Arizona Fish and Wildlife Conservation Office
Parker, AZ

Summary of Giant Salvinia Spraying Activities on the Palo Verde Irrigation Drain, 2012
Acknowledgements

- Yuma Area Office of the Bureau of Reclamation
- Cibola National Wildlife Refuge
- Palo Verde Irrigation District (PVID)
Background

- Giant Salvinia (*Salvinia molesta*) is an invasive aquatic fern native to Brazil.
- It was discovered in Arizona and California on the lower Colorado River in April 1999 near Blythe, CA.
- The Arizona Fish & Wildlife Conservation Office, Parker (AFWCOP) was contracted in 2004 to spray salvinia in the PVID drainage.
- Impacts, irrigation, hydroelectric facilities, recreational activities, waterfowl by denying them places to forage and roost, and fish by decreasing levels of DO.
Objectives

Primary
- Control and possibly eradicate giant salvinia from the PVID between 32nd Avenue and the northern boundary of Cibola National Wildlife Refuge

Secondary
- Treat Parrot Feather (*Myriophyllum aquaticum*) when encountered
Herbicides used:

- Reward (diquat) @ 0.7% conc.
- Aquaneat (glyphosate) @ 0.7% conc.
- Clearigate (elemental Cu) @ 10% conc. (only used in vicinity of docks/boat ramps)
Reach 2
- 32nd Ave to 35th Ave

Reach 3
- 35th Ave to Hwy 78th Bridge

Reach 4
- Hwy 78th Bridge to Refuge boundary
Giant salvinia/parrot feather control techniques

Herbicide treatment
- boat application
- shoreline application

Biological control
- Salvinia Weevils
Giant salvinia/parrot feather control techniques

Herbicide treatment
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Herbicide treatment
- boat application
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Biological control
- Salvinia Weevils
Biological Control
In 2012, three reaches were treated:

- Reach 3 - 35th avenue to the Hwy 78 crossing
- Reach 4 - Hwy 78 crossing to the northern border of Cibola NWR
- Reach 5 – northern border of Cibola NWR to Walters Camp
PVID Salvinia Survey July 20, 2010

Total Salvinia: 366.25 Sq. meters

Legend
PVID July 20, 2010
Size Class
- <0.5 Sq. meters
- 0.5 - 1 Sq. Meters
- 1 - 4 Sq. meters
- 4 - 16 Sq. meters

(Walter's Camp)
Reach 2: 1.5 Sq. Meters

Reach 3: 26.25 Sq. Meters

Reach 4: 90.5 Sq. Meters

Reach 5: 262 Sq. Meters

Total Salvinia: 385.25 Sq. Meters (0.10 Acres)

Legend
Salvinia Detections Aug 24, 2009
Size Classes:
- < 0.5 Sq. meters
- 0.5-1 Sq. meters
- 1-4 Sq. meters
- 4-16 Sq. meters
- 16-36 Sq. meters
PVID Salvinia Survey August 31, 2010

Total Salvinia: 453.75 Sq. meters

Legend
August 31, 2010
Size Class
- < 0.5 Sq. meters
- 0.5 - 1 Sq. meters
- 1 - 4 Sq. meters
- 4 - 16 Sq. meters

(Reach 2): 0 Sq. meters
(Reach 3): 0 Sq. meters
(Reach 4): 23.5 Sq. meters
(Reach 5): 429.75 Sq. meters
PVID Salvinia Survey August 9, 2011

Legend

August 9, 2011
Size_Class
- <0.5 Sq. meters
- 0.5-1 Sq. meters
- 1-4 Sq. meters
- 4-16 Sq. meters
- 16-36 Sq. meters

Total Salvinia: 1377 Sq. meters
Total Salvinia: 655 Sq. meters

Legend
September 4, 2012
Size_Class
- <0.5 Sq. meters
- 0.5-1 Sq. meters
- 1-4 Sq. meters
- 4-16 Sq. meters
- 16-36 Sq. meters

(Reach 2): 0 Sq. meters
(Reach 3): 0 Sq. meters
(Reach 4): 0 Sq. meters
(Reach 5): 655 Sq. meters
Summary

- 3 reaches of PVID drain were sprayed in 2012.
- Herbicides rodeo, reward, and clearigate were used. A total of 26 gallons of the rodeo and reward where used, producing 4800 gallons of mixed product.
- Levels of the various herbicides did not exceed CA standards for the drain.
- Removed from Estes and Brown Drains.
Summary cont.

- Water quality parameters were within the ranges expected.
- Giant Salvinia was not observed within the banks of reach 2, 3 and 4 in September survey.
- The observations and treatment of Giant Salvinia has greatly reduced in reaches 3 and 4 in October compared to observations and treatment in September 2011.
Recommendations for 2013

- Use a two crew team beginning in early May – late May.
- Increase spot spraying.
- Coordinate with the consultant in reoccurring areas of concern.
- Coordinate with PVID earlier in opening troubled areas.