

# **SURVEY OF DREISSENIID VELIGER LABORATORIES**

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# **SURVEY OF DREISSENIID VELIGER LABORATORIES**

**The WRP Dreissenid Detection Standards and Protocol Coordination Working Group  
oversaw the development of this survey:**

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**Dr. Kevin Kelly, Bureau of Reclamation**

**Dr. Robert McMahon, The University of Texas at Arlington**

**Marc Dahlberg, Arizona Game & Fish Department**

**Eileen Ryce, Montana Department of Fish, Wildlife and Parks**

**Blaine Parker, Columbia River InterTribal Fish Commission**

**Steve Wells, Portland State University**

**Amy Ferriter, Idaho Department of Agriculture**

**Jason Goeckler, Kansas Department of Wildlife and Parks**

**Dr. David Britton, U.S. Fish and Wildlife Service**

**Paul Heimowitz, U.S. Fish and Wildlife Service**

**Stephen Phillips, Pacific States Marine Fisheries Commission**

# INTRODUCTION

The Western Regional Panel on Aquatic Nuisance Species (WRP) (<http://www.fws.gov/answest/>) was formed in 1997 to help limit the introduction, spread and impacts of aquatic invasive species (AIS) into the Western Region of North America. Its members represent over fifty agencies and organizations.

Aquatic invasive species prevention efforts are dependent on accurate monitoring and efficient information dissemination. An important component of early detection monitoring programs is the ability to accurately detect the earliest introduction of these mussels into pristine water bodies.

There have been numerous examples in recent years of resource agencies struggling to make the right management decision because of inconclusive results from laboratory analysis of quagga/zebra mussel veliger plankton samples.

In addition, some western agencies that are responsible for monitoring, managing, and controlling the ongoing invasion of the quagga and zebra mussels require a separate and independent verification of early detection of dreissenid larvae before taking any action.

**For issues on water quality, diseases, agricultural pests, etc., there are state and federal agencies that have authority and a process for certifying laboratories to insure that the quality of analytical data received is in compliance for decision making purposes.**

**However, no such process exists for certification of laboratories that analyze quagga and zebra mussel samples. Many natural resource agencies believe there is an immediate need to test the performance of individual laboratories and validate the reliability of their analytical results, as well establishing an accreditation program for certifying a lab.**

**To address these issues, the WRP Dreissenid Detection Standards and Protocol Coordination Working Group was formed in winter 2010. The group's first task was to conduct a survey of laboratories capable of conducting quagga/zebra veliger identification in order to obtain information on each laboratory's capabilities and protocols.**

# METHODS

The lab survey was sent to 28 labs, mostly located in the Western US. The Bureau of Reclamation provided the names of these labs from its Double Blind study project (see slide 17). Other labs were added to the survey per recommendations from the working group. A total of 17 responses were received from the following states:

STATE	# Labs Responding
Idaho	3
Arizona	1
California	4
Maine	1
Georgia	1
Colorado	2
Oregon	1
New Mexico	2
Montana	1
Michigan	1

## SURVEY RESULTS

1. How long has your lab been analyzing plankton samples for the presence of dreissenids \*

Years in Service	Number of Labs
<1 year	2
1 -2+ years	7
3- 4+ years	4
5-6+ years	3
>7 years	1

\* All Lab Types: PCR, Microscopy (including FlowCAM) and Electron Microscopy

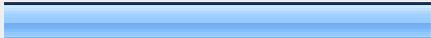
**5. Is your lab currently certified by a permitting entity (e.g. EPA, state agency, American Association for Laboratory Accreditation, etc) for water quality, biological, etc. testing?**

<b>Labs answering "YES"</b>	<b>4</b>
<b>Labs answering "NO" or N/A"</b>	<b>13</b>

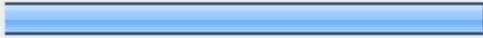
**6. Please list certification and certifying entity (from "YES" responses above)**

- 1. Certified by the State of Utah Department of Health and the National Environmental Laboratory Accreditation Conference (NELAC) Standard for method 9223B E. coli**
- 2. USEPA LT2ESWTR-Approved Cryptosporidium Analysis Laboratory and California Department of Public Health certified for Drinking Water, Wastewater, Recreation Water, and Hazardous Waste Analyses**
- 3. Washington State Department of Ecology for water quality testing**
- 4. California Department of Public Health certified for Drinking Water, Wastewater, Recreation Water, and Hazardous Waste Analyses**

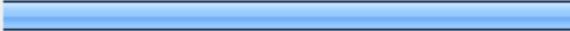
## 11. Is your lab available to analyze samples during the weekend?

	Response Percent	Response Count
Yes 	52.6%	10
No 	47.4%	9
<i>answered question</i>		19
<i>skipped question</i>		1

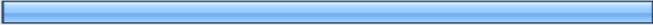
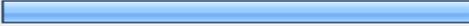
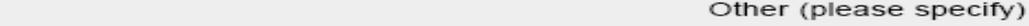
## 12. If so, are there additional charges for weekend work?

	Response Percent	Response Count
Yes 	33.3%	4
No 	66.7%	8
<i>answered question</i>		12
<i>skipped question</i>		8

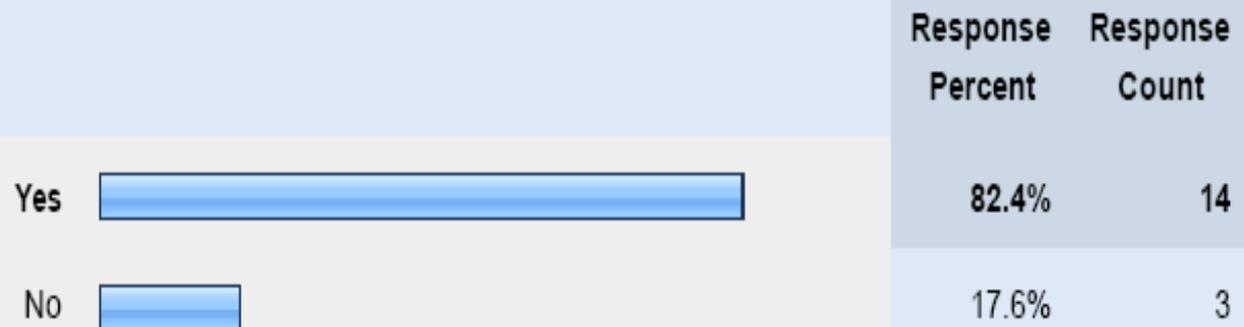
## 15. Is your lab HAZMAT certified?

	Response Percent	Response Count
Yes 	17.8%	3
No 	82.4%	14
We are currently seeking HAZMAT approval	0.0%	0
<i>answered question</i>		17
<i>skipped question</i>		3

## 16. Laboratory Capabilities: Please indicate the types of laboratory tests your lab currently conducts for dreissenids

	Response Percent	Response Count
1. Microscopy 	77.8%	14
2. PCR (please indicate primers in comment box below) 	55.6%	10
3. FlowCam 	33.3%	6
4. Electron Microscope 	5.6%	1
5. Other (list in comment field below) 	5.6%	1
Other (please specify) 		6
<i>answered question</i>		18
<i>skipped question</i>		2

## 18. Does your lab have veliger photographic microscopy capability?



Number of staff with experience: 14

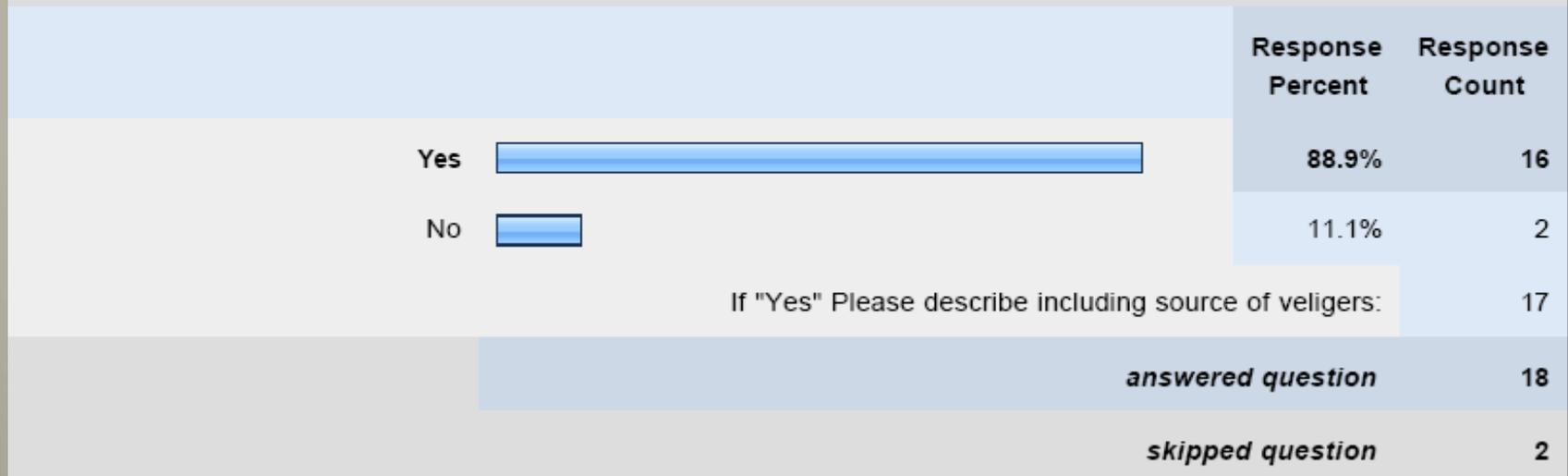
*answered question* 17

*skipped question* 3

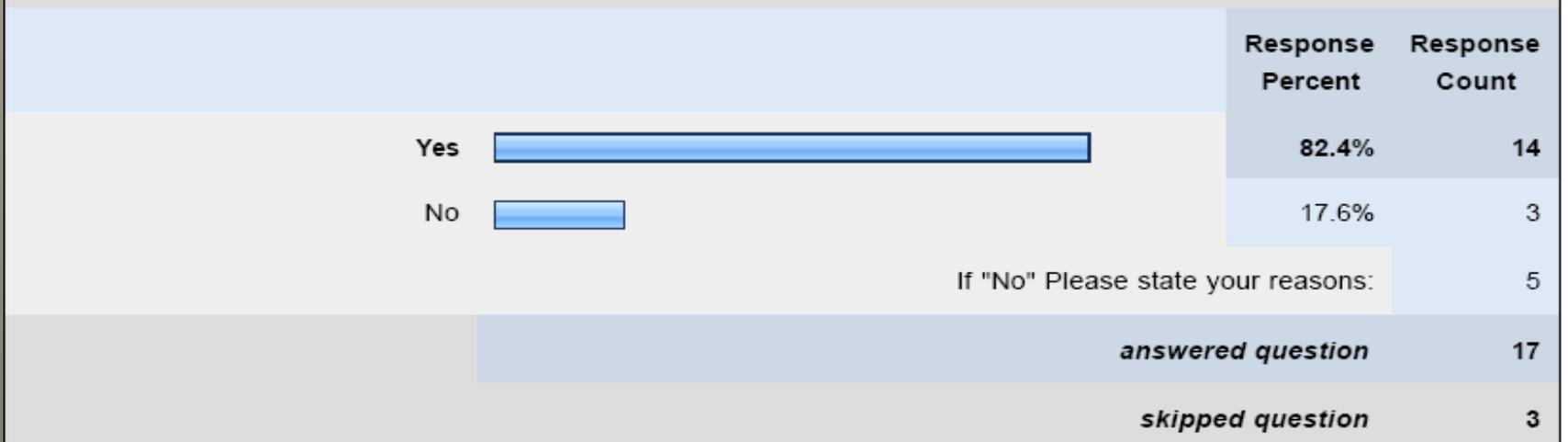
24. Please check the box (or boxes) below to indicate the clients that you perform lab analysis for:

		Response Percent	Response Count
State Agencies	<input checked="" type="checkbox"/>	80.0%	12
Federal Agencies	<input checked="" type="checkbox"/>	66.7%	10
Tribal Agencies	<input type="checkbox"/>	20.0%	3
Irrigation/Water Districts/Counties/Cities	<input checked="" type="checkbox"/>	60.0%	9
Lake Associations	<input checked="" type="checkbox"/>	33.3%	5
Power Companies	<input type="checkbox"/>	20.0%	3
	Other (please specify)		7
<b>answered question</b>			<b>15</b>
<b>skipped question</b>			<b>5</b>

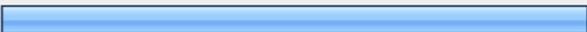
**25. Quality Control: Does your lab undertake quality assurance testing of veliger detection methodologies (either internally or by a third party)?**



**27. Do you believe there is a need for a recognized dreissenid laboratory certification program, similar to those used by state and federal water quality testing programs?**



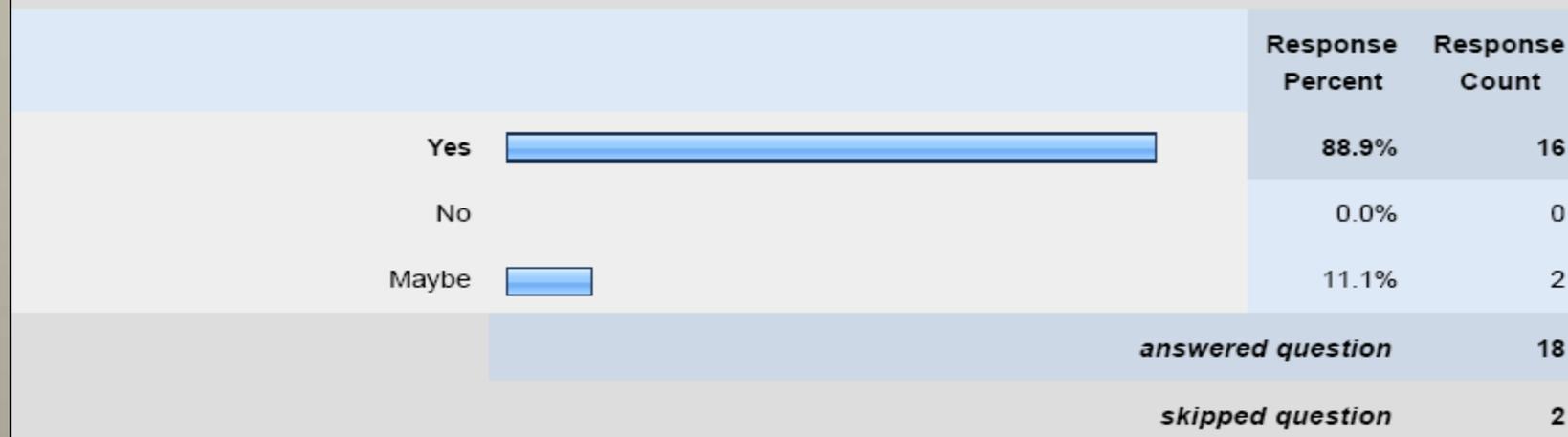
**28. If such a program was created, do you believe the oversight of such a program should be administered by:**

	Response Percent	Response Count
State Government	0.0%	0
Federal Government 	23.1%	3
Interagency Advisory Body 	76.9%	10
Other organizations, please list:		5
<i>answered question</i>		13
<i>skipped question</i>		7

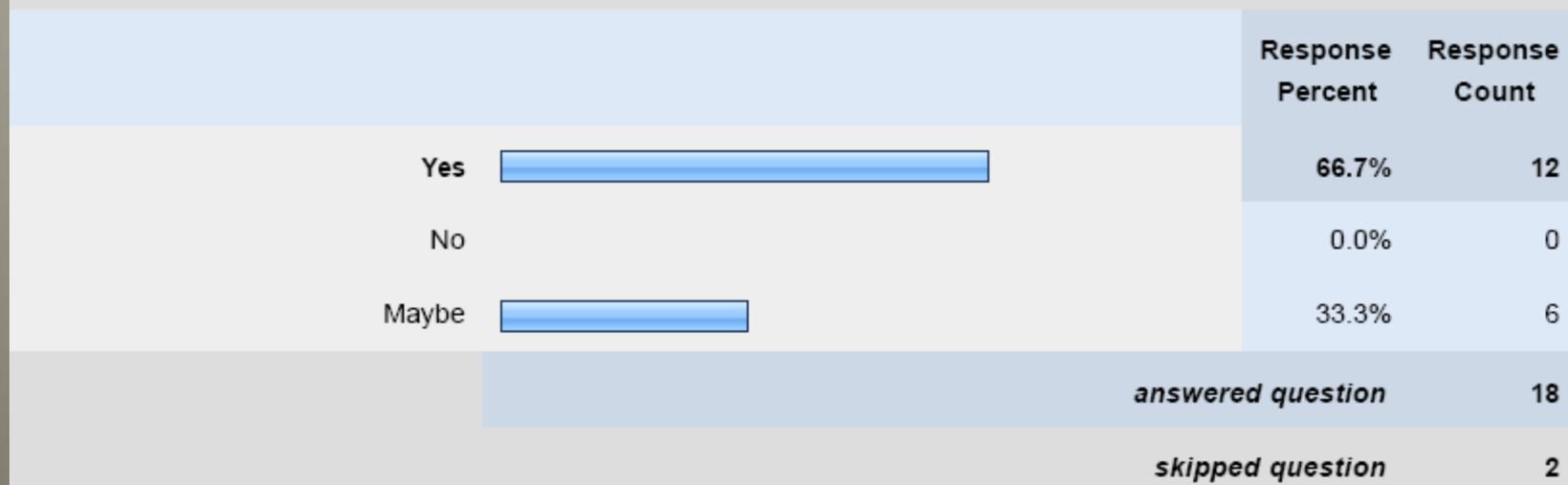
**29. Many accreditation programs charge an application/testing fee to support the testing process and administration of the program. Would you be willing to pay a fee if a widely accepted accreditation program were established?**

	Response Percent	Response Count
Yes 	81.3%	13
No 	18.8%	3
<i>answered question</i>		16
<i>skipped question</i>		4

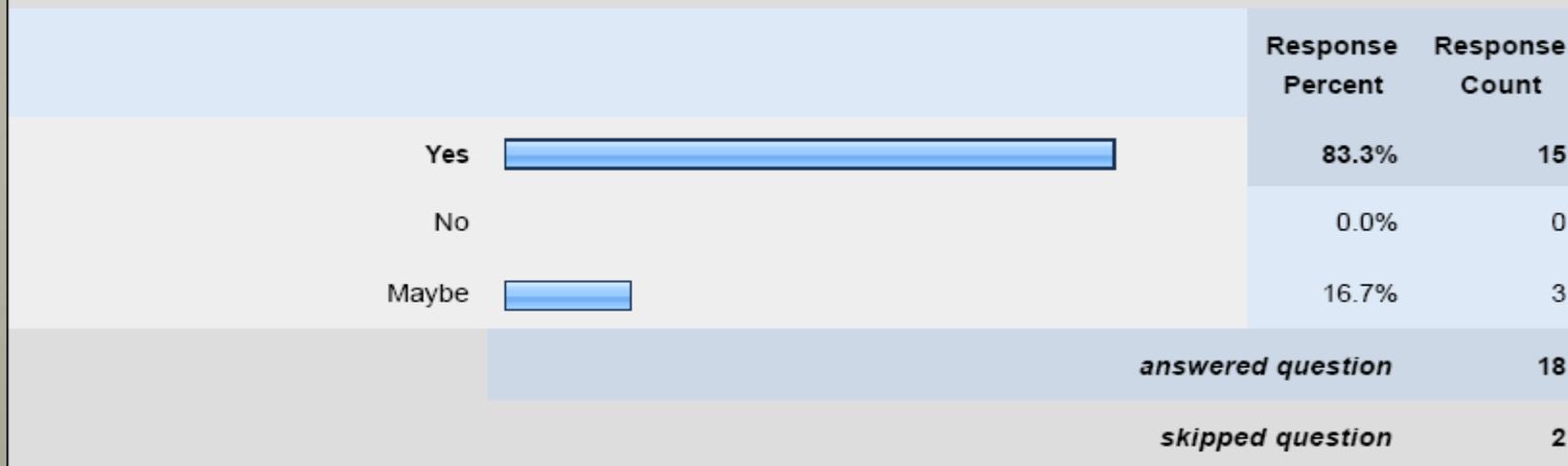
30. Establishment of a formal accreditation will likely take significant time and funding. In the interim (i.e. this year), would you be willing too participate in a proficiency testing program similar to those carried out in the past two years by the Bureau of Reclamation (i.e. Double Blind Study)?



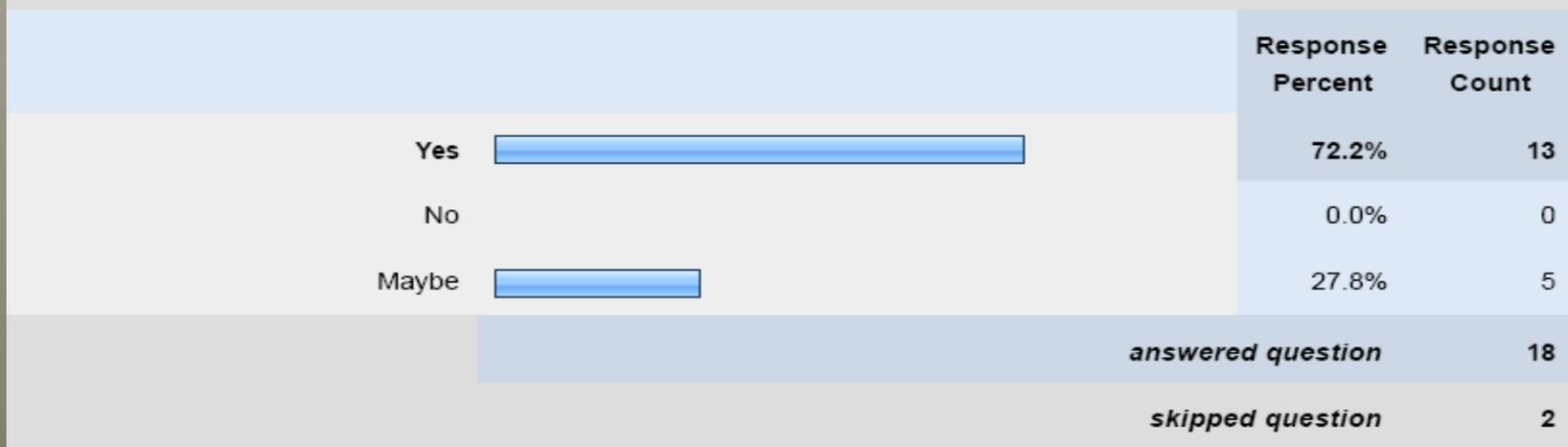
31. Would you participate in a proficiency testing program if the results were made available to the public?



**32. Would you participate in a proficiency testing program if the results were made available only to the resource agencies on a confidential basis?**



**33. Would your lab participate in a training program and workshop to share techniques that would focus on best analytical practices and potentially design a laboratory certification program?**



## WHAT NEXT

In 2008 the Bureau of Reclamation/Skidaway Institute/ Rensselaer Polytechnic Institute began their double blind Round Robin Studies. This project was originally conceived in three phases with Phases I & II focused on the assessment of analytical variability and Phase III focused on the assessment of variability due to sampling and sample handling. The goal of the complete study is to determine the sources of variability and error inherent in the early detection of *Dreissena* larvae and to identify optimal protocols for reliable early detection of *Dreissena* invasions.

The Round Robin Study is currently ongoing with Phase I complete, Phase II is expected to be complete in December 2010. Funding for Phase III of the study was recently obtained by the study group team, and they are currently planning activities including further tests and workshops for 2011. One of these workshops will focus on laying the groundwork for a laboratory quality assurance and accreditation program for the detection of *Dreissena* larvae in plankton samples.

Further information on these workshops will be coming in the near future from the Bureau of Reclamation (Denver) Dr. Kevin Kelly, lead, [KKELLY@usbr.gov](mailto:KKELLY@usbr.gov)

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