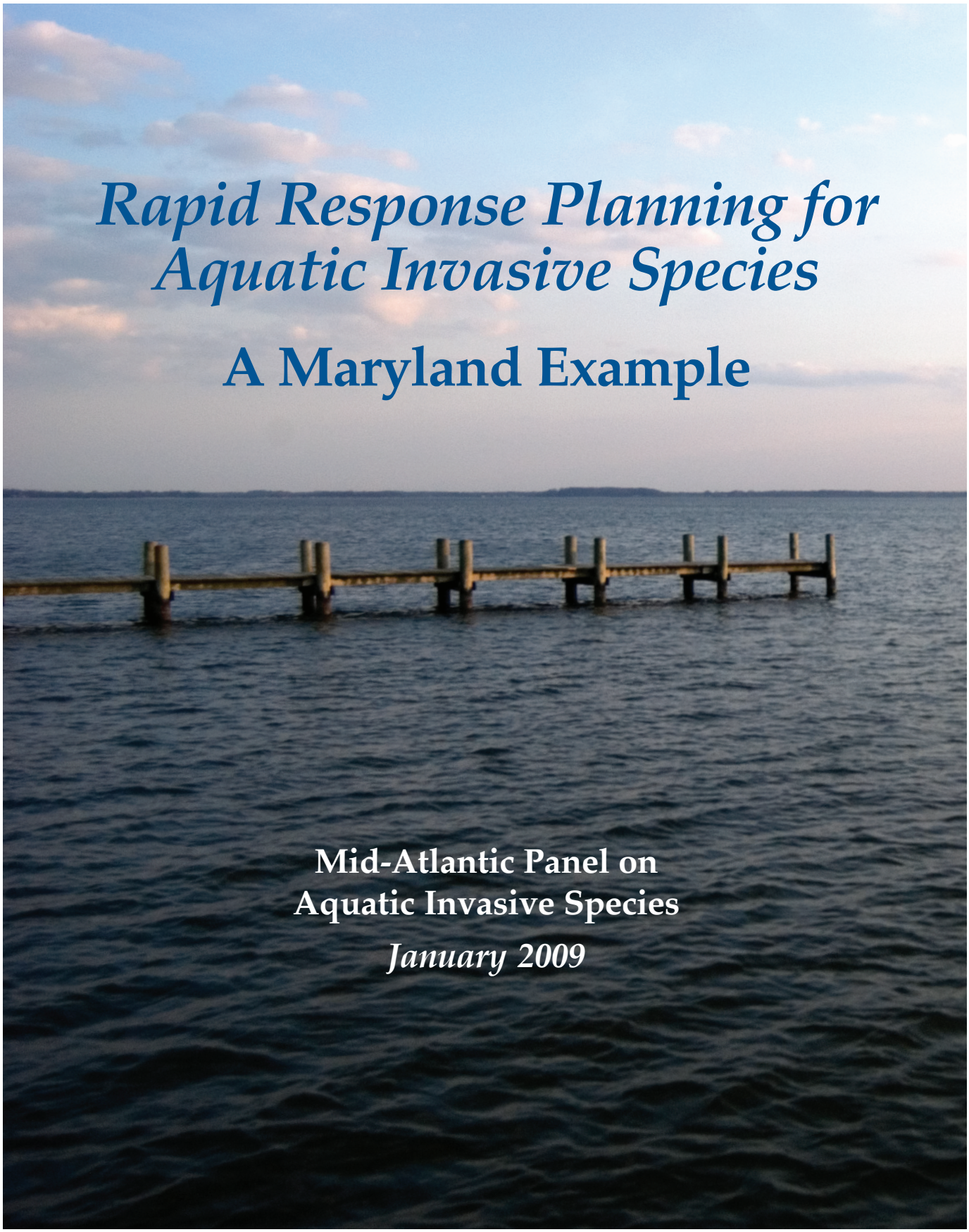

Rapid Response Planning for Aquatic Invasive Species

A Maryland Example

Mid-Atlantic Panel on
Aquatic Invasive Species

January 2009

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Edited by

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Table of Contents

Executive Summary

Aquatic invasive species pose a significant environmental and economic threat to the ecosystems and communities of the Mid-Atlantic region and beyond. While avoiding invasive species introductions is key, managers must be prepared to take action when prevention measures fail. This plan provides guidelines for responding to an aquatic invasive species incident quickly and effectively. Its foundation is Incident Command System, a standardized protocol that allows for a common response framework across agencies and jurisdictions.

Additionally, this plan serves as a tool for states in the Mid-Atlantic region and beyond to use in developing their own Rapid Response Plans. A template version allows agencies to tailor the plan to address their specific needs. This example document is a result of the state of Maryland's use of the template. The Mid-Atlantic Panel encourages states in the Mid-Atlantic and elsewhere to download the template at www.mdsg.umd.edu/rapidresponse.

Major components of the plan include:

- **Overview of Rapid Response Effort Flowchart.** The flowchart provides a step-by-step view of the entire Rapid Response effort.

- **Operational Planning "P."** Developed by the United States Coast Guard, the Planning "P" is a visual representation of the Incident Command System planning process. The Rapid Response Procedure is based upon the steps outlined in the Planning "P."

- **Decision Tree for When to Take Action on Aquatic Invasive Species.** Deciding whether to take action on an invasive species is a crucial component of any Rapid Response Plan. This tree breaks the decision down into three steps.

- **Aquatic Invasive Species Sighting Report Form.** Gathering critical information on an invasive species sighting is the first step to an effective response. This form streamlines the information-gathering process.

I – Introduction

Aquatic invasive species (AIS) are non-native organisms that may cause harm to human health, the environment, and the economy when introduced to marine, estuarine, or freshwater ecosystems (EPA 2005). Each year aquatic invasive plants and animals disrupt ecosystems across the nation, incurring millions of dollars in ecological and economic damages (Pimentel 2005). Their presence threatens natural resources and affects both commercial and recreational industries, including fisheries and boating. In the Mid-Atlantic region, AIS have been responsible for outcompeting and preying upon native plants and animals, as well as threatening million-dollar industries (EPA 2005).

Definition of Rapid Response

Preventing introductions of aquatic invasive species is crucial to avoid their establishment and spread. Prevention measures, however, are not foolproof and government officials and natural resource managers must be prepared to take action in the event of an AIS introduction. The National Invasive Species Council defines rapid response as a systematic effort to eradicate, or contain invasive species while infestations are still localized (NISC 2008). To be most effective, a response to an introduction should occur quickly. Organizing an appropriate response requires significant coordination and analysis.

The Mid-Atlantic Panel on Aquatic Invasive Species (MAP) has created this Rapid Response Plan to foster a timely, thorough response to either intentional or unintentional aquatic invasive species introductions.

Incident vs. Issue

This Rapid Response Plan addresses an invasive species "incident," rather than an invasive species "issue." An incident is an isolated introduction of a species that has yet to become established in the ecosystem, whereas an issue is an ongoing challenge with an established species.

Incident Command System

Incident Command System (ICS) has earned a reputation as an "all risk, all hazard" response tool. Originally developed by the Forest Service, and now recommended by the Aquatic Nuisance Species Task Force, agencies such as NOAA, EPA, and the Department of Homeland Security use ICS to improve response to incidents from natural disasters to oil spills. The use of unified command and common terminology allows communication and coordination across agencies and jurisdictions. This common planning process and objective-driven management scheme shifts an incident from an initial reactive response to a proactive response (Deal 2006).

By becoming familiar with ICS and using this plan as a guideline, managers will be able to respond quickly and effectively when faced with the threat of an aquatic invasive species.

II – Planning for Rapid Response

The successful preparation and implementation of a Rapid Response Plan will require the following tasks:

Task 1: Collaborate to complete plan.
Task 2: Enter into cooperative agreements.
Task 3: Secure funding.
Task 4: Finalize the Rapid Response Plan.
Task 5: Streamline permit processes for rapid response.
Task 6: Revise Rapid Response Plan.
Task 7: Develop species- or location-specific rapid response plans.
Task 8: Train employees, participants, and team members.
Task 9: Conduct education and outreach.
Task 10: Conduct research for improved rapid response.
Task 11: Develop interim rapid response protocols.

Adapted with permission from the California Aquatic Invasive Species Management Plan (California Department of Fish and Game 2007).

Please refer to Appendix A for a more detailed discussion of these tasks.

III –Rapid Response Procedure

Overview

The following guidance is intended to direct rapid response efforts for a new aquatic invasive species (AIS) incident in Maryland. Please see the introduction for a discussion on the difference between an "incident" and an "issue."

A flowchart (Figure 1 on page 8) details the general plan of operations for responding to a possible AIS incident. The chart provides a holistic understanding of what needs to be accomplished in response to a new introduction.

In Maryland, the Department of Natural Resources (MDNR) Invasive Species Matrix Team is the first point of contact. If the report is deemed credible and worthy of a response, the Matrix Team will contact experts to identify the specimen. If the specimen is indeed non-native, the Matrix Team will send biologists to the field to confirm sighting and location. If confirmed, the team will use criteria outlined in Appendix B to determine whether to take action. The team will then brief the Secretary of MDNR and MDNR Communications on the incident and on the team's recommendation whether or not a response is warranted.

Once notified, the Secretary of MDNR becomes the Incident Commander. If multiple agencies share equal responsibility, a Unified Command may result (see description in Appendix C). The Incident Commander (IC) or Unified Command (UC) will appoint a General Staff to oversee operations, logistics, planning, and finance and administration for the rapid response effort. The IC/UC will also appoint a legal advisor, science advisor, liaison officer, and public information officer (Command Staff). The roles and responsibilities of each of these positions are described in Appendix C.

The newly appointed Incident Management Team will then conduct a risk assessment and analyze management options. To facilitate this process, they will refer to the Operational Planning "P" Process. This process is discussed in detail in the following section.

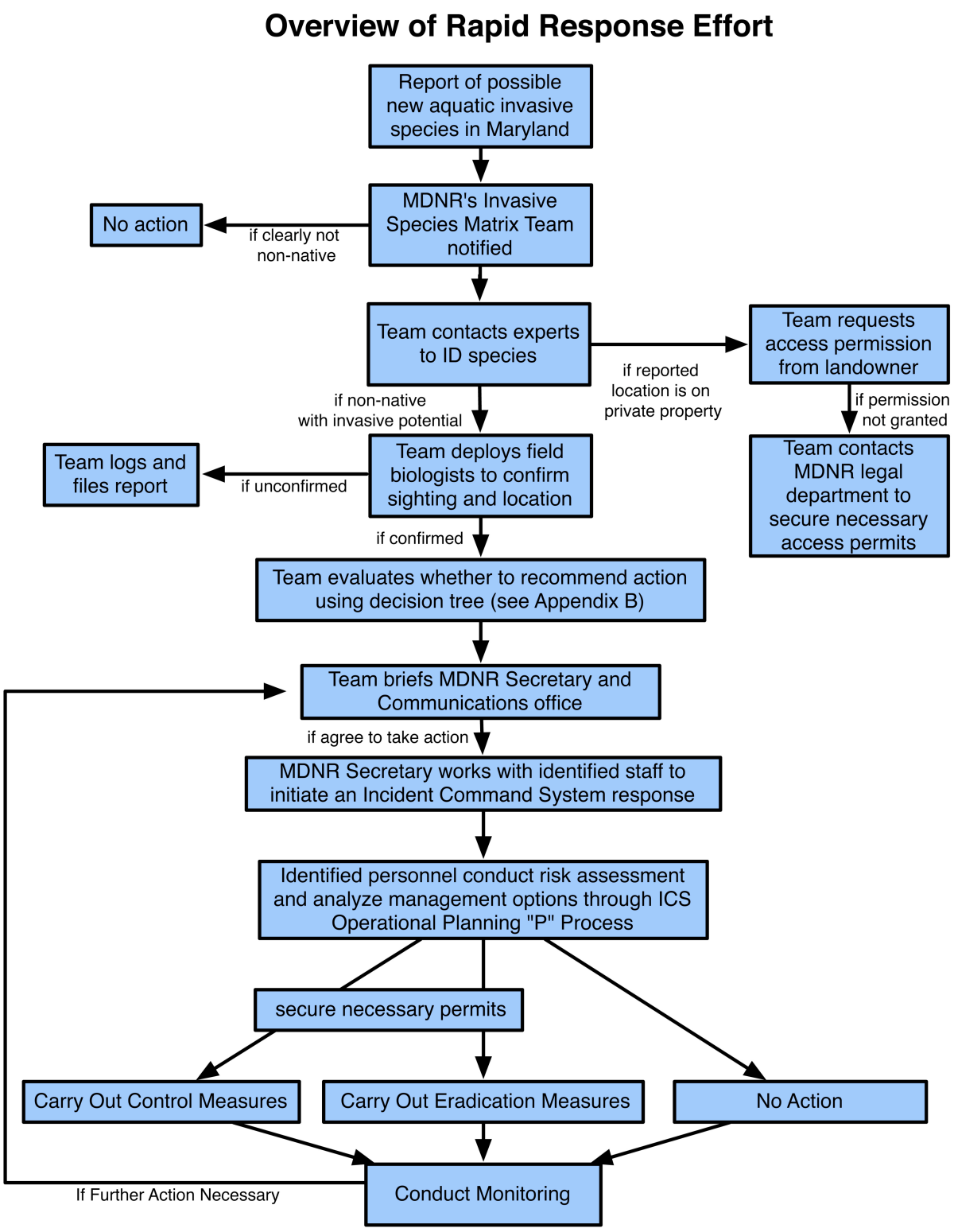

Overview of Rapid Response Effort
Report of possible new aquatic invasive species in Maryland
MDNR's Invasive Species Matrix Team notified
if clearly not non-native
No action
Team contacts experts to ID species
if non-native with invasive potential
if reported location is on private property
Team requests access permission from landowner
if permission not granted
Team contacts MDNR legal department to secure necessary access permits
Team deploys field biologists to confirm sighting and location
if unconfirmed
Team logs and files report
if confirmed
Team evaluates whether to recommend action using decision tree (see Appendix B)
Team briefs MDNR Secretary and Communications office
if agree to take action
MDNR Secretary works with identified staff to initiate an Incident Command System response
Identified personnel conduct risk assessment and analyze management options through ICS Operational Planning "P" Process
secure necessary permits
Carry Out Control Measures
Carry Out Eradication Measures
No Action
Conduct Monitoring
If Further Action Necessary

Figure 1

ICS Planning "P" Process

The crux of the Rapid Response Plan is the Operational Planning "P" process. Developed for the U.S. Coast Guard, the Operational Planning "P" (Figure 2) is a visual representation of the ICS planning process. The "P" serves as a step-by-step guide to response from the onset of an incident to assessment and monitoring. The following discussion outlines how to use the Planning P to organize a rapid response to an aquatic invasive species incident. Please refer to Appendix C for an ICS organizational chart and description of job titles.

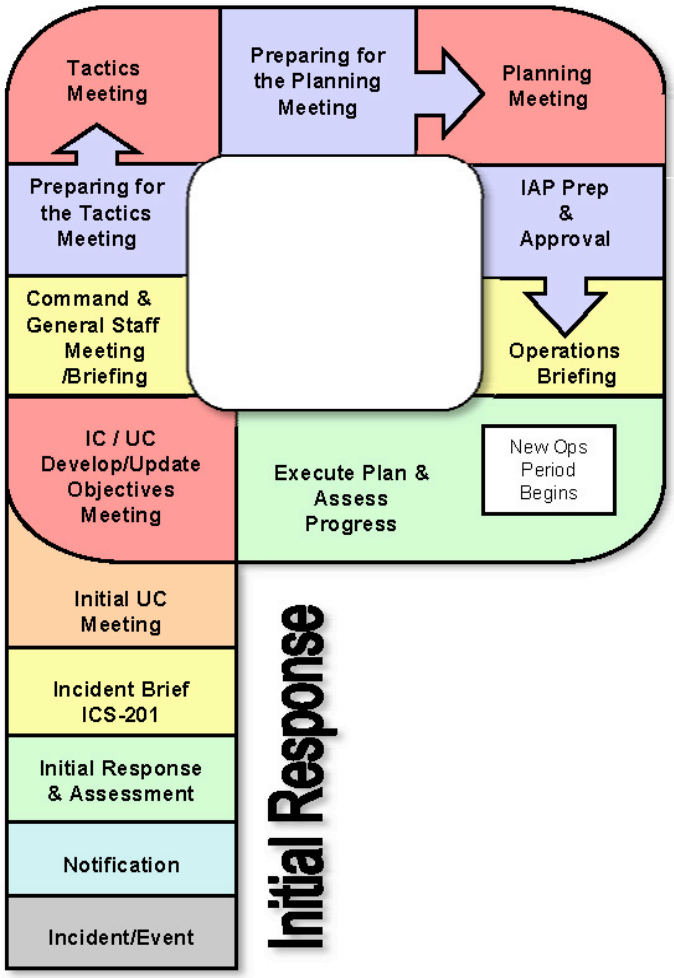
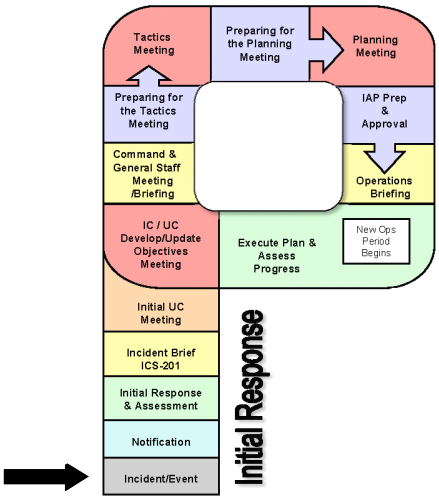


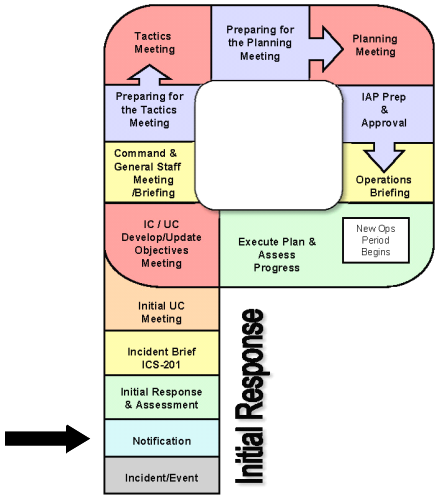
Figure 2

Incident



The discovery of a possible aquatic invasive species in Maryland initiates the Operational Planning "P" process.

Notification



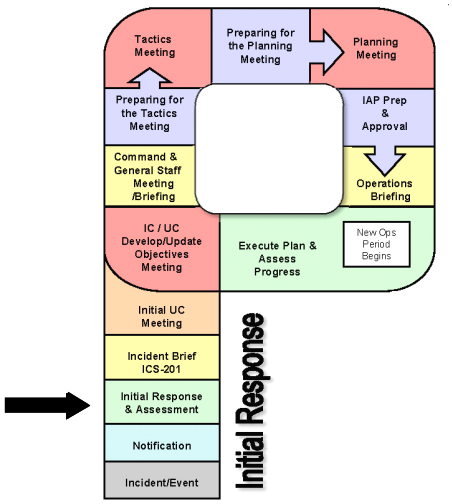
Who: Anyone who sights a potential aquatic invasive species (AIS) in Maryland (likely possibilities include boat captains, fishermen, field biologists, waterfront property owners, resource managers, government agency workers, recreational users, etc.).

What: Contacts local authorities, state or federal agencies to report sighting of an AIS.

How: Notification regarding a potential AIS in Maryland may happen by a variety of ways. The preferred method is completion of the United States Geological Survey's (USGS) online Sighting Report Form (http://nas.er.usgs.gov/SightingReport.asp) or by calling the notification hotline at 1-877-STOPANS. Upon receiving the report, USGS officials will notify the Maryland Department of Natural Resources Invasive Species Matrix Team.

If other state and federal entities are the first to receive notification, they should gather information from the reporter as outlined on the Mid-Atlantic AIS Sighting Report form (see Appendix G). Send completed forms to the MDNR Invasive Species Matrix Team by email to Jonathan McKnight at JMcKnight@dnr.state.md.us or to the current Associate Director for Habitat Conservation. The Mid-Atlantic AIS Sighting Report form is available on the Maryland Department of Natural Resources website (http://www.dnr.state.md.us/invasives/), the Mid-Atlantic Aquatic Invasive Species Panel website (http://www.midatlanticpanel.org/), and the Maryland Sea Grant website (http://www.mdsg.umd.edu/rapidresponse).

Initial Response and Assessment



Response

Who: Maryland Department of Natural Resources Invasive Species Matrix Team.

What: Receives report of potential AIS in Maryland and contacts appropriate expert(s) to positively identify the AIS specimen.

How: Using the Aquatic Nuisance Species Task Force's experts database (http://www.anstaskforce.gov/experts/search.php), the MDNR Invasive Species Group will make a specimen or photographs available to experts by mail, courier, or e-mail. **Note: Specimen should be handled in compliance with state/federal regulations regarding the transport of live prohibited species.

Assessment

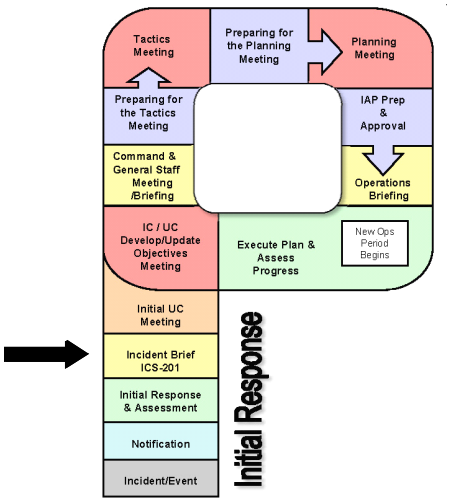
Who: Maryland Department of Natural Resources Invasive Species Matrix Team and field biologists.

What: Confirm AIS sighting, location, extent of occurrence, and assess whether action is warranted.

How:

- Interview person who reported AIS.
- Visit site. (Approach landowner for permission if AIS will require action on private property. If landowner is non-compliant, work with MDNR legal department to secure necessary access permits.)
- Conduct sampling.
- Complete visual and taxonomic identification.
- Identify life cycle stage.
- Estimate extent of occurrence.
- Record information on Aquatic Invasive Sighting Report form (see Appendix G).
- Determine if species is a potential "incident" rather than an "issue" (see Introduction for distinction).
- Assess whether action is warranted (see Appendix B).

Incident Brief



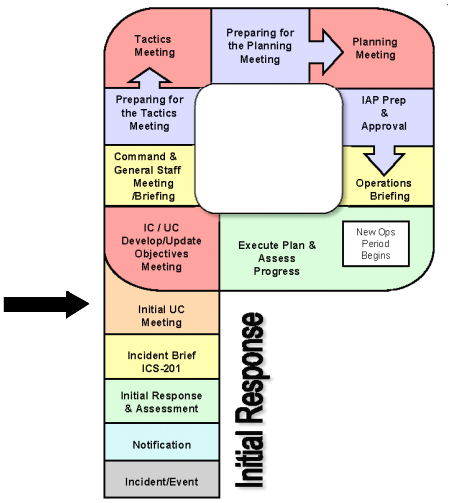
Who: Maryland Department of Natural Resources Invasive Species Matrix Team.

What: Notifies Secretary of MDNR, MDNR Communications Director, and MDNR Legal Director of presence of AIS and likely next steps.

How: Through written Incident Brief (adapted from ICS-201 form). Brief will include information such as:

- Incident name
- Current situation
- Initial response objectives
- Current actions
- Planned actions (Recommendation of "Action," "No Action," or "Further Evaluation of Potential Action" — see Appendix B for decision tree)
- Names of involved personnel
- Resources in use
- Resources needed

Initial Unified Command Meeting



Who: Incident Commander/Unified Command. (This initial meeting will likely include the Secretary of MDNR as Incident Commander or his/her designee and key scientific and legal support staff or advisors whom the Secretary identifies.)

What: Begin to establish course of action.

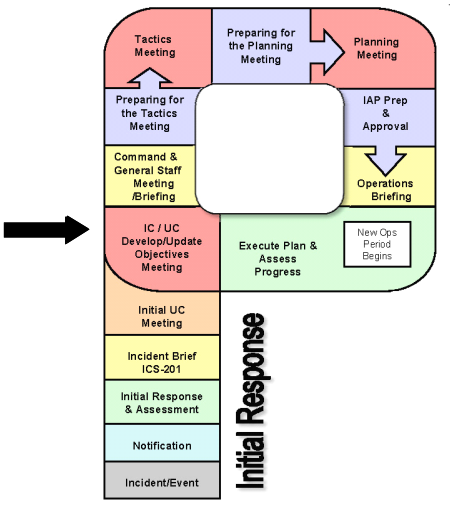
How:

- Identify who (if anyone) should be in Unified Command (see criteria for Unified Command in Appendix C).
- Determine priorities for the incident.
  Priorities may include:
  - Avoid ecological harm
  - Protect human health
  - Maintain economic value
  - Reduce risk of spread
- Determine the incident response objectives. Objectives should be achievable, measurable, and flexible.

Objectives may include:

- Determine the extent of infestation (i.e., local and regional range, sources of inputs, drainage, public access, pathways for potential spread).
- Determine source of invasion.
- Determine if a law enforcement investigation is needed.
- Determine risk to environment, human health, economy, etc.
- Determine control and/or eradication methods to minimize potential environmental, health, and commercial impacts.
- Determine appropriate use and costs of control/eradication methods.
- Contain or eradicate invasive species in known areas of infestation.
- Dispense timely information and a coordinated message to stakeholders, colleagues, local, state and federal agencies affected by infestation.
- Conduct monitoring.

- Agree on basic organizational structure (see Figure 1 in Appendix C).
- Agree on best-qualified and acceptable individuals to fill General Staff positions (i.e., Operations Section Chief, Planning Section Chief, Logistics Section Chief, Finance/Administration Section Chief — see ICS job descriptions in Appendix C).
- Agree on who fills Command Staff positions (i.e., Legal Advisor, Science Advisor, Public Information Officer, Liaison Officer, Safety Officer — see ICS job descriptions in Appendix C).
- Identify funding mechanisms and agree on action to secure funding.
- Agree on resource-ordering procedures.



Objectives Meeting

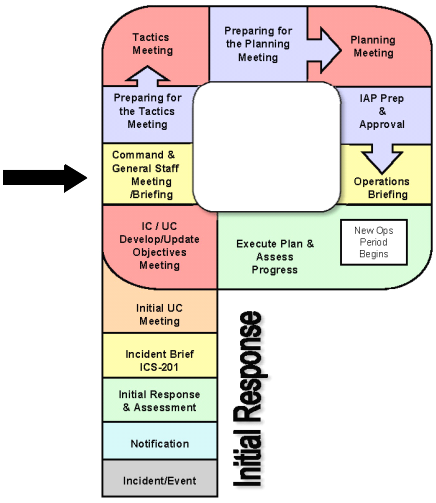
Who: Incident/Unified Command.

What: Evaluates the current incident status, what needs to occur next, and how it will be achieved. Refines the objectives (outlined in previous step) that will drive the AIS incident response for the next phase of the effort.

How:

- Determine time frame. Take into account pace of the operations, rate of change in incident situation, weather or other criteria (e.g., tides), safety and wellbeing of responders.
- Establish an incident organization that is capable of meeting initial and long-term challenges to mitigate the incident (refer to Figure 1, pg. 8).
- Consider need for Deputy Incident Commander.
- Identify and select incident support facilities for control and/or eradication efforts (i.e., Incident Command Post, Base, Staging Areas).
- Ensure scene integrity and evidence preservation.
- Identify constraints and limitations, which may include:
  - Challenging sampling environment
  - Jurisdictional issues
  - Legislative authority (see Appendix F)
  - Funding to pay for all aspects of rapid response
  - Availability of invasion control options
  - Securing permits (time and authority)
  - Training personnel
  - Access to private property (land ownership)
  - Gaps in knowledge of species biology
  - Ecological uncertainties

Command and General Staff Meeting



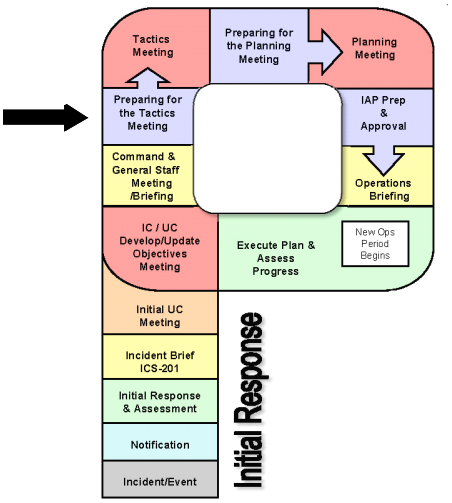
Who: Members of the IC/UC, Command and General Staff.

What: Ensure Command and General staff are apprised of situation and next steps.

How: IC/UC will brief Command and General Staff on their decisions, objectives for the next operational period, priorities, limitations/constraints, and expectations.

- Review situation status.
- Determine message for Liaison Officer and Public Information Officer to dispense to local, state, and federal agencies, stakeholders, and the media (see Appendix D for press release examples).
- If using Unified Command, determine if Joint Information Center is required.

Preparing for the Tactics Meeting

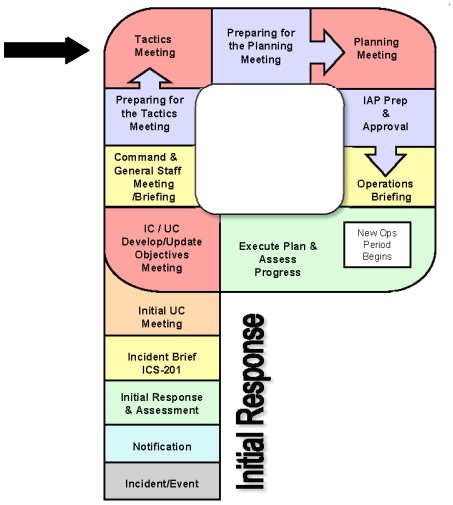


Who: Operations Section Chief, Planning Section Chief, Legal Advisor, Science Advisor.

What: Prepare for the upcoming Tactics Meeting.

How:

- Develop draft strategies on how to accomplish each objective.
- Detail the equipment and personnel required to implement the strategies.
- Confirm who has authority to procure resources.
- Identify any objectives that will require legal approval.



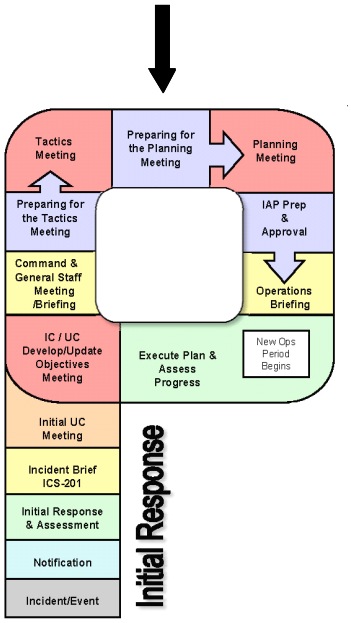
Tactics Meeting

Who: Planning Section Chief, Operations Section Chief, Logistics Section Chief, Legal Advisor, Science Advisor, Safety Officer.

What: Organize how the operation will be conducted.

How:

- Review the priorities and objectives.
- Review the priorities and objectives with the Planning Section Chief and consider the incident's limitations and constraints.
- Determine control or eradication measures to be performed (could include mechanical, herbicide or biocontrol treatment — for more information see list of invasive species resources in Appendix E).
- Divide the Operations Section's work into manageable units (Divisions, Groups, etc.).
- Assign work tasks for each identified unit.
- List the resources required to accomplish the work assignment.



Preparing for the Planning Meeting

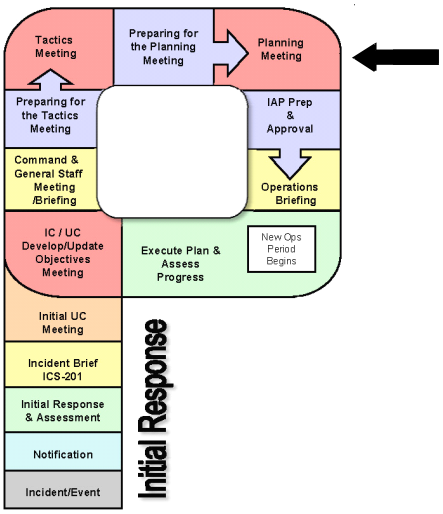
Who: IC/UC, Command and General Staff, technical specialists as required.

What: Prepare for the Planning Meeting.

How:

- Gather current incident information (including potential options for control/eradication).
- Confirm availability of resources (e.g., boats, herbicides, etc.).
- Verify that information to be presented at Planning Meeting is accurate.

Planning Meeting

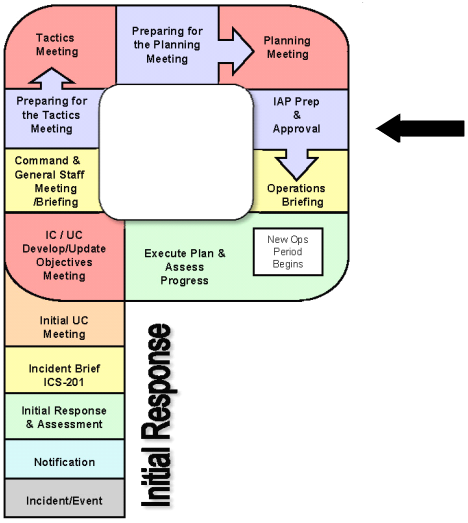


Who: Members of IC/UC, Command and General Staff, technical specialists as required.

What: Bring primary players together to agree on proposed plan of action.

How: Present Tactical Plan and produce a coordinated and sustainable Incident Action Plan that everyone agrees they can support.

Incident Action Plan Preparation and Approval



Who: Planning Section Chief, Operations Section Chief.

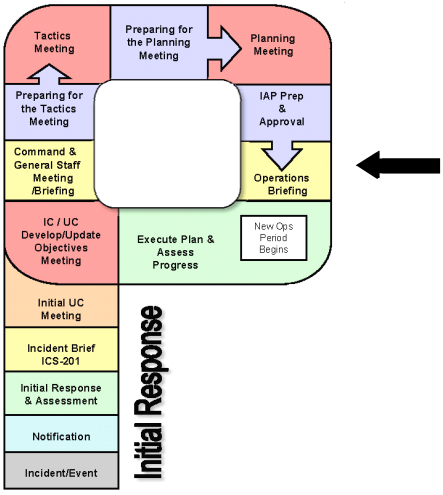
What: Assemble Incident Action Plan for final approval by the Incident Commander/Unified Command.

How:
Complete the following forms:

- ICS-202, Incident Objectives: The Planning Section Chief prepares the ICS-202, but does not establish the objectives, which are the responsibility of the IC/UC.
- ICS-203, Organization Assignment List: The Operations Section Chief prepares the ICS-203, which lists the names and positions of the management team.
- ICS-204, Assignment List: The ICS-204 contains information on the operations and the work to be accomplished — that information comes directly from the Operations Section Chief.

Forms can be found at:
http://training.fema.gov/EMIWeb/IS/ICSResource/ICSResCntr_Forms.htm

Operations Briefing

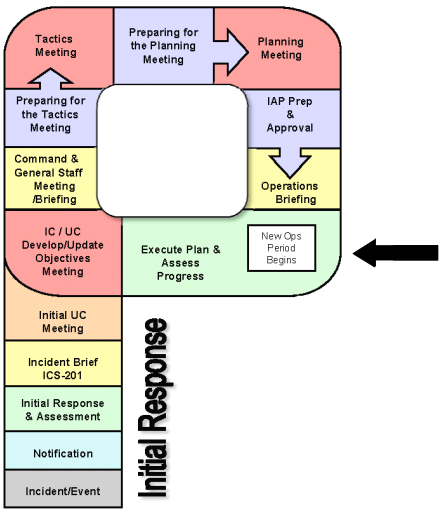


Who: IC/UC, Command Staff, General Staff, Branch Directors, Division/Group Supervisors, Staging Area Managers, Task Force/Strike Team Leaders, and Unit Leaders.

What: Acknowledge that not everyone has been present at previous meetings; brief those who will carry out the plan to ensure that everyone understands his/her role.

How: Cover the following areas:

- Current situation
- Overall strategy and priorities
- Short and long range predictions
- Safety and security issues
- Accident/injuries reporting
- Expected outputs and accomplishments
- Resource ordering and re-supply
- Resource status changes
- Assigned tasks and resources
- Chain of command
- Internal and external communication
- Transportation issues
- Reporting time and location
- Performance expectations
- Sensitive/critical information reporting
- Updating work accomplishments
- Reporting any changes in tactics
- Technical specialists assigned to Operations
- Debriefing instructions



Execute Plan and Assess Progress

Who: Entire ICS team.

What: Carries out the Incident Action Plan and monitors results.

How:

- Follow steps outlined in prepared Incident Action Plan.
- Adjust objectives and actions as needed.
- Monitor successes and failures of prepared objectives.

The timeline for aquatic invasive species control and eradication efforts will vary widely according to a number of factors including: species involved, extent of infestation, location, weather conditions, etc. At the end of each operational period, the Invasive Species Matrix Team should assess progress and determine if further action is needed (refer to Figure 1, pg. 8). If additional action is needed, the ICS planning process should begin again. At the conclusion of the rapid response, a final report and press release detailing actions and outcomes should be prepared and delivered.

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Appendices

Appendix A
Planning For Rapid Response

The following tasks are suggested for the successful preparation and implementation of a Rapid Response Plan. They are adapted with permission from the California Aquatic Invasive Species Management Plan (California Department of Fish and Game 2007).

Task 1: Collaborate to complete plan.
Representatives from Maryland's state agencies and other organizations that are currently involved in rapid response work, or are likely to be involved in the foreseeable future, should collaborate to finalize the Rapid Response Plan. The plan should become the basis for interagency agreements.

Task 2: Enter into cooperative agreements.
Maryland Department of Natural Resources staff with support from the Mid-Atlantic Panel on Aquatic Invasive Species will work with cooperating agencies and organizations to produce a list of entities that should be invited to sign Memoranda of Understanding, Implementation Agreements or similar instruments to facilitate cooperation on rapid response to AIS in Maryland.

Task 3: Secure funding.
This Plan cannot be sufficiently implemented without adequate, stable, and dedicated funding. Agencies that sign the Rapid Response agreement should coordinate efforts to pursue funding options for Rapid Response program development, training, and implementation.

Consider the following types of funding sources:
1. Permanent funding source(s) maintained solely for rapid response actions. Without this, rapid response may not occur or may only occur by redirecting funds on short notice from other important programs.

2. A user-fee system based on vectors for AIS introductions. This would be similar in concept to fees paid by the shipping industry for ballast water inspections or fees paid by the petroleum industry for an oil spill response program. Methods used by states that already have dedicated funding for rapid response can be emulated.

3. Private/public partnerships for supporting rapid response efforts in the form of equipment, supplies, personnel or funding.

4. One-time grants for specific planning or research projects related to rapid response.

Task 4: Finalize the Rapid Response Plan.
Work that needs to be done to finalize the Rapid Response Plan includes:

- Implementation Criteria: Develop the process and criteria for the State to use in determining the course of action for any new AIS introduction. Circulate for peer review.

- Likely Species and Scenarios: Identify likely species and/or early detection scenarios for AIS. Run these scenarios through the criteria developed.

- Agency Preparation: Develop information needed to help cooperating agencies designate and train, in advance, potential responders to AIS introductions.

- Alternate Staff: Develop a procedure to designate and prepare potential alternate staff. This could avoid gaps in work progress and minimize managerial time spent searching for substitutes during a response.

- Experts Database: Continue development of the statewide Rapid Response Experts Database. These people could be called upon to participate during rapid response activities, and into an ICS response. A list of taxonomic experts and protocols for requesting and using their services needs to be developed and periodically reviewed and updated. This would be a list of experts who have agreed to identify specimens for AIS Rapid Response efforts and appropriately preserve and catalog them. In addition to scientific experts, the Database should include staff that represent the full spectrum of knowledge and skills that might be necessary during rapid response activities (e.g., ICS implementation, logistics, finance, legal, and various technical experts.) The development of this list and staff participation in Rapid Response planning and training will likely require support of executive level staff from cooperating agencies.

- Resource Directory: Develop and maintain a directory of equipment, operations centers, supply sources, and associated contact people so that resources can be mobilized as quickly as possible during a response.

- Notification List: Develop a list of who, outside of those directly involved, needs to be notified when rapid response procedures are being planned and implemented.

Task 5: Streamline permit processes for rapid response.
MDNR staff will coordinate with staff from relevant agencies to investigate and pursue possibilities for streamlining the regulatory permit processes that might be required for rapid response measures. General measures or best management practices necessary to comply with streamlined permitting can be incorporated into the Rapid Response Plan.

Task 6: Revise Rapid Response Plan.

- Incorporate New Information: Periodically revise the Plan and incorporate things learned by evaluating the Plan's effectiveness and consulting current scientific research and related technological developments. Revisions may also be necessary due to changes in funding, agency restructuring, and environmental regulations. The interagency agreements to cooperate on rapid response should include a procedure for making revisions to the Plan.

- Notification of Plan Changes: MDNR should ensure that adopted changes to the Plan are circulated to people listed in the Rapid Response Personnel Directory and other

appropriate staff among the cooperating agencies and organizations. Changes should be addressed in training activities.

- Update Directories: MDNR Invasive Species staff, with assistance and input from cooperating agencies and organizations, will be responsible for the periodic update and circulation of the Rapid Response Experts Database and the Rapid Response Resource Directory.

Task 7: Develop species- or location-specific rapid response plans.

Identify and prioritize certain species, groups of species or certain locations for the development of specific rapid response plans. Detailed technical information can allow this type of response plan to be implemented more efficiently than a generic response plan.

Task 8: Train employees, participants, and team members.

Agencies that agree to cooperate on AIS rapid response should participate in the development of a training program and train the employees likely to be involved in rapid response activities. Potential rapid response participants need to be familiar with the Rapid Response Plan, Incident Command System, and may need specialized training related to their likely duties during a response. ICS training is available on-line at: http://training/fema.gov/IS/.

Training should also include AIS rapid response drills using a variety of scenarios and locations around the state. This will also assist in fine-tuning the Rapid Response Plan.

Task 9: Conduct education and outreach.

Outreach specialists from participating agencies and organizations should develop a plan of potential methods and protocols for conducting outreach to local communities, interest groups, and the media during rapid response procedures. This could include sharing contact information for key groups such as boaters, anglers, and marina owners.

Task 10: Conduct research for improved rapid response.

Academic institutions, government agencies, and other organizations that agree to cooperate on rapid response should work together through various AIS working groups, professional, and environmental organizations and commercial interests to promote research that can specifically improve or promote rapid response efforts.

Research the costs of rapid response, possible funding mechanisms (Task 3) and, if feasible, study the environmental and economic benefits and costs of conducting rapid response efforts versus not conducting rapid response. This may help governments decide how much to invest in rapid response measures.

Task 11: Develop interim rapid response protocols.

Steps that can be taken to prepare to implement a rapid response effort while a formal plan is going through the review and approval processes:

- Memorandum of Understanding (MOU): The Directors of the appropriate agencies could sign an interim MOU directing their staff to participate in rapid response planning and implementation if a new AIS introduction occurs prior to the approval of the final plan.

- Interim Funding: Management staff could identify and pursue interim funding sources for implementing a rapid response program.

- Interim Strategy: Management level staff from cooperating agencies could informally agree upon an interim strategy regarding roles and responsibilities should an AIS introduction occur.

- Permitting: Management level staff from cooperating agencies could discuss how, in the absence of a formal streamlined permitting process, their staff could work within the existing regulatory permit programs to facilitate a rapid response operation and direct staff to follow through on these interim measures.

- Employee Assignment: Management level staff could assign employees to an interim core rapid response team or working group. This team could participate in advance preparation and planning. In the event of a rapid response, this team would need to be augmented by additional staff based on the location of the response and the necessary areas of expertise.

Appendix B

Decision Tree for When to Take Action on Aquatic Invasive Species

The following steps are meant to serve as a guideline for managers deciding whether to take action on an aquatic invasive species incident. Managers should consult experts from academia, state and federal agencies, as appropriate, to aid in this decision.

Step 1: Is the species a new record (invasion) to the state or geographic jurisdiction?

If yes, go to Step 3. If no, go to Step 2.

Step 2: If historically present in the state/jurisdiction, is the species reported to be undergoing a noticeable shift in abundance or impact?

If yes, go to Step 3. If no, record incident in Aquatic Nuisance Species Taskforce database but recommend "No action" as an incident. Note: In this case, the situation is an issue rather than an incident (see introduction for distinction). The determination of "no action" does not preclude action as an "issue," but the conceptual framework for such evaluation is beyond the scope of this plan.

Step 3: Is the species/incident of sufficient concern to trigger action(s) or further evaluation of potential actions?

Each species that makes it to Step 3 results in an Incident Brief, with a recommendation of "Action," "No Action," or "Further Evaluation of Potential Action." All such Incident Briefs are advanced to the director of the lead agency, but not all trigger an "Initial Unified Command Meeting," only those recommended for Action.

Criteria considered for Action:

- Is the new species known to cause significant impacts, either in native or non-native range? Impacts include predation, competition, habitat alteration, industry, health, etc. <u>If yes, this is a candidate for potential action.</u>
- Is the species a molluscan filter-feeder or does it create/modify structural habitat, such as vascular plants? There are sufficient examples of these (e.g., *Corbula*, *Driessena*, *Spartina*) to suggest they should be considered high risk. <u>If yes, this is a candidate for potential action.</u>
- Even if not considered/known to have high impacts, is the population restricted, allowing effective eradication? <u>If yes, this is a candidate for potential action.</u>

Species considered for Action enter the ICS process to evaluate feasibility of control/management options (as detailed in this plan). Important criteria include:

- Geographic extent and abundance
- Priorities and objectives (such as eradication, further evaluation, etc.)
- Potential to achieve priorities and objectives, including available treatments, cost, efficacy, political will
- Has management objective been achieved elsewhere with this or a similar species?
- Timetable to achieve objectives, and whether immediate/urgent action is needed

Appendix C
Incident Command System Job Descriptions

Incident Command System (ICS) position titles enable responders to speak a common language, to avoid the confusion that may come when different agencies, with differences in terminology, all respond to the same aquatic invasive species incident. ICS seeks to eliminate uncertainty by using titles that are not dependent on the title of a person's daily job — a Natural Resource Planner for one agency may be a Field Biologist for another. In this way, positions are filled by the people most qualified to do the job, independent of their previous ranks or job titles.

The figure below illustrates the upper level of personnel organization for the Incident Command System. The Incident Commander oversees the entire response effort. Until the Incident Commander delegates a management function (Operations, Planning, Logistics or Finance/Administration) to another person, he/she must perform the required functions for each position.

Once the Incident Commander delegates these management functions, the chiefs of each section comprise the General Staff. The General Staff reports directly to the Incident Commander.

Command Staff help the Incident Commander and General Staff manage incident safety, communicate with the public and personnel, conduct outreach to other agencies, and advise on legal and scientific issues. Although the Command Staff positions are shown above the General Staff, they are not actually in the chain of command.

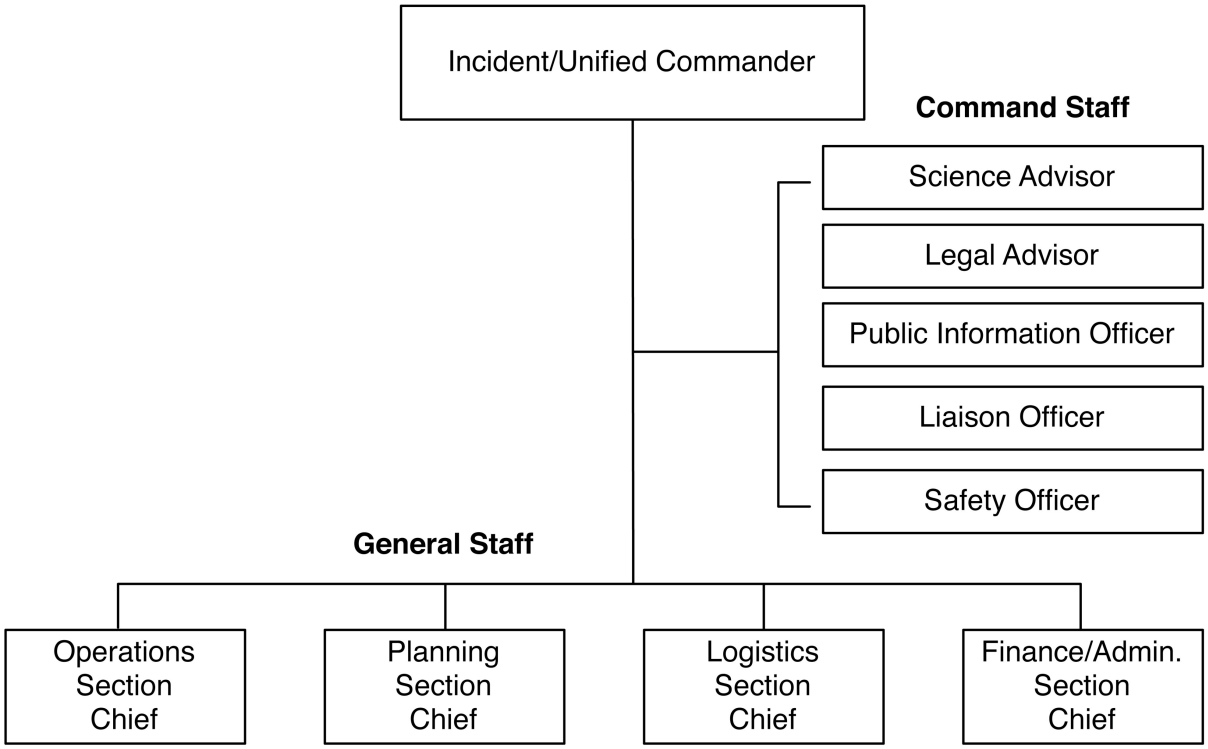

Figure 1

The following job descriptions may serve as guidelines for selecting individuals to fill each Command and General Staff position. While not an exhaustive list, the "desired attributes" highlight important skills and personality characteristics that should be considered when appointing individuals to positions. Once the Incident Commander chooses his/her staff, the list of primary responsibilities may help the staff to understand their role in the ICS rapid response process.

Incident Commander

Desired Attributes: Proven leader, experienced in risk management, strong communicator.

Primary Responsibilities:

- Determine incident priorities.
- Establish incident objectives.
- Manage tactical operations.
- Assure safety of responders and public.
- Identify and order the necessary resources to accomplish objectives.
- Keep organization briefed.
- Evaluating contingencies.

Unified Command

Unified Command is the shared responsibility of command among several Incident Commanders. Attributes and responsibilities of a Unified Command are identical to an Incident Commander. Indicators that the response should be managed by a Unified Command include when an incident:

- Crosses geographic boundaries (e.g., two states).
- Involves various governmental levels (e.g., federal, state, local).
- Impacts different functional responsibilities.
- Includes different statutory responsibilities.
- Has some combination of the above.

If you can answer "yes" to all four questions for the particular type of incident that you are responding to, then your organization belongs in the Unified Command:

- Does my organization have jurisdictional authority or functional responsibility under a law or ordinance for this type of incident?
- Is my organization specifically charged with commanding, coordinating, or managing a major aspect of the response?
- Does my organization have the resources to support participation in the response or organization?
- Does the incident or response operation impact my organization's area of responsibility?

Operations Section Chief

Desired Attributes: Leader, gives clear direction, conscientious.

Primary Responsibilities:
- Manage tactical operations.
- Ensure tactical operations are conducted safely.
- Maintain close communications with the Incident Commander/Unified Command.
- Identify required tactical resources to accomplish response objectives.

Planning Section Chief

Desired Attributes: Strong facilitator and communicator.

Primary Responsibilities:
- Keep everyone working together.
- Provide current, accurate situation status and concise briefings in support of the ICS process meeting schedule.
- Accurately track all resources.
- Facilitate the planning process by conducting timely meetings and working closely with the Operation Section Chief, Logistics Section Chief, and Command Staff.
- Ensure thorough documentation of all key decisions.
- Establish and maintain a complete list of things that must be accomplished, ensuring that each item on the list is assigned to the appropriate ICS element (e.g., Operations, Logistics, etc.).
- Ensure that a complete and thorough Incident Action Plan is delivered in support of the operations.

Logistics Section Chief

Desired Attributes: Experienced in logistical support, detail-oriented, propensity for customer service and teamwork.

Primary Responsibilities:
- Anticipate incident's potential for growth and plan resource and personnel requirements accordingly.
- Develop and implement a resource ordering and tracking process.
- Ensure an effective communication network is in place to support incident operations.
- Support development of the Incident Action Plan.
- Ensure that Command and General Staff are aware of excessive costs.
- Ensure appropriate demobilization (e.g., account for property and services, properly dispose of hazardous materials).

Finance/Administration Section Chief

Desired Attributes: Experienced in finance/administration, detail-oriented, organized.

Primary Responsibilities:

- Ensure the proper completion of response cost-accounting documentation.
- Coordinate and manage response budgets and cost estimates.
- Provide financial support for contracting services, purchases, and payments.
- Project the "burn rate" of funding and advise the IC/UC when a ceiling must be increased.
- Maintain a daily inventory of all purchases.
- Forward all invoices to the appropriate agency processing center for payment.

Science Advisor

Desired Attributes: High scientific acumen, particularly in regard to aquatic invasive species; knowledge of environmental implications of all eradication and/or control options; ability to communicate with scientists and non-scientists alike; network of colleagues on whom to call if needed.

Primary Responsibilities:

- Consult with other scientific experts to inform decisions and assemble scientific advisory panel if necessary.
- Provide any necessary technical guidance to those preparing Incident Action Plan.
- Participate in planning process.
- Ensure rigorous oversight of response's scientific and environmental objectives.
- Provide expert input to Incident Commander and Command Staff on scientific and environmental decisions.
- Ensure Liaison and Public Information Officer are able to accurately relay scientific information to media, stakeholders, and others.

Legal Advisor

Desired Attributes: High legal acumen, particularly in regard to environment laws and permitting; network of colleagues on whom to call if needed.

Primary Responsibilities:

- Participate in planning process.
- Provide expert input to Incident Commander and Command Staff on laws that govern aquatic invasive species response.
- Provide guidance on permits required for response actions.
- Oversee execution of all legal documents and contracts.
- Consult with other legal experts.

Liaison Officer

Desired Attributes: Interpersonal skills, highly organized, knowledge of local stakeholders, communications skills via phone, in person, and by electronic means.

Primary Responsibilities:

- Provide agencies and organizations with a schedule for incident updates and determining their information needs.
- Keep the IC/UC informed on issues dealing with assisting agencies, cooperating agencies, stakeholders.
- Coordinate with the Public Information Officer.
- Coordinate VIP visits.
- Coordinate outreach efforts (e.g., community meetings).
- Oversee external messages to stakeholders.
- Serve as contact point for stakeholders, politicians and their staff, government agencies, nongovernmental agencies, industry partners.
- Identify public and private concerns related to the incident.
- Maintain master list of contact numbers.

Public Information Officer

Desired Attributes: Experienced in public affairs, communications-savvy.

Primary Responsibilities:

- Support the public communications needs of the Incident Commander/Unified Command.
- Gather and disseminate incident information (e.g., number of responders).
- Work closely with the Liaison Officer to inform public and stakeholders.
- Assist in establishing and implementing communications requirements such as holding press conferences, disseminating press releases, answering media queries.
- Attend command meetings to exchange information with the Incident Commander/Unified Command and to get approval of information to be released.
- Ensure that the response organization is kept informed on the overall response efforts.
- Coordinate media activities with the Command and General Staff (especially the Operations Section Chief).
- Determine need to develop an Outreach Plan.

Safety Officer

Desired Attributes: Understands regulations, risk management skills, technical expertise.

Primary responsibilities:

- Work with the Operations Section Chief to identify and mitigate safety hazards associated with planned strategies and tactics.
- Participate in the planning process.
- Identify hazardous situations associated with the incident.

- Participate in the development of the Incident Action Plan.
- Exercise authority to stop or prevent unsafe tactics.
- Investigate accidents and injuries that have occurred in the incident areas.
- Develop appropriate safety plans for the response.
- Monitor compliance with safety requirements.

Appendix D
Examples of Press Releases for Hypothetical Snakehead Incident

****The following templates/examples are adapted from Maryland Department of Natural Resources news releases prepared in response to an actual incidence of northern snakehead in Maryland's Crofton Pond in 2002.*

Initial Identification

Biologist Identifies Juvenile Fish Caught in **WATERBODY** as Northern Snakehead

CITY, STATE (DATE) – LEAD AGENCY received notification today that a juvenile fish caught in **WATERBODY** was positively identified as a northern snakehead by **NAME**, a biologist with **AFFILIATION**.

The 2.5 inch fish was caught by a local angler Monday night. The presence of juvenile fish increases the risk of possible contamination to other freshwater river or pond systems. **LEAD AGENCY** is aiming to contain the species in this **WATERBODY**.

Contact: **LEAD AGENCY PRESS OFFICE (###-###-####)**

Source Identification

LEAD AGENCY Officials Identify Source of Snakehead Fish

CITY, STATE (DATE) – LEAD AGENCY officials today announced how the non-native northern snakehead fish was introduced. An unnamed individual put two foot-long fish of unknown sex into the **WATERBODY NAME** sometime in 200X.

"This situation again points out the responsibility we all share to refrain from purposeful release of fish to our waterways and to take great care to prevent even accidental introductions of non-native bait, plants or other species when we go fishing, boating, or otherwise venture into the natural environment," said **REPRESENTATIVE FROM LEAD AGENCY**.

LEAD AGENCY officials discovered the presence of the species in May, after an angler caught a suspicious fish and provided a photo for identification. Since that time, the presence of additional northern snakeheads in the pond has been confirmed. Because of the predatory and non-native nature of this fish, the northern snakehead poses a potential risk of significantly disrupting the local aquatic ecosystem.

Contact: **LEAD AGENCY PRESS OFFICE (###-###-####)**

Team Assembled

Snakehead **Incident Command System Team** Assembled, First Meeting Planned

CITY, STATE (DATE) – LEAD AGENCY SECRETARY announced the formation of a team to respond to the incidence of snakehead in **WATERBODY**. Because of the predatory and non-native nature of this fish, the northern snakehead poses a potential risk of significantly disrupting the local aquatic ecosystem.

The team has been assembled to evaluate the risk and recommend management responses to the presence of the non-native northern snakehead fish, which was identified in **WATERBODY** in June.

LEAD AGENCY SECRETARY assembled the team after the presence of juvenile fish in the **WATERBODY** was confirmed last week. The panel will evaluate control and eradication options, recommend actions, and oversee monitoring of results.

"We appreciate the commitment these team members have made to address the risks posed by the northern snakehead in a timely and coordinated manner," **LEAD AGENCY SECRETARY** said.

The committee members are:

Incident Commander: **NAME**
Science Advisor: **NAME**
Legal Advisor: **NAME**
Public Information Officer: **NAME**
Liaison Officer: **NAME**
Safety Officer: **NAME**
Operations Section Chief: **NAME**
Planning Section Chief: **NAME**
Logistics Section Chief: **NAME**
Finance/Administration Section Chief: **NAME**

Contact: **PUBLIC INFORMATION OFFICER (###-###-####)**

Recommended Action

Snakehead Incident Command System Team Recommends Common Herbicides and a Pesticide To Eradicate Fish From **WATERBODY**

CITY, STATE (DATE) - LEAD AGENCY SECRETARY or INCIDENT COMMANDER today received and released the findings of the Snakehead Incident Command System Team, which recommends the use of commonly used herbicides and a pesticide to eradicate the snakehead fish in the **WATERBODY**.

"I would like to thank the team for their thoughtful and prompt evaluation of the threat of this non-native fish and their assessment of the options available for control and eradication in the pond where northern snakeheads have become established," **INCIDENT COMMANDER** said.

After consulting scientific experts and considering a wide range of options, the team recommended the use of herbicides to kill the vegetation before applying the pesticide rotenone to ensure that the snakehead fish are eradicated. The chemicals that the scientific panel recommended are commonly used, and break down naturally in the environment. The herbicides recommended include: Glyphosate, which is widely available as Rodeo or Roundup; Diquat dibromide, which is sold as Reglone and Reward; and 2,4-D, which is also commonly available. The pesticide rotenone is publicly available in synthetic form as Sevin.

The panel recommendations are available on **LEAD AGENCY'S** Web site: **www.leadagency.gov**. Comments on the recommendations can be e-mailed from the Web site, or made by calling (###) ###-####. A decision by **INCIDENT COMMANDER** on the next steps to be taken is expected before the end of next week.

Contact: **PUBLIC INFORMATION OFFICER (###-###-####)**

Course of Action

INCIDENT COMMANDER Announces Course of Action for Snakehead Fish

CITY, STATE (**DATE**) – **INCIDENT COMMANDER** announced today that **LEAD AGENCY** will move forward with recommendations of the Incident Command System team to eradicate the northern snakehead from a **WATERBODY** using herbicide and piscicide.

"We are ready to act using a two-step process to move forward in eradicating the northern snakehead from this pond," **INCIDENT COMMANDER** said. "I want to thank the team once again for providing their time and expertise to efficiently make these recommendations. I feel confident that this is the most effective and efficient course of action."

When the process begins, **LEAD AGENCY** staff will apply the herbicides Diquat Dibromide and Glyphosate (also known as Rodeo) to the **WATERBODY** to eliminate aquatic vegetation. These chemicals are likely to cause oxygen levels to drop, and a subsequent fish kill is likely. The herbicides will be sprayed on and into the water from boats crewed by **LEAD AGENCY** personnel.

Approximately one to two weeks after the application of the herbicides, the **LEAD AGENCY** staff will apply the piscicide Rotenone, to eliminate remaining fish. Dead fish will be removed daily, however, unpleasant odors from decaying organic material are expected. Like the herbicides, Rotenone will be sprayed on and into the water from boats crewed by **LEAD AGENCY** personnel.

LEAD AGENCY will continually monitor the site.

Water quality levels at the **WATERBODY** are expected to return to normal within weeks of the herbicide and piscicide applications.

The northern snakehead was discovered in the pond in May. Subsequent fish were found and positively identified as northern snakeheads.

For more information about the chemicals, visit the EPA Web site at:
http://www.epa.gov/pesticides/

Contact: **PUBLIC INFORMATION OFFICER (###-###-####)**

Results

LEAD AGENCY Completes Rotenone Application; More Than 120 Snakehead Fish Dead

CITY, STATE (DATE) - LEAD AGENCY officials recovered more than 120 juvenile snakehead fish, 1 adult snakehead fish and 60 pounds of other varieties of fish after applying the piscicide rotenone this morning to the four-acre **WATERBODY** and the adjacent smaller ponds.

Fisheries crews will continue removing dead fish in the next several days. Dead and dying fish were found distributed in multiple locations throughout the pond, indicating the rotenone treatment was thoroughly mixed at a level sufficient to kill fish. Sentinel fish will be placed in various locations across the pond tomorrow to monitor toxicity.

Contact: **PUBLIC INFORMATION OFFICER (###-###-####)**

Follow Up

STATE AGENCY to Apply Neutralizing Agent to **WATERBODY**

CITY, STATE (DATE) – STATE AGENCY biologists today will apply potassium permanganate to the **WATERBODY** to neutralize the rotenone applied earlier this month to eradicate the Northern snakehead fish.

More than 1,000 dead juvenile and six adult Northern Snakeheads were recovered; the application of rotenone was successful and has killed all the fish in the pond.

The rotenone was expected to decompose quickly with warm water temperatures; however the recent rain and cloud cover have lowered the temperature and is slowing decomposition.

Application will begin at 9 a.m., and end around 11 a.m. and is expected to return water quality levels to normal.

For more information about the northern snakehead fish, click on
http://www.dnr.state.md.us/fisheries/snakeheadinfosheet.html

Appendix E

Selected Aquatic Invasive Species Resources

U.S. Environmental Protection Agency
Pesticides
http://www.epa.gov/opp00001/

U.S. Department of Agriculture
National Invasive Species Information Center
http://www.invasivespeciesinfo.gov/

U.S. Army Corps of Engineers
Invasive Species Management Program
http://www.saj.usace.army.mil/invasive_species/index.htm

Aquatic Nuisance Species Task Force
http://www.anstaskforce.gov/default.php

National Oceanic and Atmospheric Administration (NOAA)
National Center for Research on Aquatic Invasive Species
http://www.glerl.noaa.gov/res/Programs/ncrais/

American Fisheries Society
Rotenone Use in Management: Administrative and Technical Guidelines Manual
http://www.afsbooks.org/x55032xm.html

Smithsonian Environmental Research Center
Marine Invasions Research Lab
http://www.serc.si.edu/labs/marine_invasions/

Appendix F

Federal and State Legal Authorities for Rapid Response in Maryland

Federal:

- The National Invasive Species Act (NISA 1996) (16 U.S.C. § 4701. et seq.) reauthorized and amended the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. NISA established the Aquatic Nuisance Species Task Force (ANSTF) to assess whether aquatic nuisance species threaten the ecological characteristics and economic uses of U.S. waters. The ANSTF is also directed to evaluate approaches for reducing risk of adverse consequences associated with unintentional introduction of aquatic species. The NISA also authorized funding for state and regional management of aquatic non-indigenous species plans, research on aquatic nuisance species prevention and control in major aquatic systems, including the Chesapeake Bay (MDNR 2003).

- Executive Order 13112 enacted February 13, 1999, by the President of the United States, directs all federal government agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause (MDNR 2003).

- The Lacey Act authorizes the Secretary of the Interior to regulate importation and interstate transport of animal species determined to be injurious. Injurious wildlife are mammals, birds, amphibians, reptiles, fish, crustaceans, mollusks and their offspring or gametes that are injurious to the interests of human beings, agriculture, horticulture, forestry, wildlife or wildlife resources of the United States. Regulation of transport or use within a State is the responsibility of each State. Possession of a species, within State boundaries, is also the responsibility of each State and is not regulated by an injurious wildlife listing (USFWS 2007).

- The National Environmental Policy Act (NEPA) requires federal agencies to consider the environmental impacts of their proposed actions and reasonable alternatives to those actions. Rapid response efforts for aquatic invasive species may require completion of the NEPA process. The process consists of an evaluation of the environmental effects of a federal undertaking including its alternatives. There are three levels of analysis depending on whether or not an undertaking could significantly affect the environment. These three levels include: categorical exclusion determination; preparation of an Environmental Assessment/Finding of No Significant Impact (EA/FONSI); and preparation of an Environmental Impact Statement (EIS) (EPA 2007).

- The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is the principal law that authorizes the Environmental Protection Agency to regulate the manufacture, distribution, sale, and use of pesticides in the United States. FIFRA Section 18 authorizes EPA to allow states to use a pesticide for an unregistered use for a limited time if EPA determines that emergency conditions exist. (For more information about FIFRA Section 18 emergency exemptions, see www.epa.gov/opprd001/section18.

For the text of Federal regulations regarding emergency exemptions, see 40 CFR Part 166 www.access.gpo.gov/nara/cfr/waisidx_04/40cfr166_04.html. See http://www.epa.gov/owow/invasive_species/invasives_management/fifra18.html for more information on the FIFRA Section 18 exemption and Maryland's use of the statute in its response to snakeheads in Crofton Pond (EPA 2005 pp 13-14).

- FIFRA Section 24(c) authorizes states to register an additional use of a federally-registered pesticide product or a new end-use product to meet a special local need, such as a rapid response or control action. (EPA 2005 p. 20). (For EPA guidance on FIFRA Section 24(c) registrations, see www.epa.gov/opprd001/24c)

- Clean Water Act Section 402 establishes the National Pollution Discharge Elimination System (NPDES) permit program to regulate point source discharges of pollutants into waters of the United States. The EPA has authorized the Mid-Atlantic states (save District of Columbia) to assume many of the permitting, administrative, and enforcement responsibilities of the NPDES permit program. A statement issued by EPA in January 2005 states that the application of a pesticide to waters of the United States consistent with all relevant requirements under the FIFRA does not require a Federal NPDES permit in the following two circumstances: 1. the application of pesticides directly to waters of the United States to control pests or 2. the application of pesticides to control pests that are present over waters of the United States, including near such waters; that results in a portion of the pesticides being deposited to those waters (EPA 2005 p. 8).

- Clean Water Act Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Responsibility for administering and enforcing Section 404 is shared by the US. Army Corps of Engineers (USACE) and EPA. It is possible that some mechanical/physical AIS rapid response control methods, such as the mechanized clearing of riparian areas to remove AIS, or dumping of fill material to smother AIS, might require Federal or state Section 404 permits (only New Jersey and Michigan have state 404 permits). EPA and USACE regard the use of mechanized earth-moving equipment to conduct activities in waters of the United States (e.g., land clearing, ditching, channelization, and in-stream mining) as regulated discharge of dredged or fill material under Section 404 unless project-specific evidence shows otherwise. Natural resource managers should consult the appropriate USACE District office when planning AIS rapid response or control action to determine if these actions require a Federal Section 404 permit (EPA 2005 p.10).

- Federal Noxious Weed Act (7 U.S.C. §§ 2801-2814) defines a noxious weed as any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind which is of foreign origin, is new to or not widely prevalent in the U.S., and can directly or indirectly injure crops, other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health (United States Congress 1974). Under the Act, the Secretary of Agriculture has the authority to prohibit the importation and interstate transportation and sale of species that the Secretary has deemed noxious through actions such as inspection and quarantine. The

Secretary is allowed to seize, treat, destroy and dispose of items that have been contaminated with a noxious weed (University of Connecticut 2004).

State:

Maryland's aquatic invasive species laws are implemented primarily through the Department of Natural Resources (MDNR). MDNR has unified authority to address all invasion pathways and all types of organisms, with the exception of the horticulture industry, which is regulated by the Maryland Department of Agriculture (MDA) under the state noxious weed law. MDA may list banned species to address noxious weeds but has not listed any aquatic plants to date. MDNR has created lists of banned and approved wildlife and fish and limits the uses of listed species according to their threats to the environment or public health and safety. (Environmental Law Institute 2007).

As part of its authority over most aquatic and some terrestrial exotic (non-native) species, MDNR regulates captive wildlife — that is, mammals, birds, reptiles, and amphibians — to prevent the introduction of pests that could harm or compete with native species (Md. Code Ann., Nat. Res. §§ 10-901, 10-903) (Environmental Law Institute 2007).

It is illegal to import, possess, breed, sell, or release any non-native wildlife species without a permit from MDNR (MD. Regs. Code tit. 8, § 08.03.09.04). Permits are available only if the animal to be imported is both free of disease and will not be "inimical" to native species (Environmental Law Institute 2007).

The legislature has also mandated specific requirements for nutria (requiring eradication plan pursuant to Md. Code Ann., Nat. Res. § 10-202.1), mute swans (requiring population management pursuant to MD. Code Ann., Nat. Res. 10-211), and non-native reptiles and amphibians (prohibiting release only pursuant to Md. Regs. Code tit. 8, § 08.03.11.10) (Environmental Law Institute 2007).

In addition to wildlife, MDNR also regulates "aquatic organisms," including fish, shellfish, and aquatic plants (Md. Code Ann., Nat. Res. § 4-202, 4-205.1). State law gives the department authority to ban the importation, possession, or introduction of non-native aquatic species into state waters (Md. Code Ann., Nat. Res. § 4-205.1). (Environmental Law Institute 2007).

MDNR regulations also contain unique provisions to further guard against the accidental transport and release of AIS. Specifically, the use of watercraft containing prohibited species is not allowed in state waters, and water from AIS-infected locations may not be diverted or transported (Md. Regs. Code tit. 8, §08.02.19.05) (Environmental Law Institute 2007).

Other agencies and organizations with expertise in aquatic invasive species control and response in Maryland include:

- United States Department of Agriculture (USDA) – Animal and Plant Health Inspection Service (APHIS) (Federal)
- United States Fish and Wildlife Service (USFWS) (Federal)

- Mid-Atlantic Panel on Aquatic Invasive Species
- Environmental Protection Agency (EPA) (Federal)
- National Oceanic and Atmospheric Administration (NOAA) (Federal)
- US Army Corps of Engineers (Federal)

Appendix G

Mid-Atantic Aquatic Invasive Species Sighting Report Form

Notification regarding a potential AIS in Maryland may happen by a variety of ways. The preferred method is completion of the United States Geological Survey's online Sighting Report Form (http://nas.er.usgs.gov/SightingReport.asp) or by calling the notification hotline at 1-877-STOPANS. Upon receiving the report, USGS officials will notify the Maryland Department of Natural Resources Invasive Species Matrix Team.

If other state and federal entities are the first to receive notification, they should gather information from the reporter as outlined on the Mid-Atlantic AIS Sighting Report form (following page). Send completed forms to the MDNR Invasive Species Matrix Team by email to JMcKnight@dnr.state.md.us. The Mid-Atlantic AIS Sighting Report form is available on the Maryland Department of Natural Resources website (http://www.dnr.state.md.us/invasives/), the Mid-Atlantic Aquatic Invasive Species Panel website (http://www.midatlanticpanel.org/), and the Maryland Sea Grant website (http://www.mdsg.umd.edu/rapidresponse).

Insert Agency Name Here	Aquatic Invasive Species Sighting Report

This form should be filled out by the person, group, or agency receiving the notification of a possible Aquatic Invasive Species

		Date/Initials
Date agency first notified:		
Name of person who received notification:		
Response action taken:		
Species ultimately confirmed as:		

Sighting As Reported By:

Name: _____ **Telephone #** _____

Address: _____ **Email:** _____

Date/Time of Sighting _____

		Date/Initials
Type of Plant or Animal:		
Species or Common Name		
Number of Individuals Spotted or Approximate Area of Infestation:		
Have you sighted it before?		
Waterbody Name:		
Waterbody Location (town, county)**:**		
GPS Coordinates or Lat/Long (if unknown please describe location)**:**		
Situation that led to sighting:		
Method of collection (e.g., trawl, pot, etc.)**:**		
Bottom/sediment type:		
Photographs taken? *photos are encouraged		
Has specimen been preserved? If so, how? *animal specimens should be stored on ice		
Availability/location of comparison species for identification:		
Additional Comments:		