

# Utah Division of Wildlife Resources'

## Attack against the Invasion of

### Quagga & Zebra Mussels

(2010 Boating Season Summary)

#### STATEWIDE SUMMARY

- **Budget, Personnel & Equipment for UDWR's Aquatic Invasive Species (AIS) Program**

- **FY11 Utah General Funds for UDWR's AIS Program: \$1,350,000**

- **FY11 Partner Funds Used by UDWR's AIS Program: \$366,681**

Bureau of Reclamation (\$12,500), U.S. Forest Service (\$85,000), Bureau of Land Management (\$47,000), U.S. Fish & Wildlife Service (\$65,048), Central Utah Water Conservancy District (\$100,000), Emery Water Conservancy District (\$10,244), Uintah Water Conservancy District (\$12,500), Weber Basin Water Conservancy District (\$10,244), Jordan Valley Water Conservancy District (\$10,244), PacifiCorp (\$10,244)

- The National Park Service during the 2010 boating season spent over \$1,000,000 on an outstanding quagga & zebra mussel program at Lake Powell. This eliminated a need for UDWR to conduct a \$193,000 AIS program at Lake Powell, which allowed a re-direction of funds to other parts of the State. UDWR does provide a \$22,000 AIS grant each year to NPS. They have been able to double and triple UDWR's grant funds by using them as a basis for other AIS grants they have secured.
- The Arizona Game and Fish Department assigns one technician to work at Lake Powell in cooperation with the National Park Service in the conduct of its AIS program. The technician is housed in UDWR's bunkhouse at Wahweap in Page, AZ.
- The Idaho Department of Agriculture has contracted the Idaho State Parks at Bear Lake to conduct an AIS program very much like UDWR's program on the other half of the lake. Idaho assigns one technician and one decontamination unit to Bear Lake.
- The Wyoming Game and Fish Department conducts an AIS program at Flaming Gorge Reservoir very much like UDWR's program on the other half of the reservoir. Wyoming assigns three technicians and one decontamination unit to the reservoir.
- The Ute Tribe conducts an AIS program on tribal lands very much like UDWR's program. They assign necessary personnel and one decontamination unit to protect their multiple waters.
- Many other agencies and organizations located in Utah conduct activities in support of the attack against aquatic invasive species. For example the U.S. Fish and Wildlife Service, U.S. Forest Service, Bureau of Land Management, Bureau of Reclamation and National Park Service direct program activities within their respective agencies toward the effort. Multiple water conservancy districts do the same. And, non-governmental organizations (e.g., Trout Unlimited, BASS, etc.) also participate in the fight. Not to

forget that individual citizens also help by appropriately decontaminating their boats.

- **Total FY11 Funds used for UDWR's AIS Program \$1,716,681**
  - UDWR Aquatic Section Program \$1,427,648
    - 1 Statewide AIS Coordinator (1.0 FTE)
    - 5 Region AIS Biologists (5.0 FTE)
    - 64 AIS Technicians—On-ramp Educators & Boat Inspectors (19.20 FTE)
    - 41 Watercraft Decontamination Units purchased with UDWR General Funds and partner funds between FY07 and FY11; assigned as follows:
      - Northern Region (8 Decontamination Units):** Bear Lake, East Canyon, Echo, Hyrum, Pineview (2), Rockport and Willard.
        - Note: Bear Lake—Idaho:** 1 Decontamination Unit sited at the Idaho Bear Lake State Park.
      - Central Region (7 Decontamination Units):** Deer Creek, Jordanelle, Strawberry (2), Utah Lake (2) and Yuba.
      - Southern Region (11 Decontamination Units):** Fish Lake, Gunlock-POE, New Castle, Otter Creek, Panguitch, Piute, roving unit (Kolob, Minersville, Pine Valley, Sand Cove), Sand Hollow (3) and Quail Creek.
        - Note: National Park Service, Lake Powell (5 Decontamination Units):** National Park Service, using their funds between FY07 and FY11, placed decontamination units around Lake Powell as follows:
          - (a) Wahweap (double-sided semi-permanent reclaim unit);
          - (b) Bullfrog (single-sided semi-permanent reclaim unit);
          - (c) Antelope Point (trailer-mounted reclaim unit);
          - (d) Hall's Crossing (trailer-mounted reclaim unit);
          - (e) Hite (trailer-mounted reclaim unit).
      - Northeast Region (7 Decontamination Units):** Flaming Gorge (3), Pelican, Red Fleet, Starvation and Steinaker.
        - Note: Flaming Gorge—Wyoming:** 1 Decontamination Unit sited at Buckboard Marina area.
      - Southeastern Region (8 Decontamination Units):** roving unit (Manti lakes), Electric Lake, Huntington North, Joe's Valley, Millsite, Scofield (2) and Recapture.
  - UDWR Native Species Aquatic Program \$2,783
    - 1 Native Species Aquatic Biologist (0.047 FTE)
  - UDWR Conservation Outreach Program \$75,078
    - 1 Technical Writer (1.0 FTE)

- UDWR Law Enforcement Program \$211,172
      - 1 Criminal Information Technician (0.50 FTE)
      - 5 Region Conservation Officers (2.243 FTE)
- **Outreach**
  - Public presentations about AIS were made in many places across Utah, including multiple Chamber of Commerce, Utah Boat Show, International Sportsman Exposition, Vernal’s Western Park Facility, Rocky Mountain Anglers Association, Utah Water Users Association, Utah Lake Festival, Provo River Watershed Festival, Friends of Strawberry Valley, June Sucker Recovery Program, public and private secondary schools across the state, 2010 Utah Nonpoint Source Water Quality Conference, NRCS Earth Day program, multiple university biology classes, Nature High Summer Camp.
  - AIS presentations were made to numerous natural resource management agencies across Utah.
  - Multiple consultations about AIS were provided to national organizations and for other states’ AIS programs—UDWR’s AIS program is recognized as one of the best in the United States.
  - Multiple media releases statewide occurred on the radio (30), television (28) and in local area or statewide newspapers (45). All of these media releases were promoted as news, and were without cost to UDWR. Regarding just the television news releases, they were viewed by nearly 2.1 million folks and had a publicity value of \$58,248.
  - 36,289 different viewers (nearly 3 times more than in 2009) assessed UDWR’s mussel web page ([www.wildlife.utah.gov/mussels](http://www.wildlife.utah.gov/mussels)), learning about AIS issues and watercraft decontamination procedures.
  - 78 Fishing contests with several thousand participants occurred in 2010. Participants were all required to become Mussel-Aware Boaters by participating in an online course that earned them a Decontamination Certification Form valid for the entire year. 3,618 folks took the course, including fishing contest participants.
  - 6,931 hours or 3.332 FTE (Salt Lake City 121 hours; Northern Region 1,325 hours; Central Region 1,339 hours; Southern Region 3,587 hours; Northeastern Region 24 hours; Southeastern Region 535 hours) of volunteer time were worked under authority of UDWR’s Volunteer Program, targeting watercraft interdiction, inspection for AIS and education about quagga & zebra mussel issues.

- 408,683 boats were interdicted statewide (Northern Region 120,000; Idaho State Parks at Bear Lake 3,184; Central Region 58,660; Southern Region 26,052; National Park Service at Lake Powell 175,000; Northeastern Region 17,611; Wyoming Game & Fish at Flaming Gorge 5,481; Southeastern Region 2,695). Problematic boats were inspected; boat decontaminations occurred when needed; and all of the boat operators were educated about quagga and zebra mussel issues.
- **Public Surveys to Measure Outreach Effectiveness**
  - Approximately 65,000 unique registered boaters exist in Utah, of which 94% use a single-launch Decontamination Certification Form, which is available either online as a download/self-print or available at most boat launch facilities. The other 6% (3,618) took opportunity to become certified as "Mussel-Aware Boaters" by taking a 45 minute online certification course, which provided them with a multi-launch Decontamination Certification Form valid for the entire 2010 boating season. A Decontamination Certification Form is required to be displayed in the launch vehicle with every boat launch in Utah (Rule R657-60).
  - UDWR completed two online feedback assessments in 2010 that provide measurement about effectiveness of outreach efforts to encourage Utah's boaters to properly display a required (1) Decontamination Certification Form at every launch, and to (2) decontaminate their boats after every excursion. Decontamination is only required if a boat has been used within the last 30 days on a quagga or zebra mussel affected water, but routine decontamination is encouraged. The aforementioned assessments individually targeted each group. The single-launch form group had 284 statewide respondents; and the multi-launch form group had 561 statewide respondents. There may be differences between the two assessed groups, but overall UDWR's outreach and decontamination certification education success is evident as follows:
    - **Boat Use:** The single-use group makes more than four times the use of their boats for fishing vs. other recreational boating--ski, swim, explore, etc.--activity (4.4:1). The multi-launch group makes nearly equal use of their boats for fishing vs. other recreational boating--ski, swim, explore, etc.--activity (1.06:1).
    - **Knowledge:** The single-launch group showed more than 96% to be aware of the invasive mussel (quagga & zebra) threat to Utah's waters. And, 100% of the multi-launch group are aware, which in part stimulated their participation in the Mussel-Aware Boater Program. It is evident that the knowledge gap between the two groups is not substantially different, with both groups being very aware of the invasive quagga and zebra mussel problem.
    - **Proper Display of the Decontamination Certification Form:** Regarding display of Decontamination Certification Forms, 85% (single-launch group) to 100% (multi-launch group) of boaters indicated they routinely fill out and display the form. This would

be viewed as a high success rate. However, covert observations of 426 boaters showed that only two-thirds of the boaters actually did fill out and display the forms. One-third of the boaters failed to display a form. Additional outreach combined with targeted law enforcement may improve this situation.

- **Decontamination Practices:** Regarding routine decontamination of boats following an outing, 84% (single-use group) to 87% (multi-launch group) indicate they perform an accepted decontamination. There is likely no substantive difference between the two groups. Across both groups most (77%) said they use the "Clean, Drain & Dry" method, while 6% use of the "Professional Decontamination" method, and 16% indicate they don't routinely decontaminate. However, covert observations of 426 boaters in 2010 as they removed their boats from waters statewide found that only 47% initiate a decontamination process, meaning 54% fail to initiate any decontamination. Possibly some complete the effort at home. Reported behavior vs. observed behavior appears to be markedly different. Thus, these results warrant a deeper investigation. Certainly, an increased level of outreach could improve this situation.

- Prior to 2008 when the Utah Aquatic Invasive Species Interdiction Act was passed, no boater in Utah had need to (1) display a Decontamination Certification Form or to (2) decontaminate their boats. The study's findings indicate that regardless of group, outreach and decontamination certification combined with limited law enforcement are mostly effective, minimizing the proportion of folks who fail to do either process. The goal is get 100% participation, so much work remains to be done, and the public seems to express intent to cooperate.

- **Decontaminations & Encrusted Boats**

- UDWR's five regional aquatic invasive species biologists and several Utah State Parks & Recreation rangers across Utah; Idaho State Parks personnel at Bear Lake; National Park Service and concessionaire personnel, including Arizona Game & Fish personnel at Lake Powell; as well as Wyoming Game and Fish personnel at Flaming Gorge are certified "Level II Water Craft Inspection & Decontamination Trainers." This is a certified training program provided by the Pacific States Marine Fisheries Commission to specifically target boats encrusted with quagga and zebra mussels. These trainers have conducted multiple Watercraft Inspection & Decontamination Training I classes in association with management of Utah water bodies statewide.
- 11,113 boats were decontaminated statewide (Northern Region 27; Idaho State Parks at Bear Lake 0; Central Region 154; Southern Region 4,595—4,464 of these at Sand Hollow Reservoir; National Park Service at Lake

Powell 5,000; Northeastern Region 1,030; Wyoming Game & Fish at Flaming Gorge 5; Southeastern Region 302) due to their use on quagga or zebra mussel affected waters in North America during the previous 30 days.

- 18 boats were either reported by cooperators (e.g., marine sales and repair dealers) or discovered during routine inspections to be encrusted--one or more mussels--with quagga or zebra mussels prior to their launch in Utah (includes 14 discovered by the National Park Service at Lake Powell). Many of the mussels were alive. All encrusted boats were decontaminated, quarantined and eventually allowed to launch.
  - One instance of mussel encrusted boat docks being shipped from Lake Mead for disposal in the Hurricane Utah land fill was discovered. Some of the docks were being stored to be dismantled prior to disposal, but the flood swollen Virgin River washed some away. At this point in time it is believed that the mussels on the docks were already dead due to desiccation.
- Scuba equipment for UDOT's bridge inspection contractor was inspected and decontaminated twice, since they had been underwater in quagga and zebra mussel affected waters in the mid west just prior to arriving in Utah.
- Construction equipment for SP&R was routinely inspected and decontaminated, since they had been working in quagga mussel affected waters at Red Fleet Reservoir's state park and Sand Hollow Reservoir's state park in the previous 30 days.
- **Presence/Absence of Quagga & Zebra Mussels**
  - 62 selected water bodies were sampled for plankton for microscopy assessment to determine the presence or absence of quagga or zebra mussel veligers, which are microscopic larvae. The specific water bodies and results from 2007 thru 2010 for individual waters can be viewed at <http://wildlife.utah.gov/mussels/waters.php>.
  - Sand Hollow Reservoir was classified as "infested" due to the find of a single, live adult (20mm) quagga mussel on the underwater side of a boat dock in late May 2010. Despite intense searches, which included substrate samplers, shoreline inspections, scuba dives and plankton tow assessment via microscopy and PCR, no further evidence of adults or veligers was found in 2010. Origination of the live mussel is unknown, but it was removed and euthanized.
  - Additionally, four waters in 2010--Sand Hollow Reservoir (infested 2010/adult quagga), Quail Creek Reservoir (connected through a pipe to Sand Hollow), Red Fleet Reservoir (detected 2008/quagga veligers) and Electric Lake (detected 2008/zebra veligers)--were assessed monthly for

the presence of Dreissena via microscopy of plankton tows and PCR; all were negative.

- Regarding Red Fleet Reservoir and Electric Lake, both evidenced Dreissena veligers in 2008 (microscopy & PCR), resulting in "detected" classifications. But, despite monthly plankton and PCR assessments, no other Dreissena evidence in 2009 and 2010 was found. If this situation continues through 2011, UDWR will assess a re-classification from "detected" to "inconclusive." Then, if no further finds of Dreissena occur for two more years (2012 & 2013) the water bodies will likely be reclassified as "negative."
- Huntington North Reservoir, Joe's Valley Reservoir, Midview Reservoir (Ute Tribe) and Pelican Lake each were classified as "inconclusive" in 2008 relative to Dreissena mussel veligers due to positive microscopy followed by negative PCR. No further Dreissena evidence was found in 2009 or 2010. So, if this situation continues into mid 2011, UDWR will begin to assess a re-classification from "inconclusive" to "negative." Such a process has already occurred for Lake Powell, which was classified as "inconclusive" in 2007 due to conflicting microscopy and PCR results. Lake Powell showed no further evidence of Dreissena via plankton tow microscopy in 2008, 2009 or 2010; so, it was re-classified as "negative" in mid-summer 2010.
- No Dreissena veligers were detected via plankton samples and follow-up microscopy in Utah during 2010.
- **Law Enforcement**
  - 14,137 contacts were made statewide by natural resource law enforcement officers (UDWR statewide 12,242; SP&R statewide many, but not documented; Idaho State Parks at Bear Lake 0; Wyoming Game and Fish at Flaming Gorge 0; NPS at Lake Powell 1,895) specifically targeting compliance with aquatic invasive species regulations.
    - Many verbal warnings were made by law enforcement officers for minor non-compliance issues regarding aquatic invasive species regulations. In many instances (6,036) UDWR and SP&R officers placed a printed, non-compliance notice on boat launch vehicles that failed to display a Decontamination Certification Form. A FatPot database tracking of those notices and the verbal warnings allowed enforcement officers to identify 2<sup>nd</sup> time offenders, who were typically issued written warning citations or Notice to Appear in Court citations.
    - 1,581 written warning citations were issued by natural resource law enforcement officers (UDWR statewide 50; SP&R statewide 1; Idaho State Parks at Bear Lake 0; Wyoming Game and Fish at

Flaming Gorge 0; NPS at Lake Powell 1,530) for non-compliance with aquatic invasive species regulations.

- 341 Notice to Appear in Court citations were issued by natural resource law enforcement officers (UDWR statewide 3; SP&R statewide 1; Idaho State Parks at Bear Lake 0; Wyoming Game and Fish at Flaming Gorge 0; NPS at Lake Powell 337) for non-compliance with aquatic invasive species regulations.

## REGION & WATER-BY-WATER REPORTS—2010

(Water bodies are organized alphabetically within region in the order of  
Northern Region followed by  
Central Region, Southern Region, Northeastern Region & Southeastern Region)

### NORTHERN REGION

#### Region Wide Aquatic Invasive Species Accomplishments

Craig Schaugaard, Aquatic Manager

Paul Thompson, Assistant Aquatic Manager

Candace Hutchinson, AIS Biologist I—12 months (project E1A520xxx @ \$75,971)

One Wildlife Technician II—7 months (project E1A520xxx @ \$24,169)

8 Wildlife Technician I—multiple months (project codes & budgets—see individual waters)

- 1,325 hours (0.637 FTE) of Volunteer services
- 8 decontamination units (see individual waters for locations)
- 1,875 boater surveys across the region showed 95% of boaters were aware of the quagga and zebra mussel issue
- 120,000 boats were interdicted
- 27 boats were decontaminated
- 0 boats were encrusted with quagga or zebra mussels
- Monitored for other AIS

#### Bear Lake

1. Budget, Personnel & Equipment
  - a. UDWR \$10,340 (project E1A520xxx); 1 technician assigned mid May thru mid September (4 months).
  - b. One \$13,400 decontamination unit purchased in FY07 with UDWR funds (project E1A520xxx).
2. Outreach
  - a. “No mussels!” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR and Bear Lake Watch volunteers assisted.
  - b. Over 2,964 boats were interdicted, inspected and educated by UDWR.
  - c. About 36,000 Decontamination Certification Forms were distributed by UDWR, Iron Rangers and SP&R.
  - c. 82% of boaters are aware of invasive mussel issues, and 95% of boaters are aware of Clean, Drain and Dry.
  - d. Trained SP&R on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. Four boats were decontaminated; two were from Lake Mead and two were rented boats with an unknown use history.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (349 interviews)
  - a. Top 5 Last Water Visited
    1. Bear Lake = 154 (44%)
    2. Willard Bay= 39

3. Pineview = 25
4. Jordanelle = 22
5. Lake Powell = 21
- b. Top 5 Next Destination
  1. Bear Lake = 209 (60%)
  2. Willard Bay = 30
  3. Pineview = 19
  4. Lake Powell = 14
  5. Utah Lake = 09

**Note: 44% to 60% of Bear Lake boaters seem to frequently use Bear Lake.**

5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

#### East Canyon and Echo Reservoirs

1. Budget, Personnel & Equipment
  - a. UDWR \$0--funded for 1 technician from Weber Basin WCD funds (project E4F740xxx); technician shared between East Canyon and Echo reservoirs was assigned mid May thru mid September (3 months).
    - i. The primary focus was placed at East Canyon Reservoir, since Echo resort staff partnered in overseeing interdiction, inspection & decontamination work at that location.
  - b. One \$13,400 decontamination unit shared between East Canyon and Echo (purchased FY07 with UDWR funds project E1A520xxx).
2. Outreach
  - a. "No mussels!" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - b. Approximately 2,799 boats/watercrafts were interdicted, inspected and educated at East Canyon by UDWR.
    - i. No count was taken at Echo Reservoir by resort staff.
  - c. About 36,000 certification forms were distributed by UDWR, Iron Rangers and SP&R.
  - d. 99% of boaters were aware of the invasive mussel issue, and 96% of boaters are aware of Clean, Drain and Dry.
  - e. Trained SP&R on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. No boats needed to be decontaminated.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (422 interviews)

a. Top 5 Last Water Visited

1. East Canyon = 182 (43%)
2. Willard Bay = 45
3. Pineview = 22
4. Utah Lake = 20
5. Jordanelle = 15

b. Top 5 Next Destination

1. East Canyon = 235 (56%)
2. Willard = 19
3. Pineview = 15
4. Rockport = 13
5. Flaming Gorge = 12

**Note: 43% to 56% of East Canyon boaters seem to frequently use East Canyon.**

5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Hyrum Reservoir

1. Budget, Personnel & Equipment
  - a. UDWR \$10,340 (project E1A520xxx); 1 technician assigned mid May thru mid September (3 months).
    - i. Technician also occasionally covered Mantua and Newton Reservoir boat launches.
  - b. One \$13,400 decontamination unit purchased in FY07 with UDWR funds (project E1A520xxx).
2. Outreach
  - c. "No mussels!" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - b. Over 2,058 boats interdicted, inspected and educated by UDWR
  - c. About 36,000 certification forms were distributed by UDWR, Iron Rangers and UDPR
  - d. 98% of boaters were aware of the invasive mussel issue. 96% of boaters are aware of Clean, Drain and Dry.
  - e. Trained SP&R on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. One boat needed to be decontaminated; it was from Lake Mead.
  - b. No boats were encrusted with quagga or zebra mussels.

4. Boater History of Last Water Visited and Next Destination (316 interviews)

a. Top 5 Last Water Visited

1. Hyrum = 197 (62%)
2. Bear Lake = 27
3. Willard = 18
4. Newton = 11
5. Lake Powel = 8

b. Top 5 Next Destination

1. Hyrum = 217 (69%)
2. Bear Lake = 35
3. Willard = 17
4. Flaming Gorge = 5
5. Strawberry = 5

**Note: 62% to 69% of Hyrum boaters seem to frequently use Hyrum.**

5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples

- a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.

6. Law Enforcement Efforts

- a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Pineview Reservoir

1. Budget, Personnel & Equipment

- a. UDWR \$10,340 (project E1A520xxx); 1 technician assigned mid May thru mid September (4 months).
- b. USFS \$21,250 (project E4F470xxx); 2 technicians assigned June thru August (3 months each).
- c. Two \$13,400 decontamination units:
  - i. One unit purchased with UDWR funds in FY08 (project E1A520xxx)
  - ii. One \$13,400 decontamination unit purchased by USFS and transferred to UDWR in FY09.

2. Outreach

- a. "No mussels!" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches.
  - i. UDWR volunteers assisted.
- b. Approximately 7,578 boats were interdicted, inspected and educated by UDWR
- c. About 36,000 Decontamination Certification Forms were distributed by UDWR, Iron Rangers and SP&R.
- d. 96% of boaters were aware of the invasive mussel issue, and 52% of Boaters are aware of Clean, Drain, and Dry.
- e. Trained SP&R on Level I watercraft inspections.

3. Decontaminations & Encrusted Boats

- a. Seven boats needed to be decontaminated; six were from Lake Mead and one was from Lake Havasu.
- b. No boats were encrusted with quagga or zebra mussels.
- 4. Boater History of Last Water Visited and Next Destination (396 interviews)
  - a. Top 5 Last Water Visited
    - 1. Pineview = 222 (56%)
    - 2. Willard = 45
    - 3. Lake Powell = 13
    - 4. Utah Lake = 11
    - 5. East Canyon = 9
  - b. Top 5 Next Destination
    - 1. Pineview = 252 (64%)
    - 2. Willard Bay = 30
    - 3. Lake Powell = 26
    - 4. East Canyon = 10
    - 5. Flaming Gorge = 10

**Note: 56% to 64% of Pineview boaters seem to frequently use Pineview.**
- 5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
- 6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Rockport Reservoir

- 1. Budget, Personnel & Equipment
  - a. Weber Basin WCD \$18,337 (project E4F740xxx); 1 technician assigned June thru August (3 months).  
Note: \$18,337 includes funds for 1 position for East Canyon.
  - b. One \$13,400 decontamination unit--purchased with Weber Basin WCD funds in FY10 (project E4F740xxx).
- 4. Outreach
  - a. "No mussels!" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - b. Approximately 2,988 boats were interdicted, inspected and educated by UDWR.
  - c. About 36,000 certification forms were distributed by UDWR, Iron Rangers and SP&R.
  - d. 92% of boaters were aware of the invasive mussel issue, and 85% of boaters are aware of Clean, Drain and Dry.
  - e. Trained SP&R on Level I watercraft inspections.

3. Decontaminations & Encrusted Boats
  - a. No boats required decontamination.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (498 interviews)
  - a. Last Water Visited
    1. Rockport = 161 (32%)
    2. Jordanelle = 18
    3. Strawberry= 17
    4. East Canyon = 16
    5. Utah Lake = 16
  - b. Next Destination
    1. Rockport = 252 (51%)
    2. Willard = 30
    3. Lake Powel = 26
    4. East Canyon = 10
    5. Flaming Gorge = 10

**Note: 32% to 51% of Rockport boaters seem to frequently use Rockport.**
5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

#### Willard Bay Reservoir

1. Budget, Personnel & Equipment
  - a. UDWR \$10,340 (project E1A520xxx); 1 technician assigned June thru August (3 months).
  - b. One \$13,400 decontamination unit--purchased with UDWR funds in FY07 (project E1A520xxx).
2. Outreach
  - a. "No mussels!" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - b. Over 3,186 boats were interdicted, inspected and educated by UDWR.
  - c. About 36,000 Decontamination Certification Forms were distributed by UDWR, Iron Rangers, and SP&R.
  - d. 97% of boaters were aware of the invasive mussel issue, and 75% of boaters are aware of Clean, Drain, and Dry.
  - e. Trained SP&R on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. One boat needed to be decontaminated; no explanation by the technician provided.

- b. No boats were encrusted with quagga or zebra mussels.
- 4. Boater History of Last Water Visited and Next Destination (332 interviews)
  - a. Top 5 Last Waters Visited
    - 1. Willard Bay = 208 (63%)
    - 2. Pineview = 21
    - 3. Lake Powell = 14
    - 4. Bear Lake = 12
    - 5. Utah Lake = 11
  - b. Top 5 Next Destinations
    - 1. Willard Bay = 229 (69%)
    - 2. Bear Lake = 21
    - 3. Pineview = 16
    - 4. Flaming Gorge = 17
    - 5. Lake Powel = 1
- Note: 63% to 69% of Willard boaters seem to frequently use Willard.**
- 5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
- 6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

## CENTRAL REGION

### Region Wide Aquatic Invasive Species Accomplishments

Michael Slater, Aquatic Manager

Alan Ward, Strawberry Project Manager

Evan Freeman, AIS Biologist I—12 months (project E1A520xxx @ \$77,936)

One Wildlife Technician II—7 months (project E1A520xxx @ \$24,169)

13 Wildlife Technician I—multiple months (project codes & budgets—see individual waters)

- 1,339 hours (0.644 FTE) of Volunteer services
- 7 decontamination units (see individual waters for locations)
- 2,763 boater surveys across the region showed 92% of boaters were aware of the quagga and zebra mussel issue
- 58,660 boats were interdicted
- 154 boats were decontaminated
- 2 boats were encrusted with quagga or zebra mussels
- Monitored for other AIS

### Deer Creek Reservoir

1. Budget, Personnel & Equipment
  - a. UDWR & Jordan Valley WCD jointly funded 1 technician assigned mid May thru mid September (5 months) using project E1A520xxx (\$6,935) & project E4G690xxx (\$10,244) funds.
  - b. CUWCD \$20,000 (project E4X541000); 2 technicians assigned June thru August (3 months each).
  - c. One \$13,400 decontamination unit purchased with UDWR funds in FY07 (project E1A520xxx).
2. Outreach
  - a. Several media releases occurred on the radio and television and in local area newspapers.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. Over 10,500 boats were interdicted, inspected and educated.
  - d. 98% of the interviewed boaters were aware of invasive mussel issues.
  - e. Trained UDWR and SP&R personnel on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. Six boats were decontaminated; one was from Lake Mead, requiring a professional decontamination; and five were from Lake Powell, who requested voluntary decontaminations.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (240 interviews)
  - a. Last Water Visited
    1. Deer Creek = 59 (25%)
    2. Utah Lake = 39
    3. Strawberry = 23
    4. Jordanelle = 18
  - b. Next Destination
    1. Deer Creek = 57 (24%)
    2. Lake Powell = 25
    3. Strawberry = 23
    5. Flaming Gorge = 7

4. Jordanelle = 16

5. Utah Lake = 11

**Note: 24% to 25% of Deer Creek boaters seem to frequently use Deer Creek.**

5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

#### Jordanelle Reservoir

1. Budget, Personnel & Equipment
  - a. UDWR \$16,490 (project E1A520xxx); 1 technician assigned May thru September (5 months).
  - b. CUWCD \$20,000 (project E4G850xxx); 2 technicians assigned June thru August (3 months each).
  - c. One \$13,400 decontamination unit purchased with UDWR funds in FY07 (project E1A520xxx).
2. Outreach
  - a. Several media releases occurred on the radio and television and in local area newspapers.
  - b. "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. Over 8,600 boats were interdicted, inspected and educated.
  - d. 94% of the interviewed boaters were aware of invasive mussel issues.
  - e. Trained UDWR and SP&R personnel on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. 53 boats were decontaminated; 5 required the decontamination and 48 requested a voluntary decontamination.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (411 interviews)
  - a. Last Water Visited
    1. Jordanelle = 181 (44%)
    2. Utah Lake = 30
    3. Lake Powell = 29
    4. Deer Creek = 18
    5. Bear Lake = 14
  - b. Next Destination
    1. Jordanelle = 52 (12%)
    2. Deer Creek = 10
    3. Bear Lake = 10
    4. Lake Powell = 9
    5. Strawberry = 7

**Note: 12% to 44% of Jordanelle boaters seem to frequently use Jordanelle.**
5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.

6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

Strawberry Reservoir

1. Budget, Personnel & Equipment
  - a. UDWR \$16,490 (project E1A520xxx); 1 technician assigned May thru September (5 months).
  - b. CUWCD \$20,000 (project E4G840xxx); 2 technicians assigned June thru August (3 months each).
  - d. Two \$13,400 decontamination units purchased with UDWR funds in FY07 and FY08 (project E1A520xxx).
2. Outreach
  - a. Several media releases occurred on the radio and television and in local area newspapers.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - ii. UDWR volunteers assisted.
  - c. Over 12,800 boats were interdicted, inspected and educated.
  - d. 99% of the interviewed boaters were aware of invasive mussel issues.
  - e. Trained UDWR and marina personnel on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
  - a. No boats needed to be decontaminated.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (157 interviews)
 

<ol style="list-style-type: none"> <li>a. <u>Last Water Visited</u> <ol style="list-style-type: none"> <li>1. Strawberry = 45 (28%)</li> <li>2. Jordanelle = 14</li> <li>3. Deer Creek = 12</li> <li>4. Utah Lake = 9</li> <li>5. Flaming Gorge = 7</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>b. <u>Next Destination</u> <ol style="list-style-type: none"> <li>1. Strawberry = 71 (45%)</li> <li>2. Flaming Gorge = 13</li> <li>3. Jordanelle = 12</li> <li>4. Deer Creek = 9</li> <li>5. Utah Lake = 7</li> </ol> </li> </ol>
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**Note: 28% to 45% of Strawberry boaters seem to frequently use Strawberry.**
5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

Utah Lake

1. Budget, Personnel & Equipment
  - a. UDWR \$16,990 (project E1A520xxx); 1 technician assigned May

- thru September (5 months).
    - b. CUWCD \$12,500 (program E4G430xxx); 1 technician assigned June thru September (4 months).
    - c. One \$13,400 decontamination unit purchased with UDWR funds in FY07 (program E1A520xxx).
  - 2. Outreach
    - a. Several media releases occurred on the radio and television and in local area newspapers.
    - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
      - iii. UDWR volunteers assisted.
    - c. Over 16,960 boats were interdicted, inspected and educated.
    - d. 74% of the interviewed boaters were aware of invasive mussel issues.
    - e. Trained UDWR, SP&R and marina personnel on Level I watercraft inspections.
  - 3. Decontaminations & Encrusted Boats
    - a. 90 boats were decontaminated; most were from Lake Powell and requested a voluntary professional decontamination.
    - b. One boat was encrusted with quagga mussels; it was from Lake Mead and the Utah Lake SP&R Manager directed the owner to contact UDWR for a decontamination.
  - 4. Boater History of Last Water Visited and Next Destination (401 interviews)
 

<ul style="list-style-type: none"> <li>a. <u>Last Water Visited</u></li> <li>1. Utah Lake = 301 (75%)</li> <li>2. Lake Powell = 27</li> <li>3. Deer Creek = 14</li> <li>4. Yuba = 9</li> <li>5. Jordanelle = 9</li> </ul>	<ul style="list-style-type: none"> <li>b. <u>Next Destination</u></li> <li>1. Utah Lake = 303 (75%)</li> <li>2. Lake Powell = 32</li> <li>3. Yuba = 10</li> <li>4. Deer Creek = 8</li> <li>5. Jordanelle = 8</li> </ul>
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**Note: 75% of Utah Lake boaters seem to frequently use Utah Lake.**
  - 5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
    - a. Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
  - 6. Law Enforcement Efforts
    - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

Yuba Reservoir

- 1. Budget, Personnel & Equipment
  - a. UDWR \$16,990 (project E1A520xxx); 1 technician assigned May thru September (5 months).
  - b. One \$13,400 decontamination unit purchased with UDWR funds in FY07 (project E1A520xxx).
- 2. Outreach

- a. Several media releases occurred on the radio and television and in local area newspapers.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. Over 9,800 boats were interdicted, inspected and educated.
  - d. 97% of the interviewed boaters were aware of invasive mussel issues.
  - e. Trained UDWR and SP&R personnel on Level I watercraft inspections.
3. Decontaminations & Encrusted Boats
- a. Four boats were decontaminated; 2 were rentals with an unknown use history, and 2 were from Lake Powell, requesting voluntary professional decontaminations.
  - b. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (403 interviews)
- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>a. <u>Last Water Visited</u></li> <li>1. Yuba = 150 (37%)</li> <li>2. Utah Lake = 47</li> <li>3. Lake Powell = 34</li> <li>4. Jordanelle = 26</li> <li>5. Deer Creek = 21</li> </ul> | <ul style="list-style-type: none"> <li>b. <u>Next Destination</u></li> <li>1. Yuba = 159 (39%)</li> <li>2. Utah Lake = 46</li> <li>3. Lake Powell = 35</li> <li>4. Strawberry = 24</li> <li>5. Jordanelle = 23</li> </ul> |
|---|---|
- Note: 37% to 39% of Yuba boaters seem to frequently use Yuba.**
- 5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
    - a. Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
  - 6. Law Enforcement Efforts
    - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

## **SOUTHERN REGION**

### Region Wide Aquatic Invasive Species Accomplishments

Mike Ottenbacher, Aquatic Manager

Richard Hepworth, Assistant Aquatic Manager

Crystal Stock, AIS Biologist I—12 months (project E1A520xxx @ \$69,205)

One Wildlife Technician II—7 months (project E1A520xxx @ \$28,176)

13 Wildlife Technician I—multiple months (project codes & budgets—see individual waters)

4 Lead Ranger Aids resulting from MOUs with SP&R (project codes & budgets—see individual waters)

- 3,587 hours (1.725 FTE) of Volunteer services
- 11 decontamination units (see individual waters for locations)
- No boater surveys were conducted across the region to show what percent of boaters were aware of the quagga and zebra mussel issue
- 201,052 boats were interdicted (175,000 by NPS at Lake Powell)
- 9,595 boats were decontaminated (5,000 by NPS at Lake Powell)
- 16 boats were encrusted with quagga or zebra mussels (14 at Lake Powell)
- Monitored for other AIS

### Fish Lake

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,490 (project E1A520xxx); 1 technician assigned June thru September (4 months). Additional assistance was provided at times by another trained technician doing creel inventory. And, U.S. Forest Service personnel assisted on the Memorial Day weekend.
  - b) One \$13,400 decontamination unit purchased with UDWR funds in FY08 (project E1A520xxx).
- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers.
  - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at boat launches.
  - c) Over 493 boats were interdicted, inspected and educated.
  - d) Most (410) were from Utah, but 41 were from Nevada; the remainder was from California (10), Arizona (21), Colorado (2), Idaho (6), Wyoming (2), and New Mexico (1).
    - i) 327 boats were checked; 277 or 85% were in compliance with AIS rules.
- 3) Decontaminations & Encrusted Boats
  - a) No boats needed to be decontaminated; thus none were encrusted.
- 4) Boater History of Last Water Visited (345 interviews)
  - a) Last Water Visited
    1. Fish Lake = 197 (57%)
    2. Otter Creek = 25 (7%)
    3. Piute Res. = 18 (5%)
    4. Utah Lake = 13 (4%)

5. Lake Powell = 10 (3%)

**Note: 57% of Fish Lake boaters seem to frequently use Fish Lake.**

- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts  
Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued--126 contacts documented 32 recorded violations.

#### Gunlock Reservoir

- 1) Budget, Personnel & Equipment
  - a. UDWR \$16,200 (project E1A520xxx); 1 technician assigned April thru September (6 months). Technician was hired in cooperation with State Parks via an MOU.
  - b. One \$13,400 decontamination unit purchased with UDWR funds in FY08 (project E1A520xxx).
- 2) Outreach
  - a. Several media releases occurred on the radio and television and in local area newspapers.
  - b. "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at boat launch.
  - c. Over 80 boats were interdicted, inspected and educated.
- 3) Decontaminations & Encrusted Boats
  - a) 6 decontaminations for suspect boats where conducted.
  - b) No boats were found encrusted with Quagga mussels.
- 4) Boater History of Last Water Visited (26 interviews)
  - a. Last Water Visited
    1. Gunlock = 10 (40%)
    2. Sand Hollow = 7 (27%)
    3. Unknown = 5 (20%)
    4. Quail Creek Res. = 2 (8%)
    5. Lake Mead = 1 (4%)

**Note: 40% of Gunlock boaters seem to frequently use Gunlock.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that

were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued. Insufficient data was collected to evaluate compliance.

#### Kolob Reservoir

- 1) Budget, Personnel & Equipment
  - a) No specific funding or equipment allocation was provided, but the region AIS biologist and the roving Wildlife Technician II occasionally visited, making AIS boater contacts.
- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers, none of the media releases specifically concerned Kolob Reservoir, however they were targeting local boaters.
  - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were available at the boat ramps.
- 3) Decontaminations & Encrusted Boats
  - a) No boats were decontaminated.
- 4) Boater History of Last Water Visited
  - a) Boater History was not collected at Kolob Reservoir
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued--156 contacts with 20 recorded violations. 32 boats were checked; 30 or 94% were in compliance with AIS rules.

#### Lake Powell (Glen Canyon National Recreation Area)

- 1) Budget, Personnel & Equipment
  - a) UDWR \$22,000 (project E1A520xxx); grant for NPS at Glen Canyon National Recreation Area to conduct a program to combat quagga and zebra mussels on Lake Powell.
  - b) National Park Service expended over \$1,000,000 in 2010 for personnel and operational funds to support a robust program to combat quagga and zebra mussels on Lake Powell at Glen Canyon National Recreation Area. This effort freed-up approximately \$193,000 of UDWR funds for use at other statewide waters.
  - c) Five decontamination units were purchased by NPS between FY07 and FY10. Two semi-permanent units with reclaim systems costing approximately \$450,000 combined are located at Wahweap and Bullfrog. Three trailer-mounted units with reclaim systems costing approximately \$22,000 each are located at Antelope Point, Hall’s Crossing and Hite.

- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers
  - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were available at water body gate entrances and boat launches.
    - i) Arizona Game and Fish personnel also assisted, including a technician who resided at Wahweap, working everyday interdicting boaters.
  - c) Several other promotional items (e.g. whistles, key chains, etc.) using the slogan “Don’t Move a Mussel” were provided to boaters, too.
  - d) NPS personnel participated in the Boat Show in Denver, Phoenix and Salt Lake City explaining the risk from quagga and zebra mussels to boaters.
  - e) NPS personnel hosted four school programs, explaining the risk from quagga and zebra mussels to children, who are the “next generation” of boaters.
  - f) Over 175,000 different boats were interdicted, inspected and educated by NPS at Glen Canyon National Recreation Area entrance points. Many of those boats were interdicted multiple times.
    - i) All boats launching on Lake Powell, other than the few boats using remote access points (e.g. Blue Notch, Red Canyon, White Canyon, etc.), are screened by NPS personnel at entrance points, and when deemed suitable for launch are issued “Launch Certificates.” Boaters launching at remote sites use a backcountry Launch Certification Packet to fill-out and display a self-launch certificate. Thus, Utah Decontamination Certification Forms are not used, although Utah Rule R657-60 is met.
- 3) Decontaminations & Encrusted Boats
  - a) The NPS’ Aquatic Invasive Species Coordinator and a concessionaire (Aramark) are WIT II certified; they conducted four level I trainings for boat inspection and decontamination involving 41 NPS, concessionaire and other partner personnel.
  - b) More than 5,000 boats were selected for detailed inspection based upon their history of use in the last 30 days on quagga or zebra mussel affected waters as reported to NPS rangers.
  - c) 14 boats were encrusted with quagga or zebra mussels. Most originated from areas affected by flows and quagga mussel from the lower Colorado River drainage: Lake Pleasant AZ (2), Lake Mead NV/AZ (5), Lake Havasu AZ/CA (3), Mohave (1), and Eastern US (3).
    - i) Three of the mussel boats had paperwork showing decontamination treatments.
    - ii) 10 were quarantined, and 4 (confirmed out of water over 30 days) launched after decontamination.
- 4) Boater History of Last Water Visited

Southern Lake Powell Boaters: The following portrays pre-arrival and post departure use patterns by 6,863 boaters who launched from the Wahweap, Antelope Point & Stateline ramps of Lake Powell between March 1 and July 31, 2008.

- |  |   |
|--|---|
| <p>a. <u>Last Water Visited</u></p> <ol style="list-style-type: none"> <li>1. Lake Pleasant AZ (quagga infested)</li> <li>2. Utah Lake UT</li> <li>3. Lake Mead NV/AZ (quagga infested)</li> <li>4. Sand Hollow UT</li> <li>5. Roosevelt Lake AZ</li> <li>6. Jordanelle UT</li> <li>7. Saguaro Lake AZ</li> <li>8. Canyon Lake AZ</li> <li>9. Lake Havasu AZ/CA (quagga infested)</li> <li>10. Bartlett Lake AZ</li> </ol> | <p>b. <u>Next Destination</u></p> <ol style="list-style-type: none"> <li>1. Sand Hollow UT</li> <li>2. Utah Lake UT</li> <li>3. Pineview UT</li> <li>4. Jordanelle UT</li> <li>5. Canyon Lake AZ</li> <li>6. Flaming Gorge UT/WY</li> <li>7. Bear Lake UT/ID</li> <li>8. Roosevelt Lake AZ</li> <li>9. Quail Creek UT</li> <li>10. Yuba UT</li> </ol> |
|--|---|

**Note: 3 of the top 10 waters used by southern Lake Powell boaters before arriving at Lake Powell are affected with quagga mussels.**

Northern Lake Powell Boaters: The following portrays pre-arrival and post departure use patterns by 991 boaters who launched from the Bullfrog, Hall's Crossing & Hite ramps of Lake Powell between March 1 and July 31, 2008.

- |   |   |
|---|---|
| <p>a. <u>Last Water Visited</u></p> <ol style="list-style-type: none"> <li>1. Utah Lake UT</li> <li>2. Blue Mesa CO (unconfirmed)</li> <li>3. Highland State Park CO</li> <li>4. Flaming Gorge UT /WY</li> <li>5. Strawberry UT</li> <li>6. Rifle Gap CO</li> <li>7. Bear Lake UT/ID</li> <li>8. Chatfield CO</li> <li>9. Scofield UT</li> <li>10. McPhee CO</li> </ol> | <p>b. <u>Next Destination</u></p> <ol style="list-style-type: none"> <li>1. Utah Lake UT</li> <li>2. Flaming Gorge UT /WY</li> <li>3. Blue Mesa CO</li> <li>4. Highland State Park CO</li> <li>5. Strawberry UT</li> <li>6. Rifle Gap Reservoir CO</li> <li>7. Chatfield CO</li> <li>8. Scofield UT</li> <li>9. McPhee CO</li> <li>10. Deer Creek UT</li> </ol> |
|---|---|

5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples

- a) Plankton samples were collected lake-wide. Some were sent to the Bureau of Reclamation's microscopy lab in Denver, CO; others were examined by the NPS microscopy lab at Wahweap. Of those examined, all were found to be negative.
- b) NPS has added a \$65,000 FlowCAM to their microscopy lab, which will greatly increase efficiency for analysis of plankton samples.

6) Law Enforcement Efforts

- a) NPS Rangers issued 387 citations during the 2010 boating season; most were for expired or lack of a Lake Powell launch certificate, but several were for failure to be inspected as directed. Most violations resulted in \$75 fines, but some of the flagrant violations (23) have resulted in \$5,000 fines.

- b) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. No verbal or written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued--2,098 contacts, with 0 recorded violations. Compliance was assumed to be at or near 100%, since all boaters were contacted prior to launching.

Newcastle Reservoir

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,200 (project E1A520xxx); 1 technician assigned June thru August (3 months).
  - b) Decontamination unit located at the Southern Region office was used when required; no unit was kept at Newcastle Reservoir.
- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers.
  - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at boat launch and available at boat launch site.
  - c) Over 150 boats were interdicted, inspected and educated.
- 3) Decontaminations & Encrusted Boats
  - a) No boats were decontaminated, thus none were encrusted.
- 4) Boater History of Last Water Visited (118 contacts)
  - a) Last Water Visited
    - 1. Newcastle = 74 (63%)
    - 2. Unknown = 25 (21%)
    - 3. Sand Hollow = 7 (6%)

**Note: 63% of Newcastle boaters seem to frequently use Newcastle.**
  - b) Four other lakes (Enterprise, Lake Powell, Panguitch, and Quail lakes each made up 2% of the total).
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued. 12 boats were checked; 8 or 67% were in compliance with AIS rules.

Otter Creek Reservoir

- 1) Budget, Personnel & Equipment
  - a) UDWR \$13,500 (project E1A520xxx); 1 technician assigned May thru September (5 months). Technician was hired in cooperation with State

Parks via an MOU; this technician was shared between Otter Creek and Piute reservoirs.

- b) One \$13,400 decontamination unit purchased with UDWR funds in FY08 (project E1A520xxx).
  - 2) Outreach
    - a) Several media releases occurred on the radio and television and in local area newspapers.
    - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at boat launches.
    - c) Over 1,290 boats were interdicted, inspected and educated.
  - 3) Decontaminations & Encrusted Boats
    - a) Eight boats were decontaminated as follows:
      - i) 6 – boats were from Sand Hollow Reservoir.
      - ii) 1 – boat from Lake Mead.
      - iii) 1 – boat was newly purchased from another owner and its last location for use was unknown.
  - 4) Boater History of Last Water Visited--no 2010 data was collected, but 2009 data follows:
    - a. Last Water Visited
      - 1. Otter Creek = 216 (54%)
      - 2. Piute = 32
      - 3. Panguitch = 20
      - 4. Fish Lake = 16
      - 5. Quail Creek = 12
    - b. Next Destination
      - 1. No Data Collected
- Note: 54% of Otter Creek boaters seem to frequently use Otter Creek.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
    - a) Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
  - 6) Law Enforcement Efforts
    - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued--503 contacts, with 48 recorded violations. 131 boats were checked; 93 or 71% were in compliance with AIS rules.

#### Panguitch Lake

- 1) Budget, Personnel & Equipment
  - a) USFS \$19,998 (project E4F480xxx); 1 technician assigned June thru September (4 months).
  - b) One \$13,400 decontamination unit; purchased by USFS and transferred to UDWR in FY09.

- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers.
  - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at boat launches.
  - c) More than 350 boats were interdicted, inspected and educated.
    - i) Over 50% were from Nevada and California, both having water bodies infested with *Dreissena* mussels.
- 3) Decontaminations & Encrusted Boats
  - a) Three boats were decontaminated as follows:
    - i) 2 were from Lake Mead
    - ii) 1 was from Sand Hollow
- 4) Boater History of Last Water Visited (398 interviews)
  - a) Last Water Visited
    1. Panguitch Lake = 231 (65%)
    2. Otter Creek = 28 (8%)
    3. Lake Mead = 15 (4%)
    4. Navajo Lake = 14 (4%)
    5. Sand Hollow = 10 (3%)

**Note: 55% of Panguitch boaters seem to frequently use Panguitch.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued--407 contacts with 171 recorded violations. 196 boats where checked; 128 or 65% where in compliance with AIS rules.

#### Piute Reservoir

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,693 (project E1A520xxx); 1 technician assigned July and August (2 months). Technician was hired in cooperation with State Parks via an MOU this technician was shared between Otter Creek and Piute reservoirs.
  - b) Decontamination unit from nearby Otter Creek was used when required. No pressure was unit was kept at Piute Reservoir
- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers.
  - b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at boat launches.

- c) Over 250 boats were interdicted, inspected and educated.
- 3) Decontaminations & Encrusted Boats
  - a) No Boats were decontaminated, thus none were encrusted.
- 4) Boater History of Last Water Visited (62 interviews)
  - a) Last Water Visited
    - 1. Piute = 10 (16%)
    - 2. Lake Powell = 7 (11%)
    - 3. Panguitch Lake = 5 (8%)

**Note: 16% of Piute boaters seem to frequently use Piute.**
  - b) Three other lakes (Fish Lake, Lake Mead, and Otter Creek Reservoir each made up 3% of the total).
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued--95 contacts, with 44 recorded violations. Insufficient data was collected to assess compliance.

#### Quail Creek

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,200 (program E1A520xxx); 1 technician assigned April thru September (6 months). Technician was hired in cooperation with State Parks via an MOU.
  - b) Decontamination unit from nearby Sand Hollow was used when required. No unit was kept at Quail Creek Reservoir
- 2) Outreach
  - a) Several media releases occurred on the radio and television and in local area newspapers.
  - b) "Zap the Zebra" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at boat launch.
  - c) All boats launching, which amounts to over 10,000 boats were interdicted, inspected and educated.
- 3) Decontaminations & Encrusted Boats
  - a) No boats were decontaminated at Quail Creek Reservoir all boats requiring decontamination were sent to Sand Hollow and are included in total decontaminations conducted there.
- 4) Boater History of Last Water Visited
  - a) Boater History was not collected in 2010 at Quail Creek Reservoir, but data from 278 interviews in 2009 are as follows:
    - a. Last Water Visited
      - 1. Quail Creek = 150 (54%)
      - 2. Lake Powell = 14
      - 3. Gunlock = 8
    - b. Next Destination

1. No Data Collected

**Note: 54% of Quail Lake boaters seem to frequently use Quail Creek.**

- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued--100 contacts, with 60 recorded violations. Compliance was assumed to be at or near 100%, since all boater were contacted prior to launching.

Sand Hollow Reservoir

*An adult quagga mussel was discovered living on the underwater side of a boat dock in Sand Hollow Reservoir on May 21, 2010. The Utah Wildlife Board declared the reservoir "infested" in Rule R657-60. All of which plunged UDWR in cooperation with SP&R and the Washington County Water Conservancy District into a full blown containment management effort for recreational boats. A detailed 2010 report of decontamination and boat use associated with Sand Hollow Reservoir has been completed and is available at [http://wildlife.utah.gov/mussels/PDF/sand\\_hollow\\_report\\_2010.pdf](http://wildlife.utah.gov/mussels/PDF/sand_hollow_report_2010.pdf).*

There are two addendums:

[http://wildlife.utah.gov/mussels/PDF/sand\\_hollow\\_report\\_2010.2.pdf](http://wildlife.utah.gov/mussels/PDF/sand_hollow_report_2010.2.pdf)

and

[http://wildlife.utah.gov/mussels/PDF/sand\\_hollow\\_report\\_2010.3.pdf](http://wildlife.utah.gov/mussels/PDF/sand_hollow_report_2010.3.pdf).

- 1) Budget, Personnel & Equipment (Through September 30, 2010, since this project is ongoing.)
  - a) UDWR \$26,434 (project E1A520xxx) and USFWS \$65,048 (project E4G360xxx); 5 technicians per month June through August and 3 technicians in September.
  - b) UDWR \$16,200 (project E1A520xxx); 1 technician assigned April thru September (6 months). Technician was hired in cooperation with State Parks via an MOU.
  - c) Five \$13,400 decontamination units purchased with UDWR funds in FY08 (2) and FY11 (3)--project E1A520xxx.
  - d) UDWR Volunteers accounted for 40% of the work force required at Sand Hollow Reservoir
- 2) Outreach
  - a) Numerous media releases occurred on the radio and television and in local area newspapers.
  - b) "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at the entrance gate.
  - c) Over 9,300 boats were interdicted, inspected and educated as they entered and departed Sand Hollow State Park.

- 3) Decontaminations & Encrusted Boats
  - a) 4,595 boats were decontaminated as follows:
    - i) 4,464 were decontaminated upon departure in order to contain the infestation to Sand Hollow.
    - ii) 131 were decontaminated prior to launching due to their previous 30 day use involving a *Dreissena* mussel (quagga or zebra) affected water body.
  - b) No mussel encrusted boats were discovered.
- 4) Boater History of Last Water Visited
  - a) Last Water Visited
    1. Sand Hollow = 8,023 (78%)
    2. Quail Creek Reservoir = 484 (5%)
    3. Lake Powell = 386 (4%)
    4. Unknown = 277 (3%)
    5. Utah Lake = 169 (2%)

**Note: 78% of Sand Hollow boaters seem to frequently use Sand Hollow.**
- 5) Assessment for Presence/Absence of *Dreissena* veligers via Plankton Samples
  - a) A single alive adult Quagga mussel (*Dreissena bugensis*) was discovered in Sand Hollow Reservoir on May 21, 2010. It was killed.
  - b) Plankton samples were taken monthly; all were all sent to the Bureau of Reclamation's microscopy lab in Denver CO, and all were found to be negative.
  - c) Washington County Water Conservancy District also assessed the plankton samples via microscopy and found them to be negative, too.
  - d) Pisces Molecular, Inc. assessed all the plankton samples via PCR and found them to be negative.
- 6) Law Enforcement Efforts
  - a) Contacts: 420
    - i) This represents 17.8% of the total AIS contacts in the Southern Region.
  - b) Fishing License Checks: 189
    - i) This represents 11.8% of the total fishing license checks in the Southern Region.
  - c) Enforcement Time: 203 hr. 36 min.
    - i) This represents 23% of the total law enforcement time devoted to AIS (more than any other fishery) in the Southern Region.
  - b) The Zion Conservation Officer District (Sand Hollow Reservoir, Quail Creek Reservoir, and Kolob Reservoir) constitutes over 1/3 of the total AIS law enforcement time in the Southern Region (more than any other district). Compliance was assumed to be at or near 100%, since all boaters were contacted prior to launching.

## **NORTHEASTERN REGION**

### Region Wide Aquatic Invasive Species Accomplishments

Roger Schneidervin & Trina Hedrick, Aquatic Manager

Garn Birchell, Assistant Aquatic Manager

Natalie Boren, AIS Biologist I—12 months (project E1A520xxx @ \$73,555)

One Wildlife Technician II—7 months (project E1A520xxx @ \$24,169)

13 Wildlife Technician I—multiple months (project codes & budgets—see individual waters)

- 24 hours (0.01 FTE) of Volunteer services
- 7 decontamination units (see individual waters for locations)
- 2,835 boater surveys across the region showed 99.9% of boaters were aware of the quagga and zebra mussel issue
- 23,092 boats were interdicted (5,481 by WG&F on Flaming Gorge)
- 1,035 boats were decontaminated (5 by WG&F on Flaming Gorge)
- 0 boats were encrusted with quagga or zebra mussels
- 3,432 AIS law enforcement contacts
- Monitored for other AIS—New Zealand Mudsail, Curley-leaf Pondweed and Rusty Crayfish.

### Flaming Gorge Reservoir—Utah Portion

- 1) Budget, Personnel & Equipment
  - a. UDWR \$27,310 (project E1A520xxx); 2 technicians assigned mid May thru mid September (4 months each).
  - b. The Technician II spent ½ of their time at Flaming Gorge, also.
  - c. USFS \$ 22,139 (project E4F490xxx); 2 technicians assigned June thru August (3 months each).
  - d. Two \$13,400 decontamination units;
    - i. One unit purchased with UDWR funds (project E1A520xxx) in FY07—assigned at Dutch John;
    - ii. One unit purchased by USFS with their funds in FY09 and assigned at Lucerne Marina.
- 2) Outreach
  - a. Multiple media releases occurred on the radio and television and in local area newspapers—all specific to the quagga and zebra mussel issue.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. 10,649 boats were interdicted, inspected and educated.
  - d. 88.3 % of boaters were aware of invasive mussel issues; in fact only 118 of the 3,526 interviewed boaters were unaware of the quagga and zebra mussel issue.
- 3) Decontaminations & Encrusted Boats
  - a. 15 boats were decontaminated due to their 30 day prior use history on a quagga or zebra mussel affected water;
  - b. none were encrusted with dead or alive quagga or zebra mussels.

- 4) Boater History of Last Water Visited and Next Destination (1,004 interviews)
- |  |  |
|--|--|
| <p>a. <u>Last Water Visited</u></p> <ol style="list-style-type: none"> <li>1. Flaming Gorge = 475 (47%)</li> <li>2. No use since 2009 = 256 (26%)</li> <li>3. Lake Powell = 44</li> <li>4. Willard Bay = 27</li> <li>5. Deer Creek = 22</li> </ol> | <p>b. <u>Next Destination</u></p> <ol style="list-style-type: none"> <li>1. Flaming Gorge = 617 (61%)</li> <li>2. Don't know = 92</li> <li>3. Strawberry = 32</li> <li>4. Willard Bay = 27</li> <li>5. Lake Powell = 14</li> </ol> |
|--|--|
- Note: 47% to 61% of Flaming Gorge boaters in the Utah portion seem to frequently use Flaming Gorge. And, 26% of Flaming Gorge boaters' first launch of the year was at Flaming Gorge.**
- 5) Assessment for Presence/Absence of *Dreissena* veligers via Plankton Samples
- a) Plankton samples taken in June, July, August and September were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO. All were found to be negative.
  - 6) Law Enforcement Efforts
    - b) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. On the Memorial Day weekend 54 boats were interdicted at a roadblock in Manila. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

**Flaming Gorge Assessment—Wyoming portion (WF&G data)**

- o 5,481 Watercraft inspections were conducted in 81 days (Thursdays-Sundays and Holidays)
- o 5 boat decontaminations were conducted because they had been in infested waters; none were encrusted.
- o Flaming Gorge "last waters" boated (n = 5,481)
  - Flaming Gorge (n = 91% or 4,988)
  - Willard Bay (n = 0.9% or 49)
  - Lake Powell (n = 0.8% or 43)
  - Strawberry (n = 0.6% or 33)
- o Flaming Gorge "next waters" to be boated (n = 5,481)
  - Unknown (n = 35% or 1918)
  - Flaming Gorge (n = 70% or 3844)
  - Lake Powell (n = 0.3% or 11)
  - Jordanelle (n = 0.2% or 8)

**Note: 79% to 91% of Flaming Gorge boaters in the Wyoming portion seem to frequently use Flaming Gorge.**
- o Busiest Weeks July 21<sup>st</sup> – July 28<sup>th</sup>
- o Arriving boaters originated from 100 waters in 21 states, and departing boater indicated intent to use 30 different waters in 10 states.
- o 67% of all boaters interviewed on the Wyoming side of the lake were residents of Wyoming.

- 25% were from Utah
- 2.6% were from Colorado
- 1.5% were from California

Pelican Lake

1. Budget, Personnel & Equipment
  - a. UDWR \$13,745 (program E1A520xxx); 1 technician assigned mid May thru mid September (4 months).
  - b. BLM \$ 10,000 (program E4G310xxx); 1 technician assigned June thru August (3 months) to extend daily hours of coverage.
  - c. One \$13,400 decontamination unit purchased with UDWR funds in FY08 (program E1A520xxx).
2. Outreach
  - a. No media releases occurred on the radio and television and in local area newspapers related to Pelican Lake and the quagga and zebra mussel issue.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. 704 boats were interdicted, inspected and educated.
  - d. 100 % of boaters were aware of invasive mussel issues, and 98.6% of 406 boaters interviewed indicate awareness of the “clean, drain & dry” concept.
3. Decontaminations & Encrusted Boats
  - a. 3 boats were decontaminated; all had been previously used on a quagga or zebra mussel affected water.
    - i. No boats were encrusted with quagga or zebra mussels.
4. Boater History of Last Water Visited and Next Destination (406 interviews)
 

<ol style="list-style-type: none"> <li>a. <u>Last Water Visited</u> <ol style="list-style-type: none"> <li>1. Pelican Lake 108 (27%)</li> <li>2. No use since 2009 = 14</li> <li>3. Steinaker = 13</li> <li>4. Lake Powell = 12</li> <li>5. Starvation = 11</li> <li>6. Flaming Gorge = 11</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>b. <u>Next Destination</u> <ol style="list-style-type: none"> <li>1. Don’t know= 166 (41%)</li> <li>2. Pelican Lake 88 (22%)</li> <li>3. Starvation = 16</li> <li>4. Flaming Gorge = 14</li> <li>5. Lake Powell = 8</li> </ol> </li> </ol>
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**Note: 22% to 27% of the Pelican Lake boaters seem to frequently use Pelican Lake. Many (41%) don’t know where they will boat next.**
5. Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a. Plankton samples were collected once per month May thru September and sent to the Bureau of Reclamation’s microscopy lab in Denver, CO. All were found to be negative.
 

**Note:** BLM placed new docks in the lake. They had previously been used in Montana, so they were dried for 3 weeks and then decontaminated with scalding hot (140<sup>0</sup>F) water before installation.
6. Law Enforcement Efforts
  - a. Regional Conservation Officers assisted with the interdiction,

inspection and education of boaters during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

#### Red Fleet & Steinaker Reservoirs Complex

- 1) Budget, Personnel & Equipment
  - d. UDWR \$17,150 (project E1A520xxx); 1 technician assigned mid May thru mid September (4 months).
  - e. The Technician II spent ½ of their time at the Red Fleet & Steinaker Reservoirs Complex, also.
  - f. Central Utah WCD \$ 20,000 (project E4G870xxx); 2 technicians assigned June thru August (3 months each).
  - g. Uintah WCD \$ 12,500 (project E4F500xxx); 1 technician assigned June thru mid September (3.6 months).
  - h. Two decontamination units;
    - iii. One \$13,400 trailer-mounted unit purchased with UDWR funds (project E1A520xxx) in FY07—assigned at Steinaker;
    - iv. One \$64,913 semi-permanent unit with a water reclaim/disposal system purchased with NRCS funds (project E4F990xxx) in FY10 and assigned at Red Fleet.
- 2) Outreach
  - a. Multiple media releases occurred on the radio and television and in local area newspapers—all specific to the quagga and zebra mussel issue.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. 1,078 boats were interdicted, inspected and educated at Red Fleet;
  - d. 2,035 boats were interdicted, inspected and educated at Steinaker;
  - e. At Red Fleet 99.9 % of boaters were aware of invasive mussel issues; in fact only 9 of the 395 interviewed boaters were unaware of the quagga and zebra mussel issue. 34 boaters did not understand the “clean, drain & dry” concept.
  - f. At Steinaker 100 % of the 401 boaters interviewed were aware of invasive mussel issues. 4 boaters did not understand the “clean, drain & dry” concept.
- 3) Decontaminations & Encrusted Boats
  - a. 1,004 boats were decontaminated at Red Fleet at departure since quagga mussel veligers were detected in 2008, and none were decontaminated upon arrival;
  - b. None of the Red Fleet boats were encrusted with dead or alive quagga or zebra mussels.
  - c. 3 boats were decontaminated at Steinaker due to their prior use on an infested water body in Colorado;
  - d. None of the Steinaker boats were encrusted with dead or alive quagga or zebra mussels.

4a) Red Fleet--Boater History of Last Water Visited and Next Destination  
(401 interviews)

a. Last Water Visited

1. Red Fleet = 147 (37%)
2. Steinaker = 83
3. No use since 2009 = 25
4. Pelican = 17
5. Starvation = 12

b. Next Destination

1. Red Fleet = 196 (49%)
2. Don't know = 52
3. Steinaker = 45
4. Flaming Gorge = 31
5. Starvation = 12

**Note: 37% to 49% of Red Fleet boaters seem to frequently use Red Fleet. Red Fleet and Steinaker also show significant cross-over use between the two reservoirs.**

4b) Steinaker--Boater History of Last Water Visited and Next Destination  
(397 interviews)

a. Last Water Visited

1. Steinaker = 185 (47%)
2. Red Fleet = 63
3. No use since 2009 = 31
4. Pelican = 15
5. flaming Gorge = 18

b. Next Destination

1. Steinaker = 206 (52%)
2. Don't know = 99
3. Red Fleet = 64
4. Pelican = 13
5. Lake Powell = 10

**Note: 47% to 52% of Steinaker boaters seem to frequently use Steinaker. Steinaker and Red Fleet also show significant cross-over use between the two reservoirs.**

5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples

- a. Plankton samples taken in May, June, July, August and September at Red Fleet were all sent to the Bureau of Reclamation's microscopy lab in Denver, CO. All were found to be negative. Shorelines, docks and the SP&R boat were inspected for mussel presence, and none were found.
- b. Plankton samples taken in July at Steinaker were sent to the Bureau of Reclamation's microscopy lab in Denver, CO. All were found to be negative.

6) Law Enforcement Efforts

- c. Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Starvation Reservoir

1) Budget, Personnel & Equipment

- a) UDWR \$13,760 (project E1A520xxx); 1 technician assigned mid May thru mid September (4 months).
- b) Central Utah WCD \$20,000 (project E4G860xxx); 2 technicians assigned June thru August (3 months each).
- c) One \$13,400 decontamination unit purchased with UDWR funds (program E1A520xxx) in FY07.

- 2) Outreach
  - a. Multiple media releases occurred on the radio and television and in local area newspapers—all specific to the quagga and zebra mussel issue.
  - b. “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches.
    - i. UDWR volunteers assisted.
  - c. 3,001 boats were interdicted, inspected and educated.
  - d. 99.9 % of boaters were aware of invasive mussel issues; in fact only 36 of the 577 interviewed boaters were unaware of the quagga and zebra mussel issue. And 94% were aware of a need to “clean, drain & dry.”
- 3) Decontaminations & Encrusted Boats
  - a. 5 boats were decontaminated due to their 30 day prior use history on a quagga or zebra mussel affected water;
  - b. none were encrusted with dead or alive quagga or zebra mussels.
- 4) Boater History of Last Water Visited and Next Destination (577 interviews)
  - a. Last Water Visited
    1. Starvation = 176 (31%)
    2. Utah Lake = 41
    3. No use since 2009 = 37
    4. Lake Powell = 34
    5. Flaming Gorge = 30
  - b. Next Destination
    1. Don’t know = 321 (56%)
    2. Starvation = 117 (20%)
    3. Utah Lake = 21
    4. Flaming Gorge = 20
    5. Lake Powell = 15
    6. Jordanelle = 9

**Note: 20% to 31% of Starvation boaters seem to frequently use Starvation. And, more than ½ (56%) don’t know where they will launch again.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples taken in July were all sent to the Bureau of Reclamation’s microscopy lab in Denver, CO. All were found to be negative.
- 6) Law Enforcement Efforts
  - b) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters during their routine boater/angler checks. On the Memorial Day weekend 54 boats were interdicted at a roadblock in Manila. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

## **SOUTHEASTERN REGION**

### Region Wide Aquatic Invasive Species Accomplishments

Paul Birdsey, Aquatic Manager

Justin Hart, Assistant Aquatic Manager

Dan Keller, AIS Biologist I—3 months (project E1A520xxx @ \$21,069)

Mike Bolinski, AIS Biologist I—8 months (project E1A520xxx @ \$52,019)

- One Wildlife Technician II—6 months--roving (project E1A520xxx @ \$24,169)
- 8.5 Wildlife Technician I—multiple months (project codes & budgets—see individual waters)
- 535 hours (0.26 FTE) of Volunteer services
- 7 decontamination units (see individual waters for locations)
- 2,695 boater surveys across the region showed 98% of boaters were aware of the quagga and zebra mussel issue
- 2,695 boats were interdicted
- 302 boats were decontaminated
- 0 boats were encrusted with quagga or zebra mussels
- Monitored for other AIS

### Cleveland & Mammoth Reservoirs Complex

#### 1) Budget, Personnel & Equipment

- a) No specific funding or equipment allocation was provided, but the region AIS biologist and the Wildlife Technician II occasionally visited, making AIS boater contacts. Additionally, the Electric Lake AIS Technician routinely made AIS contacts.

#### 2) Outreach

- a) Several media releases occurred on the radio in conjunction with weekly fishing reports or in local area newspapers related to the zebra mussel issue at nearby Electric Lake.
- b) “No Mussel” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches. They were also provided to campers in the Huntington Canyon area and nearby water recreation areas, especially to those with float tubes, canoes or pontoon boats.
  - i) UDWR volunteers assisted.
- c) 50 boats were interdicted, inspected and educated.
- d) 94% of boaters were aware of invasive mussel issues.
- e) 94% of boaters understood the Clean, Drain, Dry message.

#### 3) Decontaminations & Encrusted Boats

- a) No boats required professional decontamination.
- b) No arriving boats were encrusted with quagga or zebra mussels.

- 4) Boater History of Last Water Visited and Next Destination (50 interviews)
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|---|---|
| <p>a) <u>Last Water Visited</u></p> <ol style="list-style-type: none"> <li>1. Mammoth = 15 (30%)</li> <li>2. Cleveland = 5 (10%)</li> <li>3. Electric Lake = 4</li> <li>4. Joe's Valley = 3</li> <li>5. Scofield = 2</li> </ol> | <p>b) <u>Next Destination</u></p> <ol style="list-style-type: none"> <li>1. Mammoth = 10 (20%)</li> <li>2. Cleveland = 8 (16%)</li> <li>3. Scofield = 5</li> <li>4. Joe's Valley = 2</li> <li>5. Electric Lake = 2</li> </ol> |
|---|---|
- Note: 20% to 30% of Mammoth boaters seem to frequently use Mammoth, while 10% to 16% of Cleveland boaters seem to frequently use Cleveland. And, 36% to 40% of the boaters seem to frequently use both.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
- a) Plankton samples were collected in the last week of July and sent to the Bureau of Reclamation's microscopy lab in Denver, CO; they were found to be negative.
- 6) Law Enforcement Efforts
- a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters on occasion during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Electric Lake

- 1) Budget, Personnel & Equipment
- a) UDWR \$24,798 (project E1A520xxx); 2.5 technicians assigned June thru August (3 months each) to provide coverage 7 days per week.
- b) USFS \$10,244 (project E4F770xxx); 1 technician assigned June thru August (3 months) to extend daily hours of coverage.
- c) PacifiCorp \$10,244 (project E4F760xxx); 1 technician assigned June thru August (3 months) to extend daily hours of coverage.
- Note:** These funds allowed Electric Lake to experience coverage during all 7 days of the week for 12-14 hours per day. Inclusion of assistance from the AIS Biologist and the Wildlife Technician II, coverage spanned a 5-month period, June thru October.
- d) One \$26,511 decontamination unit with a reclaim system was purchased with NRCS funds (project E4F990xxx) in FY10. UDWR's decontamination unit assigned to the roving Wildlife Technician II was used until this acquisition.
- 2) Outreach
- a) Several media releases occurred on the radio in conjunction with weekly fishing reports or in local area newspapers related to the zebra mussel issue at nearby Electric Lake.
- b) "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches. They were also provided to campers in the Electric Lake area and nearby water recreation areas, especially to those with float tubes, canoes or pontoon boats.
- i) UDWR volunteers assisted.
- c) 355 boats were interdicted, inspected and educated.
- d) 97.7% of boaters were aware of invasive mussel issues.
- e) 93.2% of boaters understood the Clean, Drain, Dry message.

- 3) Decontaminations & Encrusted Boats
  - a) Most boats (232) that used Electric Lake were professionally decontaminated as they left the water; no arriving boats needed decontamination.
  - b) No boats either entering or leaving were encrusted with quagga or zebra mussels.
- 4) Boater History of Last Water Visited and Next Destination (355 interviews)
 

<ol style="list-style-type: none"> <li>b) <u>Last Water Visited</u> <ol style="list-style-type: none"> <li>1. Electric Lake = 170 (51%)</li> <li>2. Scofield = 28</li> <li>3. Utah Lake = 13</li> <li>4. Strawberry = 8</li> <li>5. Gooseberry = 8</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>b) <u>Next Destination</u> <ol style="list-style-type: none"> <li>1. Electric Lake = 143 (51%)</li> <li>2. Scofield = 37</li> <li>3. Utah Lake = 13</li> <li>4. Strawberry = 11</li> <li>5. Mammoth = 10</li> </ol> </li> </ol>
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**Note: 51% of Electric Lake boaters seem to frequently use Electric Lake.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were collected every two weeks from June 6<sup>th</sup> to August 9<sup>th</sup>, then sent to the Bureau of Reclamation's microscopy lab in Denver, CO; all were found to be negative. Additionally, the samples were assessed via PCR by Pisces Molecular in Boulder, CO; they were found to be negative also.
- 6) Law Enforcement Efforts
  - b) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters on occasion during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Huntington North Reservoir

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,693 (project E1A520xxx); 1 technician assigned May through September (5 months) to provide coverage 40 hours per week.
  - b) One \$13,400 trailer-mounted decontamination unit without a reclaim system was purchased with UDWR's funds (project E1A520xxx) in FY07.
  - c) One \$64,913 semi-permanent decontamination unit with a water reclaim/disposal system was constructed at Hunting North Reservoir with NRCS funds (project E4F990xxx).

**Note:** A trailer-mounted decontamination unit from Huntington North Reservoir (purchased in FY07 with UDWR project E1A520xxx funds, was transferred to Recapture Reservoir. Previously, a decontamination unit was not available in Grand or San Juan counties.
- 2) Outreach
  - a) Several media releases occurred on the radio in conjunction with weekly fishing reports or in local area newspapers related to the zebra mussel issue at nearby Electric Lake.
  - b) "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches. They were also provided to campers in the Huntington North and Huntington Canyon area and nearby water recreation areas, especially to those with float tubes, canoes or pontoon boats.
    - i) UDWR volunteers assisted.

- c) The Emery Water Conservation District posted Aquatic Invasive Species outreach messages and reminders on their web page which is used widely by recreationists looking up water levels and flows.
  - d) 530 boats were interdicted, inspected and educated.
  - e) 99.6% of boaters were aware of invasive mussel issues.
  - f) 96.8% of boaters understood the Clean, Drain, Dry message.
- 3) Decontaminations & Encrusted Boats
- a) 43 boats were professionally decontaminated upon exiting, due to the reservoir's "unconfirmed" status that resulted from plankton samples in 2007.
  - b) No arriving boats were decontaminated, nor were any encrusted with quagga or zebra mussels.
- 4) Boater History of Last Water Visited and Next Destination (530 interviews)
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| <ul style="list-style-type: none"> <li>b) <u>Last Water Visited</u></li> <li>1. Huntington North = 310<br/>(66%)</li> <li>2. Joe's Valley = 23</li> <li>3. Millsite = 22</li> <li>4. Lake Powell = 26</li> <li>5. Scofield = 17</li> </ul> | <ul style="list-style-type: none"> <li>b) <u>Next Destination</u></li> <li>1. Huntington North = 313<br/>(62%)</li> <li>2. Lake Powell = 43</li> <li>3. Joe's Valley = 41</li> <li>4. Scofield = 23</li> <li>5. Millsite = 14</li> </ul> |
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- Note: 62% to 66% of Huntington North boaters seem to frequently use Huntington North. They also show a strong affinity for use at Lake Powell.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
- a) Plankton samples were collected 3 times--June, July and August--and sent to the Bureau of Reclamation's microscopy lab in Denver, CO. All were found to be negative.
- 6) Law Enforcement Efforts
- a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters on occasion during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Joe's Valley Reservoir

- 1) Budget, Personnel & Equipment
- a) UDWR \$16,693 (project E1A520xxx); 1 technician assigned May through September (5 months) and shared between Joe's Valley and Millsite to provide coverage 40 hours per week.
  - b) Emery WCD \$10,244 (project E4F790xxx); 1 technician assigned June through August (3 months) and shared between Joe's Valley and Millsite to extend daily hours of coverage.
  - c) One \$26,511 trailer-mounted decontamination unit with a reclaim system was purchased with NRCS funds (project E4F990xxx) in FY10 for Joe's Valley Reservoir.
  - d) One \$13,400 trailer-mounted decontamination unit without a reclaim system was purchased with UDWR's funds (E1A520xxx) in FY07 and shared between Joe's Valley and Millsite, but is now assigned to Millsite.

- 2) Outreach
  - a) Several media releases occurred on the radio in conjunction with weekly fishing reports or in local area newspapers related to the zebra mussel issue at nearby Electric Lake.
  - b) “No Mussel ” brochures as reminders about “Clean, Drain & Dry” and “Decontamination Certification Forms” were given to boaters at water body gate entrances and boat launches. They were also provided to campers in the Joe’s Valley and Millsite area and nearby water recreation areas, especially to those with float tubes, canoes or pontoon boats.
    - i) UDWR volunteers assisted.
  - c) 355 boats were interdicted, inspected and educated.
  - d) 97.7% of boaters were aware of invasive mussel issues.
  - e) 93.2% of boaters understood the Clean, Drain, Dry message.
- 3) Decontaminations & Encrusted Boats
  - a) 22 boats were professionally decontaminated.
  - b) No arriving boats were encrusted with quagga or zebra mussels.
- 4) Boater History of Last Water Visited and Next Destination (50 interviews)
 

<ol style="list-style-type: none"> <li>b) <u>Last Water Visited</u> <ol style="list-style-type: none"> <li>1. Joe’s Valley = 111 (58%)</li> <li>2. Huntington North = 23</li> <li>3. Utah lake = 13</li> <li>4. Scofield = 7</li> <li>5. Millsite = 7</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>b) <u>Next Destination</u> <ol style="list-style-type: none"> <li>1. Joe’s Valley = 123 (66%)</li> <li>2. Huntington North = 13</li> <li>3. Lake Powell = 11</li> <li>4. Utah lake = 9</li> <li>5. Scofield = 7</li> </ol> </li> </ol>
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**Note: 58% to 66% of Joe’s Valley boaters seem to frequently use Joe’s Valley.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) Plankton samples were collected 2 times during June and July and sent to the Bureau of Reclamation’s microscopy lab in Denver, CO; they were found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters on occasion during their routine boater/angler checks. Verbal and written warnings (two at Cleveland Reservoir—Failure to Certify Decontamination and Failure to Display Certification--and one at Mammoth Reservoir—Failure to Display Certification) were given to boaters that were non-compliant with the self certification process. No “Notice to Appear” in court citations were issued.

Millsite Reservoir

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,693 (project E1A520xxx); 1 technician assigned May through September (5 months) who is shared between Joe’s Valley and Millsite to provide coverage 40 hours per week.
  - b) Emery WCD \$10,244 (project E4F790xxx); 1 technician assigned June through August (3 months) who is shared between Joe’s Valley and Millsite to extend daily hours of coverage.

- c) One \$13,400 trailer-mounted decontamination unit without a reclaim system was purchased with UDWR's funds (project E1A520xxx) in FY07 and has been shared between Joe's Valley and Millsite. But a new unit at Joe's Valley makes this unit exclusively available at Millsite.
- 2) Outreach
  - a) Several media releases occurred on the radio in conjunction with weekly fishing reports or in local area newspapers related to the zebra mussel issue at nearby Electric Lake.
  - b) "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches. They were also provided to campers in Millsite and Joe's Valley areas and nearby water recreation areas, especially to those with float tubes, canoes or pontoon boats.
    - i) UDWR volunteers assisted.
  - c) The Emery Water Conservation District posted Aquatic Invasive Species outreach messages and reminders on their web page which is used widely by recreationalists looking up water levels and flows.
  - d) 29 boats were interdicted, inspected and educated.
  - e) 100% of boaters were aware of invasive mussel issues.
  - f) 100% of boaters understood the Clean, Drain, Dry message.
- 3) Decontaminations & Encrusted Boats
  - a) 2 arriving boats needed to be professionally decontaminated prior to launch due to their previous 30 day use on a quagga or zebra mussel affected water.
  - b) No arriving boats were encrusted with quagga or zebra mussels.
- 4) Boater History of Last Water Visited and Next Destination (28 interviews)
 

<ul style="list-style-type: none"> <li>b) <u>Last Water Visited</u> <ol style="list-style-type: none"> <li>1. Millsite = 9 (32%)</li> <li>2. Utah Lake = 4</li> <li>3. Scofield = 3</li> <li>4. Huntington North = 3</li> <li>5. Lake Powell = 2</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>b) <u>Next Destination</u> <ol style="list-style-type: none"> <li>1. Millsite = 16 (61%)</li> <li>2. Utah lake = 2</li> <li>3. Scofield = 2</li> <li>4. Huntington North = 2</li> <li>5. Bear Lake = 2</li> </ol> </li> </ul>
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**Note: 32% to 61% of Millsite boaters seem to frequently use Millsite.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) One plankton sample was collected during July, and sent to the Bureau of Reclamation's microscopy lab in Denver, CO. It was found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters on occasion during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.

Scofield Reservoir

- 1) Budget, Personnel & Equipment
  - a) UDWR \$16,990 (project E1A520xxx); 1 technician assigned May through September (5 months) to provide coverage 40 hours per week.
 

**Note:** The region's AIS Biologist, roving Wildlife Technician II and UDWR Volunteers provided additional, significant assistance for coverage at Scofield.

- b) One \$13,400 trailer-mounted decontamination unit without a reclaim system was purchased with UDWR's funds (project E1A520xxx) in FY07.
- 2) Outreach
  - a) Several media releases occurred on the radio in conjunction with weekly fishing reports or in local area newspapers related to the zebra mussel issue at nearby Electric Lake.
  - b) "No Mussel" brochures as reminders about "Clean, Drain & Dry" and "Decontamination Certification Forms" were given to boaters at water body gate entrances and boat launches. They were also provided to campers in the Scofield area and nearby water recreation areas, especially to those with float tubes, canoes or pontoon boats.
    - i) UDWR volunteers assisted.
  - c) 1,536 boats were interdicted, inspected and educated.
  - d) 97% of boaters were aware of invasive mussel issues.
  - e) 96% of boaters understood the Clean, Drain, Dry message.
- 3) Decontaminations & Encrusted Boats
  - a) 3 arriving boats needed to be professionally decontaminated prior to launch due to their previous 30 day use on a quagga or zebra mussel affected water.
  - b) No arriving boats were encrusted with quagga or zebra mussels.
- 4) Boater History of Last Water Visited and Next Destination (50 interviews)
 

<ul style="list-style-type: none"> <li>b) Last Water Visited               <ul style="list-style-type: none"> <li>1. Scofield = 667 (44%)</li> <li>2. Utah Lake = 140</li> <li>3. Deer Creek = 99</li> <li>4. Strawberry = 95</li> <li>5. Huntington North = 28</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>b) Next Destination               <ul style="list-style-type: none"> <li>1. Scofield = 752 (50%)</li> <li>2. Strawberry = 114</li> <li>3. Utah Lake = 100</li> <li>4. Deer Creek = 43</li> <li>5. Lake Powel = 39</li> </ul> </li> </ul>
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**Note: 44% to 50% of Scofield boaters seem to frequently use Scofield.**
- 5) Assessment for Presence/Absence of *Dreissena veligers* via Plankton Samples
  - a) One plankton sample was collected during July and sent to the Bureau of Reclamation's microscopy lab in Denver, CO; it was found to be negative.
- 6) Law Enforcement Efforts
  - a) Regional Conservation Officers assisted with the interdiction, inspection and education of boaters on occasion during their routine boater/angler checks. Verbal and written warnings were given to boaters that were non-compliant with the self certification process. No "Notice to Appear" in court citations were issued.