



# **ANNUAL REPORT 2000 - 2001**

Established by section 1203 of the "Nonindigenous Aquatic Nuisance Prevention and Control Act"  
(P.L. 101-636) as amended through P.L. 104-322

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## **INTRODUCTION**

The third annual report of the Western Regional Panel on Aquatic Nuisance Species, covering the period of January 2000 through September 2001 is submitted to the Aquatic Nuisance Species Task Force pursuant to Section 1203(a)(6) of the National Invasive Species Act of 1996. The period covered is longer than 12 months due to a change in staff in 2001.

## **HISTORY, MEMBERSHIP AND PROCEDURES**

### **History**

Section 1203 of the National Invasive Species Act of 1996 calls for the formation of a Western Regional Panel on Aquatic Nuisance Species (WRP). At its November 1996 meeting, the Aquatic Nuisance Species Task Force requested that the Western Zebra Mussel Task Force work with the San Francisco Estuary Project, Prince William Sound Regional Citizens Advisory Council and Washington and British Columbia Exotic Species Work Group to develop a proposed membership list, including marine and freshwater interests, for the Western Regional Panel. Representatives from these four organizations formed the WRP work group and began developing a proposed membership.

The WRP work group presented its WRP proposal at the April 14, 1997 meeting of the Aquatic Nuisance Species Task Force in Silver Spring, Maryland. Letters of invitation to participate on the Panel were sent to the Governors of the 19 western states, Premiers of the four western Canadian provinces, Tribal governments and selected federal agencies, research institutions, private industry and conservation organizations.

The first forum and organizational meeting of the WRP was held in Portland, Oregon on July 8 and 9, 1997 at Portland State University. Subsequent meetings have been held in Sacramento, California in March 1998; Denver, Colorado in September 1998; Austin, Texas in October 1999; and Oakland, California in September 2000. The September 2001 meeting scheduled for Las Vegas, Nevada was postponed due to the September 11<sup>th</sup> terrorist events to January 2002.

### **Membership**

There are currently 42 WRP members representing state, federal, tribal, academic, industry, conservation organizations and freshwater and marine interests (List of members, Appendix A). The geographic range of the WRP reaches east to Kansas, west to Hawaiian Islands and Guam, north to Alaska and South to Texas.

### **Panel Structure and Procedures**

The WRP is responsible for addressing the provisions of Section 1203. The WRP developed and refined an operational structure which meets the diverse needs of its members. (Western Regional Panel Guide to Procedures, Appendix C).

The WRP carries out its responsibilities through a structure consisting of an Executive Committee and Inland and Coastal Committees. There is provision for an Island Committee in the Guide to Procedures, but it hasn't been formally created. The seven-member Executive Committee is elected by the full WRP

membership and reflects the Panel's membership. The Executive Committee drafts agendas for WRP meetings, and decides on procedural and operational questions as appropriate. Additionally, the Executive Committee is responsible for carrying out actions determined by the WRP.

## **Staffing**

The Executive Committee, with logistical assistance from the WRP Coordinator, provides staff support for the Panel. The level of support is dependent upon the availability of funds and prior commitments of members involved on the Executive Committee. The Panel Coordinator is Bettina Proctor, Aquatic Nuisance Species Coordinator, U.S. Fish and Wildlife Service, Region 6, Denver, Colorado. The Executive Committee members elected for four years in September 2000 are: Scott Smith, Chair (State Representative); Randy Brown, Vice Chair; Mark Sytsma (At-large Representative); John Chapman (At-large Representative); Blaine Parker (Tribal Representative); Dwight Williamson (Provincial Representative), and Jim Athearn (Federal Representative). The Coastal and Inland Committee Co-chairs also served on the Executive Committee in 2001. They are: Paul Heimowitz and Edwin Gosholz, Coastal Committee and Nate Dechoretz and Wendy Ralley, Inland Committee.

## **Funding**

Funding for the WRP has been authorized by Congress through the U.S. Fish and Wildlife Service. The WRP received \$52,150 in FY2000 and the same amount in FY2001. Contributing support from member agencies and organizations in terms of time and in-kind services have allowed the Panel to meet its 2000 and 2001 work plan objectives.

# **RESPONSIBILITIES, ACTIVITIES AND ACCOMPLISHMENTS**

## **Legal Authority and Responsibilities**

"Nonindigenous Aquatic Nuisance Prevention and Control Act" (P.L. 101-636, as amended through P.L. 104-322, The National Invasive Species Act.)

Section 1203(b) Western Regional Panel - Not later than 30 days after the date of enactment of the National Invasive Species Act of 1996, the Task Force shall request a Western regional panel, comprised of Western region representatives from Federal, State, and local agencies and from private environmental and commercial interests, to—

- (1) identify priorities for the Western region with respect to aquatic nuisance species;

- (2) make recommendations to the Task Force regarding an education, monitoring (including inspection), prevention, and control program to prevent the spread of the zebra mussel west of the 100<sup>th</sup> Meridian pursuant to section 1202(i) of this Act;
- (3) coordinate, where possible, other aquatic nuisance species program activities in the Western region that are not conducted pursuant to this Act;
- (4) develop an emergency response strategy for Federal, State, and local entities for stemming new invasions of aquatic nuisance species in the region;
- (5) provide advice to public and private individuals and entities concerning methods of preventing and controlling aquatic nuisance species infestations; and
- (6) submit annually a report to the Task Force describing activities within the Western region related to aquatic nuisance species prevention, research, and control.

## **ACTIVITIES CONDUCTED AND ACCOMPLISHMENTS TO ADDRESS STATUTORY GOALS**

Listed below are statutory goals addressed by the WRP. Below each numbered goal are listed activities conducted and accomplishments to address the goal.

### **Statutory Goal #1: Identify priorities for the Western Region with respect to aquatic nuisance species;**

- WRP meetings provide a forum for exchange of information to develop a cost effective and efficient approach to prevention, research, monitoring and control efforts in the western region. At these meetings, federal, state, tribal, provincial, private industry, non-governmental organizations and researchers identify priorities and needs for ANS prevention and management. Formal meetings were held in:
  - ▶ September 2000, Fall meeting in Oakland, CA

- ▶ September 2001, Fall meeting scheduled for Las Vegas, NV was rescheduled due to terrorist attacks on September 11. Meeting will be held in Las Vegas, NV on January 9-10, 2002

- **FY 2000 Work Plan**

Developed at October 1999 meeting in Austin, TX. (Appendix C). Some of the action steps taken in the work plan have continued in FY 2001 and will continue through FY 2002.

Priorities for this plan are:

- a. Develop Model ANS Programs including Invasive Species Coordinators, Statewide Invasive Species Councils, and State Plans
- b. Develop and implement an effective communication network for the western region regarding ANS issues and concerns
- c. Develop a Rapid Response Protocol

The following objectives address these needs. Accomplishments are in bullets under the objectives.

**Objective 1: Develop a Model ANS Program including Invasive Species Coordinators, Statewide Invasive Species Councils, and State Plans.**

- ▶ Model State ANS Plan developed and distributed by Washington Department of Wildlife in FY 2000.
- ▶ In FY 2001, State ANS Plan Workshops were designed for the WRP by a consultant, Dynamic Solutions Group. Tasks completed to date: written solicitation of western states' interest in hosting a plan writing workshop; follow-up telephone survey of states' interest and selection of California and Arizona as the two states to receive plan writing assistance; letters mailed to the states explaining the WRP's decision; drafting of a project plan for conducting the workshops. California and Arizona are reviewing the draft project plan for conducting the workshops and are entering into discussions with the project managers on task-sharing to meet the specific workshop content needs for their state. Workshops will be held in 2002.

**Objective 2: Develop and implement an effective communication network for the western region regarding ANS issues and concerns.**

- ▶ Refinement and operation of a WRP e-mail reflector for communication between members. Developed and maintained by California Department of Water Resources. The address for the reflector is [wrp@water.ca.gov](mailto:wrp@water.ca.gov).
- ▶ Refinement and distribution of ANS Resource-Species Matrix developed by Portland State University. The Matrix is located at [www.clr.pdx.edu/nix/](http://www.clr.pdx.edu/nix/).
- ▶ A Western Regional Panel liaison was created within the Western Governors' Association to facilitate meeting mutually identified ANS prevention and control goals and objectives in partnership with States. Paul Gertler, U.S. Fish and Wildlife Service, served in this capacity from June, 1999 until January, 2001.

**Objective 3: Develop a Rapid Response Protocol.**

- ▶ Draft Rapid Response Protocol developed by California Department of Food and Agriculture and reviewed by WRP members in 2001.

**Objective 4: Panel support for implementation of the 100<sup>th</sup> Meridian Initiative to prevent or slow the spread of zebra mussels and other aquatic nuisance species west of the 100<sup>th</sup> Meridian.**

- ▶ 100<sup>th</sup> Meridian objectives and accomplishments can be found under Statutory Goal #2, pages 8-11.

● **FY 2001 Work Plan**

Developed at September 2001 meeting in Oakland, CA. (Appendix C).

Priorities for this plan are:

- a. Finalize and Distribute a Rapid Response Protocol.

- b. Develop and implement an effective communication network for the western region regarding ANS issues and concerns.
- c. Build a Lewis and Clark Commemoration Component into the 100<sup>th</sup> Meridian Initiative.

The following objectives address these needs. Accomplishments are in bullets under the objectives.

**Objective 1: Develop a Rapid Response Protocol**

- ▶ Final Draft of the Rapid Response Protocol will be available at the WRP meeting in January 2002 and the completed Protocol will be available Spring 2002.

**Objective 2: Develop and implement an effective communication network for the western region regarding ANS issues and concerns.**

- ▶ Communication network includes continuation and refinement the of e-mail reflector, Resource-Species Matrix website, and publication of semi-annual Nuisance Notes (Appendix D). The WRP website is being transferred the U.S. Fish and Wildlife Service server and is being updated.
- ▶ Publication of "Threats to the West, The Invasion of Western Waters by Non-Native Species" brochure and fact sheet. Project oversight by the San Francisco Estuary Project. Printing of 15,000 for distribution by WRP members to interested public and policy makers.
- ▶ ANS Screening Process Workshop held on January 8-9,2002. Workshop included a day of presentations by representatives from States, Federal agencies, Australia, pet industry, nursery industry, shipping industry, and aquaculture industry. A half-day panel discussion concluded the workshop the next day. The purpose of the workshop was to explore how governments, industries, environmentalists and citizens can build consensus for action regarding screening out unwanted non-native species while continuing to use valuable non-native species for commercial and recreation purposes.

- ▶ Creation of ANS display based on "Threats to the West," that can be used by WRP members at meetings and workshops to promote awareness of ANS issues, problems and management. Project oversight by the San Francisco Estuary Project.
- ▶ The Coastal Committee developed a listserv for committee members to share information on: 1) proposed importation or movements on ANS, 2) State ANS Management Plans and plans in development; 3) coordinating comments on proposed legislation and draft regulations, 4) emergency response plans, 5) coordinating educational approaches and outreach products, and 6) facilitating and improving coordination of ANS monitoring efforts coast wide.

**Objective 3: Panel Support for Design and Implementation of a Lewis and Clark Commemoration Component to the 100<sup>th</sup> Meridian Initiative to prevent or slow the spread of zebra mussels and other aquatic nuisance species west of the 100<sup>th</sup> Meridian.**

- ▶ Meeting between 100<sup>th</sup> Meridian members and executive director of the Lewis and Clark Bicentennial Council took place in Portland, Oregon. Council will form committee to take several stewardship issues, including invasive species, and develop a brochure that will be distributed at all places where tourists stop along the Lewis and Clark Trail. As major media develop stories about the Commemoration, the Council will ask that the stewardship issues be included as part of the story.
- ▶ Contract signed with Pacific States Marine Fisheries Commission to spearhead education project along the Missouri River. The work will be done in FY 2002. "Zap the Zebra" brochures will be distributed at marinas and boat launching areas, signs describing how to prevent ANS distribution will be displayed, and a short-range radio transmitter will be erected (place still needs to be determined) to warn recreational boaters to clean their boats before transferring them from one water body to another.
- ▶ Other 100<sup>th</sup> Meridian Activities can be found under Statutory Goal #2, pages 8-11.

## **Objective 4: Panel Support for Specific Committee Recommendations**

- ▶ Inland Committee compiled a list of management/research priorities which was reviewed by the WRP (See Appendix E). In addition, there were preliminary discussions regarding the need for a research symposium involving key ANS researchers.
- ▶ The Coastal Committee maintained its focus on coordination of West Coast activities addressing estuarine and marine invasions. The committee maintained e-mail communication through a list-serv and held periodic conference calls. Ballast water management was a significant emphasis given new state regulatory and statutory developments and reduced activity by the Pacific Ballast Water Group as a regional coordinating group.

### **Statutory Goal #2: Make recommendations to the Task Force regarding an education, monitoring (including inspection), prevention, and control program to prevent the spread of the zebra mussel west of the 100<sup>th</sup> Meridian pursuant to section 1202(I) of this Act;**

- 100<sup>th</sup> Meridian meetings are held annually including representatives of state and federal agencies, universities, non-profits and industry with the goal of working together to prevent the spread of zebra mussels and other ANS west of the 100<sup>th</sup> meridian states of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma and Texas and the Canadian province of Manitoba.
  - ▶ March 2000 annual meeting in Council Bluffs, Iowa
  - ▶ June 2001 annual meeting in Tulsa, Oklahoma with field trip to Oklahoma Welcome Center at Miami, OK for the opening of the short range radio system with a zebra mussel message.
  - ▶ June 2001 meeting of the Colorado River 100<sup>th</sup> Meridian in Las Vegas, NV
- 100<sup>th</sup> Meridian accomplishments:

#### **Trailored boat surveys**

- ▶ Data collection from seven states (OK, KS, SD, MT, WY, ID, OR and one province (MB) to determine where trailored recreational boats are coming from when they enter the states and which water bodies they are headed for. Data have been collected on a survey form from 1998 to 2001.
- ▶ Data have been compiled by Robert F. McMahon at the Center for Biological Macrofouling Research at the University of Texas at Arlington. Purpose is to pinpoint which water bodies are most at risk so educational efforts will be more effective.
- ▶ Education of boaters about ANS during the surveys.
- ▶ Development of database of zebra mussel monitoring stations and provinces west of the 100<sup>th</sup> meridian. Creation of monitoring survey form to collect more detailed locality information.

### **Education and Outreach**

- ▶ Design and production of "Zap the Zebra" brochures.
- ▶ Letter sent to 250 commercial vessel haulers with the "Zap the Zebra" brochure and zebra mussel ID cards, asking them to clean the boats before hauling, and to contact the USFWS or state resource agency if a boat is discovered to be infested. The letter included information about the "Stop Exotics - Clean your Boat" video with an offer of technical assistance, if needed. Letter also sent to commercial haulers in Manitoba.
- ▶ Funding and installation of short range radio system at the Oklahoma Welcome Center at Miami, OK in the northeast corner of the state, which broadcasts a zebra mussel message to recreational boaters hauling trailored boats.
- ▶ Website developed and on-line at: [www.100thmeridian.org](http://www.100thmeridian.org).
- ▶ Listserv developed and on-line. To subscribe, send a message to [fws-100thmeridian-request@lists.fws.gov](mailto:fws-100thmeridian-request@lists.fws.gov). On the "subject" line, enter <subscribe>.

### **Expanding the Organization**

- ▶ Formation of Colorado River 100<sup>th</sup> Meridian Initiative. First meeting June 13, 2001 in Las Vegas, Nevada. Meeting plus demonstration of spotless soap-free deionized water wash system for boats.
- ▶ Next meeting scheduled for February 13, 2002.

### **Lewis and Clark Bicentennial Commemoration**

- ▶ Meeting between 100<sup>th</sup> Meridian members and executive director of the Lewis and Clark Bicentennial Council took place in Portland, Oregon. Council will form committee to take several stewardship issues, including invasive species, and develop a brochure that will be distributed at all places where tourists stop along the Lewis and Clark Trail. As major media develop stories about the Commemoration, the Council will ask that the stewardship issues be included as part of the story.
- ▶ Contract signed with Pacific States Marine Fisheries Commission to spearhead education project along the Missouri River. The work will be done in FY 2002. Zap the Zebra brochures will be distributed at marinas and boat launching areas, signs describing how to prevent ANS distribution will be displayed, and a short-range radio transmitter will be erected (place still needs to be determined) to warn recreational boaters to clean their boats before transferring them from one water body to another.

### **Statutory Goal #3: Coordinate, where possible, other aquatic nuisance species program activities in the western region that are not conducted pursuant to this Act;**

- Update and maintenance of the WRP e-mail reflector for use by all members and interested parties to the WRP. The address is [wrp@water.ca.gov](mailto:wrp@water.ca.gov). The reflector is used for information exchange, announcement of new invasive sightings, and management strategies by public and private sector entities.
- Publish "Nuisance Notes," a semiannual publication of the WRP. (Appendix D) "Notes" provides a printed compilation of members activities for managing and controlling invasive species. The notes are distributed to members, interested parties, at all presentations delivered by WRP members, and segments included in the ANS Digest. (Total distribution approximately 4,000).

**Statutory Goal #4: Provide advice to public and private individuals and entities concerning methods of preventing and controlling nuisance species infestations; and**

- Compiled comments from WRP members regarding reauthorization of National Aquatic Nuisance Species Act (NISA) - comments sent to ANS Task Force.
- Published "Threats to the West, The Invasion of Western Waters by Non-Native Species" brochure and fact sheet. Printing of 15,000 will allow them to be distributed by WRP members to interested public and policy makers.
- Created ANS display that can be used by WRP members at meetings and workshops to promote awareness of ANS issues, problems and management.
- Transfer of WRP website to US Fish and Wildlife Service Server and update and expansion of website material is underway. The website can be accessed at <http://www.wrp-ans.org>.

**Statutory Goal #5: Submit annually a report to the Task Force describing activities within the western region related to aquatic nuisance species prevention, research, and control.**

- Report prepared, reviewed and submitted after soliciting ANS activity updates from federal, state, tribal, industry, and research representatives throughout the western region.
- Western Regional Panel objectives for FY 2002 will be developed at the annual meeting in January 8-10 which had to be rescheduled from September because of the terrorist attacks on September 11

# **PROGRAM UPDATES OF THE WESTERN REGIONAL PANEL MEMBER AGENCIES AND ORGANIZATIONS**

## **FEDERAL AGENCIES**

### **US Department of Agriculture/Animal and Plant Health Inspection Service (USDA/APHIS)**

APHIS is involved with eradication efforts of three aquatic noxious weeds through the regulatory branch, Plant Protection and Quarantine (PPQ) Western Region, that are listed as Federal noxious weeds: Giant salvinia (*Salvinia molesta*), hydrilla (*Hydrilla verticillata*), and the alga, *Caulerpa taxifolia*. In addition to the Federal noxious weed list, PPQ has other aquatic weed projects in process which are of concern to western region states and listed under the PPQ Canvassing Program for Biological Control.

- APHIS is working cooperatively with California Department of Food and Agriculture, Integrated Pest Control Branch (IPC) to eradicate *S. molesta* from infested waters. IPC worked cooperatively with the Palo Verde Irrigation District to mechanically clean 10 miles of the infested Westside Drain. Upon completion, they will start eradication on the larger Outfall Drain. IPC worked with APHIS to obtain necessary crop and endangered plant safety data needed to apply for import and release of the *Cyrtobagous salvinia* (a weevil that is a natural enemy of salvinia) into California.
- APHIS is working with State departments of agriculture and other agencies to develop surveys and biological control of *H. verticillata* in California. Eradication efforts continue in Clear Lake, Eastman Lake and Chowchilla River, Oregon, House canal and nearby ponds and ponds in Tulare County and Redding. Surveys continue in the Sacramento/San Joaquin Delta and the associated watershed. No hydrilla species were detected in the Sacramento River, Sacramento Delta, Cache Creek, Bear Creek or the Feather River.
- APHIS is working with State agencies to develop surveys and biological control of purple loosestrife in Nebraska and Utah.

## **National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA/NMFS)**

Researchers at NOAA/NMFS Northwest Fisheries Science Center in Seattle, Washington are conducting the following ANS studies:

- A modeling study to identify how invasive species in the Columbia River are influencing the trophic ecology and survival of juvenile wild salmon.

Ecosystem-level food web models, including the Ecopath with EcoSim package developed by fisheries scientists at the University of British Columbia, will be used to evaluate the importance of invasive species as potential competitors and predators for juvenile salmon. Invaders might play other roles (such as large-scale mortality due to whirling disease, or large-scale food web perturbation, as might be caused by zebra mussels). This question will be evaluated at multiple spatial scales, simply because so many different stocks of out-migrating juvenile salmon move through the same habitats; thus the impacts of any given invader might disproportionately affect certain stocks. Also, the modeling approach will allow researchers to ask how effective management of one or more invaders might be, given the suite of other invaders that may or may not be accounted for in current management plans. (For example, are we saving salmon from pikeminnow only to have them all eaten by terns?)

- A database on the aquatic exotic species in the Columbia River basin.

Two questions are being looked at: a) how many exotic species are in the basin, and b) where are these exotic species located. In addition, areas are being identified where the effect of these exotic species on salmonid populations can be or has been quantified.

- A research paper: Non-indigenous brook trout and the demise of Pacific salmon: a forgotten threat (submitted).

The research shows that stream survival of chinook salmon was nearly double in streams without brook trout as with brook trout. Furthermore, when brook trout were absent, habitat quality was positively associated with chinook salmon survival, but when brook trout were present, no relationship between chinook salmon survival and habitat quality was evident. Many of the populations investigated occurred in wilderness areas, and were considered pristine. These results emphasize that non-indigenous species are present and may have dramatic impacts even in remote "pristine" habitats.

## **U.S. Environmental Protection Agency (EPA)**

- In 2001, the EPA produced a two volume report "Nonindigenous Species- An Emerging Issue for EPA". Volume 1 summarizes five workshops held in EPA Regions across the country and a national EPA workshop. Based on issues raised at the Regional workshops, the national workshop focused on ballast water, wetlands, TMDLs, and pesticides. The second volume provides an overview of the types of impacts invasive species have on ecosystem goods and services, human health, and economics. The report also explores how invasive species can impact the implementation of EPA's goals and mandates and how EPA's regulations potentially relate to the management of invasive species. Both volumes are available at: [www.epa.gov/owow/invasive\\_species/](http://www.epa.gov/owow/invasive_species/).
- In September 2001, EPA released a draft response to the petition to eliminate a regulatory exemption that currently prevents ballast water discharges from vessels from needing permits under EPA's National Pollutant Discharge Elimination System (NPDES) program. The draft response recommends deferring consideration of the application of NPDES permits to ballast water discharges pending development of effective ballast water treatment technologies, working with the U.S. Coast Guard to maximize compliance with the National Invasive Species Act regulations, reviewing EPA's authority under NEPA, and development of EPA's Invasive Species Management Plan. The draft report also summarizes various regulatory and non-regulatory approaches to controlling introductions from ballast water. The draft report is available at [www.epa.gov/owow/invasive\\_species/ballast\\_report/](http://www.epa.gov/owow/invasive_species/ballast_report/).
- In 2001, EPA awarded research grants totaling more than \$3.5 million to seven universities and one nonprofit agency to study invasive species. One grant was to the University of California, Davis, for "Hybridization Between an Invasive Exotic and a Declining Native Amphibian: Molecular Characterization, Ecological Dynamics, and Genetic Remediation." Another west coast grant was to the University of California, Riverside, for "Abiotic Controls on Invasive Species and Biodiversity: Comparison of Forest and Shrubland." Summaries of the proposals are available at [http://es.epa.gov/ncer\\_abstracts/grants/00/anticipate/](http://es.epa.gov/ncer_abstracts/grants/00/anticipate/).
- In 1999 and 2000, EPA's Western Coastal EMAP program conducted probabilistic-based surveys of the near-coastal habitats of California, Oregon, and Washington. The sampling frame included the full range of estuary sizes, from less than one square km up to Puget Sound. The benthic data are presently being analyzed in regards to the patterns of invasion across estuarine gradients, estuary size, and biogeographic provinces.

## **U.S. Army Corps of Engineers**

In 2001, the Army Corps of Engineers:

- Continued monitoring on the Snake and Columbia Rivers for the presence of zebra mussels. All results to date have been negative.
- Expanded quarterly ANS coordination efforts to the entire Columbia River Basin.
- Continued involvement in WRP activities.
- Provided public information on ANS at sports and boat shows in the Pacific Northwest and at the visitor center at Bonneville Dam (lower Columbia River).
- Continued monitoring on the Missouri River (Omaha, river mile 627 and Gavins Point Dam, river mile 811.1) for the presence of zebra mussels.
- Coordinated information about the 2001 zebra mussel sighting at the Quindara Power Plant, Kansas City, Kansas.
- Continued to coordinate ANS information within the Missouri River Basin.
- Coordinated with Lewis and Clark Bicentennial Activities to include consideration of ANS concerns.
- Continued monitoring in the Arkansas River, including warm water tolerance testing for zebra mussels. No new sightings to report.

## **U.S. Department of Interior/Fish and Wildlife Service**

The following is a compilation of some of the ANS activities funded through three US Fish and Wildlife Service regions in the west, Region 1 (Portland, OR); Region 2 (Albuquerque, NM) and Region 6 (Denver, CO).

- Helped with national Giant Salvinia Conference; developing and coordinating a national control strategy.
- Established the first low-power radio signal targeting westbound trailered boat traffic on the 100<sup>th</sup> meridian in NE Oklahoma on I-44.
- Helped establish a New Zealand mud snail control team; developing strategies to prevent spread, raise awareness. Developed New Zealand mud snail Watch

Card and distributed to 11 western state points of contact in order to define the range and establish blocks to prevent further spread.

- Sponsor of the 100<sup>th</sup> Meridian Database at the University of Texas, Arlington and the 100<sup>th</sup> Meridian website.
- Administration of CALFED Nonnative Invasive Species program and projects.
- Chair of Chinese mitten crab control committee; implementing priority items identified in the draft management plan; Chinese mitten crab brochure, reporting program and survey in San Francisco Bay watershed; outreach and education prevention program on the Lower Columbia River; development of mitten crab watch card for field biologists and mitten crab awareness notices at boat ramps.
- ANS prevention signs developed and posted throughout the SF Bay estuary and delta; boater awareness survey conducted.
- Support for Lewis and Clark Bicentennial Commemoration in development of invasive species message in the Trail Stewardship Brochure; funding for educational brochures, signs at boat launches and marinas and short-range radio signal at strategic spot along the Missouri River; outreach on ANS at events.
- Funding for 100<sup>th</sup> Meridian boater surveys in six states; participation in CA and WA zebra mussel interception program.
- Developed database and map using zebra mussel monitoring locality survey data, which indicates counties and provinces where zebra mussel monitoring is occurring west of the 100<sup>th</sup> meridian.
- Assisted in coordination of triennial Brown Tree Snake (BTS) Workshop in August 2001; developed Assistance Agreement with South Pacific Regional Environment Program to provide training to port, border and quarantine inspectors to intercept, identify and deal with BTS; developed Assistance Agreement with Plant Protection Micronesia and the Secretariat of the Pacific Community to develop and distribute posters of harmful nonindigenous invasive species.
- Coordination of Western Regional Panel on Aquatic Nuisance Species meetings; executive committee meetings; annual report.
- Worked with Oregon Sea Grant to obtain funding to design and produce education boxes for invasive species.

## **STATES AND TERRITORIES**

### **Alaska**

The Alaska Department of Fish and Game commissioner office has formed a group to address invasive species concerns. A draft policy has been written and will soon be available for public review. Funds have been located that will enable the state to proceed with plans to hire a facilitator to help in the writing of an Alaska invasive species plan.

### **Arizona**

- Monitoring for zebra mussels associated with the Central Arizona Project has continued. These activities are undertaken by the Bureau of Reclamation and University of Arizona.
- The Department of Game and Fish has worked with the Giant Salvinia Task Force on the infestation associated with the Palo Verde Irrigation District (CA) drains and the Lower Colorado River. Current emphasis is on remediation in the PVID drains and limiting spread through monitoring and education. Remediation efforts in the Colorado River proper are difficult. Luckily, the plant does not appear to be thriving in the mainstem of the Colorado River. Outreach on giant salvinia has included press coverage, flyers, signs at boater access points, AZ Boater Registration packets, AZ Boater Education courses.
- Several occurrences of hydrilla in Arizona have been detected. Triploid grass carp have been suppressing the plant at a small golf course for years, but a fish kill allowed the plant to flourish. Two other sites in Tucson were discovered. Remediation plans and treatment are underway.
- Floating water hyacinth was reported by the Salt River Project in isolated ponds in the Salt River Channel. The plants were remediated. A species of water primrose has been detected on the Verde River and is apparently widespread below the Verde Valley.
- A state Aquatic Nuisance Species Plan is being developed. An invasive species summit is being planned, sponsored by the Arizona Game and Fish Department and the Office of the Governor.

## **California**

In November 2000, the State of California established a full-time Invasive Species Coordinator. In 2001, a Marine Invasive Species Coordinator was established.

In October 2001, *Caulerpa taxifolia* was found in two southern California lagoons; Agua Hedionda Lagoon in San Diego County, and Huntington Harbour in Orange County. A public/private partnership, the Southern California Caulerpa Action Team (SCCAT) developed a rapid response protocol and began treatment. The infestations are still being treated by injecting sodium hypochlorite solution under PVC liners. Additional patches have been found outside of the original detection area, but they are not considered new, just patches not found until the surveillance efforts were increased. These are immediately treated. The SCCAT, chaired by Bruce Posthumus of the San Diego Regional Water Quality Control Board, meets regularly and is working on eradication and outreach in San Diego and Orange counties. Two Regional Water Quality Control Boards have provided funding for the eradication efforts and have developed outreach programs to educate recreational divers and the public in general.

The California Department of Fish and Game is working with the University of California, Davis, to identify potential treatment options for *Caulerpa*, and to facilitate a Review Panel with funding provided by the U.S. Fish and Wildlife Service. The goal of the Panel is to examine the efficacy of current eradication actions, and make recommendations for additional actions if deemed necessary.

The California Department of Fish and Game and the National Marine Fisheries Service are providing funds for coast-wide detection efforts.

Legislation to ban the sale, possession and transportation of nine species of *Caulerpa* was signed into law by Governor Davis.

*Undaria pinnatifida*, an invasive Japanese kelp, has been documented in several areas off the California coast. Divers from DFG got some first hand experience in invasive species removal during a training exercise off of Catalina Island coordinated by DFC staff and a USC researcher. A researcher at University of California, Santa Barbara removed *Undaria* in Santa Barbara Harbor.

## **Colorado**

- Efforts to control and eradicate purple loosestrife continue.
- Funding for development of a statewide invasive species plan has been requested, but not yet approved.

- A survey of mollusk and crayfish occurrence and distribution in eastern Colorado was initiated in 2001.
- Quagga mussel and rusty crayfish have been added to Colorado's "Prohibited Species" list.
- Zebra mussel information brochures have been distributed to recreational boaters via boat registration mailings and at various reservoirs.

## **Guam**

The Guam Department of Agriculture, Division of Aquatic & Wildlife Resources' (DAWR) Brown Treesnake Control Project focuses on endangered species recovery. The three current areas where DAWR controls brown treesnakes (BTS) are 1) Area 50; 2) Munitions Storage Area (MSA); and, 3) Cocos Island/Merizo Pier.

The first area, referred to as "Area 50", is a 24-hectare forested plot located in northern Guam on Andersen Air Force Base. Snake control started in 1998 with trapping and a snake barrier retrofitted to the cyclone fence which surrounds the forested plot. Once snake numbers were thought to be appropriately depressed, sixteen captive-bred Guam rails (*Gallirallus owstoni*) were introduced to the area. The captive-bred rails adapted to the wild and successfully bred; 42 of 58 known eggs hatched and unbanded paired rails were observed. Unfortunately, despite continuous snake control, the population of rails has dwindled to as few as 5 individuals. This decrease in numbers may be due to feral cats and/or lack of enough suitable habitat.

During the past year between 98 and 142 traps have been operating inside Area 50 and 53 mark and release traps outside Area 50. This snake control effort has removed 160 snakes from inside Area 50 and reported seven known breaches of the barrier. Since trapping began an estimated 900+ snakes have been removed from inside Area 50.

The second major area of snake control is also located on Andersen Air Force Base, in the MSA. The MSA was chosen for snake control because it contained the remaining population of Guam Mariana crows (*Corvus kubaryi*) and suitable habitat for the translocation of crows from Rota to Guam. The MSA is a 580 hectare forested area intersected by roads which provide easy access to perimeter-trap blocks of forest.

DAWR's trapping within MSA started in June of 1998 with 112 perimeter traps and have expanded over time. During the past year, DAWR increased the number of operational traps from 478 to 535. This includes two 25-trap grid areas covering one hectare each (specifically for hawk sites) and 485 perimeter traps. The past year's efforts have

removed 1350 snakes and over 4600 snakes have been removed since the project began.

In 2000, the USDA Wildlife Services started a complementary snake control program within MSA. The program has included up to 1000 active traps and bait stations with acetaminophen-laced pinkies. The combined efforts of trapping and baiting have removed over 6000 snakes from MSA.

The third area of DAWR snake control is located on the south end of the island and supports one of the remaining wild populations of Micronesian Starlings (*Aplonis opaca*). After a reported snake sighting on the snake-free Cocos Island, 128 snake traps were set up for a total of 11,000 trap nights. No snakes were caught but 577 rats (*Rattus* sp.) were removed and 13 monitor lizards (*Varanus indicus*). Six traps were set up at the Merizo pier on Guam to reduce the chance of snakes being transported to Cocos via barges and boats. Three snakes were removed.

During 1999, DAWR was operating 12 traps around the mouth of a swiftlet (*Aerodramus vanikorensis*) cave. This effort ceased and Wildlife Services has since been contracted by the Navy to continue and expand efforts in support of swiftlet recovery. Current swiftlet counts have suggested the population is responding positively to snake removal efforts.

DAWR BTS Control program will continue to expand snake trapping efforts as funding allows, and will incorporate new removal technologies as they become available.

## **Kansas**

Two zebra mussel scares occurred in Kansas this year. Dead shells were found at the Board of Public Utilities Quindaro Power Plant on the Missouri River in May and June; however, no live animals have been found. It is suspected the shells may have sloughed from a barge used to protect the intake structure of the plant from ice. That barge was secured from a barge company in St. Louis.

In late July, a dead zebra mussel was found in a holding tank during a catfish tournament at Milford Reservoir near Junction City, Ks. The tank had previously been used at a tournament on the Mississippi River. Surveys of Milford Reservoir have found no other zebra mussels and it is suspected that the animal was in the tank. This incident raised awareness of another possible vector for mussel transport. A road bridge over a stream feeding the reservoir was repaired during the past year. To accomplish that repair, the construction company imported work barges from a company in Louisiana. Although the barges we inspected were mussel free, it is possible for zebra mussels to be transported with this equipment.

The Kansas Department of Wildlife & Parks is currently mailing a zebra mussel brochure with every new and renewed boat registration for the next three years.

A zebra mussel monitoring plan is being planned for all Kansas reservoirs and efforts are being made to step up zebra mussel awareness in the Kansas City area.

## **Nevada**

- Five thousand litter bags with a "Stop ANS" message were passed out at boat ramps and marines. Three thousand of these were at Lake Mead National Recreation Area.
- The Nevada State Fishing Regulations pamphlets for 2002 will have a warning about transporting AND with suggestions about prevention techniques.
- Nevada Division of Wildlife is working with the Nevada Natural Heritage Program to create a database of all aquatic species, including non-natives.
- GIS maps are being created. Biologists will focus on reporting non-native species to put into a GIS database.

## **New Mexico**

- US Fish and Wildlife Service (FWS) Region 2 ANS Coordinator met with the New Mexico Game and Fish to discuss a state management plan in early Spring 2001.
- Giant salvinia discovered in nurseries in the Albuquerque area
- New Zealand mudsnail--alert cards received from US FWS and will be distributed to field biologists.

## **North Dakota**

A summary of Aquatic Nuisance Species (ANS) activities for 2001 are as follows:

- Developed a boat and bait inspection reporting form for use at fishing tournaments.
- Mass media efforts:
  - prepared articles in the Outdoor North Dakota magazine
  - provided an ANS article in the Grand Forks Herald, the Fargo Forum and

- ▶ the Minot Tribune where the same story appeared on the same day
  - ▶ prepared a statewide release to all newspapers and radio stations on ANS concerns
  - ▶ radio interviews with KGRO in Fargo and with Tony Dean Outdoors
  - ▶ provided TV spots on Dakota Outdoors (a Department production)
- Conducted an ANS inspection at a major walleye fishing tournament on Lake Sakakawea.
  - Prepared informational signs for boat ramps.
  - Prepared a document on the likelihood of ANS importation into North Dakota waters based on past creel surveys and previous ANS work to identify likely place for introductions.
  - Developed a reporting/monitoring effort form for ANS occurrence in ND waters.
  - Inspected dam outlets, boat docks and swimming beach buoys for zebra mussel attachment.
  - To award a contract to do a ANS probability study based on life cycle requirements.

## **Oregon**

Oregon passed two ANS-related bills in 2001. House Bill 2181 creates a 12-person, statewide Invasive Species Council charged with promoting prevention, detection, and management of terrestrial and aquatic invasions. Representatives of the Oregon Department of Agriculture, Oregon Department of Fish and Wildlife, Portland State University, and Oregon Sea Grant serve as ex officio members and also are responsible for each appointing two members. The ISC has authority to develop early reporting systems, education campaigns, and other programs to improve invasive species management in Oregon.

Oregon Senate Bill 895 establishes a state ballast water management program that includes requirements for ballast exchange. The statute incorporates components from recent California and Washington laws and also aims to fit within U.S. Coast Guard ballast water regulation. The Oregon Department of Environmental Quality will administer the new program, including oversight of mandatory reporting by regulated vessels.

The Oregon Aquatic Nuisance Species Management Plan was finalized this year and recently approved by the ANS Task Force. Developed by Portland State University with input from a variety of agencies and interests, the plan establishes a framework for prioritizing ANS. It includes a comprehensive action plan that identifies specific monitoring, research, education, control, and other management tasks.

## **South Dakota**

### **100<sup>th</sup> Meridian Initiative**

- Missouri River Reservoirs/Eastern South Dakota Access Site Survey: South Dakota Game, Fish and Parks (SD GFP) has incorporated the 100<sup>th</sup> Meridian Trailered Boat Survey Form into our standard angler use and harvest surveys. This survey allows us to educate boaters and watercraft users who are using South Dakota waters as well as assessing their origin, movement and destination. Boaters/watercraft users are interviewed at the completion of their trip on the water and are offered a packet of educational material at the completion of the interview. Waters surveyed include all four South Dakota Missouri River reservoirs (Lewis and Clark, Francis Case, Sharpe and Oahe), and the following eastern South Dakota Lakes: Brant, Cattail, Enemy Swim, Herman, Lynn, Madison, Poinsett, Thompson, and Waubay. This survey continues to demonstrate the extension of boat movement from water to water throughout the upper Midwest over relatively short time periods (days). The number of boaters either coming from or going to and then returning to South Dakota from waters in states east of South Dakota, with known infestations of ANS, pose a great threat to South Dakota.
- Boat Wash Program: SD GFP has teamed up with the South Dakota B.A.S.S. Federation to initiate a program to encourage boaters to wash their boats before launching them into South Dakota waters. This effort involved soliciting existing car washes as to their interest in participating in this effort, plus determining if their facility provided a high pressure hot wash as well as the necessary space for a vehicle towing a trailered boat. Currently, there are 21 participating "boat wash" stations. These facilities have all been signed and a list of these locations will be published in the 2002 South Dakota Fishing Handbook. Efforts are also continuing to provide signs/advertise these locations along our major interstates and highways.
- ANS education/informational material is annually published in the SD GFP Fishing Handbook.

- All boat ramps on the Missouri River were signed with an aquatic nuisance species (zebra mussel, watermilfoil and loosestrife) informational sign. The signs were a cooperative effort between SD Game, Fish and Parks, USACE, the SD BASS Federation and Sport Fish Restoration.
- With the discovery of Eurasian watermilfoil and curly-leaf pondweed in several South Dakota waters, inventories have been conducted to document the locations and determine the extent of the infestations. News releases were prepared and distributed to statewide media, and informational ID cards were distributed to appropriate SD GFP staff.
- An internal (SD GFP) policy/protocol for gear and equipment handling regarding ANS species has been prepared and will be distributed to all staff.

## **Texas**

Texas implemented a "State Aquatic Vegetation Plan" for management and control of nuisance aquatic plant species. The plan went into effect February 6, 2001. The Guidance document for the plan is found on the web at <http://www.tpwd.state.tx.us/fish/infish/vegetation/guiddoc.pdf>. Appendices include the statute that mandated the plan, as well as the Texas Parks and Wildlife regulation that is the plan.

## **Utah**

Aquatic nuisance species activities are coordinated through the Utah Aquatic Nuisance Species Action Team represented by approximately 10 different State, federal and private entities. Since its inception in 1998, substantial outreach and monitoring activities have been initiated. The Division of Wildlife Resources has taken the lead and provides a contact for dissemination of information and coordination of in-state activities.

During the year several meetings on ANS were attended by team members and considerable information was disseminated through in-house briefings and public presentations to inform agency staff and other publics of the concerns and needs for monitoring and preventive measures.

A monitoring program has been in place across the state at the more heavily visited waters to detect any zebra mussel infestations early and through this program 15 – 20 waters are being inventoried annually. The Utah Division of Parks and Recreation have been very active in this effort and are monitoring the waters where they have facilities.

Glen Canyon National Park has an interdiction program in place where vehicles from areas of known zebra mussel infestations are questioned about their exposure to zebra mussels and encouraged to wash their boats down at Park expense. They are also inspecting 10% of their buoy system for infestations.

There is one new site report for the aquatic nuisance species *Daphnia lumholtzi*. It was collected from the San Juan arm of Lake Powell by Division of Wildlife Resources Lake Powell fisheries staff. It had been previously reported at Willard Bay in Northern Utah.

## **Washington**

During the past year the Washington State ANS Committee has reviewed and revised the Washington State ANS Management Plan. The following accomplishments are part of this comprehensive statewide coordination effort.

- Washington Sea Grant Program developed educational materials designed to educate the public about the concept of ANS, problems caused, and ways to help. The materials produced included the Bio-invasions: Breaching Natural Barriers booklet, a pet store handout on ANS, fact sheets on green crabs and various pathways of introduction for nonnative species, Handling and Disposal of Nonnative Aquatic Species and their Packaging booklet for laboratories and research facilities and the Guide to Least Wanted Aquatic Organisms of the Pacific Northwest.
- The Puget Sound Water Quality Action Team, through public involvement and education grants totaling \$44,000, partly funded the production and distribution some of the above educational materials. They also adopted a new aquatic nuisance species program in December 2000, as part of the long-range Puget Water Quality Management Plan.
- Washington Sea Grant Program and the University of Washington, Tacoma Campus, have an ongoing project with the Point Defiance Zoo and Aquarium to develop a permanent ANS display, "Alien Invader," at the aquarium facility. The National Sea Grant Program has provided considerable funding to the project. The Puget Sound Water Quality Action Team, Washington Department of Fish and Wildlife, Washington Noxious Weed Control Board, Washington and Oregon Sea Grant Programs, and U.S. Fish and Wildlife Service have also provided financial support.
- The Washington DOE maintains a web site containing technical and non-technical information about ANS weeds, and has developed brochures and flyers on several exotic freshwater species. Last year they evaluated 22 aquatic plants for

potential quarantine by the Washington State Department of Agriculture and fact sheets were created and distributed to weed board members and field staff by the department. Of the sixteen plants considered highest priority, fifteen were listed.

- A green crab monitoring and control program, funded by legislative proviso, has been developed and implemented. Shellfish growers have been active participants in the program, having captured or killed many crab and provided the department with good information on habitat. Over 9,000 copies of a green crab identification card, created by Washington Sea Grant Program, University of Washington, have been distributed in the Pacific Northwest. Volunteers from numerous organizations, under the direction of Washington Department of Fish and Wildlife (DFW), monitor over 100 sites for the presence of green crab in Puget Sound.
- Washington DFW worked with the University of Washington to design and conduct a zebra mussel risk assessment and implement monitoring programs. DFW, using USFWS funding, hires temporary staff to organize volunteer monitors, distribute sampling supplies, collect samples and send them for analyses, and maintain a database. The agency also works with Portland State University Center for Lakes and Reservoirs, to implement a regional substrate-monitoring program. In addition, the agency has contracted with the Pacific States Marine Fisheries Commission to conduct 100<sup>th</sup> Meridian boater surveys at several boat launch sites in Washington and to provide educational information to boaters and anglers.
- DFW entered into a partnership with the Washington State Patrol to develop and implement an inspection program for commercially hauled boats at ports of entry into the state. Over 50 boats have been inspected, two contaminated vessels have been identified and cleaned, and several others have been cleaned and flushed as a precautionary measure.
- DFW and U.S. FWS are working with Portland State University, the Pacific States Marine Fisheries Commission, and the Bonneville Power Administration to post mitten crab signs along the Columbia River and distribute identification cards and educational materials.
- The Department of Agriculture has worked with DFW, Noxious Weed Control Boards, and other stakeholders to develop six regional management plans for the control and eradication of *Spartina*. Over 1,150 solid acres, 800 of which were in Willapa Bay, were treated. The Department of Natural Resources has developed GIS layers using infrared photography to use as a management tool.

- DFW has been working closely with the shipping vessel industry and ports to educate them on ballast water issues, to pass and implement ballast water legislation, and to develop a ballast water research pilot project.

## **Wyoming**

A study of the impact of New Zealand mud snails on trout streams in Wyoming including population monitoring and consumption by trout, has been initiated at the University of Wyoming with partial funding provided by the Wyoming Game and Fish Department.

## **TRIBES**

There are approximately 250 Indian land areas, representing 276 individually recognized Indian tribes, administered as Indian reservations (reservations, pueblos, rancheries, communities, etc.) in the Western Region of the Continental United States. The Western Region reservations incorporate over 51.6 million acres of land that are held in trust by the United States. The largest is the Navajo Reservation with over 17-million acres of land in Arizona, New Mexico, and Utah. Many of the smaller reservations are less than 1,000 acres with the smallest less than 200 acres. Reservation lands can include freshwater lakes and streams, emergent wetlands, and intertidal marine and estuarine areas. In addition, there are over 228 native groups represented in Alaska and a multitude of indigenous groups in Hawaii and the U.S. Pacific Trust Territories.

All States need to deal with individual Tribes on a government-to-government basis since all States in the Western Continental U.S. have at least one Reservation within their boundaries. These reservation lands are not covered under State or local laws, but under United States or Tribal authority. Any comprehensive state management plan must include the Tribes.

## **CANADIAN FEDERAL AGENCIES AND PROVINCES**

### **Alberta**

- The Alberta Purple Loosestrife Eradication Program has continued to reduce purple loosestrife populations in the province.
- The number of new sites found per year is decreasing, several existing sites have been eradicated and populations at other sites have been reduced.

- More information on the program can be obtained at:  
[www.agric.gov.ab.ca/navigation/pests/weed](http://www.agric.gov.ab.ca/navigation/pests/weed)

## **Fisheries and Oceans Canada (DFO)**

- DFO is developing an oceanographic model to help predict dispersal of organisms deballasted at three alternate West Coast deballasting sites (Race Rocks, Sheringham Point, plus a site further seaward in Juan de Fuca Strait. In addition, model runs will be conducted for one or two sites off the Washington coast to tie in with recommendations made in an earlier US document for alternate exchange sites off their coasts (Beeton et al 1998).
- Scientific verification of Vancouver Port Authority's (VPA) salinity criteria used to check for mid ocean exchange. DFO worked with VPA to analyse 21 samples from ballast tanks to investigate if number of harpacticoid copepods ties in with salinity. Results are available and have been given/explained to VPA. A paper will be submitted for peer review.
- Monitoring for Green Crab continues based out of Pacific Biological Station at Nanaimo, BC.
- A data set on varnish clam distribution in Vancouver harbour was interpreted in relation to de-ballasting sites. Lead ballast water studies continued with an analyses and interpretation of mid-ocean exchange data from the M.V. Skaugran.
- DFO scientist sat on a National (US) Science Foundation Technical Panel to provide scientific and technical guidance for testing protocols to verify ballast water treatment technologies. Ship ballast water treatment technologies have been identified as a pilot for protocol testing between NSF and EPA.
- DFO scientist provided an independent peer-review of a report on a prototype ballast water treatment system for the US Coast Guard.
- DFO biologist is coordinating Zebra Mussel awareness in BC after discovery of over 200 live individuals on a boat trailered from Great Lakes area of US to Richmond BC. Boat had potential for infesting Fraser River, an extensive and commercially important waterway of the province.
- DFO Sport Fishing Guide carries information on Green Crab and Zebra Mussel with reporting procedure outlined for sport fishermen.

## **Manitoba**

The Province of Manitoba is actively involved in preventing accidental introduction and spread of Aquatic Nuisance Species into Manitoba watersheds. Zebra mussels have not been found in Manitoba waters, but efforts towards public awareness and prevention are foremost.

- During 2000 and 2001 funds were available to conduct boaters surveys and inspections at intensive recreational sites and at major international border crossings.
  - ▶ No zebra mussels were found on any water-based equipment being trailered into Manitoba.
  - ▶ A total of 1400 boat inspections and 500 interviews were conducted.
- Boater Advisory signs for zebra mussel prevention continue to be posted at all provincial boat launch areas.
- A new zebra mussel information leaflet was produced for placement on vehicles at boat launch areas, and for attachment to floating key tags containing ANS prevention information (key tags and leaflets were also supplied for inclusion in all registration packages for the North American Lake Management Society meetings held in Madison Wisconsin).
- Information about the prevention of zebra mussel introduction was included in registration packages for all major fishing derbies in Manitoba.
- Advertisement about the prevention of zebra mussel introduction was published in the Provincial Angling Guide 2000/2001.
- Annual zebra mussel inspections (2000 and 2001) of navigational markers and buoys from water bodies where commercial and recreational watercraft frequent, indicate no zebra mussel colonization in Lake Winnipeg or the Red River.
- The Manitoba Purple Loosestrife Project continues to lead the provinces efforts in biological, chemical, and mechanical control and spread of purple loosestrife ([www.ducks.ca](http://www.ducks.ca)).
- Manitoba continues to monitor populations of rainbow smelt which have invaded Lake Winnipeg and are increasing in their distribution range.

- Ecological effects of common carp in wetlands are currently being studied by the University of Manitoba in conjunction with Ducks Unlimited Canada.

## **Saskatchewan**

The following are some of the activities that Saskatchewan Environment and Resource Management (SERM) ANS efforts:

- A committee was formed to discuss the potential problems associated with Zebra Mussel infestation in Saskatchewan. It consisted of representatives from industry, local outfitters, tournament fishermen, and Fish and Wildlife (SERM) staff. The committee meets regularly to raise awareness and work towards proactive solutions should zebra mussels become an issue in Saskatchewan. Presently a workshop is being coordinated that would take place in 2002, and gather individuals from throughout the prairie provinces.
- A report was completed that investigated the colonization potential of zebra mussels in Saskatchewan waters. Information gathered was presented to stakeholders and other interest groups. That report is currently being edited for publishing as a technical report.
- Signs and pamphlets have been distributed to regions throughout Saskatchewan to increase awareness of zebra mussels and preventative measures that can reduce the possible transmission to local water bodies.
- SERM supports the Saskatchewan Purple Loosestrife Eradication Project. This program monitors location and abundance of purple loosestrife within the province. It also investigates management strategies aimed at reducing abundance including the introduction of herbivorous insects which feed on the plant.

Overall, SERMs involvement with respect to invasive species is ongoing, and includes cooperation and input from agencies and stakeholders in Alberta, Manitoba and North Dakota. Continued effort will be made to include groups such as Fisheries and Oceans Canada who have just recently opened offices in Saskatchewan.

## **OTHER MEMBERS**

### **CALFED**

CALFED is the California state and federal agencies' cooperative effort to restore the San Francisco Bay-Delta. The CALFED Nonnative Invasive Species (NIS) Program began

in 1999. In the past year CALFED has approved \$2.28 million worth of new NIS projects. The projects are *Arundo donax* mapping and eradication, *Spartina alterniflora* eradication, and an outreach/education program which partially focuses on getting the NIS prevention message out to boaters and anglers. These projects are in addition to several other multi-year NIS projects which continue to progress.

The multi-year projects (close to \$3 million in value) include:

- A Restoration Guidebook (what to do and not do regarding NIS plants)
- Zebra Mussel Outreach and Detection
- Preventing Introductions from Aquarium/pet and Landscape/aquascape industries
- NIS Advisory Council and Rapid Response Plan
- *Spartina alterniflora* mapping, education and eradication
- *Arundo donax* mapping, education and eradication
- Characterizing Ballast Water
- Ballast Water Outreach and Education
- Understanding the Food Web Impacts of the Introduced Asian Clam, *Potamocorbula amurensis*
- Purple Loosestrife mapping, education and eradication

The CALFED NIS program continually works to coordinate with other NIS efforts/groups to bring this issue to the forefront and develop the resources to address the complex issues with proactive strategies. Each year more NIS priority needs are integrated into the annual request for proposals. Program staff host special NIS sections at annual meetings and conferences. They are also providing assistance in the development of the WRP Rapid Response Plan.

## **The Ocean Conservancy**

- Working with other NGOs, filed suit against EPA in April 2001 to compel a formal response to a 1999 petition to regulate ballast water under the Clean Water Act. EPA released an invasive species report in fall 2001 in part as a result of this lawsuit. On January 30, 2001, the judge ruled in favor of TOC and the other plaintiffs and ordered EPA to respond to the petition within 30 days.
- In February 2001, along with the WaterKeepers Northern California filed suit against the Army Corps of Engineers, the National Marine Fisheries Service and the Fish and Wildlife Service to ensure that local port expansion project that may result in significant invasive species impacts complies with ESA and NEPA.
- Appointed to Invasive Species Advisory Committee; represented environmental community in development of first National Invasive Species Management Plan.

- Co-Sponsor and speaker at NISA Reauthorization conference sponsored by Sea Grant in June 2001 at the California Maritime Academy.
- Provided detailed oral testimony and written comments to the U.S. Coast Guard in 2001 with regards to the Coast Guard's request for information on a ballast water treatment standard and on the progress of the National Invasive Species Act in controlling marine invasions.

## **Oregon Sea Grant**

Oregon Sea Grant continued to deliver education programs on aquatic invasive species and coordinate the Marine Invasive Species Team web site in coordination with Washington Sea Grant. A new outreach video, "You Ought To Tell Somebody!" - Dealing with Aquatic Invasive Species," was recently released. The video promotes early detection and reporting of aquatic invasive species and provides a detailed case study look at the Chinese mitten crab. Oregon Sea Grant is now working on the design phase of a major interpretive exhibit on aquatic invasive species for the Hatfield Marine Science Visitor Center in Newport, Oregon. Oregon Sea Grant also received a \$94,000 federal grant to produce West Coast aquatic nuisance species education kits modeled after versions developed in the Great Lakes region.

## **San Francisco Estuary Project**

San Francisco Estuary Project activities for 2001:

- Oversaw the development and production of the WRP table top display, 8-page brochure (15,000) copies and a one-page stand alone fact sheet (11,000 copies). Copies were distributed to WRP members in October 2001.
- Developed a 6-page brochure on impacts of invasives to the San Francisco Bay-Delta Estuary. The project was funded by the US Fish and Wildlife Service and the US Environmental Protection Agency.

## **West Coast Ballast Outreach Project**

The West Coast Ballast Outreach worked collaboratively with partnering organizations throughout the west coast and Pacific basin in the development of outreach programs and tools about ANS and ballast water issues. The project placed a priority on facilitating communication and cooperation between private industry, regulators, and researchers concerned with ballast water management. The project began in February

of 1999, and currently has funding through September 2003. Some notable outcomes of the West Coast Ballast Outreach Project during 2000 and 2001 include:

- Production and distribution of two issues (Spring 2000 & Fall 2000) of the biannual newsletter "Ballast Exchange," providing the latest information on ballast water treatment technologies, management strategies, and west coast ANS issues. This newsletter has a growing mailing list that includes over 2000 nationwide and international recipients.
- Design and distribution of the "Stop Ballast Water Invasions" poster and brochure, products designed to tell the ballast water story to a variety of audiences (including ships crews) through an appealing graphics-oriented poster and a more text-focused brochure. A total of 15,000 posters and 20,000 brochures were printed in November 2001 and are currently being distributed to domestic and international shipping companies, ports, and government executives.
- Development and maintenance of the project web site, which posts up-to-date information on ballast water management (<http://ballast-outreach-ucsgep.ucdavis.edu>).
- Sponsored four educational workshops and one video-conference with Australia. The workshops included presentations on ballast water management and technology issues, and opportunities for interaction and discussion of such issues between the various stakeholders. The workshops that were sponsored included:
  - ▶ March, 23-24, 2000, **Alaskan Invasive Species and Ballast Water Workshop**, Anchorage, Alaska.
  - ▶ May 16, 2000, **California Sea Grant Ballast Water Information Exchange Between the U.S. and Australia**, Video Conference. (Video Conference Sites: Davis, California; Canberra, Australia; Portland, Oregon; Duluth, Minnesota; Cleveland, Ohio; and New Orleans, Louisiana)
  - ▶ June 9, 2000, **Non-Indigenous Species and Ballast Water Technology and Management Options**, Honolulu, Hawaii. (Session held during the PACON 2000 Conference).
  - ▶ July 13, 2000, **Setting the Standard: A Ballast Water Research Agenda for the 21<sup>st</sup> Century**, Portland, Oregon. (Held in conjunction with the Coastal Society Conference).

- ▶ June 4-5, 2001, **Developing Solutions for the West Coast Maritime Industry: Ballast Water and NISA Reauthorization Workshop**, Vallejo, California.

**Members not Reporting:**

**U.S. Coast Guard, British Columbia, Inland Tribes, Coastal Tribes, Alaska Natives, National Aquaculture Association, Western States Water Council, Prince William Sound Regional Citizens Advisory Council, Pacific Merchant Shipping Association, North American Lake Management Society, California Sea Grant Program**

# **APPENDIX A**

## **WESTERN REGIONAL PANEL MEMBERS**

## **APPENDIX B**

# **WESTERN REGIONAL PANEL GUIDE TO PROCEDURES**

## **APPENDIX C**

# **WESTERN REGIONAL PANEL WORK PLANS FOR FY 2000 AND FY 2001**

**APPENDIX D**

**NUISANCE NOTES**

# **APPENDIX E**

## **MANAGEMENT AND RESEARCH PRIORITIES**