Committee Activities and Recommendations for the Aquatic Nuisance Species Task Force Meeting, Arlington, Virginia, October 28-29, 2008

Committee Name: Detection and Monitoring Committee
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Key Committee Activities from May 2008 to October 2008:

- This committee has been inactive for about three years now.

Recommendations to the ANS Task Force

The committee was given four main objectives.

1. Develop standard sampling protocols for aquatic monitoring efforts.
2. Inventory monitoring efforts nationwide and their data management.
3. Develop long-term and annual priorities for AIS monitoring.
4. Make recommendations on priorities.

Where we are:

The NAS program obtained funding through USGS invasive species program to build a database of existing protocols that are used by various monitoring efforts. A link to that database has been posted on the ANSTF site: http://nas.er.usgs.gov/queries/protocols/protocollister.asp The database is searchable by habitat and by organism. This was to be a starting place for the committee to consider the scope of ongoing activities, and consider potential uses of this information for implementing standardized monitoring efforts and ways to integrate data across methods.

The committee met a few times to examine (a) the value of standardized methods for monitoring aquatic invasions, (b) potential approaches to develop such methods, and (c) strategies for implementation. The database being constructed above served as a model system to inform discussion of these areas. Below, we outline the current state of our conclusions.

(a) Value of Standardized Methods

The committee agreed in the strong need for standardized data as a basis for measuring changes in the number and/or abundance of non-native species in space and time. Without sustained measures at some regular interval, it is not possible to assess rates of invasion, rates of spread, and invasion impacts. These data are critical to evaluate pathways, and which ones present the highest or emerging risks. Without these measures, there is no capacity for EDRR for the vast majority of species in the US.

Simply put, standard and repeated measures are the fundamental building blocks for both science and management of aquatic invasions.

> ***Conclusion:*** Remarkably, there is no field program established to evaluate status and trends of aquatic invasions for the Nation. This is a significant gap, identified repeatedly over the past 10 years, that impairs understanding and management of invasions.

(b) Development of Standardized Protocols

It isn't possible to devise a standardized protocol that would work in all situations, and the most appropriate protocol depends on the question(s) pursued. For example, a protocol developed to detect the presence/absence of a species may be very different from one used to measure abundance, both in method and allocation of effort (in space and time). Moreover, the protocol would likely depend on a balance between question(s) and resources available for implementation (see below)).

We did examine various protocols for selected species (Asian swamp eels, snakeheads, ruffe, white perch, green crab). It is clear that robust protocols can be developed, to standardize monitoring efforts. These can certainly be tailored to specific questions and across a wide range or available resources. A protocol may focus on selected species, a community, or habitat type (e.g., sessile invertebrate or soft-sediment benthos).

While the committee does not view it as a challenge to design robust protocols for a diverse range of taxa and communities, the ANSTF should consider the explicit goals for these protocols and their implementation. The number of potential protocols is vast. The committee can recommend protocols to achieve particular goals (and several exist already), but the opportunity to implement these has not been addressed and requires further discussion within that ANSTF.

(c) Strategies for Protocol Implementation

There is no shortage of pressing questions to address about colonization, spread, and impact of invasive species. The committee can design protocols to address these. However the opportunity for implementation has remained a vexing and unaddressed issue for the past decade.

In past discussions within the ANSTF, some have suggested linking together existing monitoring programs. While there are indeed many very small programs across the country, these represent a patchwork of methods that are designed for purposes other than measuring non-native species. As a result, they provide data of uneven quality that is not reliably linked together. In addition, there are many large gaps --- geographically and taxonomically --- for which no data is collected.

While it may appear reasonable to ask existing programs to change (standardize) methods, this often would undermine the intended purpose of the existing programs --- which were not designed to examine invasion questions. Thus, not only is there a lack of incentive for this, but there can be a significant disincentive in changing the purpose, additional costs, etc.

While these issues surrounding implementation are not new to us, neither have they been resolved. Unless there is a commitment toward implementation, it is unlikely that standard protocols will be adopted. In recognition of this, NAISA was attempting to establish a nationwide survey program with funding explicitly for this purpose. Although this failed to pass, it represented one viable approach. On a smaller scale, citizen science may be able to help, and there are a few ongoing efforts, but these are operating on a very limited taxonomic and geographic scope.

In essence, it appears additional resources in time and/or funding are necessary to functionally change the current situation and implement standardized measures to track patterns, trends, and risks associated with aquatic invasions.

Recommendations

The committee was given four broad objectives, but we feel that these require more focus and consideration at this stage. In our view, it is not especially productive to develop standard sampling protocols without an explicit application or implementation plan in mind. In a similar fashion, creating an inventory nationwide monitoring efforts is a massive enterprise, as there are literally thousands (or more) monitoring efforts of various flavors and scales. These are constantly changing. The utility of such an effort is not clear, but the expense of such an unfunded activity is beyond our capacity.

We recommend that this committee focus on providing advice to the ANSTF for priorities and needs in the area of monitoring and detection. To the extent that the committee is asked to develop plans and protocols, we recommend that the scope be more defined by the ANSTF and include an evaluation by ANSTF about viable opportunities to implement the specific monitoring and detection objectives.