



Assessment of Sport Fishing as a Vector for the Spread of Quagga Mussels (*Dreissena rostriformis bugensis*)

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Abstract

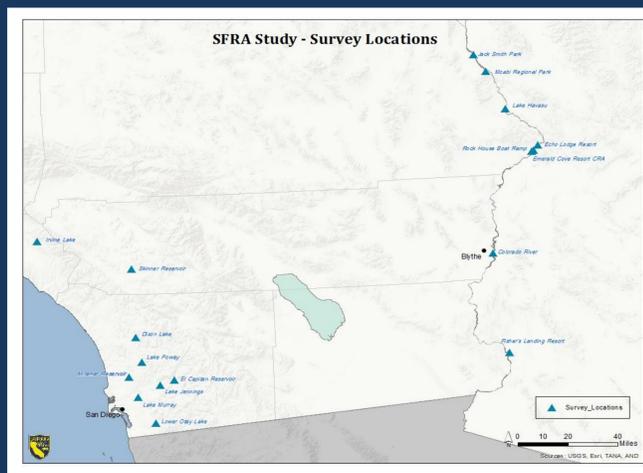
We interviewed 3,020 anglers and boaters at popular southern California quagga mussel-infested waters, and evaluated the risk they pose for transporting quagga mussels to uninfested waterbodies. Initial analysis evaluated knowledge of quagga/zebra mussels and other aquatic invasive species, use of live bait, boat cleaning and inspection habits, and waterbody use patterns. During the study we provided outreach and educational materials designed to promote preventative action and sharing of information. Results indicated that anglers and boaters do travel between infested and uninfested waterbodies.

Introduction

The quagga mussel (*Dreissena rostriformis bugensis*) is an invasive freshwater mussel now found in a number of popular fishing destinations in southern California, USA. Quagga mussels are capable of heavily colonizing infrastructure, resulting in increased operations and maintenance costs, and may alter food webs resulting in the decline of native and sport fish populations. Those who engage in recreational activities in quagga infested waters have the potential to spread adult and/or larval quagga mussels if moving between infested and uninfested waterbodies.

Materials and Methods

Data was collected at 16 quagga infested sites in southern California from February 2012 through February 2013. Of the 16 study sites, nine were reservoirs and seven were access points located along the Colorado River.



Reservoirs were sampled twice a month, one weekday and one weekend day. The Colorado River sites were sampled one weekend a month. Weekday sampling was limited for certain waterbodies depending on their operating schedule. Two research associates conducted verbal interviews using a modified version of the 100th Meridian Initiative Interview Form. Data recorded included: site information, interviewer, waterbody, specific location at waterbody, location type, date, time, direction individual was traveling, boat type, fishing activity, use of live bait, cleaning method, frequency of cleaning, general knowledge about invasives, and destination information. Home ZIP codes were collected to determine how far boaters and shoreline anglers were traveling to use infested waterbodies.

Results

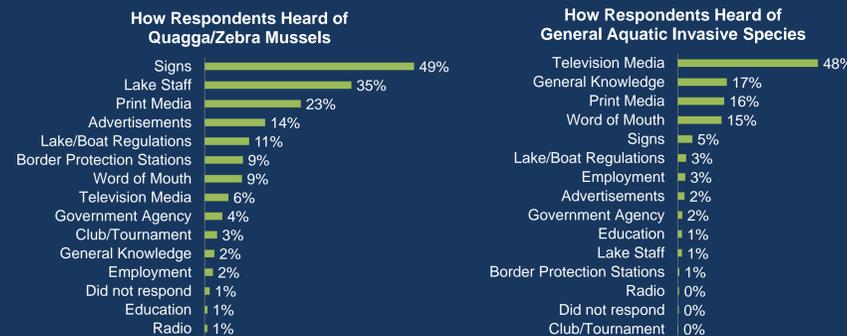
Type of Activity	# of Interviews	%
Anglers (boat and shoreline)	2280	75%
Recreational boating only	740	25%
N=	3020	100%

General Information

- 35% of anglers used live bait
- 28% always launch in the same waterbody
- 85% would use a public boat washing facility
- 7% would consider changing destinations due to AIS

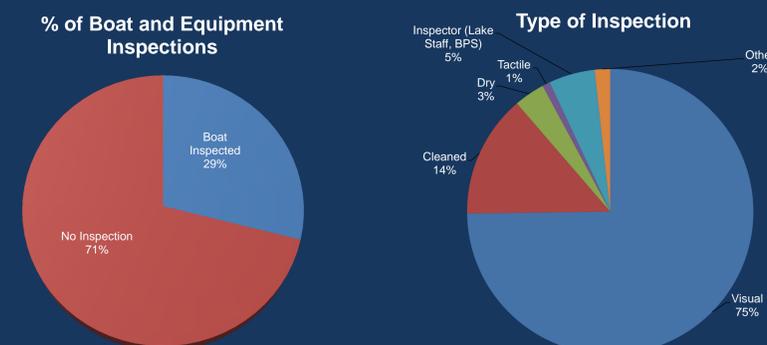
Aquatic Invasive Species Knowledge

- 43% have been asked about quagga/zebra mussels previously
- 83% stated they have heard of quagga/zebra mussels
- 24% feel that they have been impacted by quagga mussels
- 30% stated they have heard of other aquatic invasive species
- 3% feel they have been affected by invasive species



Boat Cleaning Habits

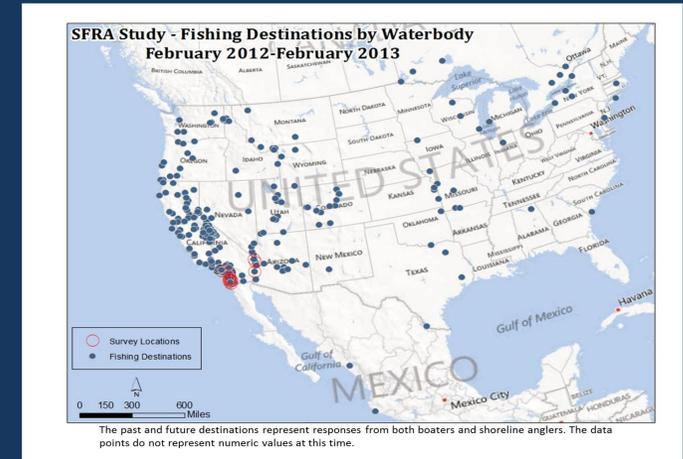
- The majority of boaters who cleaned their boats did so using the home/hand wash cleaning method. The second most common method was by car wash or high pressure wash.
- 82% of boaters stated they cleaned after every launch
- 29% reported inspecting their boat prior to use that day. The majority of inspections were visual.



Results cont.

Destination Information

- Respondents were asked where else they take the boat and/or fishing equipment they were using that day. This information was recorded by waterbody and state and the respondent was allowed multiple answers.



Conclusions

- Anglers and boaters frequently travel between infested and uninfested waterbodies
- 18% do not clean watercraft/equipment after every use
- 71% had not inspected boat or equipment that day before use
- 17% have not heard of quagga/zebra mussels
- Signs and lake staff play an important role in educating the public

Recommendations

- Encourage water managers to post signs and implement boat inspections
- Work with angling groups and the live bait industry to provide education and outreach.
- Evaluate ability of larval mussels to survive in water in trailered boats

Acknowledgments

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