

## Section II: Panel Discussion



*Panelists Anne Monelly, Robert Buchsbaum, Annelise Chapman, and Brian Smith discuss invasive species monitoring at the Eyes on the Estuaries Conference.*

## Panel Discussion

### Integrating Invasive Species Monitoring into Current Ongoing Marine Monitoring Programs

**Moderator:**

Jan Smith, Massachusetts Bays National Estuary Program

**Panelists:**

Anne Monnelly, Department of Environmental Management's Lakes and Ponds Initiative

Robert Buchsbaum, Massachusetts Audubon Society

Annelise Chapman, Dalhousie University

Brian Smith, Great Bay National Estuarine Research Reserve

*Disclaimer: This panel discussion was not professionally recorded. The following text provides a general overview of what was stated, but quotes may not be completely accurate.*

.....

*Panelists were asked to provide an overview of their program and address some of the challenges that they have faced.*

**Anne Monnelly, DEM's Lakes and Ponds Initiative**

**Program Overview**

The Massachusetts Lakes and Ponds Initiative has a rapid response program for aquatic invasive species that was modeled after Maine and New Hampshire's volunteer monitoring programs. Their focus is on preventing the spread of aquatic invasives. To achieve this goal, they have developed a training packet for volunteers that includes a green guide with pictures and a key to species. Volunteers go out every other week and hit the hot spots where these species might be introduced such as at the boat ramp or other places around the pond. Once a season they conduct a complete pond survey. They send their reports electronically back to the program. This summer the staff of the Lakes and Ponds Initiative trained over 150 people with over 30 ponds. They are currently working to set up a response network. They have a loose network of people at the state where volunteers can send a collection sample to have the species identification confirmed. They are also developing numerous education and outreach materials on stopping the spread of aquatic invasives. These materials include new boat signs, a new brochure, and a new website. If you want more information about starting up a weed watcher group or additional information about freshwater invasives in Massachusetts, please contact Anne.

**Challenges**

1. *Identifying lakes and ponds that aren't currently infested with invasive macrophytes.* Initially focused on emergent, submergent and floating leafs - aquatic macrophytes that you would find in freshwater ponds including Eurasian Milfoil, Fanwort and most recently Hydrilla. They currently have baseline data on 200-300 of the 1000 ponds in Massachusetts. They plan to collect data on the other ponds so that they can identify ponds that don't have any invasives and focus their energy on prevention in those ponds.

2. *In order to respond to an infestation, they must go in front of the conservation commission. This slows down their ability to respond rapidly.*  
Working to develop SOPs (standard operating procedures) that volunteers can use if they find an initial infestation. These mainly include hand pulling and putting down some benthic barriers. Hopefully, the SOPs will enable them to respond quickly to a small infestation without having to wait months for the con-coms approval.
3. *Lack of funding for follow up if an infestation is found.*  
Used to have a lake and pond grant that could be put towards this but the funding was cut.
4. *Species identification by volunteers is sometimes tough.*  
There are three different species of milfoil - two non-native, one native. It is sometimes difficult for volunteers to distinguish between the species. Volunteers may need some booster training.

*Robert Buchsbaum, Massachusetts Audubon Society*

### Program Overview

The Massachusetts Audubon Society has developed a volunteer tidepool monitoring program on the north shore of Massachusetts. Robert stated that one of the main advantages to volunteer monitoring is that you get a lot of geographic coverage and the workers are often very enthusiastic. Volunteer monitoring is a great way to engage and educate the public. Funding-wise, volunteer monitoring programs are often appealing to foundations and other types of sponsors. And practically speaking, if you have a low program budget, it is certainly more economical to work with volunteers than to higher additional staff. Robert is concerned that, in general, we are losing our taxonomic expertise. We used to have a lot citizen naturalists but this is no longer a part of our culture. He feels that volunteer monitoring efforts, like the tidepool program, is a good way to inspire a new generation of citizen naturalists and taxonomists.

### Challenges

1. *The coordinating organization needs to be well organized.*  
It takes a lot of time for an organization to work with volunteers. Volunteers need coordination, support, and feedback. Robert thinks that a lot of organizations don't give enough time to volunteers because they think that it is something for nothing but it really isn't. A volunteer monitoring program can be great but organizations need to take it seriously and provide the funding to coordinate it. With a program like the tidepool monitoring program where you get a lot of geographic coverage from the volunteers, you also need to think about data management. Robert mentioned that many programs have a lot of data sheets gathering dust because the data entry and analysis doesn't get done in a timely fashion.
2. *Data credibility.*  
It is important to use the same QA standards that you would use for scientific or professional data gathering. If this is done correctly the program will grow and gain credibility. Some volunteers may eventually become real experts on this. There are legitimately different levels of expertise among the volunteers and different levels of time that they can dedicate to the program. Robert hopes that over time, they can build up the level of expertise so that people can differentiate things at a higher level. Since there are no field guides for new invasives one can't expect most people to be

able to easily identify new invasives. Because of this, there needs to be coordination with taxonomic experts. So, the goal with this program is to get people to the point where they recognize that there is a new species present and that it is necessary to consult a taxonomic expert.

3. *Sustaining long term funding, whether it's a volunteer project or a project being carried out by a state agency or professionals, is a problem.*

*Annelise Chapman, Dalhousie University*

There are a limited number of monitoring groups in Canada. Annelise attributes this mostly to the lack of funding. Though Annelise is not currently part of a monitoring program, if funding were available, her group would develop a benthic species monitoring program with three components:

- 1) Monitoring of benthic species on settlement plates - address the shipping vector near shipping ports and high aquaculture activity.
- 2) Direct monitoring or surveillance of vectors – ships ballast, ship hulls, aquaculture operations.
- 3) Monitoring high risk entry areas for pre-identified species such as *Hemigraspus* and the Rapa whelk. Believes that this is a good way to involve volunteers and general public – problem. Stressed that you need to have a balance between taxonomic experts and volunteers - some aspects of monitoring should only be done by experts but others can be done by volunteers.

Annelise also mentioned Andrea Locke, a conference attendant from DFO Atlantic Canada, who does a lot of monitoring in the region.

### Challenges

1. *There has been a lot of “passing the buck” on this issue with the Canadian government.*

For example, Environmental Canada has the Environmental Monitoring Assessment Network that could cover these invader aspects but they have passed it onto DFO. A recent report on the environment and sustainable development by the Commissioner described the federal and provincial government's inability to adequately address the issue of invasives. Annelise hopes that more funding will become available as a result of this report

*Brian Smith, Great Bay National Estuarine Research Reserve*

### **Program Overview**

See Brian Smith's abstract for an overview of the NERR's program.

### Challenges

1. *Taking on a monitoring program takes a lot of time – it is a full-time position.*
2. *It is difficult for scientists and professionals to come to a consensus about monitoring details.* Some questions include, what order should we go through these organisms? What criteria do we use? The NERR's group is moving forward and they hope to have some good data in the next few years.

*Questions from the audience:*

Audience: I noticed today that you talked a lot about monitoring the ecosystems and not necessarily the vectors. I was wondering if you could say something about whether you are getting positive or negative feedback from the aquaculture industry and the fishing industry? What are they saying about this? Are they trying to impede you? Are they encouraging you? Are they interested in the type of data that you are providing?

Jan Smith: I think to some extent we might be hearing about this tomorrow. Shannon Weigle will be talking about this.

Chapman: And maybe I can just say that with aquaculture, they are not only the cause of a lot of the problems but they are also the victims in many cases. For example, the club tunicate in PEI is causing a lot of problems for the aquaculture industry. So the aquaculturists there are actually interested in mitigating the situation.

Audience: In Massachusetts, every coastal town has a shellfish constable who is out on the water all the time. Though a lot of them are more fisheries oriented, there are several like myself who are more science oriented. That may be an association that you could contact for volunteers. Invariably, people come up to me and say "I just found this out shellfishing, what is it?" People are always finding things. That's how we identified *Hemigrapsus* for the first time, caught at high tide in a bay scallop drag brought into the constable. That might be a source of volunteers that could do good quality data collecting.

Buchsbaum: I've done talks on other topics for their annual meeting and you are right, it is a useful forum. It is good to get people who are out there all the time at least aware of the problem so they know who to turn to, they know the network. That's a very good suggestion.

Monnelly: I would just add on the freshwater side, we've been trying to add some training with the environmental police because they are also out on the water all the time. To train them on how to do a boat trailer inspections and how to look for invasives and what the plants are. It's a great idea.

Buchsbaum: Another group that's a good source for this are scuba divers.

Jan Smith: I think there are a lot of user's groups out there that we can interest. At a workshop organized by Judy Pederson at MIT, we had a bait dealer get up and talk about how some of the recreational fishermen that he sells bait to had brought him things that he didn't know what it was. The fishermen didn't know what it was and he didn't know what it was either. It sounded like it may have been a snakehead fish. I'm not sure that we know for sure by the description but clearly this is a useful approach.

Audience: I happened to make contact with an officer in the department of national defenses reserves who is in charge of a diving crew that goes out on training dives on regular basis. That might be a useful resource.

Chapman: The Ecology Action Centre is developing a pamphlet to hand out to ship's crews that come in. Often, the crews are not aware of the whole fuss about ballast water. So, we hope that by addressing them directly and involving them, we can get them involved. I actually traveled from Britain to Canada on a container ship and I was

amazed by how everyone on that ship was interested in marine life in general. They wanted to know everything.

Jan Smith: I think some of us have also talked about trying to interest some of the Homeland Security folks about some of the biological threats that might result from invasions. I don't know how realistic that is but it certainly seems to me that it might fit in somewhere on that agenda.

Audience: My name is Bill Dunn. I'm an EOE Watershed Team Leader. To justify funding for our monitoring, when we found sources of pollution, we would institute BMPs or control measures to find the source and clean up the pollution. From what I've seen today and read about invasive species, some of the species are already here and the eradication measures are very radical. I wonder if it is difficult for us to raise funds for invasive species monitoring because of the notion that if we find these things, there seems to be nothing that we can do about them. Perhaps preventing them from coming may be the better way to go.

Brian Smith: I think it depends on the perspective of the potential funding agent as well. There are sources of funds that are more interested in long-term ecological relationships of organisms. If you have a program that is looking at the biota in general that may be a way to access some of those funds.

Audience: Are there a lot of funds for this type of thing?

Brian Smith: Not a ton, no.

Audience: I wonder if it would be more attractive if a program were more oriented towards protection and prevention?

Jan Smith: I think that prevention is one of the key issues that we are trying to address. Jim Carlton mentioned that though it is difficult to control species that are here and established. By finding out where they are, we may be able to infer how they got here. This information will be helpful in controlling some of the vectors. Regulatory agencies have talked about classifying invasive species as pollutants or contaminants. EPA was considering the idea of identifying watersheds where there are invasive species and perhaps asking for a TMDL of invasives. I'm not sure how appropriate that is but something along that line might be useful.

Buchsbaum: There's also talk of considering ballast water as a regulated discharge.

Chapman: There's no reason why we shouldn't take the example of the Canadian Food Inspection Agency, which has developed surveillance programs and has the capability to act on a lot of things. They still say they are under funded but their programs have been developed and a lot of research has gone into them.

Buchsbaum: I agree that it is difficult to understand funders but I think that it is important to convey the scope of the problem. Take a look at the terrestrial side. Dealing with invasives is one of the key priorities of the National Park Service. We still have a lack in knowledge of the severity of the problem in aquatic and marine systems. Nobody thinks that we can wipe out all terrestrial invasives but we can reduce the invasives and get back some semblance of a native ecosystem.

Audience: The reason I raise these questions is a lot of monitoring programs will want to know, what is the purpose of them?

Chapman: What I find incensing in these debates is that the governments have committed to this problem a long time ago and its clear that prevention is the way to go. Science has shown that part of prevention is early detection yet I feel like we keep going back and back and reinventing the wheel. We need to look at other countries like New Zealand that are so far advanced.

Jim Carlton: I have one reason for doing general surveillance and monitoring. We are now in an era where we are looking at more and more vector management especially with some of the new ballast water regulations. The question that inevitably comes from that is, 'How is this management doing at reducing the number of invasions?' This is the type of question that I am getting from D.C. so we need to have some kind of understanding of this.

Jan Smith: Right, it's very important these days in government to show results. How are we measuring that we are achieving these goals?

Audience: I'm more familiar with the freshwater invasive macrophytes. Depending on the human use of the water body and the amount of nutrient loading, natives can become invasives. Is this part of anybody's monitoring, looking at natives becoming invasives?

Monnelly: We do deal with that with the Lakes and Ponds Initiative. There are some natives that can behave invasively and we have many homeowners that contact us and want to eradicate it even though it is a native species. We generally put the highest priority on controlling non-natives. But when it comes to natives, we do try to look at the sources and ask what is causing it? Is the growth being exacerbated by nutrients coming in? It's a tough line to walk because we have always tried to emphasize the preservation of native species but when they get out of hand it's a tough balancing act. We try to suggest different uses such as clearing a waterway or swimming area, but leaving the native species. It's sort of on a case-by-case basis but there are definitely some native species that are on our radar screen.

Audience: I'm wondering is that also the case in the saltwater environment? Is there a use that is being deterred because of native invasives?

Chapman: The example that I can think of is an ascidian that is overgrowing shellfish, *Ciona intestinalis*. This has caused some problems similar to the introduced club tunicate but it's a native species, or maybe cryptogenic. When this occurs, perhaps we can study the ecological patterns and determine if the native invasion is due to the fact that a non-native species invaded or something else happened that caused a huge population explosion. In that case, for example, it may be the sudden provision of an aquaculture environment and a limited source of a hard substratum that's utilized by many benthic species. It can be a chance for ecologists to study these species in a particular situation.

Audience: I wonder if we can relate this question back to Bill's question. If you have a native invasion occurring what is the source of this abundance and can it be related back to some human activity?

Jan Smith: Gretchen Lambert was here a couple of weeks ago teaching a tunicate workshop. She was thinking that some of these tunicate explosions might be in response to nutrient loading in coastal waters.

Audience: *Pfisteria* is a great example of what we are talking about. And, there's quite a bit of money going into it. So, I think the question is at what level does it become part of the public consciousness.

Buchsbaum: I guess the rationale is that unlike natives, like Poison Ivy, there is less of a chance any natural control existing for non-natives within the system.

Chapman: And, also I think terminology is a problem. I think the word invasive on the government level is defined by species that have an impact – and impact is usually economic rather than ecological.

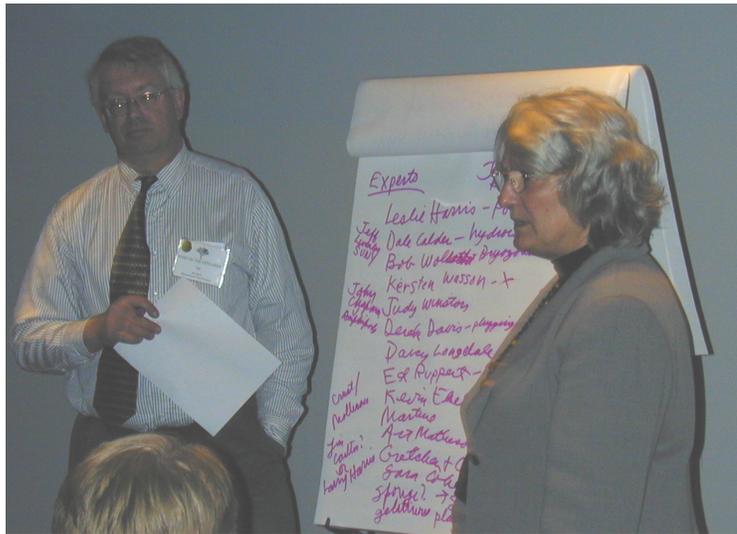
Audience: Part of the beauty of your monitoring program is that you are including native species in it. I work at the Aquatic Nuisance Species Clearinghouse. We've gotten into the terminology heavily. Nuisances can be natives gone opportunistic or it can be an invasive that is nuisance. The volunteer networks are a marvelous idea yet this provides a bias – we are going to lose the small things. The only way we can monitor some of those species is with microscopes and trained people - this is where you need your expertise.

Audience: If you can make linkages between certain invasive species and other problems such as eutrophication that would be a way of gaining additional support. The Coalition for Buzzards Bay has a great citizen's monitoring program on nutrients. If you want to look at the relationship between a particular invasive – here you have a resource of people going out and getting monitoring samples perhaps they could also go out and put out tiles for invasives. This might be a great opportunity to form relationships between scientists and citizen groups.

Buchsbaum: I think that the data that Bob Whitlatch is presenting on global warming is also very interesting. People have been saying that global warming will insinuate invasives but there is actually some support for this in the marine environment.

Jan Smith: Well, I think we've had some great presentations today. Really good and new information has been presented. We've talked about some of the challenging issues and a lot of new ideas have been discussed. I think that we can go back and think about and talk more about this evening. Thank you to all of the speakers and the panelists.

# Section III: Break-Out Group Discussions



*Jan Smith and Judy Pederson lead a break-out group discussion on the 2003 Rapid Assessment Survey.*