new discharge standard rule.

The Final Rule has a **type-approval process** to approve ballast water management systems (BWMS) for installation on board ships. The Final Rule also includes a bridging strategy for approval of alternate management system (AMS), which allows for foreign type-approved ballast water treatment systems with IMO approval, to be installed prior to the vessel's compliance date for a period of no longer than five years

The Final Rule allows the Coast Guard to implement the phase-one standard and protect maritime habitats while the Coast Guard continues to assess the practicability of implementing a phase-two standard, gathers additional data on technology available to meet the phase-two standard for various vessel types, and develops a subsequent rule with an economic and environmental analysis to support the phase-two standard.

The Coast Guard intends to issue a later rule that will establish a more stringent phase-two discharge standard after conducting additional research and analysis "practicability review" necessary to support the more stringent standard.

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2012 AIS activities/accomplishments
U.S. Forest Service, by western regions
Cynthia Tait, Region 4

WASHINGTON OFFICE

The USFS released its first ever national-level direction on the management of invasive species (including vertebrates, invertebrates, plants, and pathogens) across aquatic and terrestrial areas of the National Forest System. This policy adds new requirements for agency-wide integration of invasive species prevention, early detection and rapid response, control, restoration, and collaborative activities across all National Forest System lands. Next, FS develops the Handbook—specific operational requirements, standards, criteria, and guidance for invasive species management operations, which is slated for December 2012

The WO is supporting a risk assessment that will analyze potential environmental impacts of *quaternary ammonium products* (i.e. Sparquat and many variations). This process will explore health and human safety issues and acceptable methods for disposal, and hopefully will result in amended EPA labels approving the use these chemicals to decontaminate fire and field gear and protect against the spread of aquatic invasive species.

REGION 1 (Montana, n Idaho, North Dakota)

The Region participated in a Montana invasive species summit which explored use of the Incident Command System for rapid response to combat AIS outbreaks. At the Forest level, Gallatin NF helped fund Montana Fish Wildlife and Parks (MFWP) surveys for New Zealand mudsnails and other AIS. Gallatin NF also supports the Greater Yellowstone Coordinating Committee with other AIS efforts, including public outreach and education. Lolo and Bitterroot NFs helped fund MFWP's rotating boat check stations near and on their Forests. Flathead NF is supporting studies to reduce effects of introduced lake trout on resident bull trout populations in Swan River watershed.

REGION 2 (Colorado, w Wyoming, SD, NE, KS)

The Region continues to support State and water users in preventing the spread of ANS in major waterways located on National Forest lands. These reservoir and stream networks provide significant revenue for state and local economies through fishing and water-based recreation. In addition, most are sources of water for the growing population in the region. In Colorado, we used Challenge Cost Share agreements to fund seasonal watercraft inspectors, which were matched by our State and municipal partners.

In addition to the Regional earmark, individual Forests contributed locally to efforts such as cleaning stations, training, coordination meetings, signage for specific sites, improving access areas such as boat ramps, and decommissioning roads and illegal boat access points.

REGION 4 (UT, NV, s. ID, w. WY)

The Regional Office continues to provide funding (\$135,000 for 2012) for nine AIS inspection and outreach seasonals and AIS monitoring (plankton tows on FS-owned and adjacent waterbodies plus lab analysis). This funding is administered through partnerships with Utah Department of Wildlife Resources, Idaho Department of Agriculture, and Wyoming Game & Fish. Local Forests have contributed to signage and AIS brochures, AIS surveys, seasonal AIS Outreach/Educational specialists, program management, and training.

Fire guidance and protocols: The RO provides AIS preventative guidance on the Region 4 website (<http://www.fs.fed.us/r4/resources/aquatic/index.shtml>). The site included regional distribution data (as spatial data accessible for download) for ~ 10 aquatic invasive species for the 2012 field season.

REGION 5 (California & Hawaii)

The Region will participate in an AIS Rapid Response drill to be held at Lake Tahoe September 12-13, which will use the Incident Command System and will involve multiple federal, state, and local agencies. The Lake Tahoe Basin Interagency Dreissenid Mussel Rapid Response Plan is the basis for this exercise.

The Region is promoting establishment of a standard boat inspection form that would be consistent across FS regions.

Region 5 participates in California's Quagga/Zebra Mussel Interagency team.

REGION 6 (Oregon & Washington)

Accomplishments:

- Universalized AIS survey methods: There are 3 major aquatic/riparian survey types in R6; PIBO (Monitors INFISH and PACFISH effectiveness), AREMP (Monitors NW Forest Plan effectiveness), and Level II (Physical Stream Survey). The leaders of those programs agreed to collect a common base group of AIS survey data. Some survey types may collect more, but they will all collect at base level and enter data in same database.
- Simplified and universalized AIS reporting methodology: All FS personnel in R6 have been informed of new AIS reporting methodology that emphasizes coordination with partners in State Governments and Universities.
- Internal Information sharing with Fire Organization: Continued grassroots efforts to inform FS Fire Organization personnel of AIS threat by Forest and District Fish Bio presentations at fire training sessions. This instruction includes what they can do to decrease the threat.
- Initiated wash station effectiveness study at the Oregon Coast in partnership with State Marine Board and Portland State University.
- Participated in Interagency Tsunami Debris Readiness Workshop
- Initiated the interdisciplinary Regional Invasive Species Team to better enable R6 response to invasive species issues.

Name: Paul Heimowitz

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Note: this report is also submitted on behalf of Southwest Region (Dave Britton, AIS Coordinator), Mountain-Prairie Region (Joanne Grady, AIS Coordinator), Alaska Region (Cecil Rich, Acting AIS Coordinator), and Pacific Southwest Region (Ron Smith, AIS Coordinator); additional region-specific reports are incorporated below.

X Check here if you wish to give a verbal report.

Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Enhancing Watercraft Inspection and Decontamination in the West:
 - The Southwest Region led coordination with the National Park Service and many other partners and stakeholders to plan and implement a strategy for expenditure of \$1 million which Congress directed USFWS to allocate toward watercraft inspection and decontamination program from its existing FY12 AIS budget. Much of the resulting plan focuses on Lake Mead National Recreation Area, but also targets prevention at nearby Colorado River Basin waters as well as watercraft interdiction elsewhere in the West.
 - The Service continued to support the Watercraft Inspection Program in partnership with the Pacific States Marine Fisheries Commission, Bonneville Power Administration, and others.
 - USFWS worked with the planning committee (including National Sea Grant Law Center, National Association of Attorney Generals and Oregon State University) to develop co-learning workshop of AIS coordinators, assistant attorney generals and law enforcement supervisors to work on legal and regulatory efforts to reduce spread of invasive mussels through watercraft movements.
 - A research partnership was formed with the State University of New York and Buffalo State College to investigate new field-based tools for determining whether zebra and quagga mussels are alive or dead. USFWS AIS staff have also developed a draft report summarizing current and potential methods for evaluating viability, and similarly coordinated with USFWS Office of Law Enforcement and state partners to help resolve this ongoing technical challenge.
2. Tsunami debris response: In cooperation with NOAA, state agencies, and other partners, Pacific Region staff helped fund and coordinate a regional workshop to address risk analysis and response planning for AIS hitchhiking to the West Coast on debris from the 2011 Japanese tsunami. Pacific Southwest Region staff also supported and participated in the workshop. The Pacific Region has established four monitoring sites in Northern California and surveys are conducted on a monthly basis or as needed in response to a reported debris sighting.
3. The Alaska Region helped fund and lead efforts to address several recent aquatic invasions, including
 - Rapid assessment and response funds from USFWS in FY12 helped support aquatic invasive screening (primarily for *Elodea*) in the upper Cook Inlet drainage, development of outreach materials,

experimental removal trials, and coordination with the State transportation agency to develop a strategy to prevent the spread of *Elodea* during culvert replacement projects.

- *Didemnum vexillum* (aka “marine vomit”) at a now defunct aquaculture facility near Sitka.
- Reed canarygrass (*Phalaris arundinacea*) is established in Alaska and response efforts include: supporting a graduate student project documenting current distribution, evaluate road-stream crossings as vectors for spread, and identify habitats most likely to be colonized. Control and removal efforts are focused on protection of key wetland habitats and areas where public education on invasive species can best be achieved.

4. Hazard Analysis and Critical Control Point planning, and similar efforts to reduce the spread of AIS from field-based projects, remains an emphasis. The Mountain-Prairie Region is developing an AIS hatchery inspection protocol. In cooperation with the University of California, Davis, the Southwest Region has developed a new training program focused on the use of HACCP for the control and prevention of quagga and zebra mussels. The program, Water Agency Eurasian Mussel Action Program (WAEMAP) was integrated into the region’s HACCP, AIS Awareness and Watercraft Inspection Training workshops.

5. The Alaska Region continued collaboration with the Prince William Sound Regional Citizens' Advisory Council, the Smithsonian Environmental Research Center, and the Alaska SeaLife Center to support marine benthic surveys of sites in Prince William Sound; these surveys resulted in the detected occurrence of *Amphibalanus improvises*, a barnacle native to the Atlantic Ocean and known to be established on the Pacific Coast. Also supported was an analysis of the economic impacts of invasive species in Alaska. The first report resulting from this project is titled “Managing Invasive Species in Alaska: How Much Do We Spend?” and is available at: http://www.iser.uaa.alaska.edu/Publications/2012_07-InvasiveSpecies.pdf. A second report nearing release will forecast economic impacts to Alaska’s economy of five selected marine invasive species.

Pacific Region (OR, WA, ID, HI and Pacific Islands) AIS Activities & Accomplishments for FY12:

- 1) Tsunami debris response: In cooperation with NOAA, state agencies, and other partners, Pacific Region staff helped fund and coordinate a regional workshop to address risk analysis and response planning for AIS hitchhiking to the West Coast on debris from the 2011 Japanese tsunami.
- 2) Mussel viability: In cooperation with the Mountain-Prairie Region, a research partnership was formed with the State University of New York and Buffalo State College to investigate new field-based tools for determining whether zebra and quagga mussels are alive or dead. Pacific Region AIS staff have also developed a draft report summarizing current and potential methods for evaluating viability, and similarly coordinated with USFWS Office of Law Enforcement and state partners to help resolve this ongoing technical challenge.
- 3) Pet trade: With support from a graduate student intern and in partnership with Portland State University, the Pacific Region began a new outreach effort aimed at reducing the spread of AIS via aquarium owners. Initial activities include evaluation of pet/aquarium retailer issues and needs, evaluation of aquarium consumer awareness, and development of on-line outreach. This effort is being coordinated with the Oregon, Washington, and Idaho Invasive Species Councils.
- 4) Early Detection and Rapid Response: Ongoing Pacific Region efforts to enhance AIS detection and response included a partnership with USGS and the University of Idaho to evaluate eDNA monitoring for New Zealand mudsnails, enhancement of protocols for mussel veliger detection, support for Asian clam response in Washington and Idaho, and planning for a quagga mussel response exercise in Wild Horse Reservoir (a headwaters source for the Columbia River Basin).

5) Restoration Decision Support: Working with other USFWS programs and in partnership with Ecotrust, Pacific Region AIS staff helped develop an AIS module within an overall new decision support tool for aquatic habitat restoration in Oregon, Washington, and Idaho. In addition to evaluating watershed condition, native fish population status, and climate change risk, the tool analyzes how AIS risks within a particular subbasin might constrain restoration of habitat for native species. Users can identify relative “invasibility” for individual watersheds or across the landscape.

Mountain-Prairie Region (CO, UT, WY, MT, SD, ND, NE, KS) AIS Activities & Accomplishments for FY12:

- 1) Served as WRP Coordinator and worked with ExCom on process to identify and bring on board the new coordinator.
- 2) Worked with planning committee including National Sea Grant Law Center, National Association of Attorney Generals and Oregon State University to develop co-learning workshop of AIS coordinators, assistant attorney generals and law enforcement supervisors to work on legal and regulatory efforts to reduce spread of invasive mussels through watercraft movements.
- 3) Working with Region 6 hatchery program to develop an AIS hatchery inspection protocol.
- 4) Coordinated with Pacific Region to provide funding for quagga mussel viability study.

Alaska Region AIS Activities & Accomplishments for FY 2012:

1. Alaska unfortunately experienced two new aquatic invasions late in 2010, and in FY12 the USFWS Alaska Region helped fund and lead efforts to address these as well a previous invasion.
 - The publication of a new guide, “Introduction to Common Native & Potential Invasive Freshwater Plants in Alaska,” late in 2010 led directly to the confirmation of *Elodea* (aka “oxygen weed” or “waterweed”) in Chena Slough near Fairbanks. Subsequent infestations have been confirmed at sites in Fairbanks, Anchorage, and Cordova. This highly invasive aquatic plant, commonly sold in the aquarium trade, immediately became the focus of a broad collaboration to mount an effective response to this new threat. Rapid assessment and response funds from USFWS in FY12 helped support aquatic invasive screening (primarily for *Elodea*) in the upper Cook Inlet drainage, development of outreach materials, experimental removal trials, and coordination with the State transportation agency to develop a strategy to prevent the spread of *Elodea* during culvert replacement projects.
 - *Didemnum vexillum* (aka “marine vomit”) has established a beachhead in Alaska at a now defunct aquaculture facility near Sitka. In 2012, the Alaska Department of Fish and Game (ADFG) received funding support from the Alaska State Legislature to test and perform control activities with the goal of complete eradication of *D.vex*.
 - Reed canarygrass (*Phalaris arundinacea*) is established in Alaska and response efforts include: supporting a graduate student project documenting current distribution, evaluate road-stream crossings as vectors for spread, and identify habitats most likely to be colonized. Control and removal efforts are focused on protection of key wetland habitats and areas where public education on invasive species can best be achieved.
2. In FY12, we continued our collaboration with the Prince William Sound Regional Citizens' Advisory Council, the Smithsonian Environmental Research Center, and the Alaska SeaLife Center. With assistance from the Service, these partners continued marine benthic surveys of sites in Prince William Sound resulting in the detected occurrence of *Amphibalanus improvises*, a barnacle native to the Atlantic Ocean and known to be established on the Pacific Coast. Also supported was an analysis of the economic impacts of invasive species

in Alaska. The first report resulting from this project is titled “Managing Invasive Species in Alaska: How Much Do We Spend?” and is available at: http://www.iser.uaa.alaska.edu/Publications/2012_07-InvasiveSpecies.pdf. A second report nearing release will forecast economic impacts to Alaska’s economy of five selected marine invasive species.

3. The Service continued to work with ADFG to complete an Environmental Assessment for a project to eradicate northern pike (*Esox lucius*) in Stormy Lake on the Kenai Peninsula. This lake is home to a unique native char and is connected to the Swanson River watershed, which supports an important native run of coho salmon. Rotenone will be applied in the fall of 2012. Funding is also being provided for implementation of the Alaska Aquatic Nuisance Species Management Plan, which in 2012 will help support ADFG to test the use of environmental DNA methods for monitoring the effectiveness of the Stormy Lake eradication effort.
4. Through our Regional AIS Coordinator and Field Office staff, we continued collaboration with a wide range of partners via forums like Western Regional Panel, Alaska Invasive Species Working Group, and Alaska Committee for Noxious and Invasive Plants Management (CNIPM, aka “snip’em”), and directly with our leading partner (ADFG). Activities and topics included international border inspection, prevention planning, felt-soled wader use, and public outreach.

Pacific Southwest Region (CA, NV) Aquatic Invasive Species Program Summary – FY 2012

The Aquatic Invasive Species (AIS) Program continues to enhance partnerships and cooperative efforts through the Aquatic Nuisance Species Task Force, Invasive Species Council, Western Regional Panel, and 100th Meridian Initiative. The Program is working with the ANS Task Force to fund and implement the California AIS Management Plan and the Lake Tahoe Basin AIS Management Plan. Implementation of AIS control efforts in the Lake Tahoe basin are supported by AIS staff in the Northern Nevada FWO. Additional Regional efforts involve working with the Western Regional Panel ANS Task Force in implementation of the Quagga/Zebra Action Plan (QZAP) for the western states.

The AIS Program education and outreach efforts have resulted in increased awareness about the threat of AIS and measures to detect and prevent their introduction into Regional waters. During 2012, we participated in several outreach events including local and regional salmon festivals other environmental themed outdoor fairs by providing non-native species outreach literature and explanations about invasive species impacts on the environment. We participated in 39 activities to support the management and control of aquatic invasive species; conducted 17 education and outreach events; provided technical assistance to 28 partners and cooperators; and established seven new partnerships while maintaining effective working relationships with 33 of our existing partners.

In cooperation with the University of California, Davis we have developed a new training program focused on the use of HACCP for the control and prevention of quagga and zebra mussels. The program, Water Agency Eurasian Mussel Action Program (WAEMAP) was integrated into our HACCP, AIS Awareness and Watercraft Inspection Training workshops.

During 2012, we conducted one Quagga/Zebra Mussel Early Detection and Monitoring workshop, six WAEMAP workshops; two AIS Prevention workshops; and four HACCP Training workshops.

The Program has continued working throughout 2012 to establish baseline measurements of AIS populations within aquatic habitats throughout the Region through several monitoring programs. High profile AIS currently being monitored include: Chinese mitten crab, Q/Z mussels, New Zealand mudsnail, European green crab, and *Undaria pinnatifida*.

Early detection monitoring and rapid response efforts for 2012 focused on marine debris associated with the Japanese tsunami. We have established four monitoring sites in Northern California and surveys are conducted on a monthly basis or as needed in response to a reported debris sighting. The purpose of the surveys are to: (1) Establish a baseline for marine debris of Asian origin then track the arrival and distribution of tsunami debris relative to sensitive coastal habitats; (2) Determine the viability of potentially invasive non-native species associated with the debris; (3) Evaluate the potential for establishment and invasion of observed non-native species; (4) Monitor coastal habitats for possible invasion; and (5) Initiate rapid response and control actions in cooperation with State and Federal agencies as needed. Additional efforts include participation in the Tsunami Debris/Biofouling Workshop in Portland, OR and the development of monitoring and response networks with state and federal agencies as well as our NGO partners.

State Members

The following states did not submit member reports: California, Hawaii, Kansas, Nevada, New Mexico, Oklahoma, South Dakota, and Texas.

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Check here if you wish to give a verbal report.

Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. *Didemnum vexillum* (*D. vexillum*):
 - a. Invasive tunicate detected in 2010 on gear used in commercial oyster production. January 2011, surveys of embayment were completed by divers and by camera mounted on remotely operated vehicle (ROV) in areas divers could not survey.
 - b. Outreach and education to stakeholders including; community members, recreational and commercial fishers, the boating public, environmental groups.
 - i. ADF&G close embayment to commercial and subsistence fishing and request boaters avoid entrance to the area.
 - j. All nets and aquatic farm infrastructure were removed from the water in the fall of 2011. When/where possible, steps were taken to reduce potential for fragmentation of the tunicate to lessen chance of spread to areas outside the infested embayment.
 - k. ADF&G received capital improvement project funding in FY13 to attempt an eradication of the invasive tunicate. Steps taken thus far:
 - i. Summer 2012: Complete dive surveys to map distribution of *D. vexillum* and to understand changes in distribution over time.
2. Northern pike: Prepare for chemical control of northern pike in an open-system-attempt to eradicate, mechanical management of populations in important salmon habitats, continued outreach.
3. Contract University of Alaska Anchorage to begin monitoring for freshwater invasive mussels in high use systems in AK using protocols employed in the west.
 - a. High use systems determined by boater and angler records.
4. Outreach: Signage- education campaign in high use areas. Continue to work with agencies and organizations statewide to increase awareness about the species, impacts, and pathways, and to increase reportage of invasive species.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. **State of Arizona Aquatic Invasive Species Management Plan** - Completion, Governor's signature, and ANSTF final approval (\$\$\$)
2. **Quagga Inspection and Decontamination Protocols mailout** – sent out over 75 Packets to various Marina's (on DO2 listed waters) and Marine Boat Transport companies known to do business in Arizona. These packets contained a compliance letter from the AGFD Director, our current decontamination protocols, a packet of DMAM brochures, and copies of the State required AIS Boat Inspection Report (AISBIR) for usage and distribution.
3. **Quagga outreach campaign "Don't Move a Mussel – Now It's the Law"** – AIS Summer Interns (one-on-one outreach; brochures; surveys); radio advertisements; billboards; news releases; magazine articles; Expo/Fair booths.
4. **New AIS Specialist** – Full time (limited) position (1 FTE) established and hired to assist with watercraft inspections, decontaminations, and other program needs.
5. **R12-4-1101 – Article 11. Aquatic Invasive Species** – Rulemaking process completed to memorialize certain AIS decontamination protocols into State Rule. Example – it is now required that all boaters MUST pull the plug on their boats prior to leaving all AIS Director's Order 2 listed waters, such as Mead, Havasu, Mohave and Pleasant.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

4. **Watercraft Inspection and Decontamination** – Colorado’s aggressive mandatory boat inspection, decontamination and education program entered its 5th year in 2012. Due to low water levels resulting from drought, many reservoirs have closed to boating early. However, due to an active spring, we are still on course for approximately 400,000 inspections this year and anticipating reaching over 1.5M educational contacts for ANS!
5. **Sampling and Monitoring** – Similarly, we have maintained the ANS sampling and monitoring program focused on zebra and quagga mussels in lakes and reservoirs. This year we have also been conducting aquatic submerged plant inventories of several lakes and reservoirs, compiling the last 8 years of data into aquatic inventory lists for the lakes and reservoirs and undertaken long-term population monitoring for all positive sites for Eurasian watermilfoil and New Zealand Mudsnails (NZMS).
3. **Control** – We are continuing the rusty crayfish removal project in its third year at Catamount, second year at Stagecoach and first year at Sanchez. We continue to control Eurasian watermilfoil where we are able to efficiently do so within our jurisdiction. We have been able to eradicate all known escaped water hyacinth populations to date, but know it is being sold in Colorado due to it not being a listed noxious weed or prohibited nursery species and are having impassable hurdles in this respect.
4. **Education** is the most important thing and we are constantly trying to break into new user circles with our messaging. This year we focused on scuba divers trying to build a volunteer survey group and work to clean their gear to prevent the spread. We’ve also worked hard to get back in touch with anglers by providing them new rack cards with cleaning instructions and free brushes. NZMS has appeared in six new places the last two years in Colorado so getting anglers to clean their waders is critical. We are working to revise the ANS Pocket Guide and the 2009 ANS Inspection Handbook for the 2013 boating season.
5. **Merger and Budget** – Colorado Division of Wildlife and Colorado State Parks were merged into a single agency now known as the Colorado Parks and Wildlife on July 1, 2011. There has been no organizational or functional or financial merger within the ANS or Invasive Species program to date. However, we are anticipating future budget reductions.

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 X Check here if you wish to give a verbal report.

Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Idaho's inspection stations are placed on major highways at or near the Idaho state line. Boats that have been in impacted states recently (within the last 30 days), watercraft coming from another state (especially commercially hauled boats), boats that show a lot of dirt, grime, or slime below the waterline or boats that have standing water on board are considered "High Risk" to the state of Idaho.

ISDA operates 15 roadside inspection stations (7-7, 7 days a week). Many of these stations were run with the assistance of local governments. The data collected at the inspection stations during the previous (2009-2011) boating seasons allowed ISDA staff to prioritize routes into the state for the 2012 season.

Idaho has conducted more than 125,000 inspections on boats from 49 different states and several different countries since 2009. More than 90 mussel fouled boats have been intercepted since July, 2009.

The 2012 inspection stations began opening in early February. A mussel fouled boat was intercepted within the first week of operation. As of 7/24/12, 56 mussel fouled boats were intercepted in Idaho in during the 2012 season. The origins of the 2012 fouled boats were:

- Great Lakes – 19
- Lake Mead – 27
- Lake Havasu - 6
- Lake Pleasant – 2
- Unknown - 2

ISDA conducted more than a dozen Watercraft Inspection Trainings (WIT) for more than 300 individuals in Boise, Caldwell, Glenns Ferry, Redfish Lake, Bruneau, Twin Falls, Pocatello, Malad, Island Park, Lewiston, Sandpoint and Coeur d'Alene. Participants learned how to inspect watercraft for the presence of zebra and quagga mussels.

The State of Idaho developed an "Invasive Species Passport." This system gives Idaho and Pacific Northwest Boaters an expedited "fast pass" when they repeatedly come through Idaho's stations. Boaters are issued a uniquely numbered passport booklet at the beginning of the season. They show the assigned number to inspectors during subsequent inspections. Inspectors ask the boaters if they have left the Pacific Northwest in the last 30 days. If the answer is no, they receive an expedited inspection, the passport is stamped with the inspection station location and the boater's information is logged with a handheld data unit. This dramatically reduces field data collection time and allows for tracking of repeat boaters. Several stations (such as I-90 eastbound) have a large volume of local boat traffic that travel between the Spokane (WA) area and the lakes of northern Idaho. This system allows inspectors to quickly screen boaters based on risk. This is especially critical during busy times when inspectors are able to give low risk boats an expedited inspection and can spend

additional time scrutinizing high risk boats that have come into the region from elsewhere. It has been well received by the boating community.

ISDA activated a (near) realtime mapping application online for each inspection station location. It allows individuals to track inspections and boat traffic and origin of inspected boats for each station throughout the season. It is available here:

http://www.agri.state.id.us/Categories/Environment/InvasiveSpeciesCouncil/Inspection_Stations_2011/Inspection_Stations_2011.php. This provides the public with access to detailed up-to-date information about inspection station activities.

2. ISDA partnered with the Idaho Transportation Department (ITD) to initiate an outreach campaign for commercial haulers. Through the oversized load permitting process, ITD notifies ISDA when an oversized watercraft is destined for Idaho. ISDA contacts the boat transporter directly to inform the hauler of state laws related to possessing and transporting invasive species in Idaho. ISDA trained all ITD Port of Entry personnel to inspect boats when they scale through a POE. This has resulted in several successful fouled boat interceptions.

3. Monitoring is an important component of the state's Early Detection and Rapid Response (EDRR) program. Idaho's monitoring program consists of tow net and substrate sampling. Idaho's waterbodies have been prioritized based on calcium levels, numbers of launches, and use by recreational boaters. The aim of the prioritization exercise is not to provide a definitive list of which waterbodies are likely to be invaded in any particular order; rather it is a tool to enable the focused use of limited resources. In order to focus resources when planning to prevent an invasive species, it is necessary to predict which habitats are at most risk from invasion and therefore the most vulnerable.

Ninety "Critical" and "Very High" risk waterbodies are sampled. The statewide monitoring effort was enhanced in 2012. ISDA collected over 600 plankton tow samples in priority waterbodies in 2011. Idaho waterbodies were sampled several times throughout the year in an effort to "catch" spawning events and/or detect veliger presence. Other cooperators (i.e. DEQ, the Northside Canal Company, Idaho Power) and volunteers also monitored several hundred substrate samplers statewide. ITD dive teams were trained in mussel identification and inspected bridge pilings as part of routine maintenance activities.

ISDA provides online tracking of monitoring efforts. All Idaho monitoring locations – plankton tow and substrate - are available on an online map that includes with collection information (www.agri.idaho.gov).

4. Contingency Planning - Although the chances of eradicating a new population of zebra or quagga mussels are small, those chances depend directly on the ability of the state to respond quickly and effectively once a population is detected. There is an urgent need to develop control technologies for zebra and quagga mussels in Idaho's systems. Water managers in impacted western states (CA, NV, AZ, TX) have been forced to scramble to develop control technologies within water delivery infrastructure systems. This work began shortly after the discovery of the mussels in the Lake Mead National Recreation Area in 2007. Unfortunately, control options for lakes, rivers, and naturally flowing river systems are poorly-developed.

In response to this resource management challenge, ISDA partnered with the Aquatic Ecosystem Restoration Foundation (AERF) to develop a "Zebra/Quagga Mussel Exclusion Strategy and Contingency Plan." The multidisciplinary AERF panel was asked to examine Idaho's waterbodies on a case-by-case basis. Recommendations to the state and its stakeholders provide a "first of its kind" summary of available control technology options and an assessment of Idaho's technical and regulatory gaps, including state and federal permitting and endangered species concerns.

5. Several outreach campaigns targeted non-traditional audiences and pathways. These included the "Clean Drain, Dry Your Gear" angler campaign, the tri-state "Squeal on Pigs" feral hog campaign, the "Mussel Patrol" volunteer monitoring campaign and the "Don't Let it Loose, Idaho" responsible pet ownership campaign.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

- Watercraft inspections:** As of Aug 26, 2012, MFWP watercraft inspection crews have inspected over 18,000 boats. Over 100 fouled boats have been intercepted including boats contaminated with Dreissenid mussels, New Zealand mudsnails and Eurasian watermilfoil. Eight seasonally permanent watercraft inspection locations were established in May, with 4 crews roving to various waterbodies throughout the season. Locations and waterbodies were selected with partner input prior to the start of the season. MT Department of Agriculture has also established crews in EWM management areas.
- FWP EARLY DETECTION AND MONITORING:** Waterbodies surveyed in Montana are prioritized based on: previous years' work, angler/boater pressure, water quality data, risk of introduction, etc. There are two technicians trained in monitoring for the AIS program. Regional fisheries biologists have also been trained throughout central and eastern MT. AIS early detection and monitoring includes: invertebrate and macrophyte sampling, and plankton sampling for veligers (samples processed at the FWP lab in Helena). Priority locations for sampling include the 10 state, 3 federal, and 12 private hatcheries. Almost 300 sites in 38 waterbodies were sampled in 2011. Sampling is ongoing for 2012.
- Dreissenid Veliger Lab:** Montana's lab is processing the majority of plankton samples for the Missouri River Basin. In 2011 this included almost 800 samples processed for 7 states. Similar numbers are expected for 2012.
- Inspect, Clean, Dry Campaign:** The Inspect, Clean Dry Campaign was established in 2010. At the time the campaign began, a survey of public knowledge of AIS was conducted. A pre and post survey has been completed and a second post survey is planned for Fall of 2012. The data from the survey is helping establish whether the survey is being effective at increasing awareness and changing behavior.
- New Bait regulations in areas with EWM areas:** Eurasian watermilfoil is an invasive submerged plant species that has been introduced in some Montana waters. The water weed is easily spread from one body of water to another primarily by plant fragments entangled in boat propellers, keels and rudders.

The new rules stipulate restrictions on bait use in areas which have been identified as contaminated with Eurasian watermilfoil in the Missouri River drainage.

New bait restrictions within the contaminated bodies of water are:

- Possession of bait (dead or alive) is permitted as allowed in the fishing regulations
- Transport of bait to and from a contaminated area is allowed either dry (e.g. earthworms in dirt) or in uncontaminated water (e.g. transferring minnows from lake water to well water).
- Collection of bait animals, including commercial seining is not permitted within the above contaminated areas.
- Transport of live fish is allowed if the fish are transferred from lake or river water to uncontaminated water (e.g. transport in well water).
- Upon leaving any body of water, all boats AND equipment (including bait buckets) must be free of Eurasian watermilfoil.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. In April 2012, Nebraska passed legislation that prohibits the possession, transport, sale, etc. of aquatic invasive species. It also provides powers to our state agency (Nebraska Game and Parks Commission) to develop rules and regulations concerning aquatic invasive species. Unfortunately, no funding was included in the legislation. A link to the bill can be found here: <http://nebraskalegislature.gov/FloorDocs/Current/PDF/Slip/LB391.pdf>. This legislation also formally recognizes and appoints members to the Nebraska Invasive Species Council – and advisory task force to help guide invasive species management and policy decisions in the future.
2. Zorinsky Lake in Omaha, NE was reopened in April 2012, after over a year in draw-down. In the fall of 2010, zebra mussels were discovered in this 255-acre lake - making this the first public lake in NE infested with zebra mussels. In December 2010, the lake was drawn down nearly 20ft in an attempt to freeze/dry out the small population (<1/m²). Intensive monitoring conducted by collaborating agencies revealed no detection of zebra mussel adults or veligers. We will continue sampling and monitoring the lake for the next 3 years. If no adults or veligers are detected at that point, the lake will be delisted. Increased inspections and outreach at Zorinsky lake will help insure water is not moved from Zorinsky to another waterbody.
3. Through rotating boat inspections and increased outreach efforts around the state, aquatic invasive species awareness has increased approx. 15% from 2011 – 2012 (about 90% of those interviewed had heard about the problems that AIS cause). 2012 report to come soon.
4. Proposed state regulations concerning AIS are currently under public review and will be a topic of discussion at the next Nebraska Game and Parks Commission public hearing at the end of August. Regulations represent an entire new section for AIS and includes, for example: the authority to require boat inspections; allows for boat impoundment and quarantine when necessary; prohibits the movement of watercraft from a waterbody with water still present in compartments, live wells, etc; and prohibits the use of felt-soled boots/waders; among other items. A copy of the proposed AIS regulations can be found here beginning on page 7: <http://outdoornebraska.ne.gov/Fishing/pdfs/Fisheries%20regulation%20changes%20proposed%20for%20013%20updated.pdf>
5. A draft of Nebraska's Zebra Mussel Rapid Response Plan is under revision by the Nebraska AIS Committee with an anticipated completion date of Sept 31, 2012. The plan follows guidelines outlined in the *Rapid Response Plan for Zebra Mussels in the Columbia River Basin* (2006) and the *Model Rapid Response Plan for Aquatic Nuisance Species* developed by the Western Regional Panel on Aquatic Nuisance Species.

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NDG&F web site for ANS info at: <http://gf.nd.gov/fishing/aquatic-nuisance-species>

Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Documented the first record of silver carp in ND in late summer 2011 (James River from Jamestown S to SD border), and documented its continued presence in 2012.
2. Additional sampling failed to detect Eurasian water milfoil in Dead Colt Creek Reservoir; apparently a case of successful eradication using water drawdowns/freezing.
3. Reorganization of NDG&F staff and activities following retirement of previous ANS Coordinator.
4. New NDG&F website and revised ANS tab. Revised ANS brochure, bait vendor/sporting goods outlet poster and web cam video.
5. Ongoing ANS monitoring; only new ANS infestation as of 8/20/2012 was the documentation of curlyleaf pondweed at Lake Elsie

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. 2011- four (2 person/team) roving teams conducted 3,652 watercraft inspection and 5 hot wash decontaminations
2. 2012 – Four (2 person/team) teams conducted around 3,000 watercraft inspection and 17 hot wash decontaminations. This is the first full boating season of mandatory inspection at roadside inspection stations.
3. To date we have issued five citations for by passing a check station. Fines are \$110.
4. Started an experimental eradication program for Mystery snails in 2010 where we found density of 166 snails/m² in a 1 ¼ acre pond. Results in 2012 for the same pond showed 13 snails/m². We didn't eradicate but seriously controlled and we will be attempt another application this fall.3.
5. Started dealing with the Japanese Tsunami Debris that has washed upon the Oregon Coast.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Aquatic Invasive Species Prevention Program

- Finalized interagency agreement with ODFW to operate AIS highway boat inspection program. New for 2012 is that inspection stations are located on perimeter highways targeting boating traffic entering Oregon (mostly in our southern border region). Four inspection teams are operating stations that opened in June and will close in September (a longer inspection season is planned for 2013 with expanded operating hours). As of early August, 2,877 inspections completed with 37 boat decontaminations (15 zebra/quagga mussels, 2 pacific mussels and 20 for aquatic vegetation).
- New Oregon law implemented late in 2011 granted mandatory stopping authority at AIS check stations. Final state program rules were completed in early 2012.
- Completed 2-year project with the Oregon Department of Transportation to have 20 signs constructed and installed on all roadways leading into the state that inform boaters of the state law requiring boat AIS permits.

2. Developed a new funding strategy to allocate AIS funds to state law enforcement agencies. During 2012 it has become a priority action by state-wide boating law enforcement officers (State Police and County Sheriff) to enforce the AIS boat permit requirement and also the "clean launch law". Additionally, law enforcement officers are engaging in on-the-water education and outreach activities with the public and also spending time enforcing the requirement that boaters stop at highway inspection stations. During July 2012 there was an increase of 118 AIS enforcement actions taken compared to the same month in 2011.

3. Partnered with the Oregon Invasive Species Council and the Oregon State University – Sea Grant Program to apply for and ultimately received funding from the National Sea Grant Law Center to implement a project to study the "Regulatory and Outreach Strategies for AIS in Oregon".

4. Participating on a national AIS Task Force project being organized by the State Organizations for Boating Access (SOBA) to develop some guidelines and BMP's to implement AIS prevention projects at boating access facilities. A draft document is being presented at the annual SOBA conference in Sept. 2012 with a facilitated work session to gather input for inclusion into a second draft.

5. Finalized plans and interagency agreements to allocate AIS funds to ten AIS projects. Primary recipients of funding are Portland State University, U.S. Forest Service and an Oregon County Parks & Recreation Department.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Worked with the Oregon State Marine Board to develop a wide assortment of research projects tackling all aspects of AIS in Oregon including both freshwater and marine AIS. Projects underway include: A re-survey of New Zealand mudsnail populations in Oregon (already low density populations in the Deschutes River have almost disappeared and some coastal populations have changed dramatically as well); pre- and post-evaluation of a boat wash station located at Tenmile Lake; a literature review of coastal AIS in Oregon (in coordination with diver-surveys also being funded by the OSMB); linking AIS data from iMapInvasives to the Atlas of Oregon Lakes; reviving a volunteer monitoring program "Oregon Lake Watch", etc.
2. PSU Veliger Laboratory has been busy taking and processing samples throughout the Pacific Northwest. PSU Zebra/Quagga Mussel Microscopy Training Manual has been developed to aid in the identification of zebra and quagga mussel veligers (planktonic larvae) using cross-polarized light microscopy. The training document is currently undergoing internal review. Online training tools are now available on the PSU website: <http://mussels.research.pdx.edu/musselid/> and specimen of all the nonnative mussel species of concern that have veliger larvae have been collected for use as laboratory controls. <http://mussels.research.pdx.edu/> The veliger lab is also very involved in efforts to develop criteria for veliger collection and identification.
3. In the wake of the USGS NAS database no longer supporting aquatic plant data the Center for Lakes and Reservoirs has been working with iMAP Invasives Oregon to map aquatic plants. To bolster existing data CLR staff have gone through historical records for aquatic plants. The Center continues under MOU with the Oregon Department of Agriculture to provide leadership on aquatic plants and has, in conjunction with ODA developed numerous outreach materials on aquatic plants.
4. CLR staff stationed at Lake Mead is finishing up the last batch of Calcium experiments using water from the Columbia River Basin. Results on lack of calcium suitability are promising (low Ca levels are correlated with negative growth and/or mortality) but not conclusive (not all quagga mussels do poorly). Average growth: 2.9% Columbia and 0.1% Willamette. While Ca levels in the Columbia River may be enough for quagga mussel to survive their ability to thrive and reproduce in low Ca Columbia River water is unknown.
5. Fouling was a hot topic this year. Ian Davidson will be presenting his work on hull-fouling at the WRP meeting. PSU/CLR hosted the Biofouling and Japanese Marine Tsunami Debris Workshop in August (also on the WRP agenda). Steve Well's anti-fouling paint durability experiments were launched in the Columbia River. 960 steel and concrete panels coated with different brands of anti-fouling paint have been deployed into the Columbia River in an effort to test their durability under actual Columbia River field conditions. Panel evaluations will be made at 0, 3, 9, 15, 21, 27, 33, 39+ months.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

- 1. 2012 Utah Aquatic Invasive Species (AIS) Program Summary:** Detailed information about the Utah Aquatic Invasive Species Plan and the ongoing program to combat the invasion of quagga and zebra mussels in Utah can be perused at <http://wildlife.utah.gov/dwr/invasive-mussel-plan.html>.
- 2.** During the 2012 Legislative session Utah Division of Wildlife Resources (UDWR) was funded with \$1.35 million to carry out a statewide AIS program in FY2012 (July 1, 2011 thru June 30, 2012). Additionally, funding partners again provided substantial funds (\$271,409) to assist.
- 3.** The UDWR developed a cooperative arrangement with Utah State Parks and Recreation, making them a full-fledged partner to conduct implementation of the Utah Aquatic Invasive Species Management Plan at Utah's 24 water-based parks. Their efforts will allow interdiction of boats during all hours that a park is open as compared to the previous interdiction by UDWR for only a single 40-hour work week shift at each park.
- 4.** The 2012 boating season is still underway, but accomplishments are expected to be similar to 2011. The 2011 report can be perused at <http://wildlife.utah.gov/dwr/learn-invasive-mussels.html>, under the topic of "AIS Summaries" for 2011. A short synopsis of the report follows:

During the 2011 boating season Utah Division of Wildlife Resources and its partner agencies intercepted 372,196 pre-launch boats at 41 different waters statewide. More than 8,111 of the boats needed decontamination due to their previous 30-day use history on *Dreissenid* affected waters. Nineteen of the boats were found to be encrusted (one or more mussels) with live quagga or zebra mussels.

Ongoing early detection efforts in 2011 and up to now in 2012 showed no evidence of *Dreissenid* veligers in over 100 tested water bodies, including two waters (Red Fleet Reservoir and Electric Lake) where veligers were detected in 2008, and Sand Hollow Reservoir where a single alive adult quagga mussel was detected in 2010.

- 5.** Work with other AIS species is ongoing. The development of an eDNA assessment protocol for New Zealand Mudsnail has shown success in the field, and refinement to the process continues.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. The Washington Invasive Species Council was created by the state legislature in 2006 to provide policy direction, planning, and coordination to empower those entities engaged in the prevention, detection, and eradication of invasive species. Within the state mission, WDFW's Aquatic Invasive Species (AIS) Unit directive is to minimize harm and damage from aquatic animal invasive species to the state's native species, natural resources, recreational and commercial activities dependent upon state lands and waters, and human health. The two primary management programs including AIS prevention and enforcement and ballast water management. Funding for WDFW AIS programs continues to decline as the state struggles to come out of a severe recession. General fund support has been significantly reduced and revenues from resident recreational boaters are down 15% from fewer annual registrations. Comprehensive biennial reports that provide statewide AIS accomplishments and recommendations are available to download at <http://wdfw.wa.gov/ais/>.
2. The WDFW AIS Prevention and Enforcement Program key objectives are to reduce the risk posed by recreational and commercial boaters transporting zebra and quagga mussels overland into or through the state, rapidly respond to infested boats or waters, and conduct early detection monitoring to identify newly introduced or established populations of zebra or quagga mussels so as to provide greatest rapid response capabilities and to give potentially impacted industries lead time to prepare for mitigation measures. Boat inspections are conducted through mandatory AIS check stations, integrated AIS/boater safety inspections, emphasis patrols, State Patrol Port of Entry weigh stations, and in cooperation with neighboring states.
3. WDFW is moving forward with proposed AIS legislation for the 2013 session. The proposal accomplishes five primary objectives: a) consolidates aquatic invasive species into a single Title 77 RCW chapter; b) enhances invasive species classification system to increase flexibility of response and risk management capacity; c) enhances existing authorities for mandatory AIS check stations to improve control of inadvertently transported AIS on state roadways; d) provides explicit authority to request state Emergency Declaration and implement emergency measures when AIS pose substantial, imminent risk; and e) requires the posting of the scientific name of nonnative species (aquarium, live food market, pet, and similar species) when sold or distributed in public venues.
4. The WDFW Ballast Water Management Program key objective is to ensure that the discharge of ballast water poses minimal risk of introducing nonindigenous species. Annually, the state monitors approximately 4,000 vessel arrivals that discharge 12.9 million cubic meters of ballast water. Of these arrivals, the state's two ballast water inspectors have boarded over 325 vessels annually since 2008. One

of the key measures for determining success is the percentage of vessels in full compliance with state laws (reporting forms were accurate or adequately amended and filed in a timely manner). Statewide measures have remained consistently in the 85-88% range since mid 2009. The department works closely with ballast water management programs in Oregon and California and with other stakeholders as part of the Pacific Ballast Work Group coordinated by the Pacific States Marine Fisheries Commission. More information on the program can be found at <http://wdfw.wa.gov/ais/ballast/>.

5. Japanese tsunami debris carrying AIS was not predicted prior to the 66 x 19 x 7 ft dock which floated up on an Oregon beach on June 5th. Currently, Oregon State University has identified 92 species that were attached or living within the attached organisms with the majority being of Japanese coastal origin. This, and reports of extensive marine debris coming ashore, pushed Washington state tsunami debris planning into the forefront. On June 15th, the hull of a 21 ft fiberglass boat washed ashore on a Washington beach and WDFW responded in coordination with the Department of Parks and Recreation. The boat was primarily covered in common open sea gooseneck barnacles, but did have several species of mussels and seaweeds. Many of the seaweed species have been tentatively identified as being from Japan. Mussel DNA is being tested for species identification and mussel tissue is being analyzed for nonnative diseases and parasites. More information can be found at <http://wdfw.wa.gov/tsunami/> and http://www.ecy.wa.gov/news/2012/itn01_debris.html.
6. WDFW continues to facilitate a “Crayfish in the Classroom” initiative. Science curriculum for grade and middle schools in Washington State have historically ordered live crayfish from various local and national suppliers as part of a standard “Structures of Life” requirement. Unfortunately, those turned out to all be prohibited species and a work group was formed comprised of representatives from the Office of the Superintendent of Public Education, the Pacific Educational Institute, the Everett School District, the University of Washington, Washington and Oregon Sea Grant, two biological supply businesses, and other key stakeholders. The primary objectives are to develop a new market for native Signal crayfish to replace the prohibited species and to educate schools and teachers on preventing the release of any organism after use in the classroom. The group has been successful in all aspects, but a lack of a winter supply from wild harvesters remains a significant problem.
7. The state’s Department of Ecology took the lead on developing the first internal agency AIS prevention and decontamination protocol which was followed by the state’s Invasive Species Council’s development of a general state agency protocol. WDFW adopted an internal prevention and decontamination protocol in 2011 and is slowly working on statewide staff implementation. Challenges include finding sufficient staff time to train the protocols and treatment options (e.g., hot water, freezing, drying, chemicals) that have not been scientifically tested across a wide range of species, ability to conduct decontamination in remote field locations, and the expense of equipment.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. **LEGISLATION** - 2012 legislation will require all conveyances (watercraft, water hauling truck, etc.) entering Wyoming from out of state by land to be inspected prior to contacting or entering Wyoming waters. Legislation also allows for watercraft check stations to be established at Port of Entries of other locations near borders.
2. **OUTREACH** - A new outreach campaign targets a variety of water users and focuses on the Drain, Clean Dry messaging. Six brochures were developed for General audience, Motorized boaters, Non-motorized boaters, Anglers, Waterfowl hunters, and Water transportation systems. Outreach materials under development include billboards, a poster identifying several aquatic invasive species of concern, and a brochure educating people not to release aquarium pets.
3. **WATERCRAFT INSPECTIONS** - In 2011, a total of 43,758 watercraft inspections were conducted on 35 waters. Of these, 118 were considered high risk and 15 required decontamination. Four watercraft were intercepted with attached mussels; the mussels were dead and the watercraft were decontaminated and allowed to launch.
 - Through the end of July 2012, a total of 26,787 watercraft inspections have been conducted. This includes 152 high risk inspections and 72 decontaminations. Of these, three boats have been encrusted with mussels; all were dead and boats were allowed to launch after decontamination.
 - In 2013 watercraft inspections will shift from being conducted at waters or boat ramps to 10-12 Port of Entry/border locations and 6 roving water crews.
4. **MONITORING** - 52 waters were surveyed for aquatic invasive species during 2011.
 - All samples were negative for larval zebra/quagga mussels.
 - Curly pondweed was found in Lake DeSmet in northeast Wyoming.
 - Asian clam were found in the Laramie River in southeast Wyoming.
 - A population of Rusty crayfish previously thought eradicated from a tributary to the North Platte River has been documented again after five years of no individuals surveyed. An off-channel pond containing the crayfish is being drained and chemically treated.

Monitoring has begun for the 2012 season with 52 waters scheduled to be sampled. Fifteen high risk waters are sampled twice a season (July and October), and all other waters are sampled once (October).

Other Members

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Check here if you wish to give a verbal report.

Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Through Q.ZAP funding from USFWS I have been monitoring 14 northeastern Texas lakes for zebra mussels since February 2011. The lakes monitored include Lake Texoma (Grayson and Cook Co.) and Lake Arrowhead (Archer Co.) in the Red River Basin; Lake Bridgeport (Wise Co.), Eagle Mountain Lake (Tarrant and Wise Co.), Lake Lewisville (Denton Co.), Lake Lavon (Collin Co.), Lake Ray Hubbard (Collin, Dallas, Rockwall and Kaufman Co.), and Lake Ray Roberts, (Denton and Grayson Co.) in the Trinity River Basin; Lake Wright Patman (Bowie and Cass Co.) in the Sulfur River Basin; Lake Tawakoni (Hunt and Rains Co.), and Lake Fork Reservoir (Rains and Wood Co.) in the Sabine River Basin; Lake Bob Sandlin (Franklin and Titus Counties) and Lake O' the Pines (Upshur and Marion Co.) in the Cypress River Basin, and Caddo Lake (Marion Co.) in the Big Cypress Basin. Monitoring was conducted in spring 2011 and 2012 (June-July) and fall 2011 (October-November) when surface water temperatures where optimal for mussel spawning and settlement. Monitoring consisted of two sets of concurrent vertical plankton tows for detection of veliger larvae. One of the plankton samples was used for laboratory microscopic examination and the second for molecular qPCR veliger presence testing by Pisces Molecular, Denver, CO. A scouring pad juvenile settlement monitor and a data logger recording water temperature hourly were also deployed at depth of ≈ 1 m at each sampling site. Water temperature, pH, oxygen concentration, and Ca^{2+} concentration at each site were used to develop a mussel invasion risk assessment.

All 14 monitored lakes had O_2 concentrations falling well within the levels tolerated by larval and adult mussels, pH at 13 lakes fell within tolerance limits for larval and adult mussels, but below the lower limit for larval mussels of 7.4 at Caddo Lake. Calcium concentration fell below the lower limit of $12 \text{ mg Ca}^{2+} \text{ l}^{-1}$ required to sustain mussel populations at Lakes Fork, Bob Sandlin, Caddo, and Lake O' the Pines. Mean August 2011 surface water temperatures were above the incipient upper 32°C limit for zebra mussels in southwestern reservoirs at lakes Bridgeport, Bob Sandlin and Lake O' the Pines. Based on these results, lakes Bridgeport and Fork were considered to have a "marginal" risk and lakes Bob Sandlin, Caddo and Lake O' the Pines a "poor" risk of for zebra mussel invasion, respectively. The remaining nine monitored lake were considered "suitable" to sustain a zebra mussel infestation.

Lake Texoma has been infested with zebra mussels since 2009 and presently supports a thriving population. Its physical characteristics fall within those required to support a zebra mussel population. Veliger larvae were detected in Lake Texoma during all three sampling periods by both microscopic examination and qPCR analysis of plankton samples. During spring 2011, qPCR analysis was also weakly positive for veligers in lakes Lavon and Ray Hubbard, but larvae could not be detected by microscopic examination nor did juvenile settlement occur on the monitors. During fall 2011, qPCR analysis indicated that 6 of 10 monitored lakes (plankton samples from four lakes were not subjected to qPCR analysis due to

poor or marginal capacity to support zebra mussels or, in the case of Lake Texoma, known to be mussel infested). Of these 10 lakes, six (i.e., lakes Arrowhead, Bridgeport, Eagle Mountain, Louisville, Ray Roberts, and Caddo) had weak qPCR results for veliger presence. Veligers were not microscopically detected in any of these lakes nor did juvenile settlement occur. The weak qPCR signals in these six lakes were considered to be a result of boater movements between infested lakes such as Lake Texoma and uninfested lakes in northeastern Texas but at levels which would not support establishment of sustainably reproducing mussel populations.

During fall 2011, no juvenile mussels were recorded on the settlement monitor in Lake Texoma even though veligers were detected in the water column. Lack of fall juvenile settlement may have resulted from poor conditions for veliger development as no settlement competent pediveligers were observed in plankton samples. This result suggests that only spring spawning leads to successful juvenile settlement in Lake Texoma. Mussel growth rates in Lake Texoma are relatively high with juveniles settling during the spring reaching mature size by July or August.

In spring 2012, a relatively strong qPCR veliger signal was detected in Lake Ray Roberts. In contrast, none of the 13 other lakes had a positive qPCR result with the exception of the mussel-infested Lake Texoma. Microscopic examination of a concurrent Lake Ray Roberts plankton sample revealed the presence of a single D-shaped early zebra mussel veliger. Subsequently in mid-July 2012, inspection of Lake Ray Roberts by Texas Parks and Wildlife Department personnel revealed the presence in extremely low density of juvenile mussels (apparently settled during the spring 2012 spawning season) on isolated rocks along the shore of the lake and in its outfall to the Elm Fork of the Trinity River. Thus, Lake Ray Roberts is now considered to be in the early development stages of a sustainable zebra mussel population. The presence of zebra mussels in Lake Ray Roberts on the Elm Fork of the Trinity River is of great concern as it could lead to infestation by larval hydrological transport of veligers into downstream reservoirs including Lake Lewisville and Lake Livingston. Other reservoirs on the Trinity River drainage are also now at risk because of veligers being carried on water transfers from infested Elm Fork reservoirs to impoundments on the Clear, West and East forks of the Trinity River. Thus, monitoring of Trinity River drainage reservoirs for zebra mussels will be continued.

2. Appointed as a member of the Gulf and Southern States Regional Panel on Aquatic Invasive Species, fall 2011.
3. Chapter "in press" for late 2012. D.W. Garton, R.F. McMahon and A.M. Stoeckmann. 2012. Limiting Environmental Factors and Competitive Interactions between Zebra and Quagga Mussels in North America. *In: Zebra and Quagga Mussels*, T.F. Nalepa and D.W. Schloesser (eds.). Lewis Publishers, Boca Raton, FL. In press.

This chapter comparatively reviews the physiological ecology of zebra and quagga mussels relative to their competitive interactions under varying physical and ecological conditions in North American aquatic habitats.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

1. Organization of the 2013 International Didymo Conference. This major conference will be held March 12 & 13, 2013 in Providence, RI. The Northeast, Mid-Atlantic and Mississippi Basin Panels are all supporting and Trout Unlimited and the Federation of Fly Fishers have signed on as sponsors. Registration is open and the call for papers has been out since late May. Full conference info is at http://www.stopans.org/Didymo_Conference_2013.htm.
2. With our partner RecycledFish, we developed the Whac-A-Mussel game. This is an effort to find new ways to bring the AIS message to various segments of the public. The game was first used as part of the Bassmaster Classic and has been used around the country since then. Machines are available for purchase or rental.
3. We are working on new behavior change outreach efforts for fishing guides and pet stores. The best way to craft outreach programs that actually result in behavior change is to specifically identify both a desired action and a narrow target audience. Flexible and easily customized messages are then developed and, on an individual basis, active participation is secured. These new initiatives utilize this type of targeted, customized and incentivized messaging.
4. Our youth education programs expanded to reach more students with new materials. Youth education is vital to expanding knowledge about AIS. We have developed a number of AIS programs and activities for all age groups and have presented more than 250 youth education programs annually for the past several years.
5. Governors, US Senators and many fishing celebrities have endorsed the Clean Angling Pledge. The Clean Angling Pledge is a simple statement of commitment that all anglers are encouraged to take. The Clean Angling effort has also benefitted from several major fishing companies adopting the program and incorporating the Clean Angling message and logo in their product packaging.

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Please provide a description of your top five ANS activities/accomplishments/priorities for the past year:

- 1. Watercraft Inspection Training (WIT):** PSMFC contractors Wen Baldwin and Dee Davis continued Level Two watercraft inspection trainings in Fall 2011 and Spring 2012 Level Two training, delivered over two days at Lake Mead is intensive and designed for professionals in all fields that expect to be actively involved in the inspection and decontamination of trailered watercraft and those who wish to become trainers within their state or work group. This project is funded by USFWS and BPA. <http://www.aquaticnuisance.org/wit>. Additional remote trainings by Wen and Dee were also carried out in Arizona (Lake Pleasant, with Tom McMahon, AZDGF) and California (with Dominique Norton, CDFG).
- 2. Video:** "Don't Move a Mussel 2011" video was released in late 2011 (produced by PSMFC contractor Bill Zook, video company: Videoland). <http://www.aquaticnuisance.org/video> We also created the "Catalog of Interviews and Images from the Making of "Don't Move a Mussel 2011" -- unused footage of the DMM II video (Bill Zook and David Britton, leads) http://100thmeridian.org/video/DMAM2011/DMAM2011_Videos/Home.html
- 3. Rapid Response Plan/Exercise:** In 2008, the PSMFC, USFWS, 100th Meridian Initiative's Columbia River Basin Team and other Columbia River state and federal agencies, completed the "Columbia River Basin Interagency Invasive Species Response Plan: Zebra Mussels and Other Dreissenid Species." The plan has now been signed by the states of Idaho, Montana, Washington and Oregon, the Columbia River Inter-Tribal Fish Commission, US Fish and Wildlife Service and Province of British Columbia. The plan has been activated once in November 2009 when suspicious mussel veligers were found in the Snake River near Milner Dam, Idaho. It was later determined that the mussel veligers were not dreissenids. Rapid Response Plan Exercise, Montana: The fifth in a series of rapid response exercises in the Columbia River Basin was held October 2011 in Libby Montana. The plan and related documents can be found at <http://100thmeridian.org/ColumbiaRT.asp> .
- 4. Watercraft Decontamination Survey and Standards:** In April 2012 we completed "Recommended Protocols and Standards for Watercraft Interception Programs for Dreissenid Mussels in the Western United States" and "List of Agencies and Organizations Implementing Watercraft Interception Programs in the Western United States" (Bill Zook contractor, lead) <http://www.aquaticnuisance.org/wit>.
- 5. Coordination/Other:** In 2011-12 we hosted meetings of the Pacific Ballast Water Group (<http://www.psmfc.org/ballast/>), and Columbia River Basin Teams of the 100th Meridian Initiative (<http://www.100thmeridian.org>); Continued publication of "Aquatic Invasive Species News in a Nutshell." (newsletter editor, Joan Cabreza, retired, EPA) <http://www.aquaticnuisance.org/newsletters>; Completed, with ISAC EDRR Subcommittee, "Validation of PCR-Based Assays and Laboratory Accreditation for Environmental Detection of Aquatic Invasive Species." Adopted by ISAC May 2012. http://www.invasivespecies.gov/ISAC/White%20Papers/ISAC_PCR_WHITEPAPER_FINAL.pdf ; PSMFC currently hosts a website on current dreissenid monitoring sites in the CRB that can be found at <http://crbans.psmfc.org/monitoring.html>.

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Top five ANS activities/accomplishments/priorities for the past year:

1. **Annual WAPMS meeting.** The WAPMS held our 31st annual meeting in San Diego with over 100 attendees. Presentations included: an overview of ANS in the west by Dr. Lars Anderson (Ret. USDA-ARS) with an emphasis on *other* ANS issues, sublethal effects of pesticides on ESA-listed species, emerging plant problems, and approaches to aquatic plant control. The 2013 meeting will be held in Coeur d'Alene, Idaho March 25-27, 2013 at the Coeur d'Alene Resort. The call for papers is anticipated in October 2012. There has been increased discussions on including *other* aquatic invasive species (e.g., zebra/quagga mussels, NZ mudsnails) as part of the WAPMS (and national APMS) conferences.
2. **Emerging and expanding plant problems.** Flowering rush (*Butomus umbellatus*), South American spongeplant (*Limnobiium laevigatum*), water primrose (*Ludwigia grandiflora* ssp. *hexapetala*), common reed (*Phragmites australis*), hydrilla (*Hydrilla verticillata*), hybrid milfoils (e.g., *Myriophyllum spicatum* x *M. sibiricum*), and yellow floating-heart (*Nymphoides peltata*).



Flowering rush (photo: T. Moorhouse)



South American spongeplant (photo: CDFA)



Water primrose (photo: imcwma.org)



Common reed (photo:UC-Davis)



Hydrilla (photo: V. Ramey)



Yellow floating-heart (photo: UC-Davis)

4. **Threatened and endangered species.** There has been increased interest in managing invasive plants in the presence of threatened and endangered species. The U.S. Army Corps of Engineers sponsored a workshop, *The Interface between Aquatic Herbicide Use and Salmonids: A Focus on Critical Habitat in the Pacific Northwest Region*. The workshop was held at the University of Washington June 6 and 7, 2012 and was well-attended by state, federal, tribal, and private sector representatives and included presentations on aquatic plant management techniques, effects of aquatic herbicides exposure to amphibians and salmonids, and NPDES permitting as they related to threatened and endangered species.

5. **More information.** Visit our website at www.wapms.org