A Model Rapid Response Plan for Aquatic Invasive Species

Mississippi River Basin Panel on Aquatic Nuisance Species

September 2010

This document was produced by the Mississippi River Basin Panel on Aquatic Nuisance Species under award NA09OAR4170224 from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration or the Department of Commerce.

The Mississippi River Basin Panel relied heavily on existing rapid response plans and reports in the development of this document. Information and text from several existing documents has been modified or used directly, and the source noted. In particular, extensive amounts of information were used with permission from the *California Aquatic Invasive Species Management Plan* (CDFG 2008), the Mid-Atlantic Panel on Aquatic Invasive Species' *Rapid Response Planning for Aquatic Invasive Species - A Template* (Smits and Moser 2009), and the Western Regional Panel on Aquatic Nuisance Species' *Model Rapid Response Plan for Aquatic Nuisance Species* (WRP undated). Information on the Incident Command System (ICS) was primarily developed using materials obtained from the U.S. Department of Homeland Security, Federal Emergency Management Agency's *National Incident Management System* (USDHS 2008) and on-line ICS Resource Center.

Specific response procedures for fish, invertebrates, and plants will be developed as separate attachments to supplement the model rapid response plan.

For more information on this and other publications, or about our program, contact:

Mississippi River Basin Panel on Aquatic Nuisance Species (MRBP)
9053 Route 148
Marion, Illinois 62918
www.mrbp.org

EXECUTIVE SUMMARY

Aquatic Invasive Species (AIS) pose significant environmental and economic threats to ecosystems and residents throughout the Mississippi River Basin. Preventing AIS introductions is the foremost management strategy and is crucial to avoiding their establishment, spread, and irreversible consequences. Even the best prevention efforts will not stop all AIS introductions and managers must be prepared to take action when prevention measures fail.

Rapid response actions are often complex, costly, and controversial (WRP undated), and therefore advanced planning for rapid response prior to an introduction is crucial. The Mississippi River Basin Panel on AIS (MRBP) has developed this model rapid response plan and supplemental attachments to assist natural resources management agencies effectively plan and quickly implement rapid response actions. In addition to providing information on rapid response planning, the model plan includes a template that can be used by states in developing their own rapid response plans. The model plan is based on the Incident Command System to utilize standardized procedures that allows for a coordinated response framework across agencies and jurisdictions

Considerable preparation is necessary and can be initiated in advance of the need to implement a rapid response effort. To the extent possible, managers should complete partner agreements, secure funding, determine and fulfill regulatory requirements, finalize protocols and procedures, and conduct needed training. It should be apparent that adequate preparation will take considerable time and effort, and therefore as much work as possible should be completed before a new AIS introduction occurs.

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I. INTRODUCTION

Purpose

The discovery of a new non-native species, or a new population of an established non-native species that is outside of its known distribution, is considered an introduction. Preventing introductions is the foremost strategy in Aquatic Invasive Species (AIS) management and is crucial to avoiding their establishment, spread, and irreversible consequences. Experience has shown that once an AIS has become established and widespread, eradication is costly and unlikely (Lodge et. al 2006). If not eradicated, control efforts to limit their distribution and abundance can become perpetual and costly programs (e.g., sea lamprey control in the Great Lakes). Unfortunately prevention measures are not foolproof, and even the best efforts will not stop all introductions.

Early detection and effective rapid response are a crucial second line of defense to prevent establishment (NISC 2008) and minimize the ecological and economic impacts of an AIS introduction (CDFG 2008). The sooner a new introduction is detected, the greater probability there is that a systematic response effort can be implemented while the population is still localized and not beyond that which can be contained and eradicated (NISC 2003). In many cases, actions must be taken quickly to be effective, possibly within only a few days of the introduction (USEPA 2005). Successful rapid response is therefore dependent upon effective early detection monitoring and AIS reporting programs for alerting managers to new introductions. Government officials and natural resource managers must be prepared and committed to take rapid and effective action following the report of an AIS introduction (Smits and Moser 2009).

The Mississippi River Basin Panel on AIS (MRBP) has developed this model plan as a tool to assist natural resources management agencies in the preparation of effective Rapid Response Plans for AIS. This document does not address the issues of prevention, early detection monitoring, or reporting systems, but rather focuses on the actions that occur once a potential AIS has been reported. General information is provided on the major components of any rapid response effort, with specific response procedures for fish, invertebrates, and plants developed as supplemental attachments to this document. This model plan provides instructions and considerations in the development of rapid response plans, but also provides materials that can be used directly or as a template by resource managers developing AIS rapid response plans.

Rapid Response Planning

Rapid response actions are often complex, costly, and controversial (WRP undated), and therefore advanced planning for rapid response prior to an introduction is crucial to allow for the significant coordination and analysis necessary for an appropriate response (Smits and Moser 2009). Rapid response will often require cooperation among a variety of local, state, and federal agencies and organizations. Responsible management agencies need a clear understanding of their legal authorities, and the advanced preparation of formal agreements between likely participants that address roles, responsibilities, and procedures will facilitate rapid response. A collaborative advanced planning effort will assist in the identification and preparation of appropriate authorities, agreements, technical and communication protocols, training, personnel,

equipment, permits, and other resources prior to the need for a response. Establishing a transparent, well documented, and effectively communicated decision-making process is essential (Heimowitz and Phillips 2008) to foster partner and public support. An example of a multi-jurisdiction, multi-agency rapid response plan for aquatic invasive fish is provided in Appendix A.

It is advisable for agencies with responsibilities in the implementation of rapid response actions to involve their legal and contracting departments early in the planning process so that concerns can be addressed before the need to implement a response arises. To ensure that the rapid response will comply with all applicable policies and regulations, planners should develop a comprehensive matrix that identifies the relevant federal and state laws, regulations, and agencies that pertain to AIS management and rapid response. A summary of the federal authorizations and agencies pertaining to AIS and rapid response are provided in Appendix B. Draft documents pertaining to regulatory compliance, access agreements, delegation of authority, and guidelines for responders from an Asian Carp rapid response action are provided in Appendix C.

The California Department of Fish and Game (CDFG 2008) identified the following 11 basic task areas that are necessary in planning and preparing for rapid response (see Appendix D for an explanation of each task area):

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

Adaptive Management

To address uncertainties when implementing a management action in response to an AIS introduction, rapid response should be based on an adaptive management strategy. Adaptive management is a structured approach to decision making that allows managers to take action *despite* uncertainty, and in a manner that explicitly seeks to reduce uncertainty (Murray and Marmorek 2003).

Not simply a “trial and error” approach, adaptive management involves the integration of design, management, and monitoring to systematically test assumptions in order to learn and adapt (Salafsky et al. 2001). The iterative process is frequently characterized as a cycle of six discrete steps (Williams et al. 2009; Figure 1). Adaptive management involves the synthesis of existing knowledge, exploring alternative ways to meet

management objectives, predicting the outcomes of these alternatives, implementing one or more alternatives, monitoring the outcome of management actions, and then using the results to update knowledge and adjust management actions (Murray and Marmorek 2003).

Rapid response frequently involves numerous stakeholders including multiple levels of government agencies, non-government organizations, and the public. Stakeholders should be involved early in the process of rapid response planning. It is important that stakeholders assess the resource problem and reach agreement about its scope, objectives, and potential management actions (Williams et al. 2009). Implemented correctly, adaptive management can help resource managers meet environmental, social, and economic goals; increase scientific knowledge; and reduce tensions among stakeholders (National Research Council 2004).

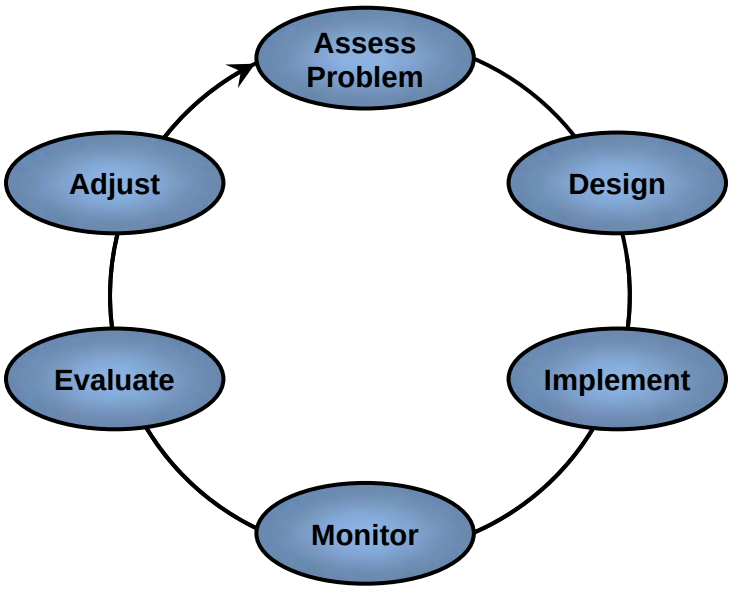


Figure 1. Diagram of the adaptive management process. (Source: Adaptive Management: The U.S. Department of the Interior Technical Guide, Williams et al. 2009)

Impediments to Rapid Response

Numerous requirements will have to be met before a rapid response action can be initiated, and those requirements will vary depending on the specific type and location of the response. Cooperative agreements, funding, regulatory requirements, response protocols and procedures, and training could all prevent a response effort from being implemented if not adequately addressed. All potential impediments to rapid response should be addressed to the fullest extent possible before the need to implement a rapid response arises.

- Cooperative Agreements: Rapid response efforts will generally require cooperation among agencies and organizations, whether within an individual

state or multiple states. Developing formal agreements on a plan in advance increases the likelihood of responding in an effective manner (CDFG 2008).

- NEPA Compliance: Prior to the involvement of any federal agency (including use of federal funds by a grantee or cooperator) in the implementation of rapid response actions, compliance with the National Environmental Policy Act (NEPA) is required. The specifics of the situation will determine which NEPA document and process will be used to effect compliance. At this time, the two types of compliance documents and processes that will most likely be used are Environmental Assessment (EA) and Environmental Impact Statement (EIS). Both of those documents and processes can be developed and implemented in advance of a rapid response action. To cover a suite of possible actions, a: 1) Programmatic EA would be developed for situations where and when no significant impacts are likely, and a Programmatic EIS would be developed to cover situations where and when significant environmental impacts (and associated high levels of controversy) are likely. It is possible that, even after developing and approving a Programmatic EA or EIS, a short addendum would need to be developed and approved (and possibly released to the public for comment, prior to a decision to act, in the case of a Programmatic EIS). The Midwest Region of the U.S. Fish and Wildlife Service (USFWS) has developed a draft Categorical Exclusion that, if approved, would cover aquatic invasive species rapid response actions. A categorical exclusion, if approved, would expedite NEPA compliance. However, until that approval is reached, Programmatic EAs or EISs are needed, at least to cover actions supported using USFWS funds.
- Section 7 Consultation (Endangered Species Act): The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Section 7 of the Act, called "Interagency Cooperation," is the mechanism by which Federal agencies or other entities funded by a Federal agency (action agency), ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species. A synopsis of the Section 7 Consultation process is presented in Appendix E.
- Regulatory Permits: Rapid response actions may require federal and/or state permits. The normal timeline for obtaining necessary permits may critically delay rapid response actions. A streamlined regulatory permitting process for implementing the Rapid Response Plan should be developed and approved by participating agencies (CDFG 2008). Similarly, necessary access agreements for work on private and public lands should be identified and developed. Partner agencies should engage their legal departments early in the process of developing rapid response plans.
- Funding: Rapid response efforts can be prohibitively expensive. Recent attempts to eradicate aquatic invasive fish in Arkansas, Illinois, and Louisiana have all exceeded one million dollars. Immediate access to adequate funding is essential (Anderson 2005). A revolving federal fund dedicated to rapid response

implementation would greatly facilitate states' ability to implement rapid response plans when necessary.

- Staff, Equipment, and Supplies: Participating agencies should identify the staff, equipment, and supply resources necessary to implement the Rapid Response Plan. The lead agency should develop a list of resource needs, available resources, and resource deficiencies. Agreements for integrating resources during a response effort should be developed. Resource deficiencies should be addressed immediately. Partner agencies should engage their contracting and/or procurement department during the development of rapid response plans.
- Training: All personnel involved with planning or implementing a rapid response should be trained and develop a familiarity with ICS. Responders should be adequately trained to be technically proficient in the safe execution of the procedures and protocols established in the Rapid Response Plan. Specific training required for regulatory compliance should be identified and kept up to date. Response preparedness should be maintained through continual training, practicing, exercising, and updating current plans and procedures.
- Agency and Public Support: Rapid response actions are often complex, costly, and controversial (WRP undated). Stakeholder input in the development of rapid response plans is essential for building consensus; concerns should be addressed prior to the need to implement a response action. Effective working relationships can be fostered among groups and individuals by collaborating with them in the development of response plans (NISC 2003). Communication with agency administrators, legislators, stakeholders, and the public is essential to build understanding and support for potential actions. Additionally, public notification and consultation may be legal requirements as part of NEPA compliance (see above).

II. INCIDENT COMMAND SYSTEM OVERVIEW

As required by the Aquatic Nuisance Species Task Force, this plan utilizes the Incident Command System (ICS), a component of the National Incident Management System (NIMS), to enable a coordinated response among various jurisdictions and functional agencies. The following ICS overview is based on information summarized from the National Incident Management System (USDHS 2008).

ICS provides a systematic approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to rapidly respond to an AIS introduction, regardless of cause, location, or complexity. ICS establishes common processes for planning and managing resources and allows for the integration of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure. All personnel involved with planning or implementing a rapid response should be trained and develop a familiarity with ICS. An ICS resource center, including on-line ICS training, is available at http://training.fema.gov/EMIWeb/IS/ICSResource/index.htm.

ICS provides an organizational structure for incident management (Figure 2) and guides the process for planning, building, and adapting that structure. A description of the responsibilities of the Incident Command Officers and General Staff positions is provided in Appendix F. The ICS organizational structure has 5 five major functional elements (i.e., command, operations, planning, logistics, and finance and administrations) and develops in a modular fashion as needed based on the size and complexity of the incident. Responsibility for the establishment and expansion of the ICS modular organization ultimately rests with Incident Command, which bases the ICS organization on the requirements of the situation.

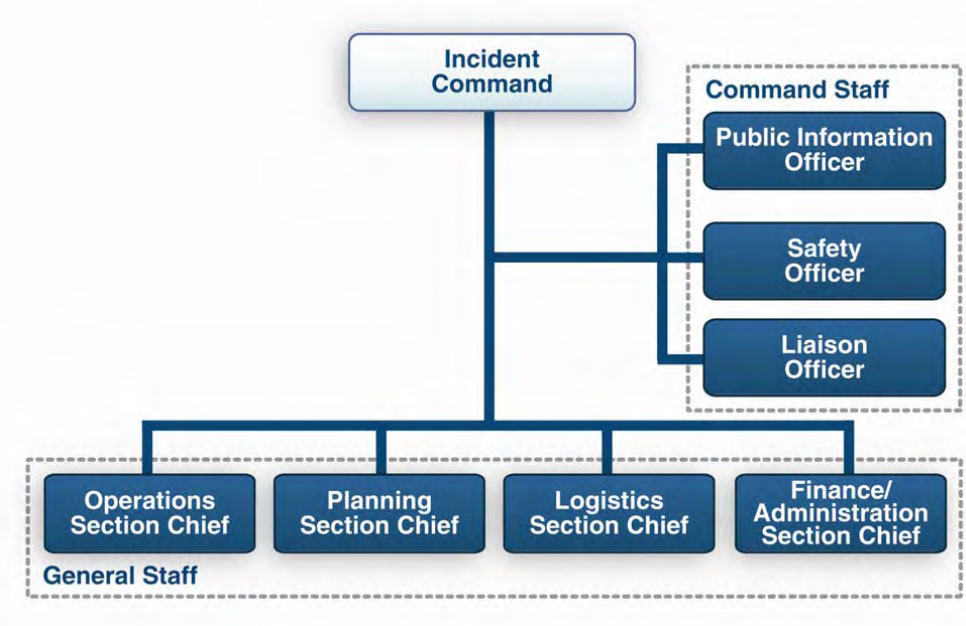


Figure 2. The basic ICS organizational structure. (Source: National Incident Management System, USDHS 2008)

Incident command is accomplished using one of two approaches. When an incident occurs within a single jurisdiction and there is no jurisdictional or functional agency overlap, a single Incident Commander (IC) is designated with overall incident management responsibility by the appropriate jurisdictional authority. However, when an AIS rapid response involves multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, Unified Command (UC) allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability. By working together as a team under UC, all agencies with jurisdictional authority or functional responsibility for the incident jointly provide management direction through a common set of incident objectives and a single planning process. Under UC, a single agency may still be designated as the overall lead and that agency's official identified as the IC for incident management.

Centralized, coordinated incident action planning is used to guide all response activities and communicates management by objectives throughout the entire ICS organization. Management by objectives is accomplished through a systematic planning process that

- establishes incident objectives,
- develops strategies based on incident objectives,
- develops and issues assignments, plans, procedures, and protocols,
- establishes specific, measurable tactics or tasks for various incident management functional activities, and directs efforts to accomplish them, in support of defined strategies, and
- documents results to measure performance and facilitate corrective actions.

The Planning "P" (Figure 3) is a visual representation of the ICS planning process and serves as a step-by-step guide to response, from the onset of an incident to monitoring and evaluation of the response actions (Smits and Moser 2009). The Planning P can be broken into two functional components: the leg of the "P" describes the initial response period, and the planning cycle at the top of the "P" is completed during each operational period of a rapid response action. A more detailed discussion of the ICS planning process and the Planning P are presented in Appendix F. An explanation of how to use the Planning P to organize an AIS rapid response is presented in Section IV.

An Incident Action Plan (IAP) for the next operational period is developed during each planning cycle to provide a concise, coherent means of capturing and communicating the overall incident priorities, objectives, strategies, and tactics in the context of both operational and support activities. Most initial response operations are not captured with a formal IAP; however, if an incident is likely to extend beyond one operational period, become more complex, or involve multiple jurisdictions and/or agencies, preparing a written IAP will become increasingly important to maintain effective, efficient, and safe operations (USDHS 2008). The IAP consists of a series of standard forms and supporting documents (Appendix F) available on-line at: (http://training.fema.gov/EMIWeb/IS/ICSResource/Forms.htm). Once the initial set of

forms has been completed, the IAP can be rapidly revised and updated for the next operational period (CDFG 2008). An example IAP is provided in Appendix G.

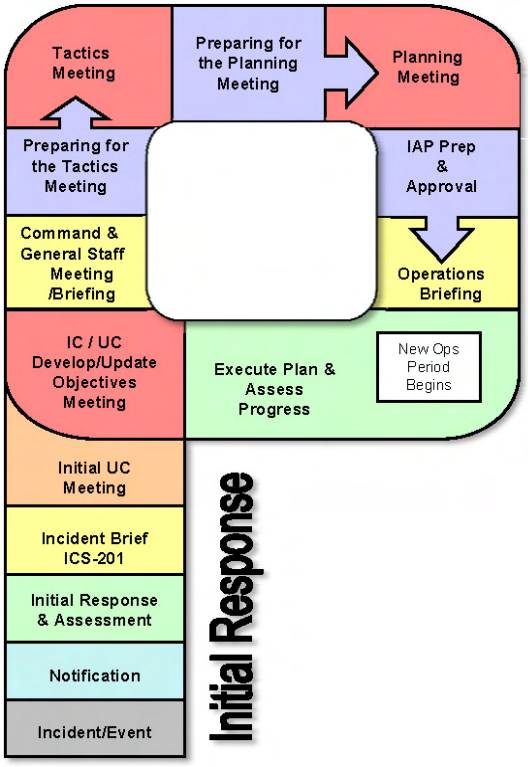


Figure 3. The ICS Planning "P". (Source: Rapid Response Planning for Aquatic Invasive Species: A Template, Smits and Moser 2009)

III. RAPID RESPONSE PROCESS OVERVIEW

Discovery/Notification

Anyone can discover new AIS, but a rapid response cannot occur if the finding is not reported to the appropriate management authority. It is important that agency personnel, government officials, stakeholders and the public are made aware of the importance of reporting sightings of potential AIS and the preferred method for filing a report. Two existing national notification tools are available for reporting potential AIS: the U.S. Geological Survey's (USGS) on-line Sighting Report Form (http://nas.er.usgs.gov/SightingReport.aspx) and a toll-free notification hotline (1-877-STOP-ANS). Both systems are available 24 hours, 7 days per week. Reports filed in either system are forwarded to the appropriate state authority by either a USGS AIS specialist or a USFWS Regional AIS Coordinator. A single instructional message can be used by all MRBP member states by taking advantage of these existing notification systems.

It is inevitable that some AIS sighting reports will be made directly to local, state, and other federal entities, rather than submitted using either of the preferred methods described above. To ensure timely notification of the correct authority, the responsible state agency should establish and provide instructions for documenting and forwarding AIS sighting reports to agencies and entities that may receive a report. A template AIS Sighting Report form is provided in Appendix H and is also available on the MRBP website (http://www.mrbp.org). A standard AIS sighting report form and instructions should be made available on the responsible state agency's website.

Once notification of a potential new AIS has been received by the appropriate management authority within the state the discovery was made (e.g., state natural resources management agency aquatic invasive species coordinator), the rapid response procedure is initiated. An overview of the general plan of operations for a rapid response is presented in Figure 4.

Confirmation

Following notification of a potential AIS sighting, the organism and geographic location of the discovery must be positively identified. The person who reported the discovery should be interviewed to gather more detailed information on the specific location and circumstances of the discovery. The specimen or photographs should be collected if available, and the location identified on a map. The USGS Nonindigenous Aquatic Species (NAS) on-line Sighting Report offers both an upload tool for pictures and a mapping tool to document the sighting. If necessary, the Invasive Species Program staff will work with taxonomic experts to confirm the species' identification.

Once the species' identification has been confirmed by a taxonomic expert, the reported sighting is documented as either a negative or positive potential AIS and acted upon accordingly. If the report was received via the NAS system, then the species' confirmed identification is reported back; otherwise any positive ID should be registered as a new report in the NAS database (http://nas.er.usgs.gov/SightingReport.aspx).

a. Negative ID: If the sighting is confirmed to be a native species, or is a known occurrence of a non-native species in the reported location or watershed, then no further action is necessary. The rapid response process is terminated, and the results of the Sighting Report documented.

b. Positive ID: If the sighting is confirmed to be a new occurrence of a non-native species within the state or watershed, then the response process proceeds and a rapid assessment is conducted.

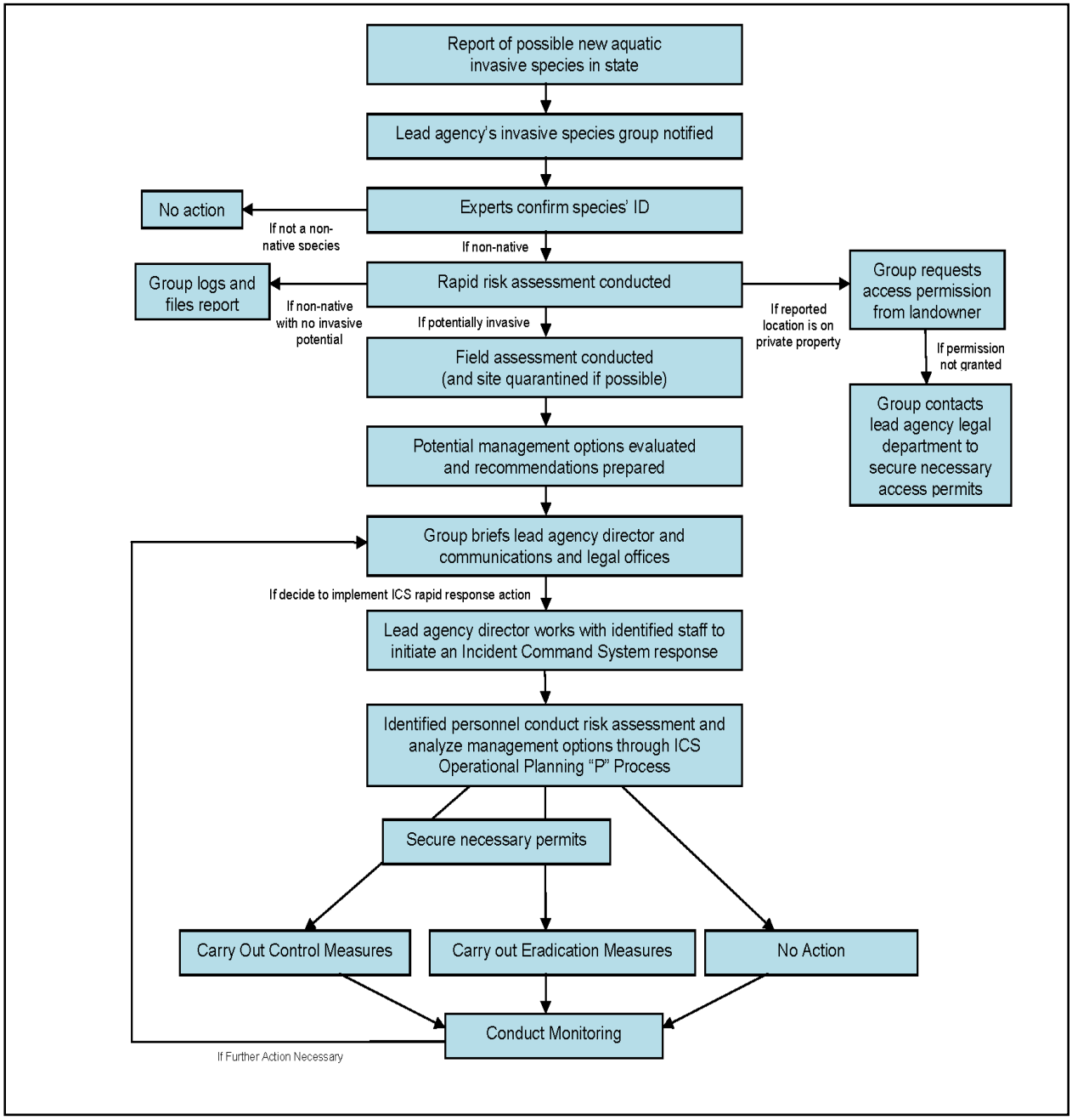


Figure 4. Overview of the rapid response process. (Source: Amended from Rapid Response Planning for Aquatic Invasive Species: A Template, Smits and Moser 2009)

Rapid Assessment

The positive confirmation of a reported sighting as a new occurrence of a non-native species in the state or watershed will result in a rapid assessment (Figure 5). The rapid assessment is an information gathering step that involves concurrent biological and literature surveys to provide decision support for determining if a response action is warranted. Managers should consult experts from academia, state, and federal agencies, as appropriate, to aid in the rapid assessment (Smits and Moser 2009).

A Scientific Advisory Committee is convened and is responsible for using the best available science to determine the species' potential to be invasive. If a full risk assessment has not been conducted prior to the rapid response, a rapid risk screening (Appendix I) is completed to quickly and efficiently evaluate the species as a low, medium, high, or unknown risk for detrimental impacts.

Once the reported species' identification has been confirmed and determined a potential invasive threat, a brief, but intensive field assessment is conducted to confirm the introduction, delineate the extent of the introduced species' distribution, its potential for further distribution, and to quarantine the area if possible. If the field assessment determines that the species' distribution is sufficiently limited for an attempt at eradication (or alternative control actions), then the assessment is expanded to include a review of potential management options for the size and location of the introduction. If the species' distribution is too wide spread for eradication or other control actions to be effective, then alternative management options, and not a rapid response, should be recommended to decision makers.

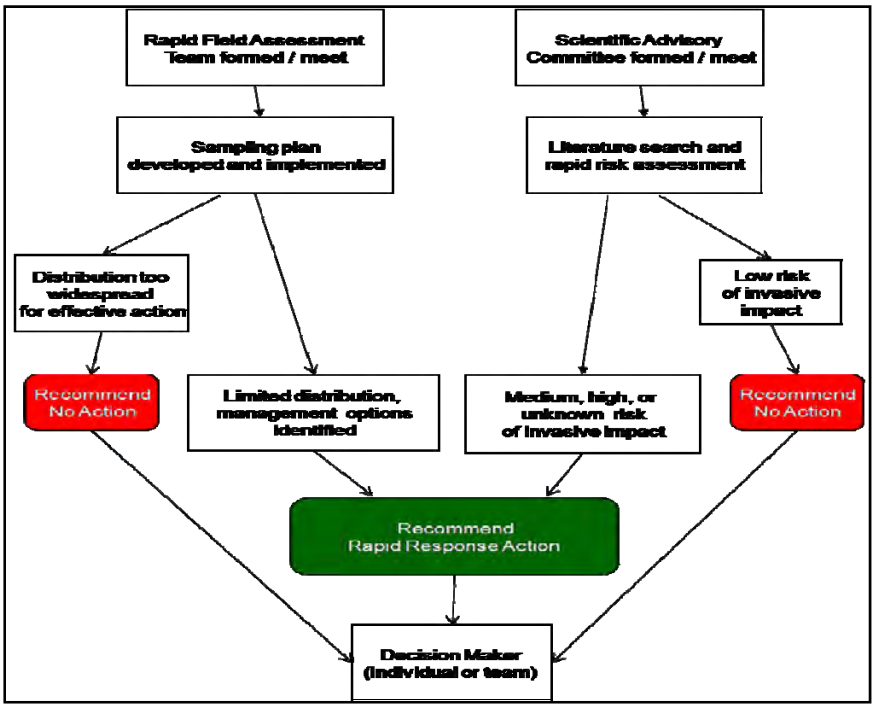


Figure 5. Decision tree for aquatic invasive species rapid response decision support. (Source: Amended from Mike Hoff, USFWS)

Upon completion of the rapid assessment, the Invasive Species Program summarizes the information and provides an agency brief with a recommendation for "rapid response action" or "no action." *Note:* Managers may determine that control actions other than a rapid response are warranted and recommend alternative management actions to agency decision makers; however such alternatives are considered outside the context of a rapid response action and are not addressed in this document.

Decision for Action

A number of factors must be considered when making a recommendation to attempt a rapid response action. The complexity and cost of a response action will increase, and likewise the chance for success decrease, as the size of an introduced population and the affected area increases (WRP undated). Eradication of AIS can quickly become complicated because of the mobility of the species, the unseen nature of aquatic species and their response to management actions, the open nature of many water bodies, the potential for a response to be a multijurisdictional issue (within or among states), and the extreme value and sensitivity of aquatic habitats (WRP undated). The decision for action can be difficult, as it may require balancing conflicting social, political, and legal issues in a situation where good information is likely scarce (WRP undated). Decision makers are therefore dependent upon the quality of information and science provided from a rapid assessment and a Science Advisory Committee.

The following factors for consideration are an excerpt from the Western Regional Panel on AIS *Model Rapid Response Plan for Aquatic Nuisance Species* (WRP undated).

1. Is there knowledge of the risk of reintroduction, and is the risk low enough to justify eradication?
2. Taken overall, can controls be initiated rapidly?
    a. Was the invasion detected early? That is, the infestation is small and there are only a few locations?
    b. Can the species continue to be contained to this small location while control measures are planned and implemented?
    c. Was the invader rapidly and accurately identified?
    d. Is information on species biology and management quickly available?
    e. Are treatment methods available?
    f. Are there serious environmental issues or regulatory hurdles that will lead to delays or greatly increase the cost of treatment?
    g. If permits are needed, can they be obtained in a timely fashion?
    h. Has the species been prioritized for response and is there a pre-existing action plan?
3. Taken overall, is there a will to act?
    a. Are there decision-making procedures and structures with the power to determine whether eradication should proceed, how, and who should fund it?

b. Has there been a clear assessment of technical, field, administrative, funding, and legal resources available for an eradication campaign?
c. Is there acceptance of the need to proceed on the best information available?
d. Is there acceptance of short-term, local impacts in return for long-term, wide-area benefits?
e. Is there acceptance that the “no action” response has serious impacts?
f. Do a preponderance of the agencies (and their staff) feel they have a clear responsibility to act, or does one agency have a clear mandate and authority to act?
g. Is there recognition and acceptance that the eradication effort can be a long-term effort, almost always taking years in the case of plants or other organisms with resistant resting stages?

4. Taken overall, is organization adequate?
    a. Is there an ability to quarantine the infested area?
    b. Is there a capacity to survey, to determine whether the pest is restricted to the quarantine area?
    c. Will program staff with experience in pest management and eradication be assigned to direct the control efforts and monitor results?
    d. Are funding sources adequate and of sufficient duration?
    e. Is there effective collaboration among the parties carrying out the effort?
    f. Is there regional collaboration where infestations cross jurisdictions?
    g. Are there provisions for monitoring in order to modify, expand, or end an eradication campaign?
5. Other factors
    a. Is there support for the effort by affected parties, including the public?
    b. Is there effective outreach and education for both the public and government decision makers?

Once a decision is made to implement a rapid response, alternative management actions, or no action, the initial response is documented in a written Incident Brief (adapted from ICS-201 form). A decision for no action or alternative management actions is not addressed further in this document and proceeds according to the agency procedures. However, managers may continue to utilize the Planning P to implement and evaluate the alternative management actions.

The decision by an agency to implement a rapid response initiates the formation of an ICS organizational structure (Figure 2). The Agency must decide whether to pursue a single command response with one Incident Commander (IC), or in the case of a multi-agency or multi-jurisdictional response, a Unified Command (UC) in which multiple agencies share incident management responsibilities (CDFG 2008). An initial UC meeting is conducted to begin to establish a course of action. During the UC meeting the rapid response objectives are developed and individuals are identified to fill the

Command and General Staff positions (Appendix F) that form the remainder of the Incident Management Team (IMT). The initial UC meeting completes the Initial Response phase of the Planning P (Figure 3).

Implementing the Rapid Response Action

The second phase of the Planning P is the "planning cycle" (see P. 7). The IMT uses the planning cycle to plan, implement, and evaluate rapid response actions. A description of how the planning cycle is used to organize an AIS rapid response is presented in Section IV.

The principal objective of a rapid response action is eradication of the introduced AIS, but unfortunately eradication is not always feasible. Rapid response management strategies, therefore, include a spectrum of eradication, containment, population control, and/or mitigation measures (GLRP 2006). There are many considerations when assessing potential management options to implement, including:

- Efficacy of eradicating or controlling the target AIS
- Access and ability to implement response actions throughout the targeted area
- Need and ability to establish and enforce a quarantine during/after treatment
- Non-target effects on aquatic and terrestrial organisms, habitat, and the public
- Permitting and regulatory compliance
- Funding and resources required
- Authority and leadership (i.e., legal ability and operational capability)
- Coordination and cooperation among responsible management agencies
- Ability to monitor and evaluate treatment success
- Public awareness and outreach to affected parties necessary before, during, and after treatment (WRP undated).

Rapid response options will vary considerably for different types of aquatic organisms. The specific management actions selected for implementation will be determined by the specific conditions of the introduction and the technical, economic, and political feasibility of the available management tools (GLRP 2006).

Evaluation of Actions

The rapid response effort should utilize an adaptive management process to ensure that the response actions are effective. Once complete, the effort should conclude with an intensive field sampling effort to evaluate the success of the response actions to eradicate or control the introduction. A monitoring plan should be developed for long-term evaluation of success. If it is determined that the response actions were not successful in achieving the desired results (i.e., control or eradication), then an assessment of the introduction status and potential control actions is completed. A briefing with recommended next steps is developed and presented to Agency decision makers. If the Agency's decision is take additional response actions, then the ICS response is continued, or a new response initiated.

IV. TEMPLATE RAPID RESPONSE PLAN

The following template is provided to assist states develop guidance that directs AIS rapid response efforts. The template includes a brief overview of the general steps involved in the rapid response process, followed by a detailed explanation of how to use the Planning P to organize an AIS rapid response. Both sections of the template include generic text fields (RED CAPS) that are intended to be modified by the individual states when developing rapid response guidance.

The following material is adapted from the Mid-Atlantic Panel on Aquatic Nuisance Species' *Rapid Response Planning for Aquatic Invasive Species: A Template* (Smits and Moser 2009).

Overview

The following guidance is intended to direct rapid response efforts for a new aquatic invasive species (AIS) incident in STATE.

A flowchart (Figure 4 on page 9) 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 STATE, the GROUP (e.g., Department of Natural Resources Invasive Species Program Staff) is the first point of contact for sighting reports of potential AIS. Following notification of a potential AIS, the GROUP will work with taxonomic experts to positively identify the reported species. If the report is a new occurrence of a potentially invasive non-native species in STATE, or a new watershed in STATE, then a rapid risk assessment will be conducted to determine the species' potential to be invasive. If the species is determined a potential invasive threat, a brief, but intensive field assessment is conducted to confirm the introduction, delineate the extent of the introduced species' distribution and its potential for further distribution, and quarantine the area if possible. Upon completion of the rapid assessment, the GROUP will provide a written brief to the LEAD AGENCY's DIRECTOR, COMMUNICATIONS DIRECTOR, and LEGAL DIRECTOR informing them of the incident (i.e., presence of AIS), the GROUP'S recommendation whether a response is warranted, and likely next steps.

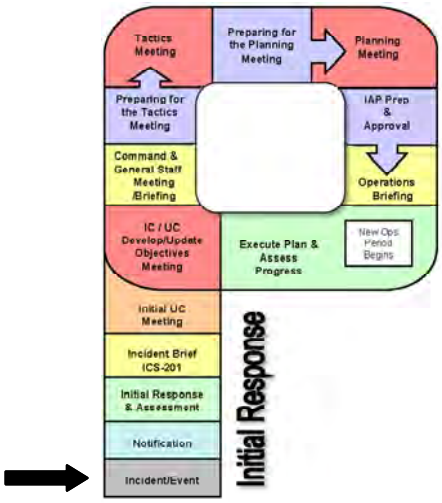
Once notified and the decision to act is made, the LEAD AGENCY's DIRECTOR becomes (or appoints) the Incident Commander (IC). If multiple agencies share management responsibility, a Unified Command (UC) may result. The IC/UC will appoint a General Staff to oversee operations, logistics, planning, and 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 F.

The newly appointed Incident Management Team (IMT) assesses the current status of the introduction, analyzes management options, and determines what needs to occur next and how it will be accomplished. To facilitate this process, the IMT uses the Planning P process to plan, implement, and evaluate actions. An explanation of how to use the Planning P to organize an AIS rapid response is presented below.

The timeline for AIS eradication and control 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 IC/UC assesses progress and determines if further action is needed. If additional action is needed, the ICS planning cycle begins again with the IC/UC updating response objectives for the next operational period. At the conclusion of the rapid response, a final after action report and press release detailing actions and outcomes should be prepared and delivered.

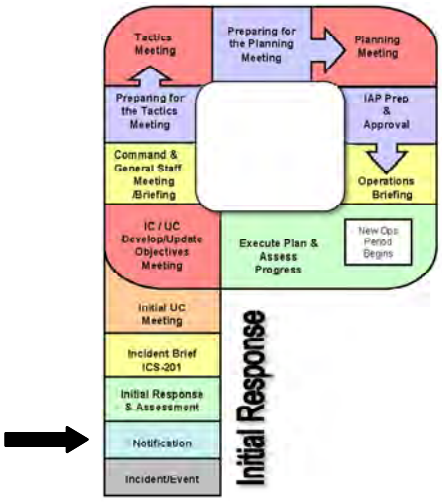
Phase I: "The Initial Response"

Incident



The discovery of a possible aquatic invasive species (AIS) in STATE initiates the Planning "P" process.

Notification



Who: Anyone who sights, or receives notification, of a potential AIS in STATE

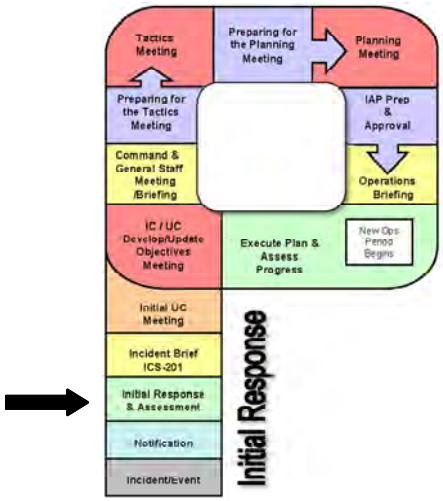
What: Contacts local authorities, state or federal agencies to report sighting of an AIS. Upon receiving the report, officials will notify the GROUP.

How: Notification regarding a potential AIS in STATE may happen by a variety of ways. The preferred method is by calling the national notification hotline at 1-877-STOPANS.

If other state and federal entities are the first to receive notification, they should gather information from the reporter as outlined on the AIS Sighting Report form (Appendix H). Send completed forms to the GROUP by email to HEAD OF GROUP. The AIS Sighting Report form is available on the LEAD AGENCY website (WEBSITE URL) and the Mississippi River Basin Panel website (www.MRBP.org).

Initial Response and Assessment

Response



Who: GROUP.

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

How: GROUP provides taxonomic experts with a specimen or photographs by mail, courier, or e-mail. *Note:* Specimens should be handled in compliance with state/federal regulations regarding the transport of live prohibited species. An expert can be located using the Aquatic Nuisance Species Task Force's Experts database (http://www.anstaskforce.gov/experts/search.php) if necessary. A new occurrence of a non-native species in the state, or a new watershed in state, is documented in the USGS Nonindigenous Aquatic Species Alert System (http://nas.er.usgs.gov/SightingReport.aspx).

Assessment

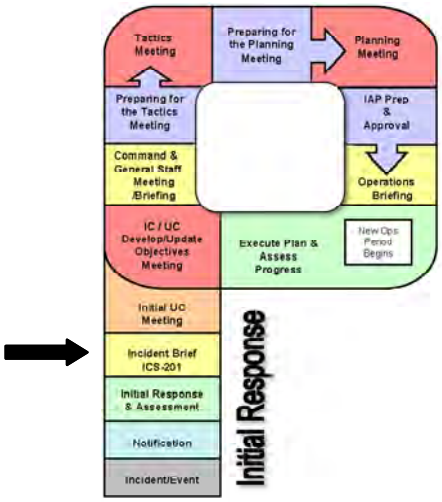
Who: GROUP, Science Advisory Panel, and field biologists.

What: Determine the non-native species potential to be invasive, confirm the introduction, and assess extent of occurrence and whether action is warranted and feasible.

How:

- Conduct a rapid risk assessment using available scientific literature and screening tools to evaluate the species' potential to be invasive.
- Interview person who made the report.
- Visit site. (Approach landowner for permission if action is required on private property. If landowner is non-compliant, work with LEAD AGENCY legal department to secure necessary access permits.)
- Conduct sampling to estimate extent of occurrence.
- Record information on AIS Sighting Report form (Appendix H).
- Assess potential management actions.
- Assess whether or not action is warranted.

Incident Brief



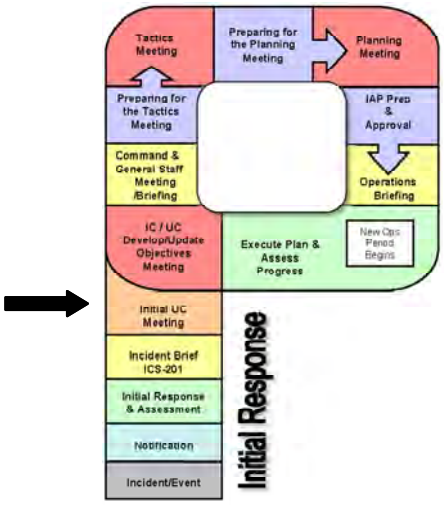
Who: GROUP.

What: Notifies LEAD AGENCY's DIRECTOR, COMMUNICATIONS DIRECTOR, and LEGAL DIRECTOR of presence of AIS, recommendation for rapid response action, and likely next steps.

How: A written Incident Brief (adapted from ICS-201 form) that includes information such as:

- Current situation
- Potential risk
- Recommended actions
- Resources in use
- Resources needed

Initial Unified Command Meeting



Who: Incident Commander (IC) / Unified Command (UC). This initial meeting will likely include the LEAD AGENCY DIRECTOR as Incident Commander or his/her designee and key scientific and legal support staff or advisors whom the LEAD AGENCY DIRECTOR identifies.

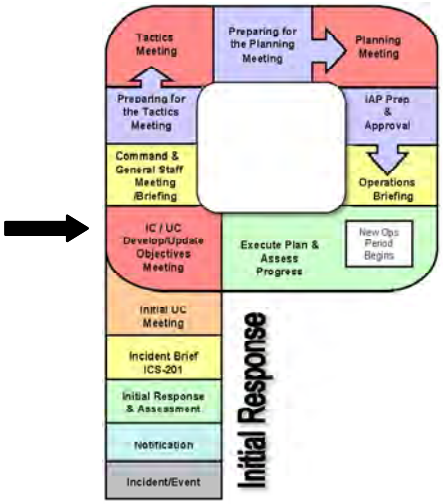
What: Begin to establish course of action.

How:

- Identify members of UC if a multi-agency or multi-jurisdictional response is warranted
- Determine priorities for the incident. For example:
  - Avoid ecological harm
  - Protect human health
  - Maintain economic value
  - Reduce risk of spread
- Establish incident objectives that cover the entire course of the response. Objectives should be achievable, measurable, and flexible.
- Identify funding mechanisms and agree on action to secure funding.
- Agree on resource-ordering procedures.
- Agree on basic organizational structure and best-qualified individuals to fill desired General and Command Staff positions (Appendix F).

Phase II: "The Planning Cycle"

Objectives Meeting



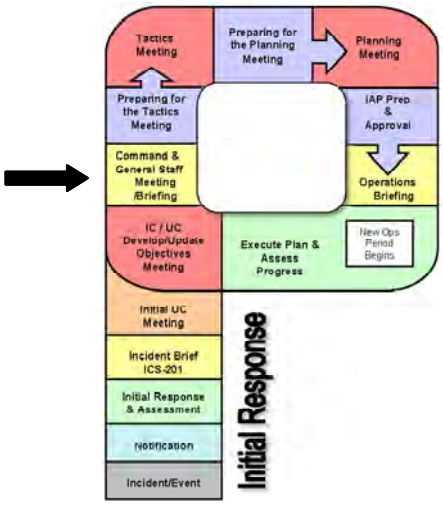
Who: IC/UC.

What: Develop response objectives (derived from overall incident objectives identified in previous section) for the next operational period.

How: Evaluates the current incident status, what needs to occur next, and how it will be achieved.

1. Determine time frame for the overall response action. 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.
2. Establish an incident organization that is capable of meeting initial and long-term challenges to respond to the introduction.
3. Consider need for Deputy Incident Commander.
4. Identify and select incident support facilities for control and/or eradication efforts (i.e., Incident Command Post, Base, Staging Areas).
5. Ensure scene integrity and evidence preservation.
6. Identify constraints and limitations, which may include:
   - Challenging sampling environment
   - Jurisdictional issues
   - Legislative authority
   - Regulatory compliance
   - Securing permits (time and authority)
   - Funding to pay for all aspects of rapid response
   - Availability of invasion control options
   - Training personnel
   - Access to private property (land ownership)
   - Gaps in knowledge of species biology
   - Ecological uncertainties

Command and General Staff Meeting



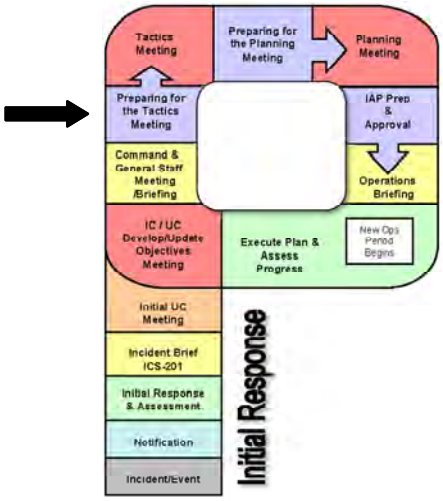
Who: Members of the IC/UC, Command and General Staff.

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.
- If using Unified Command, determine if Joint Information Center is required.

Preparing for the Tactics Meeting



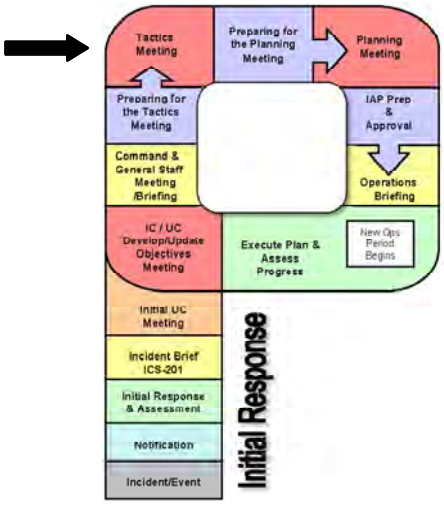
Who: Operations Section Chief, Planning Section Chief, Legal Advisor, Science Advisor.

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



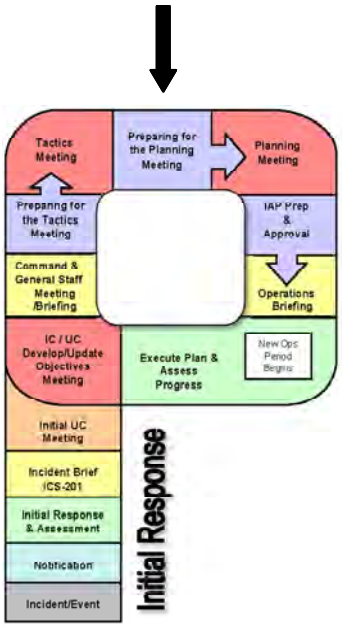
Who: Planning Section Chief, Operations Section Chief, Logistics Section Chief, Legal Advisor, Science Advisor, Safety Officer.

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 (methods may involve a mechanical, chemical, or biological treatment, or an integrated approach using a combination of methods).
- 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



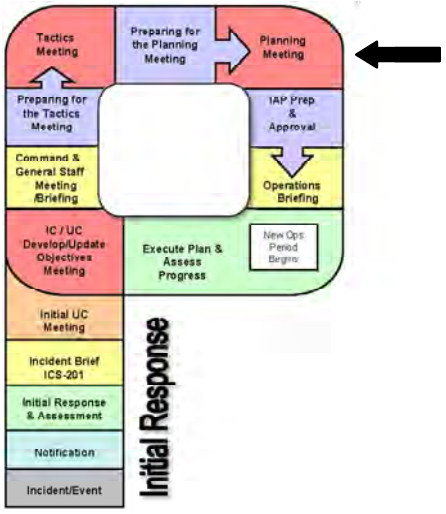
Who: IC/UC, Command and General Staff, technical specialists as required.

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

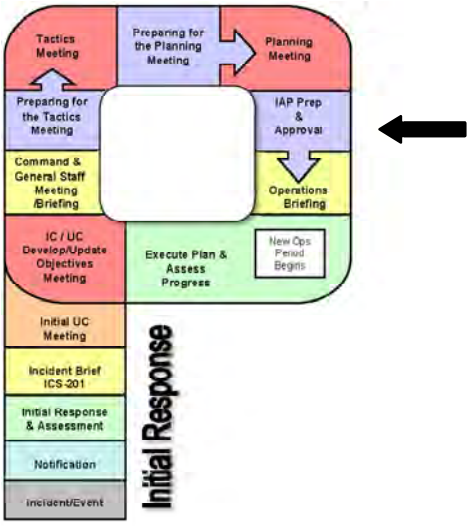


Who: Members of IC/UC, Command and General Staff, technical specialists as required.

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 (IAP) that everyone agrees they can support.

Incident Action Plan Preparation and Approval



Who: Planning Section Chief, Operations Section Chief.

What: Assemble IAP for final approval by the IC/UC.

How: The IAP consists of a series of standard forms and supporting documents. Basic forms for an IAP include:

- ICS-202, Incident Objectives.
- ICS-203, Organization Assignment List.
- ICS-204, Assignment List.
- ICS-205, Communications Plan.
- ICS-206, Medical Plan.
- ICS-207, Organization Chart
- ICS-230, Meeting Schedule

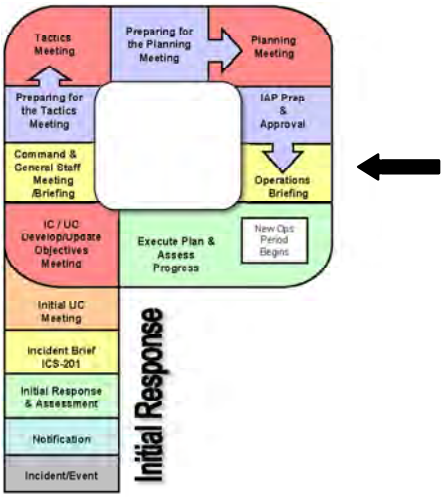
Supporting documents are used to provide additional important information. For example:

- General safety message
- Weather forecast
- Maps
- List of response personnel and cell phone numbers

ICS forms are available on-line at: (http://training.fema.gov/EMIWeb/IS/ICSResource/Forms.htm).

An example IAP is provided in Appendix G.

Operations Briefing



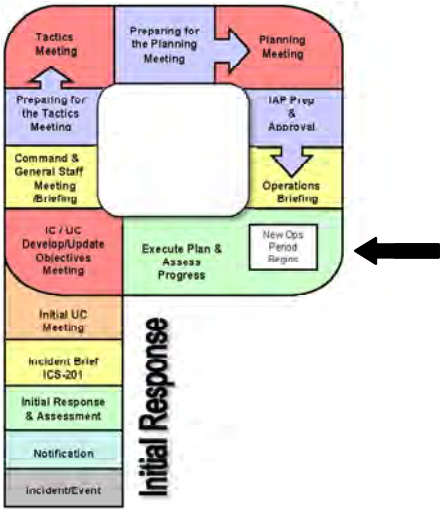
Who: IC/UC, Command Staff, General Staff, Branch Directors, Division/Group Supervisors, Staging Area Managers, Task Force/Strike Team Leaders, and Unit Leaders; or all response personnel.

What: Acknowledge that not everyone has been present at previous meetings; provide copies of the IAP; 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 IAP.
- Adjust objectives and actions as needed.
- Monitor successes and failures of prepared objectives.

V. SELECT RAPID RESPONSE RESOURCES

On-Line Resources

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/

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

U.S. Department of Homeland Security
Federal Emergency Management Administration, Emergency Management Institute
ICS Resource Center
http://training.fema.gov/EMIWeb/IS/ICSResource/index.htm
NIMS Resource Center
http://www.fema.gov/emergency/nims/index.shtm

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

Recommended Reading

Clinton, W. J. 1999. Executive Order 13112 of February 3, 1999: invasive species. Presidential documents. Federal Register, Volume 64, Number 25. Available at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1999_register&docid=99-3184-filed.pdf

Finlayson, B., R. Schnick, D. Skaar, J. Anderson, L. Demong, D. Duffield, W. Horton, and J. Steinkjer. 2010. Planning and standard operating procedures for the use of rotenone in fish management - rotenone SOP manual. American Fisheries Society, Bethesda, Maryland. Available at: http://www.afsbooks.org/55061P

Moore, S.E, M.A. Kulp, B. Rosenlund, J. Brooks, and D. Propst. 2008. A field manual for the use of antimycin A for restoration of native fish populations. Natural Resource Report NPS/NRPC/NRR—2008/001. National Park Service, Fort Collins, Colorado. Available at: http://www.nature.nps.gov/water/FisheriesReports/NPS_Antimycin_SOP_2008_reformat.pdf

USDHS (U.S. Department of Homeland Security). 2008. National Incident Management System. Federal Emergency Management Agency, Publication P-501. Washington, D.C. 156 pp. Available at: http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf

USEPA (U.S. Environmental Protection Agency) 2005. Overview of EPA authorities for natural resources managers developing aquatic invasive species rapid response and management plans. EPA842-B-05-002. Department of Wetlands, Oceans, and Watersheds, Washington, D.C. Available at: http://www.epa.gov/owow/invasive_species/invasives_management/pdf/AquaticInvasiveSpecies-final.pdf

LITERATURE CITED

Anderson, L.W.J. 2005. California's reaction to Caulerpa taxifolia: a model for invasive species rapid response. Biological Invasions 7:1003-1016.

CDFG (California Department of Fish and Game). 2008. Draft rapid response plan for aquatic invasive species in California *in* California aquatic invasive species management plan. 136 pp. + appendices.

GLRP (Great Lakes Regional Panel on Aquatic Nuisance Species). 2006. Model rapid response plan for Great Lakes aquatic invasions, Iteration III, Draft: December 2006. http://www.glc.org/ans/pdf/06-12-12-RR-Plan-Iteration-III-Dec06-NT2.pdf

Heimowitz, P. and S. Phillips. 2008. Columbia River Basin interagency invasive species response plan: zebra mussels and other *Dreissenid s*pecies. 100th Meridian Initiative Columbia Basin Team. http://100thmeridian.org/ActionTeams/Columbia/CRB%20Dreissenid%20Rapid%20Response%20Plan%20OCTOBER%201%202008.pdf

Lodge, D.M., S. Williams, H. MacIsaac, K. Hayes, B. Leung, L. Loope, S. Reichard, R.N. Mack, P.B. Moyle, M. Smith, D.A. Andow, J.T. Carlton, and A. McMichael. 2006. Biological invasions: recommendations for policy and management [Position Paper for the Ecological Society of America]. Ecological Applications 16:2035-2054.

MDIFW (Maine Department of Inland Fisheries and Wildlife). 2006. Rapid response plan for invasive aquatic plants, fish, and other fauna. Part 2: fish and other fauna protocol. 10 pp. + appendices.

Murray, C. and D. Marmorek. 2003. Chapter 24: Adaptive management and ecological restoration. Pages 417-428 *in* Freiderici, P., editor. Ecological restoration of Southwestern ponderosa pine forests. Island Press.

National Research Council. 2004. Adaptive Management for Water Resources Planning, The National Academies Press. Washington, DC.

NISC (National Invasive Species Council). 2003. General guidelines for the establishment and evaluation of invasive species early detection and rapid response systems. Version 1. 16 pp.
NISC (National Invasive Species Council). 2008. 2008 – 2012 National Invasive Species Management Plan. 35 pp.

Salafsky, N., R. Margoluis, and K. H. Redford. 2001. Adaptive management: a tool for conservation practitioners. Biodiversity Support Program, Washington, D.C.

Smits, J. and F. Moser, editors. 2009. Rapid response planning for aquatic invasive species: a template. Mid-Atlantic Panel on Aquatic Invasive Species. 43 pp.

USDHS (U.S. Department of Homeland Security). 2008. National Incident Management System. Federal Emergency Management Agency, Publication P-501. Washington, D.C. 156 pp.

USEPA (U.S. Environmental Protection Agency). 2005. Overview of EPA authorities for natural resources managers developing aquatic invasive species rapid response and management plans. EPA842-B-05-002. Department of Wetlands, Oceans, and Watersheds, Washington, D.C.

Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. Adaptive management: the U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.

Wittenberg, R. and Cock, M.J.W. (eds.). 2001. Invasive Alien Species: A Toolkit of Best Prevention and Management Practices. CAB International, Wallingford, Oxon, UK, xvii - 228.

WRP (Western Regional Panel on Aquatic Nuisance Species). Undated. Model rapid response plan for aquatic nuisance species. 60 pp. http://www.fws.gov/answest/Docs/WRP%20RRP%20Final.pdf

Appendix A

Asian Carp Rapid Response Workgroup

Asian Carp Rapid Response Plan

November 2009

ASIAN CARP Rapid Response Plan

Produced by:

ASIAN CARP RAPID RESPONSE WORKGROUP

ASIAN CARP
Rapid Response Plan

November 2009

Produced by:

Asian Carp Rapid Response Workgroup

CONTENTS

CONTENTS

CONTENTS (Continued)

Appendices

ACKNOWLEDGEMENTS

The Asian Carp Rapid Response Workgroup consisted of the following members:

Agency/Stakeholder	Representative
Chicago Department of Environment	Kevin Schnoes
Great Lakes Commission	Kathy Glassner-Shwayder
Great Lakes Fisheries Commission	John Dettmers Marc Gaden
Illinois Department of Natural Resources	Steve Shults John Rogner
International Joint Commission	Mark Burrows
Metropolitan Water Reclamation District of Greater Chicago	Michael Sopcak James Yurik
Midwest Generation	Julia Wozniak
United States Army Corps of Engineers	Charles Shea Colonel Vincent Quarles
United States Coast Guard	MSTC Gregory Morris Commander Timothy Cummins
United States Department of Agriculture - Animal and Plant Health Inspection Service	Dr. Kathleen Burda
United States Environmental Protection Agency - Great Lakes National Program Office	Bill Bolen
United States Fish and Wildlife Service	Michael Hoff Sam Finney
Wisconsin Sea Grant	Phil Moy

Photograph of Jumping Asian Carp Provided by Nerissa Michaels, Illinois Natural History Survey

1.0 SITUATION

1.1 PURPOSE

In response to the increasing threat of the Asian carp expansion toward the Great Lakes and these fish placing greater pressure on barriers already in place to restrict their movement, the Asian Carp Rapid Response Workgroup was created. The purpose of the Workgroup was to assess the current situation and recommend courses of action should a rapid response be necessary to deal with Asian carp in areas of the Chicago Sanitary and Ship Canal, Des Plaines River, and the Illinois and Michigan Canal. In preparation for such a response, the Asian Carp Rapid Response Plan was created. At the request of partner agencies, the Illinois Department of Natural Resources (IDNR) has agreed to coordinate response actions and to serve as lead agency during response Operations.

The purpose of this plan is to establish, coordinate, and document actions by IDNR and its partner agencies to reduce the vulnerability of the Great Lakes to an Asian carp invasion via the Chicago Sanitary and Ship Canal (CSSC) and nearby bodies of water including the Des Plaines River and the Illinois & Michigan Canal (I&M). In the short term the purpose of rapid response measures, i.e. piscicide treatment, will accompany barrier maintenance, relieve pressure on Electric Barrier I (within the Lockport Pool), confirm presence of Asian carp previously detected through eDNA sampling and analysis, evaluate the feasibility and utility of applying piscicide in the CSSC to reduce or eliminate Asian carp populations, and validate the effectiveness of utilizing NIMS ICS concepts and principles of response for this type of effort via a multijurisdictional approach. In the long term permanent tools, such as piscicide treatment, would need to be implemented to mitigate the risk of Asian carp accessing Lake Michigan and the other Great Lakes.

This plan outlines the responsibilities and support of federal, state, and local agencies, as well as partner entities. The plan also describes the response procedures necessary for protecting and maintaining the integrity and safety of the Great Lakes ecosystem, and ensuring the health and safety of responders. These aims will be accomplished by implementation of the following actions:

- Confirmatory identification and increased surveillance efforts
- Selection and isolation of target areas to maximize control or eradication of Asian carp
- Examination of the pros and cons of all response options
- Provision of risk communication, notifications, health alerts, and public information to all necessary audiences
- Coordinated rapid response in the target area to control the upstream spread of Asian carp via the CSSC and nearby bodies of water
- Post-treatment monitoring to ensure thorough response.

Subsequent to the initiation of any actions in conjunction with a rapid response an Incident Action Plan (IAP) will be developed. The IAP will include the following:

- Operational objectives and briefing information
- Organization and chain of command
- Available resources
- Status updates
- Additional safety/hazard information.

1.2 SCOPE

This rapid response plan focuses on three locations along the Des Plaines River, Illinois & Michigan (I & M) Canal, or the CSSC (Appendix A, Figures 1 through 5), including the divergence into the CSSC and beyond. These locations are:

- Lockport Lock and Dam to River Mile (RM) 296.7 encompassing the following:
  - Areas between the electric barriers
  - Scenario of Electric Barrier shutdown or maintenance
- Des Plaines River at RM 297.0 upstream to RM 302.5
- I & M Canal from its confluence with the Brandon Road Pool of the Des Plaines River to the Cal-Sag Channel convergence

In the future it may be necessary to plan for rapid response actions encompassing the area beyond the electric barrier system to Lake Michigan, however at this time an effective treatment plan for this area has not been formulated.

1.3 MISSION

Through the Asian Carp Rapid Response Workgroup, the State of Illinois, with support from federal and local agencies, and other private entities will implement procedures and actions to protect and maintain the integrity and safety of the Great Lakes ecosystem from an Asian carp invasion via the CSSC, and to ensure the health and safety of responders and that of local personnel and residents.

1.4 GENERAL

The introduction of aquatic invasive species (AIS) into the Great Lakes and inland waterways throughout the United States is occurring at an alarming rate. Since the 1800s, over 180 species of AIS have made their way into the Great Lakes region. These fish, macrophytes, invertebrates, viruses, bacteria, and parasites can devastate native populations, as well as cause great economic damage to the Great Lakes commercial, sport, and tribal fisheries collectively valued at more than $7 billion annually (Barnhart, 2005). Of critical concern currently are Asian carp, a term used to describe a group of exotic fish originating in eastern Asia, that are expanding their range north through the Mississippi River basin towards the Great Lakes. Historically, successful control of AIS has resulted from focusing on small water bodies or critical control points in a system. The CSSC, which links the Great Lakes with the Mississippi River basin, is one such critical control point.

Historically, poor water quality in Chicago's urban waterways had controlled the transfer of invasive species between the Great Lakes and Mississippi River watersheds. Over the last three decades, newly created legislation and regulations aimed at improving water quality combined with government projects focused on habitat restoration, considerable improvement in water quality has resulted in an increased abundance of aquatic life in Chicago's waterways (Friends of the Chicago River, 2006). The man-made waterways in Chicago now form pathways for invasive species to expand their distribution between the Great Lakes and the Mississippi River System.

Asian carp are members of the family Cyprinidae. The three species identified for action under this plan for rapid response are the silver carp, bighead carp, and black carp. These fish were originally imported, along with grass carp, to southern United States aquaculture and wastewater treatment facilities to keep retention

ponds clean and to serve the food fish industry. Flooding throughout the 1980s and 90s allowed these fish to escape to nearby waterways. The bighead and silver species of carp are expanding their range north toward the Great Lakes. During 2002 monitoring efforts, Asian carp were detected in the upper Illinois River, just 60 miles from Lake Michigan (Conlin, 2002), and in 2009, silver carp were spotted considerably closer, within the Brandon Road Pool of the Des Plaines River.

Bighead carp can grow to very large sizes of over 5 feet in length that may approach 100 pounds or more. These filter-feeding fishes have "gill rakers" which are specially adapted for filter feeding and are capable of consuming 40% of their own body weight in food each day. Although these fish are excellent choices to keep aquaculture facilities clean, in the wild their eating habits allow them to quickly out-compete both small and large native fish such as the paddlefish, gizzard shad, lake perch, and buffalo fish. Sexual maturity is reached between 2-7 years dependent on the climate of the region (USGS, 2005). Upon reaching sexual maturity, they begin spawning anytime between April and September and can spawn multiple times during each season for the remainder of their life. These fish generally live about 10 years.

Silver carp are generally smaller than bighead carp. These highly prolific fish are similar to bighead carp in their feeding and spawning habits. Silver carp are often referred to as "flying fish" and pose a great danger to boaters, anglers, and other recreational users—of great concern on the Great Lakes. These fish are disturbed by boat motors and will jump from the water when startled. A motor boat traveling at high speeds causes these fish to jump from the water, potentially causing damage to boats and serious injuries to humans onboard.

Black carp differ from bighead and silver carp in both diet and appearance. They have large distinctive scales that are darker in color than those of the grass carp. Their pharyngeal teeth are large, resemble human molars and are specially adapted for crushing mollusk shells. The largest black carp on record in its native China is over 7 feet long and 150 pounds. Black carp were originally introduced in the United States accidentally in shipments of grass carp and are suspected to have escaped into the open waters of the Osage River in Missouri from an aquaculture facility during flooding events in 1994. The diet of the black carp, though different from the bighead and silver carp, makes them an equally deadly threat to the waters of the Great Lakes. Black carp consume mollusks and snails; adults can consume an average of 3 to 4 pounds of mussels per day. A single black carp could eat more than 10 tons of mollusks during its life. Black carp could aid in the reduction of invasive zebra and quagga mussel populations throughout the Great Lakes; however, native mussel populations (some of which are already known to be threatened or endangered) would also be negatively impacted in a relatively short period of time. The United States Geological Survey (USGS) has two documented reports of black carp in Illinois. The first specimen was caught in Horseshoe Lake, the second along the Mississippi River at Lock and Dam 24 in Calhoun County in 2004. Though not as widely distributed as the silver and bighead species, black carp remain a threat because juveniles are not readily distinguished from grass carp, which are sold and distributed throughout the United States and may be released into open waters (Nico, 2007).

Current Mitigation and Monitoring Efforts

A series of lock and dam systems along the Illinois Waterway have acted to slow the northerly progress of the Asian carp, and two electric barriers are in place as lines of defense against transfer of AIS between the Great Lakes the Mississippi River Basin. The three lock and dam systems—the Dresden Island Lock, the Brandon Road Lock and Dam, and the Lockport Lock and Dam (LL&D)—all have corresponding pools just upstream.

The two electric barriers in place are: Barrier II A, located upstream of the Lockport Lock and Powerhouse within the CSSC at river mile 296.1; and Barrier I, located upstream of Barrier II at river mile 296.35, see Figure 1 for barrier locations. A third electric barrier, Barrier II B, is under construction 500 feet upstream of Barrier II A, between the two existing barriers; completion of Barrier II B is anticipated in 2010.

In August 2009, as part of its expanded Asian carp monitoring program, the U.S. Army Corps of Engineers (USACE) began utilizing a new technique for sampling Asian carp by detecting Asian carp environmental deoxyribonucleic acid (eDNA) in water. Approximately 150 water samples were collected from both the Dresden Island pool and the Brandon Road pool. Preliminary test results detected silver carp DNA on July 31, 2009, in the Brandon Road Pool near the Lockport Lock and Powerhouse. This was the first indication of Asian carp this far upstream in the upper Illinois Waterway, and a single silver carp was observed by an electrofishing crew near this location on August 26, 2009. Subsequent eDNA testing in September 2009 also indicated the presence of silver carp within the Lockport Pool less than 1 mile from electric barrier IIA, as well as in the Des Plaines River several miles in from its confluence with the CSSC and about 5 miles upstream of where the electric barriers are located along the CSSC. No visual detections were noted within these areas.

Current efforts to gather additional water samples for more DNA testing are being supplemented with increased monitoring via electrofishing and other traditional methods with in the Lockport Pool of the CSSC, areas of the Des Plaines River, and the I & M Canal.

The Des Plaines River and the I & M Canal are of particular concern due to their proximity to the CSSC in areas above the electric barrier system (see Figures 1-5). Under flooding conditions that have occurred in the past (most recently in 2008), overflows connect the Des Plaines River with the CSSC. Fish could swim through flood waters into the CSSC, bypassing the electric barrier system to gain access to the Great Lakes. The I & M canal contains culverts that provide drainage from the area and then flow into the CSSC upstream of the electric barrier system. During times of flooding and high waters, these culverts are also a threat because fish may be able to swim into the CSSC above the barrier system, allowing them access to the Great Lakes. Currently, the USACE is conducting studies along both of these areas to delineate the extent of these areas and what mitigation efforts must occur to allow fish of varying sizes to pass from one body of water to the other.

1.5 THREAT ASSESSMENT

The Great Lakes cover more than 94,000 square miles. Following introduction of Asian carp into the Great Lakes basin, controlling their spread throughout the lakes would be nearly impossible. Establishment of Asian carp in the Great Lakes would have lasting and potentially negative effects. The favorable conditions found in the Great Lakes such as water temperature, food abundance, slow moving wetland regions, expansive area for migration, and lack of natural predators mean Asian carp populations could expand throughout the Great Lakes. Given the vast area of the Great Lakes eradicate would be very unlikely. These species could significantly impact local ecosystems.

The Great Lakes are home to many important species of food fish such as whitefish, bloater chubs, yellow perch, and rainbow smelt, as well as sport fish including trout, salmon, and walleye. The potential impact of Asian carp on the Great Lake's sport and commercial fishing industry is currently observed along the Mississippi River basin. In just a few short years following introduction of Asian carp into an area, many commercial fishing locations have been abandoned, because native fish have nearly disappeared from the catch, and replaced by Asian carp. The presence of Asian carp is a concern because they are prolific, grow and mature quickly, and feed on plant and animal plankton (the base of the food web). They may alter energy flow in a semi-oligotrophic system such as the Great Lakes, which in turn could lead to undesirable consequences for sport and commercial fisheries. In a 2002 workshop convened by the Great Lakes Protection Fund, the introduction of Asian carp into the Great Lakes ecosystem was identified as a threat to both sport and commercial fisheries, and a potential cause of ecological

and economic damages far exceeding those caused by the sea lamprey and zebra mussel invasions. (Chick, 2002)

The Great Lakes are home to nearly 80 federally listed threatened or endangered fish, mollusks, plants, mammals, insects, and reptiles, and many more species listed as threatened or endangered at the state level. The current invaders of the Great Lakes have been implicated in adverse effects on up to 46% of the local federally listed endangered plant and animal species. Introduction of Asian carp to the region could further harm these organisms and perhaps lead to their extirpation. One such fish of concern is the Lake Sturgeon, *Acipenser fluvescens*, which is protected by the State of Michigan because its remaining populations are less than 1 percent of the original population due to overfishing and habitat loss. Lake Sturgeon age to nearly 25 years for females and 12 years for males before reaching sexual maturity, and are bottom feeders with a diet including snails, mussels, and crustaceans (Michigan Sea Grant, 2009). They would be especially vulnerable to the introduction of black carp, with which they would directly compete for food.

1.6 CONSIDERATIONS AND ASSUMPTIONS

- This Plan is for rapid response made necessary by an invasion of Asian carp in one of the target areas described above (see Section 1.2). Current strategic actions to enhance preparedness prior to an introduction of Asian carp include the construction and activation of the electric barrier system along the CSSC. Near-term proposed strategic actions are discussed in Section 5.0 of this Plan.
- The CSSC is a federal navigable waterway; as such relevant federal regulations and authorities must be considered.
- An Asian carp rapid response event may occur at any time, depending on the weather and the response action taken, and changes in responsibilities and modifications to existing procedures may be necessary for operational success.
- Coordination of bi-national, federal, state, local, non-governmental organizations (NGO) and private industry partner stakeholders will be required.
- The State can apply resources and expertise to meet response-related needs beyond the capabilities of local jurisdictions.
- Federal capabilities and resources can meet disaster-related needs and augment state efforts, particularly if responses are beyond the capabilities of the State.
- NGOs and private industry can lend support to the rapid response mission and further augment governmental actions.
- Integration of planning, training, and exercises among all parties is imperative.
- The IDNR and all involved agencies must be familiar with the treatment procedures to avoid duplications or gaps during response operations and to respond in a coordinated manner.
- Many jurisdictional authorities coincide in the potential response areas, necessitating collaboration in a rapid response. This coordinated response may be arranged prior to such events through mutual-aid agreements (memoranda of understanding [MOU] / memoranda of agreement [MOA]) or other formal agreements with other stakeholders and agencies.
- Successful control of Asian carp under the scope of this plan may require additional interim and long term mitigative measures.
- Long-term monitoring and control of Asian carp will require a separate management plan developed cooperatively by all stakeholder agencies.

2.0 EXECUTION

2.1 RESPONSIBILITIES

The following sections outline the responsibilities and intentions of all participating agencies and stakeholder entities in an Asian carp rapid response operation.

2.1.1 Functional Responsibilities Matrix – Rapid Response*

Response Section/ Agency / Rapid Response Functions	City of Chicago	IEPA	IDNR	Law Enforcement Agencies	MWRD	USACE	USCG	USEPA	USFWS	USDA-APHIS	Supporting Agencies**
Incident Management			●					○	○	○	
Operations	○	○	●	○	○	○	○	○	○	○	○
Sites (Selection, Activation, Setup, Management)			●		●						
Communications	○	○	●	○	○	○	○	○	○	○	○
Waterway Shutdown						○	●				
Lock and Dam Closure						●	○				
Site Staffing	○		●	○	○	○	○	○	○	○	○
EOC Staffing	○		●					○			
Liaison	○	○	○	○	○	○	○	●	○	○	○
Site Health and Safety		●	○								
Public Information and Media	○		●			○	○	○			
Site Security				●	●		●				
Resource Management	○	○	●	○	○	○	○	○	○	○	○
Science Advisory/Risk Analysis			○						●		
Offsite Environmental Impacts		○	○					○	●		
Cost/Time Tracking	○	○	●	○	○	○	○	○	○	○	○
Procurement	○	○	●	○	○	○	○	○	○	○	○

* Does not factor in weather or other unexpected event that may alter or add additional responsibilities to this rapid response.
** Supporting agencies include GLFC and multiple states fisheries management agencies and Canadian provinces.
EOC Emergency Operations Center

Legend: ○ = Support, Coordination, and Involvement ● = Primary Responsibility

2.2 PRIMARY RAPID RESPONSE PLANNING ORGANIZATIONS

Implementation of this plan at any of the three locations described in Section 1.2 or during the emergency scenario will depend on the cooperation of a broad variety of organizations and agencies, including, but not limited to, the agencies listed in this section and Section 2.3 below. This section describes federal, state, and local agencies/stakeholders that have legal authorities in conjunction with an AIS introduction specific to the target areas. Note: This section may be subject to revision pending additional information gathered from responding agencies.

2.2.1 Illinois Department of Natural Resources (IDNR)

According to the Department of Natural Resources Act (DNRA) (20 ILCS 801/1-15) "It shall be the duty of the Department to investigate practical problems, implement studies, conduct research and provide assistance, information and data relating to the technology and administration of the natural history, entomology, zoology, and botany of this State; the geology and natural resources of this State; the water and atmospheric resources of this State; and the archeological and cultural history of this State."

IDNR is the lead fisheries management agency within the state of Illinois; as such and in accordance with DNRA, IDNR will serve as lead responding agency in rapid response operations against Asian carp for the treatment of the waterways that fall under the scope of this plan utilizing all available personnel and equipment in these actions. Working in conjunction with the State of Illinois, the director of IDNR shall activate the Rapid Response Plan and established notification list.

2.2.1.1 Illinois DNR Office of Law Enforcement - Conservation Police

The Conservation Police are the law enforcement branch of the IDNR. As IDNR is serving as lead agency for rapid response operations, the Conservation Police will act as lead security agency for response activities onsite. They will be responsible for providing a Site Security Plan (Appendix D) and coordinating with other agencies to provide security for all personnel and assets onsite.

2.2.2 United States Coast Guard (USCG)

USCG delegation of public duties is found in Volume 33 of the *Code of Federal Regulations* section 3.01. Duties include (1) enforcement of port safety and security and of marine environment protection regulations within areas for which USCG is responsible, and (2) operations for protection and security of vessels and waterfront facilities in that waterway. The Captain of the Port shall be responsible for closing this waterway for its security, if necessary, during such operations.

2.2.2.1 USCG Sector Lake Michigan, Milwaukee

Based on its proximity to the area and vested interest in the Great Lakes, the USCG Sector Lake Michigan stationed in Milwaukee, Wisconsin, (USCG Milwaukee) would also assist in response operations based on the availability of resources at the time of response. USCG Milwaukee will provide trained personnel to the effort and assist as necessary. USCG Milwaukee has assets in the areas north and south of the barrier system that could actively patrol these waters. During times of response in this area, USCG Milwaukee may be able to utilize these resources to patrol these waters and maintain security and safety.

2.2.2.2 USCG Marine Safety Unit (MSU)

The USCG Marine Safety Unit Chicago is responsible for executing the USCG Port Safety and Security, Marine Environmental Protection, and Commercial Vessel Safety missions under the auspices of the Department of Homeland Security. The USCG MSU will serve in an advisory capacity to support USEPA during response operations.

2.2.3 Metropolitan Water Reclamation District of Greater Chicago

The Metropolitan Water Reclamation District of Greater Chicago (District) operates Publicly Owned Treatment Works (POTW) which treats wastewaters from domestic, commercial, and industrial sources in Chicago and numerous surrounding communities. The District's jurisdictional authority consists of ownership of land on both sides of the CSSC to its confluence with the Des Plaines River at RM 290.0. As such, access to any adjacent properties must be granted through the District.

2.2.4 United States Army Corps of Engineers (USACE)

The USACE has authority for all matters pertaining to the electric barrier system in place within the Lockport Pool of the CSSC, including operations, care, maintenance, and anything that may affect the system. It also has authority over the operation of the lock and dam system in place within the CSSC. During any rapid response operations, the USACE will be responsible for the closing of the Lockport Lock and Dam prior to a Rapid Response and the Brandon Road Lock and Dam if necessary. USACE will also monitor the barrier system before, during, and following rapid response to ensure sustained operations. USACE also serves on the Asian Carp Rapid Response Workgroup to advise on recommendations affecting response options.

2.2.5 United States Environmental Protection Agency (USEPA)

As a general rule under the National Environmental Policy Act (NEPA), federal agencies must consider the environmental impacts of "major federal actions significantly affecting the human environment" and identify unavoidable environmental impacts before implementing the proposed action. In compliance of NEPA, USEPA will prepare an Environmental Assessment (EA) to ensure protection of the environment particularly with a focus on endangered species. In addition, to comply with FIFRA USEPA will ensure that any registered piscicide used will be applied under established registration procedures, specifically section 24c of the Registration Eligibility Decision (RED).

The USEPA may provide additional personnel for response actions based on availability and time of response.

2.2.6 United States Fish and Wildlife Service (USFWS)

In working to protect native fish populations and important commercial and recreational fisheries, USFWS plans to support the planning and operations of a rapid response action by supplying in-kind assets such as personnel, equipment, other supplies, and technical expertise. USFWS will be listed as the agency with primary responsibility for the Science Advisory Team. USFWS designated personnel will also serve as part of the Incident Management Team. Fiscal resources may be offered to support rapid response actions if funding allows. Prior to plan initiation, USFWS will develop and implement MOUs or other Interagency

Agreements that fulfills the purpose of clearly defining the specific roles and responsibilities of each agency acting to support the Asian Carp Rapid Response Plan.

2.3 SUPPORTING RAPID RESPONSE PLANNING ORGANIZATIONS

The following organizations and agencies will support operations for an AIS rapid response as they have a vested interest in participating in such actions so as to protect the Great Lakes from introduction of Asian carp. A summary of intentions is presented below for each supporting organization or agency.

2.3.1 Great Lakes Fishery Commission (GLFC)

The GLFC has a long history of battling to control aquatic invasive species within the Great Lakes basin. Consistent with this tradition, the GLFC will offer trained personnel and emergency funding to rapid response operations. The GLFC will also lobby state and federal governments to garner support for operations, and request legislation for any long-term efforts aimed at controlling Asian carp and its expansion in the waters of the Great Lakes.

2.3.2 City of Chicago

To support the efforts to restrict Asian carp downstream of the electric barrier system, the City of Chicago will respond to any Asian carp operations in accordance with the City's Emergency Operations Plan (EOP)—each city department will conduct its responsibilities as designated in the EOP. The City also will apply resources and assets to support these efforts.

2.3.3 International Joint Commission (IJC)

Through the ongoing commitment of the IJC to protect all Boundary Waters between the U.S. and Canada, the IJC will support the rapid response actions to mitigate the threat of Asian carp to the Great Lakes. The IJC will offer support through participation in the response planning initiative and advocate for government support for the project if the circumstances merit these activities.

2.3.4 Midwest Generation, LLC

Midwest Generation will support the effort at Asian Carp control by monitoring its Will County station intake pipes for the presence of Asian Carp. They will adjust operation as needed to support response operations. Midwest Generation will remain in communication with IDNR and USEPA to report any new findings. Their operations are likely to be affected by any rapid response actions; as such they will be notified as soon as possible following a decision to implement a rapid response so that they may plan accordingly.

2.3.5 Affected Counties

Local law enforcement, county/local Offices of Emergency Management, Emergency Medical Services (EMS), fire departments, etc. should all be notified of pending operations within their jurisdictions so they may prepare for potential actions. Local law enforcement may be needed to support mission in their respective jurisdictions.

2.3.6 Other Support State and Provincial Agencies

Fisheries management agencies from the States of Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin will supply in-kind support as available and able in the form of personnel, equipment, chemicals, or financial contributions. Though these agencies have no authority within the proposed areas of action, they recognize the threat of the Asian carp expansion and strive to maintain the integrity of the Great Lakes.

Working to foster bi-national support for Asian carp control, Fisheries and Oceans Canada plans to support treatment of the CSSC and subsequent clean-up activities in Illinois by supplying in-kind support in the form of expertise, personnel, and equipment as available. Though they have no authority in the target area, their Aquatic Invasive Species Program is focused on prevention and keeping Asian carp out of the Great Lakes. The Ontario Ministry of Natural Resources, through their ongoing collaboration with Fisheries and Oceans Canada for AIS prevention in the Great Lakes, will be providing support for in-kind resources and assets to be used in conjunction with rapid response operations. Additionally the province of Quebec will provide fiscal resources to Illinois in support of a rapid response has funds are available.

2.4 CONCEPT OF OPERATIONS

- This Rapid Response Plan is consistent with preparation and response roles and responsibilities within the National Incident Management System (NIMS) Incident Command System (ICS).
- This Plan complies with appropriate federal, state, and local laws and authorities (see Appendices N and O, Glossary, Authorities, and References).
- Since the CSSC is an actively used waterway, stakeholder agencies including those that utilize the canal for commerce must be notified as soon as possible following the decision to implement a rapid response so that they may plan for interrupted operations as necessary.
- The Des Plaines River, I & M Canal, and CSSC Asian Carp Rapid Response Plan describes in detail the prescribed response actions for Asian carp within defined locations of the Illinois River, Des Plaines River, or CSSC. Aspects of the response are:
  - Planning
  - Activation
  - Staffing
  - Safety
  - Security
  - Control and/or disposal
  - Monitoring
- IDNR will direct operations of Asian Carp rapid response activities.
- When all or part of the plan is activated, each organization with an emergency responsibility or support intention will apply its resources to the operation under direction of the Incident Commander (IC) within a Unified Command as agreed upon through agreements prior to response operations.

2.4.1 Response Trigger

The Asian Carp Rapid Response Workgroup has deemed the following triggers will activate rapid response operations:

- Positive confirmation of Asian carp between Barrier II and Barrier I
- Barrier Maintenance
- Catastrophic failure of the electric barrier system assuming fish can be contained downstream of electric barrier system

2.4.2 Rapid Response Operations

Implementation of this Rapid Response Plan consists of four phases: preparedness, response, recovery, and mitigation (see section 5.0 for mitigation actions). Specific operational procedures will be dependant upon the treatment selected at the time of Plan initiation. Information on chemical application procedures can be found in Appendix G of this document.

2.4.2.1 Preparedness Phase

This phase shall begin well in advance of implementing operations in response to the threat of Asian carp expansion into upstream location of the Des Plaines River, CSSC, or I & M Canal. It signals the threat is imminent and shall conclude when the actual response is triggered. This phase includes planning functions necessary to carry out a rapid response and includes the following:

- Selection of a rapid response planning team from IDNR and partner agencies or organizations
- Review of current legislation regarding AIS authorities and proposed treatment options
- Request of information, support, and resources from stakeholder representatives to implement a rapid response
- Assurance that agreements are in place for efficient operations
- Site selection for treatment and staging
- Selection of potential treatments best suited for each location.

2.4.2.2 Response Phase

This phase, Rapid Response Operations Phase, will be initiated by the pre-established triggers, and will extend into the process of follow-up monitoring. The following functions occur within this phase:

- Plan initiation
- Treatment selection
- Stakeholder notification
- Mobilization
- Treatment Application

- Detoxification if necessary
- Initial follow-up monitoring of area for Asian carp utilizing electrofishing, netting, eDNA analysis, and/or sentinel fish.

2.4.2.3 Recovery Phase

The Post-Response (Recovery) Phase begins with conclusion of water treatment and/or termination of the threat of Asian carp within the treatment area. This phase may begin during follow-up monitoring activities, which may continue well into recovery efforts. This phase ends with the After-Action Report (AAR) and dissemination of lessons learned. Components of the Recovery Phase are as follows:

- Continued follow-up monitoring efforts
- Cleanup and disposal of all recovered fish and bio-mass from the treatment area
- Demobilization
- Determination of capture and document costs
- Preparation of an AAR
- Preparation for future rapid response based on AAR, lessons learned, and continued training and exercises.

2.4.3 Other Control Actions

Other actions may be necessary in conjunction with a rapid response operation to ensure control and halt of the spread of Asian Carp. These actions may include but are not limited to the following:

- Seine/block netting during operations to further isolate treatment area
- Closing of locks where possible to prevent escape of fish during treatment
- Increased electrofishing or netting during canal treatments or shutdown of electric barriers for maintenance
- Sentinel monitoring to ensure treatment efficacy.

2.4.4 Reverse Trigger

One or all of the following may signal conclusion of response activities, depending on response actions implemented:

- Completed detoxification of treatment area
- Conclusion of cleanup actions
- Maximum dose achieved
- Dose timeline complete
- Negative result of sentinel monitoring within the treatment area for Asian carp
- Catastrophic event within treatment area.

2.5 COORDINATING INSTRUCTIONS

This section presents the roles and important event specific information necessary for carrying out safe, efficient, and effective operations.

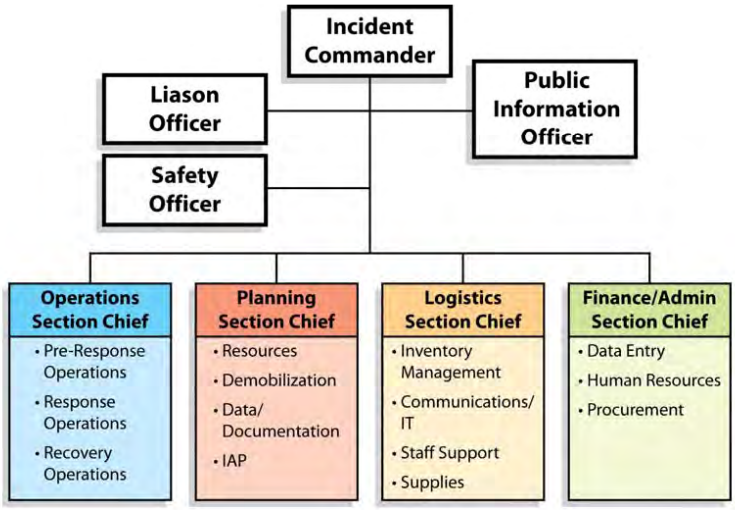
2.5.1 Incident Command System (ICS)

Under the direction of HSPD-5, the Federal Government has adopted the NIMS to manage emergency incidents and disasters from the first responder level to the highest levels of the Federal Government. It is based on the Incident Command System (ICS) and the Unified Command System (UCS), and is flexible and appropriate to all types of incidents. ICS will be used both on-scene by response staff and in the Emergency Operations Center (EOC). Unified and/or Area Command will be instituted when multiple agencies have jurisdictions over locations or actions occurring through rapid response operations, or when the geographic area of the operation is so large that a single operation is not feasible. The lead jurisdictional authority is responsible for activation and implementation of the command structure necessary to respond to and support efforts for containment and control of an Asian carp introduction. Because stakeholder agencies do not utilize a synchronized organizational structure for daily operations, the Asian Carp Rapid Response Plan will utilize ICS to effectively organize both staffing and responsibilities upon plan activation.

Within ICS and this rapid response, sections, branches, groups, units, and teams will be activated and staffed as necessary to adequately respond to the incident.

The ICS is flexible and may be expanded, contracted, or combined with different branches, groups, units, or teams as required by the incident. The following organization chart exemplifies the ICS structure and includes the main duties that will be relevant to this rapid response:

General ICS Command Structure Organization



2.5.2 Interagency Coordination (See Annexes 1 and 2)

2.5.3 Key Points of Contact

An important element of any response is the capability to contact personnel and to mobilize resources. Appendix E contains contact information regarding all stakeholder agencies and partner resources within the vicinity of treatment, as well as regional, state, and federal agencies.

2.5.4 Rapid Response Plan Activation

To ensure effective coordination upon RRP activation, the following key points should be in place and pre-planned.

2.5.4.1 Roles and Responsibilities

This section lists official roles and responsibilities of personnel active in the Rapid Response Plan.

Incident Commander (IC)

The IC is responsible for directing and coordinating activities of the rapid response. This person(s) will manage and control the total operation of the response. The IC ensures that staff and supplies are applied so that the response proceeds at the highest level of efficiency. The IC directly oversees operations, logistics, planning, and administration by working closely with the section chiefs and coordinators for all shifts.

Information Officer(s)

The Liaison Officer (LOFR) establishes and maintains a relationship with all stakeholders to provide and receive information to/from the IC and Public Information Officers (PIO). The rapid response PIO coordinates media activities and information releases with the EOC PIO for release. Media communications are the responsibility of the EOC PIO. Information is forwarded to the PIOs for possible distribution to appropriate groups or organizations. The PIO participates in the pre-established Joint Information Center (JIC) / Joint Information System (JIS).

In cooperation and coordination with other spokespeople at the JIC (public officials, health officers, emergency management personnel, etc.), PIOs must understand what events, progress, and incremental steps should trigger release of public information as the event unfolds. No information is released without prior approval from the IC.

PIOs should have knowledge about the following:

- What to release (type of information)
- When to release it (timing)
- How to release it (press events, press releases, phone calls, etc.)
- Where to release it (at JIC location, on-scene, etc.)

- To whom to release it (press, directly to local organizations)
- Who will release it (JIC PIO, county official, other designated spokespeople).

Health and Safety Officer (HSO)

The HSO's primary responsibility is to write the Health and Safety Plan. The HSO is responsible for overseeing and ensuring that response activities are free from health and safety hazards before, during, and after operations through use of ICS form(s) 215, 215A, 215A-ORM. The HSO also collaborates with the other Section Chiefs regarding resolutions of any safety issues.

Operations Section Chief

The Operations Section Chief is responsible for all the operational activities of the response. The Operations Section has responsibilities within the following functional areas:

- Containment
- Treatment Application
- Cleanup
- Disposal
- Short-term Monitoring.

The Operations Section Chief ensures that staff in the respective areas fulfill requirements of the standard operating procedures (SOP) and remain within their respective scopes of practice and training. If staffing adjustments are needed, this Chief develops the plan and provides recommendations for the IC to consider and/or implement in coordination with the Planning Section Chief and the HSO.

Planning Section Chief

The Planning Section Chief is responsible for providing all planning services for the response within the following functional areas:

- Resource Tracking
- Demobilization
- Environmental Unit
- Situational Awareness
- Documentation/Data Surveillance (geographic information system [GIS] data).

This includes collection, evaluation, and dissemination of situational and resource status information. This Chief develops the approved Incident Action Plan (IAP), conducts formal briefings at the start of each operational period, obtains and develops maps or diagrams of the response area, maintains a field activity log, and prepares a demobilization plan.

Logistics Section Chief

The Logistic Section Chief is responsible for all support needs of the response. The Logistics Section consists of the following functional areas:

- Security
- Receipt, handling, and management of supplies
- Food/sanitation/medical services (for responders)
- Equipment maintenance
- Communications
- Personnel and assets check-in/check-out
- ID badging if necessary
- Per diem arrangements to be made for supporting agencies' personnel
- Emergency contact lists.

The Logistics Section is tasked with management of all response logistics and requests for additional supplies; therefore, this Chief must work closely with the Operations Section Chief and the IC. The nutritional needs of the staff are essential, and satisfaction of this must be coordinated with the EOC and other agencies as necessary.

Communications Unit

The Communications Unit reports to the Logistics Chief and is responsible for coordinating internal and external communication resources such as radios, walkie-talkies, land and cell phones, computers, printers, and fax machines. Telecommunications and information technology are crucial because incoming and outgoing information must be efficiently and consistently communicated. Important specifications such as number of radios, frequencies used, and who has what type of equipment must be determined prior to a response. The Communications Unit Leader performs an inventory analysis at the end of each shift to account for such materiel. All administrative areas must have, at minimum, phone lines. The Communications section must have dedicated phone lines and computers to receive and transmit requests and information. The Communications Unit Leader and section coordinators must provide technical assistance, as needed, or be able to access such assistance. The Communications Unit Leader may consider a staff pool designated to respond if resources are scarce, inadequate, or inoperable.

Administration/Finance Section Chief

The Administration/Finance Section Chief is responsible for ensuring all personnel, volunteer, and supply records are correctly recorded and maintained throughout the event. This section is activated only when involved agencies have financial services needs. The Administrative and Finance section has responsibilities within the following functional areas:

- Coordination of personnel/volunteers (time records, credential verification, staff schedules)
- Communication with the Section Leads, IC, and EOC regarding problems, shortages, needs, etc.
- Procurement Resources/Assets

Time, procurement, and cost accounting are the primary functional activities of this section. This section manages all paperwork resulting from a response. This section is responsible for permitting issues and forms pertaining to treatment applications, and for communication of changes in standing orders.

This section must ensure that any mutual aid agreements initiated during the response are properly documented. Additionally, this section directs management of unassigned personnel/staff, such as spontaneous volunteers who may report on site and coordinate with the HSO to document injuries that may require worker's compensation claims.

2.5.5 Treatment Selection

Once the decision is reached to activate the rapid response the treatment must be selected based on the any of the following parameters:

- Location of Asian carp that triggered response
- Treatment efficacy
- Human and ecological safety concerns
- Current regulations pertaining to waterway treatment
- Current weather conditions that may affect treatment.

Refer to appendix F for the Treatment Selection Matrix and corresponding selection elimination criteria.

2.5.6 Site Safety and Security

On-site safety and security involves the following procedures and physical measures to prevent interruption of response operations:

- Preventing unauthorized access to locations at which support response operations are occurring
- Facilitating application of treatment via appropriate resources and personnel
- Controlling crowds that might interfere with effective response operations
- Protecting personnel, equipment, and assets of the response from injury, theft, damage, or destruction.

The IC is ultimately responsible for response safety and security, and designates an HSO and alternate to oversee this function. The HSO, or designee, will be on site any time response actions are occurring, 24/7. Security personnel stationed on site are clearly identified and visibly positioned throughout the site.

Developing the Rapid Response Health and Safety Plan (HASP) is the responsibility of the designated HSO and safety staff. The HASP for all rapid response operations can be found in Appendix C of this document. The rules and guidelines in place now will be used to mitigate safety onsite during response operation.

As lead security agency, the Illinois Conservation Police will develop a security plan for on-site operations (Appendix D). This will include perimeter security, internal staff and waterway patrol, and boat operator credentialing. Security resources may include, but are not limited to, Conservation Police, USCG, municipal police, state police, sheriffs, constables, private security firms, and other mutual aid partners.

2.5.6.1 Rapid Response Safety Guidelines

Activation and operation of the Rapid Response is an urgent deployment of personnel to quickly and efficiently apply specified treatment to the designated site along the waterways cited above. This operation requires efficiency, and safety must be a top priority. This section describes the aspects of safety during response operations.

2.5.6.2 Safety Briefing

Before beginning any duties, all personnel must receive a safety briefing from the HSO. This safety meeting should be brief but clearly explain the unique hazards within response operations.

2.5.6.3 Hazards

Response operations have many unique hazards that can be mitigated by following established facility safety rules, being alert at all times, and making safety a top priority. Personnel assigned to on-site operations must know their limitations and only complete tasks for which they are trained and physically capable of undertaking safely. Everyone must be on constant lookout for hazards and potential safety challenges. If any hazard is observed, immediately advise the HSO and others and take necessary steps to mitigate the danger.

Electric Barrier System

An electric barrier system is in place within the Lockport Pool of the CSSC. Barrier IIA currently sends two volts/inch of electricity through the water to deter fish from passing through. Physical contact with the water in this area is likely to result in serious injury or death. This poses a threat to all boats and people passing through this area. To ensure safety in the proximity to this barrier a Restricted Navigation Area (RNA) has been established and strictly enforced by the USCG. The RNA runs from approximately RM 296.7 at the aerial pipeline downstream to RM 295. Current regulations state that the RNA shall remain closed to the following types of vessels:

- All vessels under 20 feet in length
- All personal watercraft
- All non-power driven vessels.

For the safety of this response, any operations requiring actions within this area of water must comply with direction from the Coast Guard's on-scene representative and include the following measures:

- Wear Coast Guard approved Personal Flotation Device (PFD)
- Avoid contact with standing water
- Avoid contact with anything outside the hull of the vessel
- Allow disabled vessels to float free downstream of RNA without paddling.

Boating Safety

Each boat deployed to the project area should be operated by a trained individual. Each person on board will wear Coast Guard Approved Personal Floatation Devices (PFDs) and a well-supplied first aid kit to handle minor injuries, scrapes, cuts, etc. will be onboard. See previous section for additional safety precautions regarding boat operations within the electric barrier system's RNA. Additional specific requirements will be included within the Incident Action Plan (IAP).

Heat/Cold Stress

Heat stress is a significant concern where moisture-impervious clothing is required, especially during warm months. Employees wearing protective equipment will be instructed to drink plenty of fluids and take work breaks regularly and whenever necessary. Anyone suspected of suffering from heat stress should seek immediate medical attention and the site safety official notified.

Hypothermia is a significant concern in cold-weather months, and is aggravated by water exposure and windy conditions. Special precautions will be taken should this plan be implemented in cool weather. More personnel will be required so that employees can rotate out of the work zone to a heated location to warm up. It is recommended that all steps possible be taken to eliminate the need for treating this water during cold weather. However, should this prove necessary, cold-weather protective gear including coveralls, boots, gloves, and hats will be required for all personnel. Additional protective requirements for all personnel will be outlined in the HASP.

Icy Conditions

Should this implementation of response operations occur during cold weather or winter months, ice buildup along the banks, along access roads, throughout staging areas, and on boat decks will be a hazard. Additional precautions may be necessary to ensure the safety of on-site personnel. It is recommended that all steps possible be taken to eliminate the need for treating this water during cold weather. However, should this prove necessary, sand, road salt, or ice melting measures will be needed.

Spill Containment

Any spill occurring prior to application (i.e., during material delivery and transport) will be immediately reported to the IC, HSO, and Security Supervisor to receive cleanup instructions. To minimize potential damage caused by spills, all mixing of piscicide will be conducted on boats or at a mixing station within the application area. Pesticide containers will be opened only when they are needed and ready to be mixed and applied. A certified Aquatic Pesticide Applicator will direct mixing and application of concentrated product. Each employee involved will be required to become familiar with the use labels, material safety data sheets (MSDS), the Site Safety plan, and the Spill Containment plan.

In event of a spill, immediate containment will be the task of highest priority. All personnel necessary to control the spill should deploy immediately to the affected area. If the spill is significant (>10 gallons of liquid or 50 pounds [lbs] of powder), responders will notify the IC who in turn will notify the National Response Center (NRC), HSO, and Security Supervisor immediately and follow the procedures below. The report needs to be in accordance with 40 CFR 300.

For minor spills (<10 gallons or 50 lbs.), notification to the IC and HSO can take place at the earliest convenience. Minor spills of pesticide onboard boats shall be diluted with water and added to the treatment

area by use of a mechanical pump. Shovels, brooms, dust pans, diking materials, and containers will be available at the loading and mixing areas to assist in control and cleanup of any spilled materials on land. A spill of pesticide on the ground will be recovered and used in the application if possible. For spills on the ground, the following actions will be taken as necessary:

1. Stop the release at the source.
2. Dike the material into pools or channel into the treatment zone.
3. Recover liquid by use of mechanical pump or sponge and add to mixing container.
4. Absorb the remaining pesticide into the chemical absorbent material provided.
5. Sweep up the absorbent and place in sealed plastic disposal drum.
6. Sweep up the neutralizing agent and deposit in a sealed plastic drum.

Materials and equipment in contact with piscicide will be washed in an area adjacent to the treatment zone in a manner which causes all rinsate to flow into project waters.

2.5.6.4 Staging and Treatment Areas

The staging areas located on site house all equipment for operations. Greater movement of heavy equipment, personnel, and/or chemicals throughout this area increases potential for injury.

To ensure safety on site, the following precautions are necessary:

- Only necessary and authorized personnel shall gain entrance to these areas.
- Only trained or licensed personnel shall operate equipment and apply treatment to designated areas under the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA) (7 USC 135 et.seq.).
- All paperwork for resource and assets tracking shall occur outside of high-traffic areas.
- Adequate personal protective equipment (PPE) must be worn in each of these areas during all phases of operations.
- Equipment not in use must be properly secured.
- Safety staff shall conduct tailgate safety meeting every operational period or shift and assess response operations and make recommendations to IC if necessary to improve overall safety.

2.5.6.5 Response Security

To ensure safety and security of the rapid response operations and on-site assets, security staff should consider and implement the following protocols:

- Monitor and control all access points.
- Create and use staff roster for entry and exit of personnel.
- Monitor response operations.
- Direct approved members of the media to pre-designated gathering areas for any press releases.

The following checklist can be used as a general guide for security areas and responsibilities, but should be tailored to each response and location.

RAPID RESPONSE SECURITY CHECKLIST

- ☐ Site map/layout including waterways, treatment areas, and staging areas
- ☐ Secured access and entry points
  - How many access points to onshore operations areas?'
- ☐ Control measures in place at all points of entry
- ☐ Waterway secured for operations
- ☐ Parking area in place and secured for response personnel
- ☐ Chemical stockpiles for treatment segregated from other supplies and secured at all times
- ☐ All equipment and resources secured at all times, including when response operations are not occurring
- ☐ Adequate lighting on site to ensure safety and security
- ☐ Staging area segregated from general operations on site
- ☐ Any additional roads that lead to the site secured
- ☐ Interoperable communications among all security agencies and departments established
  - Radio frequency specified
  - Alternate modes of communications available
- ☐ Response personnel identified and/or badges in use for ease in identification
  - If normal business functions also occur on site and additional personnel are present, they are to be identified by roster or badges for safety and security

3.0 ADMINISTRATION AND LOGISTICS

3.1 ADMINISTRATION

3.1.1 Concept of Support

Rapid Response operations depend on timely arrival of resources and assets from partner agencies and commercial vendors to the pre-established staging area. In preparation for events, agency-available asset listings shall have been compiled so that additional support equipment can be ordered well in advance of operations in order not to hinder progress. Additionally, chemical and supply vendors shall be contacted to estimate delivery time of essential resources. (See Appendix B for resources and assets available for response activities.)

3.1.2 Cost Capturing and Funding

Thorough and complete documentation with explanations and/or justification is necessary. Regardless of the type of financial assistance sought, organizations should, at a minimum:

- Implement a records management and retention program for each project.
- Maintain accurate disbursement and accounting records.
- Establish invoice approval process.

For the purposes of this Asian Carp Rapid Response IDNR will implement the following in addition to the above:

- Establish a programmatic code define as "All activities related to preventing range expansion of Asian carp"
  - This has been defined by IDNR's Office of Resource Conservation (ORC) as a Wildlife and Fish licensed revenue eligible programmatic code
  - IDNR employees should utilize this code when completing their programmatic time sheets
  - Vouchers for non-personal service costs such as chemicals, contractual expenditures, travel, commodities, etc., will also utilize this code
- Develop a blended rate for all in-kind donations of commodities and labor from all other organizations for cost capturing.

3.1.3 Legal Considerations

Any rapid response operations taking place within the Lockport Pool of the CSSC will require waterway shutdown and lock closure for an extended period of time, depending on treatment used. Closure of Lockport Lock must be approved and carried out by USACE in advance of operations. Closure of the waterway must be approved and carried out by the USCG. IDNR Office of Law Enforcement will work closely with the USCG to ensure a closed and secure waterway for the duration of operations. Note: This section is subject to revision pending additional information.

4.0 COMMUNICATIONS

4.1 UNIFIED COMMAND

The IC determines the most effective communications on scene or prior to operations, based upon response and/or site conditions. Necessary personnel will be contacted via the notification contact list (Appendix E). Communications between agencies and the public shall occur through a designated PIO. See Section 4.2.2 for further information of the role of the PIO.

4.1.1 Joint Information Center (JIC)

A JIC may be set up at any time after initiation of the event, once it becomes apparent that multiple agencies will be engaged in response activities and ongoing public communication will be necessary.

The JIC is a physical or virtual location where public affairs officers from participating agencies come together to ensure coordination and release of accurate and consistent information that is disseminated quickly to the media and the public. The JIC may be established at the headquarters of IDNR or in a local jurisdiction, depending on the geographic scope of response. It is generally helpful to locate the JIC as close as possible to the command post.

Representatives to the JIC may include agency stakeholders' public information officers, liaison officers, and necessary advisors. If convening at the JIC is not feasible, all organizations are encouraged to conduct their information activities in cooperation with the JIC. Once a JIC is established, authorities must identify a lead public health spokesperson to participate in the JIC and to serve as a liaison with the health department, as well as assure the JIC is staffed during all operational hours (potentially 24 hours per day).

4.1.2 Federal, State, County, and Local Operation Centers

Emergency management coordinators are the lead agents for public preparation, response, and recovery efforts. These efforts are coordinated at EOCs.

4.1.3 Communications Capabilities

It is extremely important for constant communications in the field; a breakdown at any point in the chain of command could disrupt or halt response actions entirely. Therefore onsite communications will primarily rely on cell phone usage with 2-way radios on hand and ready. Command staff, general staff, and branch chiefs will have both forms of communications.

4.1.4 Communications Procedures

- The use of acronyms and bureaucratic jargon make effective private-sector engagement in discussions on preparedness, response, and recovery difficult. Clear and open communication between the public and private sectors is essential for effective planning and for accelerated recovery.
- To enhance communication, provide a toll-free number(s), conference bridge number(s), e-mail address(es), and central news source(s) for obtaining situational awareness before, during, and after a disruption.

- Coordinate and implement best business practices for public and private-sector dialogue.
- Prior to a Rapid Response, IDNR should prepare the following for use during operations:
  - Prepare pre-scripted fact sheets and public information/education for treatment applications that may be utilized.
  - Prepare pre-scripted water orders for the treatment area and any potentially affected areas downstream or adjacent to the waterway.
  - Contact local news media to provide information on the Asian carp rapid response and to prepare a media plan.

4.1.5 Alert and Notification

Upon decision to act and initiation of response, all personnel, agencies, sponsors, and interested parties will be notified of rapid response actions according to the following notification list. Each person listed must make a personal call and speak directly with every individual (or his/her designee) whom it is their responsibility to notify. Contact numbers are also included in Appendix E.

TABLE 1. RESPONSE OPERATIONS CALL-DOWN LIST

Succession Order	Name	Agency	Phone Number
Primary			
Alternate 1:			
Alternate 2:			
Logistics Lead			
Operations Lead			
Planning Section Chief			
Administration			
Security			
Health and Safety			
Other			

4.2 SIGNAL

This rapid response will entail both administrative report and public information reports to be generated. These must flow along the proper chain of command and proper communication will be required for completion.

4.2.1 Administrative Reports

Submit reports as required by individual organizations and as specified by the UC, when established.

4.2.2 Public information

Public communication before, during, and after an event informs and reassures the affected population and the essential workforce. Employing strategic communications concepts, such as specific, pre-scripted, unified messages and information themes—and methods of their dissemination—is recommended. These strategic concepts should be coordinated through the PIO and agency liaisons with the UC / Emergency Operations Centers and local media outlets, and exercised with collaborative stakeholders.

4.2.3 Interoperable Communications Assets

Operational success depends upon available and interoperable communication systems that provide:

- Ability to communicate within the ICS
- Ability to communicate with business contingency staffs and affected elements
- Ability to communicate with external agencies, especially critical recovery assets
- Access to critical data and systems necessary to conduct essential functions.

4.2.4 Interoperable Communications Systems Worksheet

The Interoperable Communications Systems Worksheet should be used during exercise scenarios by planners/managers to document communications interoperability gaps for subsequent exercise improvements and real world event planning. The following table is an example of communications that may be available during a response. This worksheet should be filled out in advance of operations.

Service	Provider	Specifications	Alternative Provider	Special Notes
Voice lines				
Fax lines				
Data lines				
Cellular phones				
E-mail				
Internet				
Web Portal				
PDA Wireless				
Text Messaging				
Instant Messenger				

5.0 FUTURE MITIGATION

In conjunction with rapid response actions, the Asian Carp Rapid Response Workgroup recommends, with support from stakeholder agencies, additional measures be investigated and implemented in or near the areas of concern to further mitigate the threat of Asian Carp expansion and reduce propagule pressure within this system. These measures include further investigation and placement of one or several hybrid Sound Projector Array driven BioAcoustic Fish Fence systems and further investigation with interim measures into areas of the Des Plaines River and the I & M Canal where there are interconnectivity concerns with the CSSC. Rapid Response measures would be futile if longer term controls are not implemented. These measures are imperative to further control the expansion of Asian carp upstream toward the Great Lakes, and increase the long-term efficacy of any rapid response actions taken.

5.1 SOUND PROJECTOR ARRAY DRIVEN BIOACOUSTIC FISH FENCE SYSTEM

The Sound Projector Array driven BioAcoustic Fish Fence system (SPA-driven BAFF) is used as a deterrent system for fish. The system employs an air bubble curtain that contains a sound field which, when set at a particular frequency range for specific fish, emits a sound unpleasant enough for the fish so as to deter them from proceeding beyond the barrier. Each component of the system acts as negative stimulus to the fish, working in conjunction with the other components to more effectively deter the fish. A strobe light can also be added to further enhance use of the system. Efficiency of the system varies, but significantly increases through fine-tuning of the frequency to target Asian carp, and further increases when fish are presented with an alternate means of travel away from the SPA-driven BAFF so that they do not continue to challenge the system.

The workgroup specifically recommends feasibility investigations at the current electric barrier system (at or near RM 296.0) and also just upstream of the confluence with the I & M Canal (at or near RM 289.0). These locations were chosen for the following reasons:

- Further fortification of the electric barrier may improve its efficiency and create additional obstacles for fish to cross. These barriers may work together to halt all species of Asian carp at each stage of development beyond unhatched eggs.
- Placement at RM 289.0 is considered optimal, as it is downstream of the confluence of the CSSC and the Des Plaines River. This may work to reduce continued expansion of Asian Carp into both of these waterways and reduce propagule pressure upstream.
- Placement of the system at this location would also allow fish an alternate route to swim upstream in to the I & M canal, as this location is upstream of its confluence with the Des Plaines River.
- The I & M canal is a discontinuous waterway, and assuming blockage of all routes into the CSSC, this would allow Asian carp to be herded and controlled by conventional capture method in and along the I & M Canal.

5.2 INTERCONNECTIVITY TO THE CSSC

The following sections address the issue of overland connectivity or culverts into the CSSC. Within both the Des Plaines River and the I & M Canal there exists areas that under certain conditions have the potential to flood to an extent that would provide flow into the CSSC and provide a means by which fish could swim from these waterways into the CSSC. These areas are also located upstream of the current electric barrier system; which if fish were able to cross these areas into the CSSC would have an unobstructed path into the Great Lakes.

5.2.1 I & M Canal

The Illinois & Michigan (I & M) Canal is a now-abandoned, man-made canal that once served to connect Lake Michigan to the Mississippi River Basin. The canal opened in 1848 and allowed for increased transportation to and from the Chicago area. Its use declined with construction of the CSSC, and all transportation operations ceased in 1933. The now-abandoned canal and the surrounding areas are used for recreational purposes (Canal Corridor Association, 2009). When its use as a transportation corridor was no longer needed, regular maintenance also ceased. Today it is a discontinuous waterway, and no more than a ditch in some areas. Though this canal is a man-made waterway with straight alignment, vertical walls, and bedrock bottom, much of it now resembles a natural stream or ditch because of lack of regular upkeep and maintenance.

The area of focus begins at the canal's confluence with the Brandon Road Pool of the upper Illinois Waterway, including Deep Run Creek, and ends before its confluence with the Cal-Sag Channel. A portion of the canal runs parallel with the CSSC. Along this stretch of canal are several culverts and one ditch that are used for drainage of the area during flooding, directing flow into the CSSC; several of these are upstream of the electric barrier in the CSSC. These culverts are in areas where the canal is restricted to drains that run underneath roadways. These restrictions of the waterway may flood during periods of high water, and because these areas are also very close to the CSSC, may create spillage into it—providing a path for Asian carp to swim into the CSSC. Hydrology data suggest that a 20-year flood could inundate this whole stretch, creating many areas for Asian carp and other fish to escape into the CSSC.

Deep Run Creek is a small, shallow waterway that connects the I & M Canal to the CSSC just upstream of its main confluence. This could pose a problem despite additional measures such as the proposed SPA-driven BAFF acoustic barrier to keep fish from progressing upstream farther in the upper Illinois Waterway. Deep Run Creek could allow the Asian carp a means to re-enter the Illinois Waterway upstream of the potential SPA-BAFF and increasing propagule pressure at the LL&D, and enter the Des Plaines River.

5.2.1.1 Current Status

As of October 2009, eDNA sample analysis indicated the presence of silver and bighead carp within the 10-mile stretch of the I & M Canal after its confluence with the Des Plaines River. The positive eDNA result was just upstream of the confluence, and nothing impedes progression of the silver carp further upstream. As of this time, no samples have been collected and analyzed from Deep Run Creek, which connects into the I & M Canal.

One further potential complication merits attention: previous hydrologic data indicates that flooding in this area could submerge certain lands and culverts between the I & M Canal and the CSSC, thus creating a by-pass through which Asian carp and other fish could flow with the current into the CSSC above the barrier and gain a clear path into Lake Michigan.

5.2.1.2 Recommended Mitigation Efforts

Recommend efforts within this area of the I & M Canal consist of the following:

- Perform new hydrology studies in the area as previous data is over 20 years old
- Institute flood control measures to ensure waters from the I & M canal are not allowed to flow into the CSSC
- Diversion of culverts and ditches that allow water to flow into the CSSC above the electric barrier system
- The Asian Carp Response Committee recommended closure of the I & M in two locations to prevent upstream movement of Asian carp from both the mouth of the I & M and Deep Run Creek.

5.2.2 Des Plaines River

The section of the Des Plaines River under consideration for treatment runs roughly from RM 297, just upstream of Romeo Rd., to RM 302.5. This section of the river consists of several backwater and wetland areas that may be accessible to Asian carp and other fish during periods of high water, and subsequently trapped here as the river recedes. These areas (see Figure 3 for exact locations) are considered optimal habitat for Asian carp. The river is considered navigable and mostly channelized. It was channelized because diversion of this section of river was necessary for proper placement of the CSSC; much of the river has a flat bedrock bottom and vertical limestone sides. This area of river is generally shallow, ranging in depth from less than 1 foot to about 4 feet, and can be walked across in several locations. The stretch of river running parallel to the CSSC is less than 100 yards away in some locations, and during periods of heavy rainfall, flood waters can run into the CSSC above the barrier system—potentially creating a means for Asian carp to evade the electric barrier system. A series of sluice gates control the water level in the CSSC by diverting water into the Des Plaines River at Isle a la Cache (RM 293.2), increasing the river's flow when the diversion gates are open. At this location, the river also begins its 20-foot drop to the level of the Ship and Sanitary Canal. The river and the canal join south of the Lockport Lock.

5.2.2.1 Current Status

As of September, 2009, eDNA sample analysis indicated the presence of silver carp within the 10-mile stretch of the Des Plaines River after its confluence with the CSSC. The positive eDNA result was at least 5 miles upstream of where the electric barriers are located in the CSSC. Historical observations of the expansion of Asian carp have shown that bighead carp tend to precede or travel concurrently with silver carp.

One further potential complication merits attention: hydrologic data indicate that flooding in this area could submerge certain lands between the Des Plaines River and the CSSC estimated at over 5 miles at this time, creating a bridge by which Asian carp and other fish could swim within the current into the CSSC above the barrier and have a clear path into Lake Michigan.

5.2.2.2 Recommended Mitigation Efforts

Recommend efforts within this area of the I & M Canal consist of the following:

- Further delineation of areas potentially susceptible to flooding into the CSSC through updating previous hydrology data
- Instituting interim flood control measures such as jersey barrier construction at highest point between the two waterways to ensure waters from the Des Plaines River are not allowed to flow into the CSSC
- Investigation and implementation of long-term separation of the two waterways.

6.0 EXERCISE AND TRAINING

6.1 TRAINING

Training is essential to familiarizing all personnel with their respective response/recovery functions and coordinating procedures. Stakeholder agencies and partner entities will benefit from training performed in the area of Asian carp control because a response of this kind on this scale is rare, and an aggressive approach to the situation.

6.1.1 Key Training Objectives

The following objectives should be met as a result of training activities in preparation for Asian carp Rapid Response Activities:

- Inform stakeholder and partner entities about the Asian Carp Rapid Response Plan, NIMS, and ICS response framework.
- Familiarize responders with operations and safety procedures to reduce the risks inherent to this type of response.
- Inform each responding agency or entity of its responsibilities, and familiarize it with operation hazards and concerns.
- Inform impacted property owners on potential events and outcomes.

6.1.2 Goals

The following goals should be considered throughout the training process:

- Inclusion of all stakeholder agencies and impacted property owners along the waterway in the planning, response, and recovery process—including integration into ICS command and information sharing
- Education on relevant federal and state regulatory requirements the groups just cited will be expected to understand and follow during operations
- Knowledge of resources at all levels available to assist in efficient completion of response operations and timely resumption of normal waterway operations.

6.2 EXERCISE

Regular exercise of the plan will increase efficiency of operations testing, identify operational gaps, and identify additional essential personnel and/or stakeholders necessary for operational success. Exercising regularly also aids in the plan amendment process because AARs may identify more efficient procedures and gaps that must be addressed.

Exercises include the following:

- A tabletop exercise validates the planning process through simulated scenarios played out through facilitated group discussion.
- Drills utilizing equipment and personnel test coordination and equipment systems to be used during response operations.
- A full-scale field training exercise complete with deployment of personnel and use of equipment tests operational efficiency and identifies areas for improvement.

Exercises should address the following:

- Effective information sharing
- Priority validation
- Evaluation of response and recovery procedures
- Roles, responsibilities, and organizational structure validation.

Annex 1

Lockport Pool to RM 296.7 Rapid Response Operations

ANNEX 1: LOCKPORT POOL TO RM 296.7 RAPID RESPONSE OPERATIONS

This Annex provides a plan to carry out Rapid Response operations for Asian carp control within the Lockport Pool of the Chicago Sanitary and Ship Canal (CSSC).

1. SITUATION

a. General:

1. Lead Department:: Illinois Department of Natural Resources (IDNR)
2. Background: Refer to Asian Carp Rapid Response Plan Section 1.4
3. Site Description:

The portion of the Lockport Pool from the Lockport Lock and Dam (LL&D), RM 291.1 to RM 296.7 is being considered for treatment (see Figure 1). This area is comprised solely of the CSSC and the land along its banks, and includes both industrial leases and vacant, undeveloped forest preserves.

The canal in this area is a man-made, industrialized waterway consisting of two-thirds treated wastewater through an excavated channel dug into limestone bedrock during the late 1800s. This area is used primarily for industrial shipping, with the exception of occasional passing recreational boats, and has no public access. The channel has a straight alignment and a rectangular cross-section of 160 feet wide and 23 feet deep. Between the LL&D and RM 293.5, the channel wall is vertical concrete on the east bank and varies on the west bank from vertical concrete walls to sloped sides reinforced by rip-rap. This implies uniform conditions along much of the treatment zone. The pool widens and shallows at two areas along the treatment zone.

Distinguishing characteristics along or within Lockport Pool to the RM 296.7:

- Lockport Powerhouse (MWRD), RM 291.1
- Lockport 9th Street Bridge, RM 292.7
- Barge repair facility, RM 295.3
- Midwest Generation, Will County Generating Station, RM 295.75
- East Romeo Bridge, RM 296.2
- USACE Electric Barrier System, RM 296.25
- Aerial pipeline spanning the CSSC signifying the start of treatment zone, RM 296.7
- Will County Forest Preserve, Along East Romeo Road, not directly adjacent to the waterway.

This area of canal has no potable water intake within or immediately downstream of the treatment zone. The nearest potable water intake is Illinois American Water Company located in Peoria, IL at RM 166.2, 130 miles downstream.

Flow velocity through this stretch of waterway is variable and depends on weather conditions. During dry weather, the mean velocity is roughly 0.6 feet/second. Storm conditions can increase this as much as 2 feet/second. Therefore, successful implementation of this response must occur during dry weather when flow is lowest.

Fish habitat is limited along this stretch of the CSSC. The community within this 5-mile reach is primarily composed of common carp, goldfish, and gizzard shad. The available fish habitat is minimal and consists of breaks in the current, pilings, sunken barges, and other obstructions to flow. These areas should be noted and spot treated by boat during operations to ensure coverage if treatment so necessitates.

b. Supporting Agencies: Refer to Asian Carp Rapid Response Plan Sections 2.2 and 2.3

c. Assumptions: Refer to Asian Carp Rapid Response Plan Section 1.6

d. Current Status:

As of September 2009, eDNA sample analysis indicated the presence of silver carp within the Lockport pool, at less than 0.8 mile from electric barrier IIA. This is the farthest upstream detection of these data to date within the CSSC. There have been no positive sightings and/or specimens collected in this area to date. Historical observations of the expansion of Asian carp have shown that bighead carp tend to precede or travel concurrently with silver carp.

One further potential complication is the need for electric barrier II A to be shut down for routine maintenance every six months. Until completion of electric barrier II B, the only defense is barrier I, which is currently equipped to operate at lower maximum voltage and frequency than barrier II.

2. MISSION

To effectively implement rapid response measures against Asian carp within this section of the CSSC to control their further expansion towards the Great Lakes.

3. EXECUTION

a. Incident Commander's Objectives:

- Maintain essential operations to ensure mission completion during rapid response.
- Inform and prepare all supporting personnel before and during operations.
- Maintain safety and security of on-site operations.

b. Concept of Operations:

The information included within this section is specific for operations within the specified area of the Lockport Pool of the CSSC. Refer to the Asian Carp Rapid Response Plan Section 2.4 for additional important information regarding the overall Concept of Operations.

1. Triggers:

The Asian Carp Rapid Response Workgroup has deemed the following triggers will elicit rapid response operations:

- Positive confirmation of Asian carp between Barrier II and Barrier I
- Barrier Maintenance
- Catastrophic failure of the electric barrier system assuming fish can be contained downstream of electric barrier system

2. Communications:

It will be important for all partner organizations and agencies to communicate with external and internal sources regarding all phases of the rapid response to coordinate actions. Refer to Paragraph A-5, Command and Signal below.

3. Continuity of Operations (COOP):

This section of the Lockport Pool of the CSSC including the Lockport Lock and Dam will be closed to all boat traffic for the duration of operations including staging, application, detoxification, and clean-up actions, and demobilization. Midwest Generation Power Plant will continue operations; however coal will not be moved along the waterway to and from their facility for the duration of operations. This facility utilizes water from the CSSC to create power; therefore in order to maintain operations during the rapid response silt curtains or another type of netting will be places around their intake pipes to keep large fish and debris from entering and clogging their pipes and keep them from going into a catastrophic shutdown. Response Personnel will also need to be places at these intakes to collect any small fish and debris that collect within their trash racks to keep water flowing.

4. Coordinating Instructions:

- Upon activation of plan a command structure will be established in accordance with NIMS ICS and following throughout entire rapid response.
- The Rapid Response Incident Management Team (RRIMT) will meet together or by conference call to coordinate recommendations to the IC/UC on developments and response issues. The RRT will be comprised of personnel qualified to evaluate and assess the situation and its impact on installation operation and security, and develop courses of action.
- Employ PPE, as appropriate
- Follow established protocols for maintaining security
- Identify environmental considerations
- Publish succession of leadership comprising of at least three tiers
- Identify and train a primary and backup for each mission-essential task
- Take necessary steps to maintain accurate personnel accountability
- Capture and document associated costs
- Apply lessons learned from previous related rapid responses and exercises
- Conduct After-Action reviews and submit lessons learned within four weeks of response termination
- Prepare for subsequent responses.

5. Key Tasks:

Key Tasks*	No. of Personnel	Responsibilities
Upon notification of an imminent Rapid Response; final check of application parameters and identify locations for additional control measures		Activate call-down list
Delineate Scope of Infestation		IEPA
Decision to initiate Rapid Response		PIO to issues press releases, post signage, etc
Notification of stakeholder and partner agencies		Coast Guard to shut down commercial navigation and USACE to close locks IDNR/Midwest Gen to block net across their intakes
HASP written and reviewed		IDR/ Incident Management Staff
Disseminate information to the public to increase awareness		Security, fencing, waterway shutdown, etc
Initiate control measures to halt further movement of fish in or out of area		Utilize treatment matrix for decision
Establish Command Post, staging areas, support zones, and JIC		IDNR may lead with support from IEPA, EPA, Dept of Ag
Secure treatment and staging areas		Credentialing if necessary
Treatment Selection		All response personnel
Obtain all necessary permits and clearance for application		PSC
Personnel check in/out procedures		IDNR with conservation police to develop necessary procedures
Review of Concept of Operations, hazards, HASP, emergency procedures, and security with all applicable personnel		IDNR with all participating agencies
Situation briefing		IDNR/subcontractor
Ops Coordination		HSO
Final flow measurements		Spot, boat treatments if necessary
Calibration of equipment		Boats in the water at various locations
Tailgate Health and Safety meeting		If necessary
Treatment Application		DNR/Natural History Survey
Dose Monitoring during application		Natural History Survey, Notre Dame, Barrier Monitoring team -from 1 week to ongoing
Neutralization/detoxification		Operations section –IDNR/support agencies/subcontractor
Chemical concentration monitoring with sentinel fish downstream in Brandon		Subcontractor
Follow up monitoring		Removal of application booms, equipment, etc.
Fish cleanup/removal		PIO task
Disposal of waste		Contractor with input agency input
Demobilization		Activate call-down list
Press Releases		IEPA
After Action Report		PIO to issues press releases, post signage, etc

* Does not factor in weather or other unexpected event that may alter or add additional tasks to this rapid response.

6. Supporting Tasks:

Finance and Administration Office

- Provide guidance for, implement, and document all cost capturing methods and activities
- Assist the UC in programming requirements
- Identify system gaps that will require additional resources
- Determine when work limitations are implemented and non-essential personnel should be released.

Health and Safety

- Develop standard operating procedures (SOPs) for the proper use of PPE
- Train personnel in self-protection, use of appropriate PPE, and safe evacuation from potential unplanned catastrophic event
- Preparation and review of Health and Safety Plan (HASP) prior to response.

Environmental Unit

- Identify environmental issues during the pre-response phase, and resolve any environmental issues that arise during and following response
- Ensure cleanup and disposal is done according to applicable laws and regulations
- Obtain necessary permits required for treatment application, detoxification, and disposal
- Provide subject matter expertise to the unit conducting application, detoxification, and disposal operations.

Law Enforcement and Security Division

- Prioritize security at key locations onsite based on available manpower
- Secure storage and staging locations
- Determine security and patrol staffing needs for sites on land and water.
- Advise the IC/UC when the Security force cannot maintain minimum staffing and when augmentation forces should be requested.

Operations Center

- Maintain, update, exercise, and be prepared to execute this Rapid Response Plan
- Ensure EOC SOPs are current and sufficient staff is trained to respond
- Consolidate organizational requests for manpower assistance
- Coordinate needed outside assistance with supporting agencies through existing Interagency agreements (See Appendix N)
- Conduct after-action reviews and publish After Action Reports (AAR) for any exercises or responses
- Refer incoming calls to appropriate liaison officers.

Public Information Section

- Provide informational forums for the community prior to response activities
- Prepare public affairs plans, information papers, and question-and-answer products
- Communicate with local, national, or international media during all phases of response to ensure uniform and transparent messaging
- Refer incoming calls to appropriate agency or Public Information Officer (PIO).

4. ADMINISTRATION AND LOGISTICS

a. Concept of Support:

Refer to Asian Carp Rapid Response Plan Section 3.0. Efficient response operations will depend on the coordination and support lent by partner agencies.

b. Resources and Assets: Refer to Appendix B for pre-arranged agency support

c. Personnel:

All rapid response supporting agencies should list operations-essential positions and personnel to fill each position, with a backup capable of fulfilling the designated role if needed.

d. Cost Capturing: Refer to Asian Carp Rapid Response Plan Section 3.1.2

5. COMMAND AND SIGNAL

a. Command and Control:

- IDNR has overall direction and control of Asian Carp Rapid Response activities in this area.
- When all or part of the plan is activated, each organization will pool designated resources for response under the direction of the logistics section chief.
- Command-essential information is maintained in the designated emergency operations center (EOC).
- Waterway closures and personnel assignments are communicated via the established chain of command.

b. Signal:

- Communications are via 2-way radio, cellular telephones, facsimile machines, electronic mail, and internet websites.

Annex 2

Des Plaines River Rapid Response Operations

ANNEX 2: DES PLAINES RIVER RAPID RESPONSE OPERATIONS

This Annex provides a plan to carry out Rapid Response operations for Asian Carp control within the Des Plaines River.

1. SITUATION

a. General

1. Lead Department: Illinois Department of Natural Resources (IDNR)
2. Background: Refer to Asian Carp Rapid Response Plan Section 1.4
3. Site Description:

The section of the Des Plaines River under consideration for treatment runs roughly from RM 297, just upstream of Romeo Rd, to RM 302.5. This section of the river consists of several backwater and wetland areas that may be accessible to Asian carp and other fish during periods of high water, and subsequently trapped here as the river recedes. These areas (see Figure 3 for exact locations) are considered optimal habitat for Asian carp. The river is considered navigable and mostly channelized. It was channelized because diversion of this section of river was necessary for proper placement of the CSSC; much of the river has a flat bedrock bottom and vertical limestone sides. This area of river is generally shallow, ranging in dept from less than 1 foot to about 4 feet, and can be walked across in several locations. The stretch of river running parallel to the CSSC is less than 100 yards away in some locations, and during periods of heavy rainfall, flood waters can run into the CSSC above the barrier system—potentially creating a means for Asian carp to evade the electric barrier system. A series of sluice gates connect overflow from the Ship and Sanitary Canal to the Des Plaines River at Isle a la Cache (RM 296.5), increasing the river's flow. At this location, the river also begins its 20-foot drop to the level of the Ship and Sanitary Canal. The river and the canal join south of the Lockport Lock.

Distinguishing characteristics along or within the Des Plaines River from Des Plaines RM 297 to RM 302.5:

- Access Road via Lemont Road adjacent to river along the southern bank from Des Plaines RM 300 to RM 303
- Access points/boat ramps, Des Plaines RM 300 and RM 301.6
- Backwater Area #1 (potential sampling location), Des Plaines RM 302.15 to RM 302.4
- Lemont Road and Railroad Bridge, Des Plaines RM 301.2
- Goose Lake inlet (potential sampling location), Des Plaines RM 300.2
- I-355 Bridge, Des Plaines RM 299.65
- Backwater Area #3 (potential sampling location), Des Plaines RM 297.4 to RM 298.

This area of the river has no potable water intake structure within or immediately downstream of the treatment zone. The nearest potable water intake is Illinois American Water Company located in Peoria, IL at RM 166.2, over 130 miles downstream, and would not be affected by potential treatment actions.

The nearest U.S. Geological Survey (USGS) monitoring station along this span of the Des Plaines River near Romeoville is at RM 296.1. Periodic field measurements at this station that measure stream flow indicate a flow of 317 cubic feet per second (cfs) during warm months with low precipitation, and over 3000 cfs during the spring season under thawing conditions and higher precipitation. Field measurements taken at various locations along

this stretch of river indicated a variable flow rate that ranged from 0.23 feet per second (ft/sec) to 0.89 ft/sec, depending on the location of the waterway.

b. Supporting Agencies: Refer to Asian Carp Rapid Response Plan Sections 2.2 and 2.3

c. Assumptions: Refer to Asian Carp Rapid Response Plan Section 1.6

d. Current Status:

As of September, 2009, eDNA sample analysis indicated the presence of silver carp within the 10-mile stretch of the Des Plaines River after its confluence with the CSSC. The positive eDNA result was at least 5 miles upstream of where the electric barriers are located in the CSSC. The eDNA testing technology is not currently equipped to detect the presence of bighead carp; however, historical observations of the expansion of Asian carp have shown that bighead carp tend to precede or travel concurrently with silver carp.

One further potential complication merits attention: hydrologic data indicate that flooding in this area could submerge certain lands between the Des Plaines River and the CSSC, creating a bridge by which Asian carp and other fish could swim within the current into the CSSC above the barrier and have a clear path into Lake Michigan.

2. MISSION

To extensively monitor this stretch of the Des Plaines River for signs of Asian Carp and to effectively implement control measures to prevent any Asian carp within this section of the Des Plaines River from getting into CSSC.

3. EXECUTION

a. Incident Commander's Objectives:

- Maintain essential operation to ensure mission completion during rapid response.
- Inform and prepare all supporting personnel before and during operations.
- Maintain safety and security of on-site operations.

b. Concept of Operations

The information included within this section is specific for operations within the specified area of the Des Plaines River. Refer to the Asian Carp Rapid Response Plan Section 2.4 for additional important information regarding the overall Concept of Operations.

1. Triggers:

The Asian Carp Rapid Response Workgroup has deemed the following triggers will elicit rapid response operations:

- Positive confirmation of Asian carp between Barrier II and Barrier I
- Barrier Maintenance
- Catastrophic failure of the electric barrier system
- Overland flooding allowing for bypass to the electric barrier by fish
- Positive confirmation of Asian carp upstream of the Barrier I in the CSSC.

2. Communications:

It will be important for all partner organizations and agencies to communicate with external and internal sources regarding all phases of the rapid response to coordinate actions. Refer to Paragraph A-5, Command and Signal below.

3. Continuity of Operations (COOP):

This section of the Des Plaines will be closed to all boat traffic for the duration of operations including application, detoxification, and clean-up actions.

4. Coordinating Instructions:

- Upon activation of plan a command structure will be established in accordance with NIMS ICS and following throughout entire rapid response.
- The Rapid Response Incident Management Team (RRIMT) will meet together or by conference call to coordinate recommendations to the UC on developments and response issues. The RRT will be comprised of personnel qualified to evaluate and assess the situation and its impact on installation operation and security, and develop courses of action.
- Employ PPE, as appropriate
- Follow established protocols for maintaining security
- Identify environmental considerations
- Publish succession of leadership comprising of at least three tiers
- Identify and train a primary and backup for each mission-essential task
- Take necessary steps to maintain accurate personnel accountability
- Capture and document associated costs
- Apply lessons learned from previous related rapid responses and exercises
- Conduct After-Action reviews and submit lessons learned within four weeks of response termination
- Prepare for subsequent responses.

5. Key Tasks: IDNR to amend plan based on additional data needs and assessments of this location.

6. Supporting Tasks:

IDNR may include amendments to this section based on further assessments and additional data gathering of this location, however the following units should be considered:

<u>Finance and Administration Office</u>

- Provide guidance for, implement, and document all cost capturing methods and activities
- Assist the UC in programming requirements
- Identify system gaps that will require additional resources
- Determine when work limitations are implemented and non-essential personnel should be released.

<u>Health and Safety</u>

- Develop standard operating procedures (SOPs) for the proper use of PPE

- Train personnel in self-protection, use of appropriate PPE, and safe evacuation from potential unplanned catastrophic event
- Preparation and review of Health and Safety Plan (HASP) prior to response.

Environmental Unit

- Identify environmental issues during the pre-response phase, and resolve any environmental issues that arise during and following response
- Ensure cleanup and disposal is done according to local laws and regulations
- Obtain necessary permits required for treatment application, detoxification, and disposal
- Provide subject matter expertise to the unit conducting application, detoxification, and disposal operations.

Law Enforcement and Security Division

- Prioritize security at key locations onsite based on available manpower
- Secure storage and staging locations
- Determine security and patrol staffing needs for sites on land and water.
- Advise the UC when the Security force cannot maintain minimum staffing and when augmentation forces should be requested.

Operations Center

- Maintain, update, exercise, and be prepared to execute this Rapid Response Plan
- Ensure EOC SOPs are current and sufficient staff is trained to respond
- Consolidate organizational requests for manpower assistance
- Coordinate needed outside assistance with supporting agencies through existing Interagency agreements (See Appendix N)
- Conduct after-action reviews and publish After Action Reports (AAR) for any exercises or responses
- Refer incoming calls to appropriate liaison officers.

Public Information Section

- Provide informational forums for the community prior to response activities
- Prepare public affairs plans, information papers, and question-and-answer products
- Communicate with local, national, or international media during all phases of response to ensure uniform and transparent messaging
- Refer incoming calls to appropriate agency or Public Information Officer (PIO).

4. ADMINISTRATION AND LOGISTICS

a. Concept of Support:

Refer to Asian Carp Rapid Response Plan Section 3.0. Efficient response operations will depend on the coordination and support lent by partner agencies.

b. Resources and Assets: Refer to Appendix B for pre-arranged agency support

c. Personnel:

All rapid response supporting agencies should list operations-essential positions and personnel to fill each position, with a backup capable of fulfilling the designated role if needed.

d. Cost Capturing: Refer to Asian Carp Rapid Response Plan Section 3.1.2

5. COMMAND AND SIGNAL

a. Command and Control:

- IDNR has overall direction and control of Asian Carp Rapid Response activities in this area.
- When all or part of the plan is activated, each organization will pool designated resources for response under the direction of the logistics section chief.
- Command-essential information will be maintained in the designated EOC.
- Waterway closures and personnel assignments will be communicated via the established chain of command.

b. Signal:

- Communications will be made via 2-way radio, cellular telephones, facsimile machines, electronic mail, and internet websites.

Appendix B

Federal Authorizations and Agencies

Pertaining to Aquatic Invasive Species Management and Rapid Response

The following information is from the California Aquatic Invasive Species Management Plan, Appendix B: Federal Authorities, Legislation & Agencies (CDFG 2008).

FEDERAL AUTHORITIES

No single federal agency has comprehensive authority for all aspects of aquatic invasive species management. Federal agencies with regulatory authority over the introduction and transport of aquatic species that may be invasive or noxious include the U.S. Department of Agriculture Animal Plant Health Inspection Service, the U.S. Department of Agriculture Agricultural Marketing Service, the U.S. Fish and Wildlife Service (USFWS), the U.S. Department of Commerce (DOC), and the U.S. Coast Guard (USCG). Many other agencies have programs and responsibilities that address components of AIS, such as importation, interstate transport, exclusion, control and eradication.

The primary federal authorities for managing and regulating AIS derive from the National Environmental Policy Act, the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA, 1990), the National Invasive Species Act (NISA, 1996), the Lacey Act, the Plant Pest Act, the Federal Noxious Weed Act, and the Endangered Species Act. An Executive Order signed by President William J. Clinton on February 3, 1999 expanded federal efforts to address AIS. The order created a National Invasive Species Council charged with developing a comprehensive plan to minimize the economic, ecological and human health impacts of invasive species.

Brief descriptions of the President's Executive Order, NANPCA and NISA are provided below, followed by an explanation of how federal activities are now coordinated through the national Aquatic Nuisance Species Task Force (ANSTF) and the National Invasive Species Council (NISC), and by descriptions of some of the earlier acts and laws still enforced in AIS management.

Primary Federal AIS Authorities

1990 – Nonindigenous Aquatic Nuisance Prevention and Control Act
(NANPCA; Title I of P. No.101-646, 16 U.S.C. 4701 et seq.)
http://www.anstaskforce.gov/default.php

The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA) established a federal program to prevent the introduction and control the spread of introduced aquatic nuisance species. The act provides an institutional framework that promotes and coordinates research, develops and applies prevention and control strategies, establishes national priorities, educates and informs citizens, and coordinates public programs. The act calls upon states to develop and implement comprehensive state management plans to prevent introduction and control the spread of aquatic nuisance species (ANS). Section 1002 of NANPCA outlines five objectives of the law, as follows:

1. Prevent further unintentional introductions of nonindigenous aquatic species;

2. Coordinate federally funded research, control efforts, and information dissemination;

3. Develop and carry out environmentally sound control methods to prevent, monitor and control unintentional introductions;

4. Understand and minimize economic and ecological damage; and

5. Establish a program of research and technology development to assist state governments.

Section 1201 of the act established the national ANSTF, co-chaired by the USFWS and the National Oceanic and Atmospheric Administration. The Task Force is charged with coordinating governmental efforts related to ANS prevention and control. The ANSTF consists of 10 federal agency representatives and 12 ex officio members representing nonfederal governmental agencies.

1996 – National Invasive Species Act
(NISA; P. No.104-332)

In 1996, the National Invasive Species Act (NISA) amended the NANPCA of 1990 to mandate ballast water exchange for vessels entering the Great Lakes and to implement voluntary ballast water exchange guidelines for all vessels with ballast on board that enter U.S. waters from outside the U.S. Exclusive Economic Zone (U.S. EEZ). Though the act did not make exchange mandatory, it did require all vessels to submit a report form to the USCG documenting specific ballast water management practices. It also authorized the USCG to toughen requirements if compliance proved unsatisfactory, which it did in 2004 (see below). NISA authorized funding for research on aquatic nuisance species prevention and control in Chesapeake Bay, the Gulf of Mexico, the Pacific coast, the Atlantic coast, and the San Francisco Bay-Delta Estuary. In addition, NISA required a ballast water management program to demonstrate technologies and practices to prevent ANS from being introduced into and spread through ballast water in U.S. waters. It modified both the composition and research priorities of the ANSTF and requirements for the zebra mussel demonstration program.

1999 – Executive Order 13112
(64 Fed. Reg. 6183)
http://www.invasivespeciesinfo.gov/council/main.shtml

President William J. Clinton signed Executive Order 13112 on Invasive Species on February 3, 1999. The order seeks to prevent the introduction of invasive species, provide for their control and minimize their impacts through improved coordination of federal agency efforts under a National Invasive Species Management Plan developed by the newly created National Invasive Species Council (NISC). The order directs all

federal agencies to address invasive species concerns, as well as to refrain from actions likely to increase invasive species problems.

The NISC has three co-chairs: the secretaries of Agriculture, Commerce, and the Interior. Members also include the secretaries of State, Defense, Homeland Security, Treasury, Transportation and Health and Human Services, as well as the administrators of USEPA, the U.S. Agency for International Development, the U.S Trade Representative and the National Aeronautics and Space Administration. The NISC released the first National Invasive Species Management Plan in 2001. The NISC is currently working to establish federal and non-federal task teams to implement the plan's action items.

The NISC actively works with the Invasive Species Advisory Committee (ISAC), also established under the order. The ISAC is composed of stakeholder representatives from state governments, industry, conservation groups, academia and other interests. Its role is to advise the federal government on the issue of invasive species.

To help coordinate the work of the NISC and the ANSTF, the Department of Commerce (DOC) Policy Liaison to the NISC also serves as the DOC representative to the ANSTF. In addition, NISC and the ANSTF have formed joint working groups on each of the following topics: pathways, risk analysis and screening.

The ANSTF and the NISC are similar in that they perform coordinating functions but differ in their responsibilities: the NISC addresses all invasive species, while the ANSTF focuses on aquatic invasive species. Although many of the same principles apply to managing aquatic and terrestrial invasive species, many management issues are unique to the aquatic environment and need to be addressed separately.

1993-2005 – Coast Guard Regulations under NISA
(33 CFR 151)

The USCG has promulgated a number of ballast water management regulations based on the authority given to it by NANPCA in 1990 and NISA in 1996. As directed by NANPCA, in 1993, the USCG implemented regulations requiring vessels entering the Great Lakes and the Hudson River to conduct ballast water management after operating outside the U.S. EEZ.

To comply with the NISA, the USCG established regulations and guidelines to control the introduction of ANS via ballast water discharges in U.S. waters other than the Great Lakes. Compliance with the resulting voluntary ballast management and mandatory reporting program was only 30%, according to a 2002 Report to Congress. Therefore, under the authority of NISA, the USCG established mandatory ballast water management requirements and penalties for non-compliance. The mandatory program requires ships to use one of three ballast water management methods: 1) retaining ballast water on board, 2) conducting a mid-ocean exchange, and/or 3) using an approved ballast water treatment method. All vessels are required to submit ballast

water management reports (failure to submit a report can now result in penalties). These mandatory regulations came into effect on September 27, 2004. Federal regulations also require vessels to maintain a ballast water management plan that is specific for that vessel and assigns responsibility to the master or appropriate official to understand and execute the ballast water management strategy for that vessel.

Under NANPCA/NISA, states are specifically permitted to regulate ballast water on ships. Several states have elected to do so to various degrees. In addition to reporting requirements, California, Oregon and Washington have ballast water exchange requirements and California will soon specify a ballast water discharge standard (see California Authorities section).

Other Federal Authorities

Animal Damage Control Act (1931)
http://www.aphis.usda.gov/

Under the Animal Damage Control Act, the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service has authority to control wildlife damage on federal, state, or private land, including damage from invasive species. The act protects field crops, vegetables, fruits, nuts, horticultural crops and commercial forests; freshwater aquaculture ponds and marine species cultivation areas; livestock on public and private range and in feedlots; public and private buildings and facilities; civilian and military aircraft; and public health.

Animal Health Protection Act (2002)
(7 U.S.C Sec. 8301, et seq.)
http://www.aphis.usda.gov/

The Animal Health Protection Act provides a flexible statutory framework for protecting domestic livestock from foreign pests and diseases. This act authorizes the USDA to promulgate regulations and take measures to prevent the introduction and dissemination of pests and diseases of livestock. The scope of such regulatory authority extends to the movement of all animals, domestic and wild, except humans. The fact that a pest or disease primarily affects animals other than livestock, including humans, does not limit USDA's authority to regulate a species, so long as it carries a pest or disease of livestock. Further, the act defines "livestock" to mean all farm-raised animals, clarifying the USDA's authority to conduct animal health protection activities in connection with farm-raised aquatic animals.

Clean Water Act
http://www.epa.gov/r5water/cwa.htm
http://unds.bah.com/default.htm

Various sections of the Clean Water Act (CWA) regulate discharges of pollutants (such as AIS and ballast water) and fill material to waters of the United States. Section 402 of

the act authorizes the National Pollutant Discharge Elimination System (NPDES), a permit program intended to reduce and eliminate the discharge of pollutants from point sources that threaten to impair beneficial uses of water bodies. The act defines point sources to include vessels (Section 502(14)) and prohibits all point source discharges of pollutants into U.S. waters unless a permit has been issued either under Section 402 (NPDES) or Section 404 (dredge and fill activities).

California's Waste Discharge Requirements, issued by the state's Regional Water Quality Control Boards (RWQCBs), incorporate the authority of the federal NPDES permitting program for discharges of wastes to surface waters. In addition, under Section 303(d) of the each of the RWQCBs has the requirement to establish "a total maximum daily load for those pollutants which the (Environmental Protection Agency (USEPA)) Administrator identifies under Section 304(a) (2) as suitable for such calculation." This section of the CWA was developed to support a water quality-based system of effluent limits for chemical pollutants; the interpretation of what an allowable load of invasive species is has not been defined.

Under Section 305(b) of the CWA, California's nine RWQCBs are required to assess water bodies for attainment of beneficial uses every two years and report to the USEPA. In cases where beneficial uses of water bodies are shown to be impaired, Section 303(d) requires the Regional Boards to list the impaired water bodies and "establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters." Section 502(6) defines "pollutant" as dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, *biological materials,* radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal and agricultural waste discharged into water. Ballast water is considered to be a pollutant in discharges based on the above definition and definitions in the State Water Code.

Endangered Species Act of 1973
(ESA; 16 U.S.C.A. §§ 1531 to 1544)
http://www.fws.gov/endangered/

The ESA aims to protect endangered and threatened species. When non-native invasive species threaten endangered species, this act could be used as basis for their eradication or control by the USFWS or by the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-Fisheries Service) The potential to harm a federally-listed species and the need to obtain a permit from the USFWS or NOAA-Fisheries Service should be taken into consideration when selecting methods to manage AIS.

Lacey Act (1900; amended 1998)
http://www.fws.gov/laws/lawsdigest/lacey.html

As the first federal act that tried to control migrations and importations of nonindigenous species, the Lacey Act prohibits the importation of a list of designated species and other

vertebrates, mollusks and crustaceans that are “injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States.” Under this law, it is unlawful to import, export, sell, acquire, or purchase fish, wildlife or plants taken, possessed, transported, or sold: 1) in violation of U.S. or Indian law, or 2) in interstate or foreign commerce involving any fish, wildlife, or plants taken possessed or sold in violation of State or foreign law.

The Lacey Act allows for the import of species for scientific, medical, education, exhibition or propagation purposes. The USFWS is the lead agency for enforcing the Lacey Act’s prohibition of fish and wildlife imports.

National Environmental Policy Act of 1970
(NEPA; 42 U.S.C.A. §§ 4321 to 4370e)
http://www.epa.gov/compliance/nepa/index.html

NEPA requires the consideration of environmental impacts for any federal action, including direct federal activities, permitting and federal funding of activities by another entity. NEPA environmental documents may include a “finding of no significant impact (FONSI),” an “environmental assessment (EA),” or a full “environmental impact statement (EIS).” Potential impacts of invasive species, both direct and indirect, may be among the issues that should be considered under NEPA.

Noxious Weed Act
(1974; 7 U.S.C. § 360)

Section 15 of the Federal Noxious Weed Act requires federal land management agencies to develop and establish a management program for control of undesirable plants that are classified under state or federal law as undesirable, noxious, harmful, injurious or poisonous, on federal lands under the agency’s jurisdiction (7 U.S.C. 2814(a)). The act also requires the federal land management agencies to enter into cooperative agreements to coordinate the management of undesirable plant species on federal lands where similar programs are being implemented on state and private lands in the same area (7 U.S.C. 2814(c)). The Secretaries of Agriculture and the Interior must coordinate their respective control, research and educational efforts relating to noxious weeds (7 U.S.C. 2814(f)). USDA’s Departmental Regulation 9500-10 sets forth departmental policy relating to the management and coordination of noxious weeds activities among the agencies within USDA and other entities.

Plant Protection Act
(2000; 7 U.S.C. 7701)
http://www.aphis.usda.gov/

The Plant Protection Act (PPA) authorizes the USDA to prohibit or restrict the importation or interstate movement of any plant, plant product, biological control organism, noxious weed, article or means of conveyance if the Secretary of Agriculture determines that the prohibition or restriction is necessary to prevent the introduction into

the United States, or the dissemination within the United States, of a plant pest or noxious weed.

The PPA specifically authorizes USDA to develop integrated management plans for noxious weeds for the geographic region or ecological range where the noxious weed is found in the United States. In addition, the act authorizes the USDA to cooperate with other federal agencies or entities, states or political subdivisions of states, national governments, local governments of other nations, domestic or international organizations or associations, and other persons to carry out the provisions of the act.

FEDERAL AGENCIES

Numerous federal agencies, presented here in alphabetical order, have authority to implement the laws and policies described above. Other federal agencies have mandates impacted by AIS and thus engage in research, monitoring, prevention or control programs. Still others delegate primary responsibility for implementation to state and regional agencies (see next section). The following descriptions attempt to provide a general introduction to the scope of each agency's work, as well as a brief review of the agency's recent (as of 2006) major AIS-related activities.

Bureau of Reclamation
http://www.usbr.gov/

The Bureau of Reclamation is involved in several important projects related to this issue. The Bureau has partnered with the DFG, USFWS and others to investigate the Chinese mitten crab infestation in the Sacramento-San Joaquin Delta. The agency participates in the Giant *Salvinia* Task Force's efforts to limit the spread of this invader in the Colorado River (see Appendix D), has a detection program for water hyacinth and participates in activities related to the New Zealand mudsnail infestation in Putah Creek. The agency also participated in DFA's *Hydrilla* Eradication Program.

National Oceanic and Atmospheric Administration (NOAA)
http://www.noaa.gov/

NOAA is the primary federal agency charged with management of marine resources. NOAA is the co-chair of the ANSTF and has been designated the Department of Commerce lead as co-chair of the National Invasive Species Council. Within NOAA, a number of national, state and regional agencies and programs are actively involved in AIS issues in California. These include: National Estuarine Research Reserve System (NERRS), a network of protected areas established for long-term research, education and stewardship; National Marine Fisheries Service, which works to protect fisheries habitat, commercial fisheries and endangered fish; National Marine Sanctuaries, the nation's system of marine protected areas, and Sea Grant, a nationwide network of 30 university-based programs that work with coastal communities and conduct scientific

research and education projects designed to foster science-based decisions for the use and conservation of U.S. aquatic resources.

National Estuarine Research Reserve System (NOAA – NERRS)
http://nerrs.noaa.gov/
http://sfbaynerr.org
http://www.elkhornslough.org/
http://nerrs.noaa.gov/TijuanaRiver/

There are three reserves in California that provide a platform to increase communication between scientists, decision-makers, land managers, and the public in order to better deal with AIS issues. The San Francisco Bay reserve protects two large, relatively pristine, tidal wetlands: China Camp State Park in Marin County and Rush Ranch Open Space in Solano County. These sites are part of an AIS early detection and assessment study and detailed vegetation maps are being created to serve as a baseline to evaluate future invasions. China Camp serves as an uninvaded reference site for marshes invaded by *Spartina* hybrids in San Francisco Bay. Rush Ranch is a site of active research on invasive fish and invertebrates. The Elkhorn Slough reserve protects approximately 1,400 acres, including Elkhorn Slough, one of the few coastal wetlands remaining in California. Elkhorn estuarine habitats have over 60 species of non-native invertebrates, over 20 species of non-native plants and a few non-native fish and algae. All of these are currently widespread, so eradication seems impossible. Efforts are focused on early detection and eradication of species identified as "least wanted" invaders such as Chinese mitten crabs and *Caulerpa*. The reserve launched an early detection program for aquatic non-native invaders in 2002. The Tijuana River reserve's 2,500 acres encompass beach, dune, mudflat, salt marsh, riparian, coastal sage and upland habitats surrounded by the growing cities of Tijuana, Imperial Beach and San Diego. Critical invasive species issues include: tamarisk, ice plant and other exotic plants displacing native species in the salt marsh and upland habitats; ongoing surveys to understand the dynamics of AIS; and efforts to understand ecosystem recovery following eradication of invasives.

National Marine Fisheries Service (NOAA – Fisheries Service)
http://www.nmfs.noaa.gov/

NOAA-Fisheries Service is in charge sustaining the nation’s fisheries, many of which are being directly impacted by AIS, and is involved in many AIS projects in California. It has a key role on the Southern California Caulerpa Action Team. NOAA-Fisheries Service is also involved with a variety of other collaborative research projects including: ballast water exchange, AIS risk evaluation research and hull fouling research funded by the Port of Oakland; analysis of biofouling communities and community effects; and surveys and experimental treatments of several invasive species in San Francisco Bay. NOAA-Fisheries Service also

participates on several AIS advisory and coordinating committees including: the Pacific Ballast Water Group, Non-Native Invasive Species Advisory Council and the West Coast Ballast Outreach Project Advisory Team.

National Marine Sanctuaries (NOAA – NMS)
http://sanctuaries.noaa.gov/
http://channelislands.noaa.gov/
http://cordellbank.noaa.gov/
http://farallones.noaa.gov/
http://montereybay.noaa.gov/

California has four sanctuaries – Channel Islands NMS, Cordell Banks NMS, Gulf of Farallones NMS and Monterey Bay NMS. The latter two sanctuaries are in the process of developing aquatic invasive species management plans and have conducted monitoring programs for AIS.

National Sea Grant (NOAA – Sea Grant)
http://www.seagrant.noaa.gov/
http://www-csgc.ucsd.edu
http://ballast-outreach-ucsgep.ucdavis.edu/

The National Sea Grant Program is a partnership between the nation's universities and NOAA (under the Office of Oceanic and Atmospheric Research) that began in 1966. The California Sea Grant program is the largest of these programs. Sea Grant began the West Coast Ballast Outreach Project in 1999 (co-sponsored by the CALFED Bay-Delta Program) to address concerns that ballast water discharges could be introducing foreign marine species into the state's coastal and estuarine ecosystems. The project educates the maritime industry about the ecological seriousness of aquatic exotic species by publishing the newsletter "Ballast Exchange," maintaining an educational Web site and coordinating workshops. In addition, California Sea Grant provides two major services to the state. First, the research arm of California Sea Grant, operating out of the Scripps Institute for Oceanography in La Jolla, funds critical coastal and marine research through an annual request for proposal and a National Strategic Initiative (NSI) program. Through both of these avenues, the college program funded approximately $2.6 million in research on invasive species between 1995 and 2003. Second, Sea Grant and the University of California Cooperative Extension jointly fund a network of eleven advisors and specialists who work on applied research and outreach projects throughout the state, including those related to AIS. Sea Grant funding has supported a wide variety of research projects on key invasive species, such as the Chinese mitten crab, European green crab, an exotic Australian isopod, several invasive seaweeds, and *Spartina* hybrids. Sea Grant sponsored research led to the eradication of the South African *sabellid* worm at the site near Cayucos, California, where it had become established.

National Park Service (NPS)
www.nps.gov

NPS strives to preserve the unimpaired natural and cultural resources of the national park system for the enjoyment, education and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country. The NPS has several invasive species monitoring, control, research and eradication programs in California. Eradication and control are supported by two programs. The first is the (California) Exotic Plant Management Team (EPMT), which travels around the state to national parks that have requested assistance in removal and control projects. The EPMT has traditionally focused on terrestrial non-natives but could work on aquatic invaders. Through the second program, individual parks can request funds from Washington or the NPS Western Region for control and eradication projects. Natural resource inventories and monitoring activities occur in all of the National Parks in California, and these programs are well positioned to alert state managers to emerging and growing threats from invasive species. Information from these programs could be shared among the California AIS plan partners and benefit the state's early detection efforts. Finally, the NPS actively supports and hosts research projects on impacts of invasive species on ecological communities. National Parks in California, that participate with the EPMT, conduct invasive species inventories, monitoring and research on lands totaling about 2.4 million acres and include hundreds of miles of coastline. Significant education and outreach occurs at all of these sites.

U.S. Army Corps of Engineers (COE)
http://www.usace.army.mil/

The COE provides engineering, construction and environmental project services for the military and local governments. Congress authorizes the COE to assist local governments with water resource development needs, which include flood control, navigation, ecosystem restoration and watershed planning. For ecosystem restoration, this includes research on invasive species. Specific programs addressing invasive species issues include the Aquatic Nuisance Species Research Program, the Aquatic Plant Control Research Program and the Water Operations Technical Support Program. COE is also responsible for permitting aquaculture projects, including oyster farms, which often involves AIS considerations.

U.S. Coast Guard (USCG)
http://www.uscg.mil/hq/g-m/mso/bwm.htm

The USCG has established a mandatory program aimed at keeping aquatic nuisance species out of U.S. waters using ballast water management methods. USCG activities focus on enforcement and monitoring to ensure compliance with the program, which includes regular on-board inspections. USCG coordinates with California's State Lands Commission, manager of the state's ballast water program. In 2004, USCG issued

“Ballast Water Management for the Control of Aquatic Nuisance Species in the Waters of the United States,” a guidance document concerning ballast water management.

USCG activities related to AIS are diverse. The agency is working on the development of chemical and engineering methods to verify that a mid-ocean ballast water exchange has occurred. It is also evaluating technologies for the treatment of ballast water. USCG has determined that due to difficulties in establishing the effectiveness of ballast water exchange as it varies across ship types, voyages and from tank to tank, treatment technologies are best evaluated through a ballast water discharge standard (a benchmark for maximum numbers of organisms that may be discharged in ballast water). Such a standard will not only be helpful in evaluating the effectiveness of treatment technologies but also clearly establish when the ballast water no longer contains quantities of organisms that pose a significant risk. A Programmatic Environmental Impact Statement, detailing the evaluation of environmental impacts to the U.S. by several potential ballast water discharge standard alternatives, is currently in development.

USCG has also initiated several projects designed to provide information on the state of development of treatment technologies and the basic characteristics of treatment processes. These efforts have included scientific audits that tested and evaluated three approaches: filtration, ultraviolet light and hydro cyclonic separation. In addition, USCG developed and launched the Shipboard Technology Evaluation Program (STEP) in 2004 to encourage ship owners and operators to participate in evaluating technologies for shipboard application (see also CAISMP Action 7C3). This program allows for the review of experimental plans and treatment technology installations aboard ships. If they perform largely as designed and show promise for reducing the risk of introductions, treatment technology installations will be granted an equivalency with regulations for ballast water management and the Ballast Water Discharge Standard.

U.S. Department of Agriculture (USDA)
http://www.aphis.usda.gov/
http://www.ars.usda.gov/main/main.htm
http://www.invasivespeciesinfo.gov

USDA provides leadership on food, agriculture, natural resources and related issues. USDA conducts a number of programs and activities related to invasive species. USDA’s Animal and Plant Health Inspection Service’s (APHIS) deals with invaders like the South American wetland rodent, nutria, in the Mississippi Delta region and has also worked on other invasive animal, fish and crab problems around the country. APHIS has done extensive noxious weed work, including exclusion, permitting, eradication of incipient infestations, surveys, data management, public education, and (in cooperation with other agencies) integrated pest management of introduced weeds, including biological control. Aquatic weeds are included in the federal noxious weed list through the APHIS Cooperative Agricultural Pest Survey (CAPS).

The USDA's Agricultural Research Service (ARS) has three Exotic and Invasive Weed Research (EIWR) units in the west: at Davis and Albany, California, and at Reno, Nevada. Scientists at these facilities are responsible for research, the transfer of technology for improvement of management and control, and eradication of invasive aquatic and riparian weeds affecting agriculture and natural resources. These projects address three current ARS program priorities: 1) the reduction of dependence on pesticide use (specifically herbicides); 2) implementation of Executive Order 13112 (see above subsection on this order); and 3) water-quality improvement.

Research is conducted on the biology, reproduction, ecology, management or eradication of several important invasive aquatic weeds. The program provides technology transfer for the eradication and management of several problem species. The EIWR units are also involved in aquatic and riparian weed education for public, state and federal stakeholders.

U.S. Environmental Protection Agency (USEPA)
http://www.epa.gov/owow/invasive_species

USEPA leads the nation's environmental science, research, education and assessment efforts. It develops and enforces regulations, offers financial assistance, performs environmental research, sponsors voluntary partnerships and programs, furthers environmental education and publishes information. USEPA is responsible for enforcing the Clean Water Act (CWA). USEPA released its *EPA Authorities for Natural Resource Managers Developing Aquatic Invasive Species Rapid Response and Management Plans* in December 2005. This document provides an overview of USEPA authorities that apply to state or local AIS rapid response and control actions. The document summarizes relevant sections of the CWA and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); summarizes how to apply for CWA Section 404 permits to discharge dredged or fill material; summarizes how to apply for FIFRA Section 18 emergency exemptions and FIFRA Section 24(c) special local need registrations; and describes case studies in which state and local natural resource managers successfully obtained FIFRA emergency exemptions and special local need registrations for AIS eradication or control actions.

Within USEPA, there are three members of the National Estuary Program in California whose activities encompass AIS management.

> **National Estuary Program (USEPA – NEP)**
> http://www.epa.gov/nep
> San Francisco Estuary Project: http://www.abag.org/bayarea/sfep/sfep.html
> Morro Bay National Estuary Program: http://www.mbnep.org/index.php
> Santa Monica Bay Restoration Commission: http://www.santamonicabay.org/
>
> Congress established the National Estuary Program in 1987 to protect and improve the water quality and natural resources of estuaries nationwide. There are three programs in California. The San Francisco Estuary Project (SFEP) was

formed in 1987 as a cooperative federal/state/local program to promote effective management of the San Francisco Bay-Delta Estuary, and created a consensus-based management plan for the Estuary including concrete actions related to invasive species. More recently, SFEP identified invasive species as the number-one priority issue in estuary restoration. SFEP holds an ex officio seat on the ANSTF and is a member of the Western Regional Panel.

The Morro Bay National Estuary Program was established in July 1995. The estuary contains the most significant wetland system along California's south-central coast. It supports many species of internationally-protected migratory birds, offers rare wetland habitat to a number of threatened native plant and animal species, and provides a protected harbor for marine fisheries. There are plans to suppress or eliminate at least two aquatic invasive species present in the estuary: giant cane and Sacramento pikeminnow. Efforts to eliminate a pioneer population of giant cane growing along Chorro Creek, a major estuary waterway, and its tributaries, are ongoing; eradication is expected by 2008. Efforts to suppress the pikeminnow to the point where native steelhead populations can begin recovery are expected to begin in 2007.

The Santa Monica Bay Restoration Project was established in 1988 to ensure the long-term health of the 266-square-mile Santa Monica Bay and its 400-square-mile watershed. In 2003, this project became an independent state organization, the Santa Monica Bay Restoration Commission. In terms of invasives, the commission has focused most recently on coastal bluff, wetland and riparian vegetation, funding extensive removal and replanting programs as well as outreach on "California friendly" gardens. The newest threat is the arrival of the New Zealand mudsnail in some Santa Monica mountains streams. The commission has convened experts to strategize how to slow the snail's spread.

U.S. Fish and Wildlife Service (USFWS)
http://www.fws.gov/
http://www.100thmeridian.org

USFWS has multiple programs that address AIS management. USFWS serves as co-chair of the Federal ANSTF and is the agency that provides federal funding for the implementation of Task Force approved state AIS management plans. USFWS also provides technical assistance to states regarding AIS management. USFWS administers the Lacey Act, which prohibits importation and interstate delivery of listed species. USFWS prevention programs include the 100th Meridian Initiative (see Appendix D), which focuses on preventing the western spread of zebra mussels. In cooperation with the ANSTF, the USFWS has developed planning documents for Chinese mitten crab, European green crab, New Zealand mudsnail and *Caulerpa.* USFWS refuges support invasive species control programs as part of their overall habitat restoration activities.

U.S. Geological Survey (USGS)
http://www.usgs.gov
http://nas.er.usgs.gov/

USGS acknowledged its role in non-native species management in a White Paper on Invasive Species, which identifies the goal of developing new strategies for the prevention, early detection and prompt eradication of new invaders. The USGS further identifies information management and documentation of invasions as a priority for the agency. In keeping with this objective, the USGS developed and maintains an extensive, spatially referenced database of non-native species, which is accessible online.

Appendix C

Example Documents from an Aquatic Invasive Species Rapid Response

A rapid response project was implemented in the Chicago Sanitary and Shipping Canal (CSSC) during December 2009 to control the movement of Asian carp. A fish toxicant (rotenone) was applied to a 5.7-mile section of the CSSC to eradicate any Asian carp that might be between an electric barrier system and the Lockport Lock and Dam. The rotenone was applied immediately before the electric barrier system, intended to prevent the movement of Asian carp into Lake Michigan, was turned off while U.S. Army Corps of Engineers (USACE) performed scheduled maintenance on the barrier system.

The Illinois Department of Natural Resources (IDNR) led the response effort in coordination with more than 40 partner agencies. IDNR has provided the following documents from the project (named Operation Silver Screen) to provide a few examples of the scores of legal considered that had to be addressed prior to the rapid response. Considerable work was required to fulfill the regulatory requirements of applying a restricted use fish toxicant to the waterway. Access agreements had to be secured for all aspects of the project. The IDNR Director issued a Delegation of Authority for all responders working as part of the ICS structure. IDNR also developed a set of operational guidelines

Please note – This is a preliminary place and more analysis is underway

DRAFT

Subject: Preliminary Analysis of EPA Authorities for Deployment of Rapid Response for Asian Carp in the Chicago Area Waterway System

From [redacted]

To: [redacted]

Date: September 21, 2009

Overview

In preparation for any Rapid Response efforts associated with Asian Carp in the Chicago Sanitary and Ship Canal, and surround water bodies, U.S. EPA Region 5 was asked to scope out the required EPA authorities necessary for action. Further analysis will be sought

This memorandum assumes the following for purposes of analyzing EPA's authorities. This is *not* to say EPA will pursue the following assumed actions:

A) The piscicide "Rotenone" would be used by the state of Illinois or other non-EPA party
B) The piscicide would be used within the registered labeled application
C) Great Lakes Restoration Initiative funding is approved and EPA would fund another federal agency for purposes of funding Rapid Response

Authorities identified for Rapid response include:

* Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
* National Pollutant Discharge Elimination System (NPDES)
* Endangered Species Act (ESA)
* National Environmental Policy Act (NEPA)

Analysis of Authorities

Each of the authorities identified have been vetted through the appropriate Region 5 offices and there does not appear to be any hindrance to EPA's ability to authorize permits associated with Rapid Response.

FIFRA

Region 5 Land and Chemicals Division, Chemical Management Branch, Pesticides Section has determined that the use of a registered piscicide according to label use directions, and applied by a certified applicator (if the product is a Restricted Use Product), would be lawful under FIFRA. The agencies responsible for the Asian Carp rapid response have determined that the Carp can be killed through the use of a registered piscicide, of which there are a number of products that use the intended active ingredient, rotenone.

In the event that it is determined that an unregistered piscicide or an unregistered use of the piscicide is considered for application, then a special registration would be required. If an emergency exemption is desired from EPA for uses of a piscicide that is not registered, the State may apply to EPA for an emergency exemption under Section 18 of FIFRA. If a State wishes to issue a special registration, it would do so under FIFRA Section 24 (c). EPA can disapprove a State's 24(c) registration within 90 days, otherwise the State registration stands.

This assessment is supported by the Region 5 Pesticide, Toxics, and Compliance Section and OPP's Risk Integration Minor Use and Emergency Response Branch. Contact: EPA Region 5 Land and Chemical Division, Chief of the Pesticides Program – Dan Hopkins. 312-886-5994 or hopkins.dan@epa.gov.

NPDES

It is the opinion of the Region 5 NPDES Programs Branch, based on consultation with the Office of Regional Counsel, the Permits Division, Office of Wastewater Management, and with staff of the Office of General Counsel, that NPDES permits are currently not required for application of Rotenone to control Asian Carp.

EPA's final Aquatic Pesticide Rule (November 2006) excluded from NPDES permit requirements the application of aquatic pesticides in conformance with FIFRA requirements. This Rule was subsequently vacated by the U.S. Court of Appeals for the 6th Circuit (*National Cotton Council of America, et al. v. United States Environmental Protection Agency, 553 F.3d 927 (6th Cir. 2009)*. However the court granted a motion to stay the mandate until April 9, 2011. EPA requested this time in order to establish an effective NPDES program for permitting the application of aquatic pesticides. During the intervening period NPDES permits are not required.

Contact: EPA Region 5 Water Division, NPDES Programs Branch Chief - Peter Swenson, 312-886-0236 or swenson.peter@epa.gov.

ESA

The US Fish and Wildlife Service (USFWS) has responsibility to administer the Endangered Species Act. All Federal agencies, including USEPA, must comply when taking actions. USFWS shares USEPA's sense of urgency to protect the Great Lakes from the Asian carp, and conceptually supports USEPA's Rapid Response Plan, provided that ESA is followed. To address ESA compliance, USEPA needs to work with USFWS to identify potentially impacted

listed or candidate species. An informal consultation with USFWS can determine if a risk to listed or candidate species might occur. If such a risk may occur, USFWS has an emergency formal consultation process that can expedite ESA determinations.

Contacts: USFWS Region 3 Office Asian carp lead, Mike Hoff, 612-713-5114, Michael_Hoff@fws.gov;
USFWS Region 3; Assistant Regional Director for Fisheries, Mike Weimer, 612-713-5111, Michael Weimer@fws.gov

NEPA

Region 5 Office of Enforcement and Compliance Assurance and the National Program Manager of the NEPA Compliance Division Director in the Office of Federal Activities confirm that USEPA funding for this project under the Clean Water Act is statutorily exempt from NEPA, and that the FIFRA pesticide licensing process is functionally equivalent to NEPA as determined by the courts. However, the NEPA Compliance Division advises that Federal agencies, including USEPA, must comply with other environmental statutes, such as the Endangered Species Act.

The NEPA Compliance Division suggested EPA consider doing a voluntary NEPA analysis or having a rationale for not conducting the analysis. In the near term, the emergency nature of Illinois Department of Natural Resources (IDNR's) planned Rapid Response action is a reason in Region 5's judgment why a voluntary NEPA analysis is not appropriate.

Rapid Response is not a long or even medium-term solution to Asian carp migration. Therefore, the Corps of Engineers is beginning a long-term study of interbasin (Mississippi River – Great Lakes) invasive species, which will evaluate multiple species, pathways, risks, and alternatives for risk reduction and remediation. This study will analyze a variety of strategies, which may include additional electric barriers, acoustic bubbler barriers, episodic repeat usage of fish pesticides, and options for permanent biological isolation of the Mississippi River basin from the Great Lakes. This Corps study will likely be conducted as an environmental impact statement under NEPA. Multiple agencies and stakeholders, including USEPA, will be invited to participate. The Corps did a NEPA analysis several years ago to inform its decision to install the initial electric barriers. However, this study is expected to take several years.

As a result, the Corps is also using its authority to conduct an "Efficacy Study" for construction options to keep Asian carp from one waterbody to the Chicago Sanitary Ship Canal, which connects through the Chicago River to Lake Michigan. This will not be as thorough as the above interbasin study, but can be conducted faster.

Contacts: EPA Region 5 Office of Enforcement and Compliance Assurance,
NEPA Implementation Section Chief – Ken Westlake, 312-886-2910 or westlake.kenneth@epa.gov. NEPA Compliance Division Director in Office of Federal Activities National Program Manager – Robert Hargrove, 202-564-7157 or Hargrove.robert@epa.gov

Further Analysis

Consultation with the EPA Headquarters Office of General Council will be sought in order to vet the Regional responses through one central point of contact in order ensure that the Regional response are in line with EPA policy.

Contacts: Principal Deputy General Counsel - Patricia Hirsch, 202-564-8040 or hirsch.pat@epa.gov. Associate General Counsel for Water - Steve Neugeboren, 202-564-7700 or neugeboren.steven@epa.gov.

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
http://dnr.state.il.us

Pat Quinn, Governor
Marc Miller, Director

ACCESS LETTER
Address to MWRD and other private companies
Need addresses, names

November 20, 2009

Dear Sir:

There is evidence that Asian Carp are in the vicinity of the US Army Corps of Engineers electronic dispersal barrier, known as Barrier IIA, on the Chicago Sanitary and Ship Canal (CSSC) near Romeoville, Illinois, operated to prevent an Asian carp incursion into Lake Michigan and the Great Lakes. New test results on water samples taken by the University of Notre Dame show that Asian Carp are present near the electric barrier. The potential for the fish to by-pass the barrier using flood water connections between the Des Plaines River and the Chicago Sanitary and Ship Canal (CSSC) is possible. The electric Barrier IIA must be shut down for repair and maintenance. Asian Carp can devastate native populations as well as cause great economic damage to the Great Lakes commercial, sport and tribal fisheries collectively valued at more than $7 billion annually. The IDNR manages, owns and controls the fishery located within the State borders for the State of Illinois and is solely able to provide authorization for activities intended to protect fishery populations within those same borders.

The Asian Carp Rapid Response Workgroup has recommended the implementation of its Asian Carp Rapid Response Plan which details actions necessary to control the migration of the carp. The Illinois Department of Natural Resources is deeply involved with this effort taken pursuant to the authority granted to the Department of Natural Resources by the Illinois General Assembly and which is in the Fish and Aquatic Life Code, 515 ILCS 5/1-135 and 150.

The Asian Carp control effort includes but is not limited to the application of the piscicide Rotenone in a segment of the CSSC beginning near Romeoville, Illinois and continuing south approximately six miles. The application of potassium permanganate is planned at downstream locations to neutralize the rotenone. The intent is a complete kill of all fish in the reach of the canal so that the electric barrier, Barrier IIA, maintained by the US Army Corps of Engineers can be turned off for repair and maintenance. This effort will be conducted beginning access from November 23, 2009 through December 6, 2009. This is a government led effort. At all times participating personnel are directed to consider health and safety first—no action should be attempted unless it is part of the Plan, it is determined to be safe and authorized by incident command. Safety, both of the public and of plan participants, is paramount, and no activity

which endangers humans is allowed.

As a property owner along the CSSC we ask you to completely close your property adjacent to the CSSC to public access from December 1, 2009 through December 6, 2009 to facilitate Asian carp control activities and for public safety. Further, you have agreed to provide access to your property for some aspect of the implementation of the Asian Carp Rapid Response Plan—either for material support and storage or for control activities. Your personnel carrying out their job duties outside the CSSC will, of course, have full access to your property except for those areas described above where the government agencies and contractors are conducting their work. Illinois Conservation Police Officers will be providing security and enforcement services during the event. We appreciate your assistance

By cooperating with the IDNR and participating in the Plan designed to prevent Asian Carp from migrating past Barrier IIA, the CSSC and on into Lake Michigan, members of your agency, organization, or company are hereby authorized to take action as directed and in accordance with the Plan and such other contingencies deemed necessary by incident command during the operation.

Please indicate you willingness to cooperate by signing a copy of this letter and returning it to Randy Heidorn at One Natural Resources Way
Springfield, Illinois 62702

Steve Shults,
Incident Commander
Asian Carp Rapid Response Plan

Approved:
_____Date_____

Asian Carp Rapid Response Plan

Illinois Department of Natural Resources Staff

Delegation and Authorization

Staff of the Illinois Department of Natural Resources (IDNR) will be involved with and instrumental in the successful implementation of the Asian Carp Rapid Response Plan including implementation and management or participation in the Incident Command structure that will be used for proper implementation. With this memorandum, IDNR staff assigned to work on the Asian carp control project being implemented in compliance with the Asian Carp Rapid Response Plan (and the Incident Action Plan necessary for implementation, hereinafter "Plan") ("Plan") is notified that their participation is wholly within the scope of their job duties. And all IDNR staff are included in the Director's separate Delegation and Authorization provided to all participating agencies to carry out all aspects of the Plan.

Further, IDNR personnel that are staffing the Incident Command for the carp control effort and within the purview of the Plan are authorized and delegated the authority to:

1. Direct staff to perform duties within the Plan dictates without regard to normal chain of command within the IDNR;
2. Commit IDNR resources to the task of implementing the Plan;
3. Direct and assign overtime to IDNR staff;
4. Authorize third party use of IDNR equipment, supplies, and services or contracted services;
5. The designated Incident Commander from DNR staff can execute agreements for material and service support without additional need for authority; and the designated Incident Commander shall report each and every such agreement the day of execution, or as soon thereafter as practical;
6. Execute contracts to the dollar limit of $10,000 without additional need for authority and limited to the use of the IDNR standard contractual agreement and shall report each and every such agreement the day of execution, or as soon thereafter as practical;
7. For purposes of the implementation of the Plan, command and general staff report to and are supervised by the Incident Commander; command and general staff supervise and work with those personnel assigned to provide assistance

Page Two – IDNR Staff Delegation and Authority

8. Direct DNR staff to work under the supervision of participating third party personnel as are qualified and undertaking supervisory tasks for the implementation of the Plan;
9. Incident Commander can direct IDNR personnel away from the implementation if such personnel are disruptive, incapacitated or unable to perform adequately the tasks assigned to implement the Plan.

The above notwithstanding, at all times, IDNR personnel remain subject to the provisions of the Illinois Personnel Code and its regulations, the provisions of any code and union contract and the policy and procedures of the Illinois Department of Natural Resources.

The Incident Commander should endeavor to report daily activities to the IDNR Director's Office.

Guidelines

For Consideration During Implementation of

Asian Carp Rapid Response Plan

1. Everyone should be generally familiar with the Asian Carp Rapid Response Plan ("Plan") and specifically familiar with that portion of the Plan and Incident Action Plan that you are working on, over-seeing, or securing.

2. The Plan identifies an Incident Command Structure, and a representative of the Illinois Department of Natural Resources ("IDNR") is acting as the Incident Commander. The Command Structure should be followed at all times during this operation. IDNR personnel are principally responsible for guiding the implementation of the Plan. The IDNR is responsible for overall project oversight, direction and allocation of all resources. Everyone is responsible for abiding by the directives of the Incident Command and the Incident Action Plan.

3. IDNR employees are subject to IDNR policies, rules, and practices and required to work within the scope of their employment and as outlined for the implementation of the Plan.

4. Participating government agencies agree to provide their personnel authority to use, transport, and allocate donated resources, and to appoint a single liaison with full delegation of authority if needed, and to notify incident command of that appointment.

5. Participating government agencies cover the costs of travel, lodging, meals, and salary for its personnel participating in the Plan effort; however, your personnel are welcome to partake in any food service provided under contract for the Plan. Your designated liaison will be notified of any such food service.

6. All other government participants are subject to their agencies policies, rules related to workers' compensation requirements, insurance, and compensation. You should also determine whether additional authorization from your agency is required to participate in the Plan.

7. Participating government agencies assume responsibility and/or liability for the acts or omissions of its staff while working on the Plan.

8. Materials, supplies, and personnel responsibilities are being donated for the purpose of implementing the Plan and are fully described.

Page Two – Guidelines for Implementing Asian Carp Rapid Response Plan

9. Participating agencies arrange transportation of personnel, supplies, materials, and equipment at the agency's expense.

10. The IDNR Director approves the implementation of the Plan so all activities in furtherance of the Plan are within the law and personnel will not be subject to sanction for those activities. With that said, everyone is expected to comply with federal, state and local laws. Failure to follow the Plan without authorization from the Incident Commander falls outside the scope of any authorization provided by the Director of the IDNR and may have other consequences for the individual.

11. Each agency or company is responsible for their employees and the equipment brought to, and used, in the implementation of the Plan.

12. The Illinois Department of Natural Resources is required to provide a complete accounting of this event. As such, each agency needs to provide no later than December 21, 2009, the value of their contributions to the plan. The submission should include labor costs (salaries, wages, hours, benefits, etc.) and non-labor costs (fuel, equipment, transportation, lodging, meals, etc.). Please submit your accounting to Truman Scheller via email: Truman.Scheller@illinois.gov. If you have questions related to your agencies accounting, or submission, Truman can be reached at (217) 785-8288.

13. The Asian Carp Rapid Response Work Group will provide access to property adjacent to the Chicago Sanitary & Ship Canal only for the purpose of implementing the Plan. Participants are expected not to trespass on other lands, or properties at any time during the implementation of the Plan.

14. All participants involved in the application of Rotenone are required to be properly licensed by the Illinois Department of Agriculture.

15. Illinois is a self insured state, and any claims related to the Plan shall be per Illinois law.

Appendix D

Planning for Rapid Response

The California Department of Fish and Game identified 11 basic task areas necessary to plan for rapid response (CADFG 2008). An amended description of the 11 basic task areas follows (Smits and Moser 2009).

Task 1: Collaborate to complete plan.
Representatives from public agencies and other organizations that are currently involved in rapid response work, or 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.
Invasive Species Program staff 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.

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 completed to finalize the Rapid Response Plan includes:

a. 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.
b. Likely Species and Scenarios: Identify likely species and/or early detection scenarios for AIS. Run these scenarios through the implementation criteria developed for Task 4a.

c. Agency Preparation: Develop information needed to help cooperating agencies designate and train, in advance, potential responders to AIS introductions.
d. 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.
e. Personnel Directory: Develop a statewide Rapid Response Personnel Directory. These people could be called upon to participate during rapid response activities, and into an ICS response. The Directory 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. In addition, 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.
f. Resources Directory: Develop and maintain a Rapid Response Resources Directory of all cooperating agencies equipment, operations centers, supply sources, and associated contact people so that resources can be mobilized as quickly as possible during a response.
g. 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.

Invasive Species Program 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: The adopted changes to the Plan should be circulated to people listed in the Rapid Response Personnel Directory and other appropriate staff among the cooperating agencies and organizations.
- Update Directories: Invasive Species Program staff, with assistance and input from cooperating agencies and organizations, will be responsible for the periodic update and circulation of the Rapid Response Personnel and Resources directories.

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. The process of prioritizing which species warrant the development of rapid response plans will also help guide the development of outreach materials for early detection efforts.

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 E

Synopsis of the Endangered Species Act Section 7 Consultation Process

The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Section 7 of the Act, called "Interagency Cooperation," is the mechanism by which Federal agencies or other entities funded by a Federal agency (action agency), ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species.

Under Section 7, Federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS), or National Marine Fisheries Service for marine or anadromous species, when any action the agency carries out, funds, or authorizes (such as through a permit) *may affect* a listed endangered or threatened species. This process usually begins as informal consultation. An action agency, in the early stages of project planning, approaches USFWS and requests informal consultation. Discussions between the two agencies may include what types of listed species may occur in the proposed action area, and what effect the proposed action may have on those species.

If the action agency, after discussions with USFWS, determines that the proposed action is not likely to affect either any listed species or their critical habitats, in the project area, and if USFWS concurs, then the informal consultation is complete and the proposed project can proceed. If it appears that the agency's action may affect either a listed species or their critical habitats, then that agency may then prepare a biological assessment to assist in its determination of the project's effect on a species.

When an action agency determines, through a biological assessment or other review, that its action is *likely to adversely affect* a listed species, the agency submits to the USFWS a request for formal consultation. During formal consultation, USFWS and the action agency share information about the proposed project and the species likely to be affected. Formal consultation may last up to 90 days, after which USFWS will prepare a biological opinion on whether the proposed activity will *jeopardize* the continued existence of a listed species. USFWS has 45 days after completion of formal consultation to write the opinion.

In making a determination on whether an action will result in jeopardy, the USFWS begins by looking at the current status of the species, or "baseline." Added to the baseline are the various effects – direct, indirect, interrelated, and interdependent – of the proposed action. USFWS also examines the cumulative effects of other non-Federal actions that may occur in the action area, including state, tribal, local, or private activities that are reasonably certain to occur in the project area.

USFWS's analysis is then measured against the definition of jeopardy. Under the ESA, jeopardy occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. When USFWS delivers a jeopardy determination, it also provides the consulting action agency with reasonable and prudent alternative actions. These alternatives are often developed with input and assistance from the action agency.

In some cases, USFWS finds that an action may adversely affect a species, but not jeopardize its continued existence. When this happens, the Service prepares an incidental take statement for the proposed Federal project. Under most circumstances, the ESA prohibits take, which is defined as harming (includes killing) or harassing a listed species. Incidental take – take that results from an action but is not the purpose of the action – may be allowed when USFWS approves it through an incidental take statement. The statement includes the amount or extent of anticipated take due to the action, reasonable and prudent measures to minimize the take, and terms and conditions that must be observed when implementing those measures.

After USFWS issues its biological opinion, the action agency then decides how to proceed. With an opinion that determines adverse effects, the agency can adopt the reasonable and prudent measures outlined in an incidental take statement and proceed with the project. If USFWS makes a jeopardy determination, then the action agency has several options:

- implement one of the reasonable and prudent alternatives;
- modify the proposed project and consult again with the Service;
- decide not to undertake (or fund, or authorize) the project;
- disagree with the opinion and proceed;
- apply for an exemption.

An action agency may apply for an exemption if it believes it cannot comply with the requirements of the biological opinion. The application is considered by the Endangered Species Committee, composed of Cabinet-level members from various federal agencies and administered by the Interior Department's Assistant Secretary for Policy, Management and Budget. To be considered by the Committee for an exemption, an action agency must have carried out the consultation in good faith and made a reasonable effort to develop and consider modifications or alternatives to the proposed action. It must also have conducted any required biological assessment, and refrained from making any irreversible or irretrievable commitment of resources to the project during consultation.

Appendix F

Incident Command System Review Document

Following is a Federal Emergency Management Agency, Emergency Management Institute Incident Command System (ICS) review document available on the Internet at http://training.fema.gov/EMIWeb/IS/ICSResource/assets/reviewMaterials.pdf. The document provides a summary of the key features and principles of ICS.

Incident Command System (ICS)

ICS was developed in the 1970s following a series of catastrophic fires in California's urban interface. Property damage ran into the millions, and many people died or were injured. The personnel assigned to determine the causes of these outcomes studied the case histories and discovered that response problems could rarely be attributed to lack of resources or failure of tactics. Surprisingly, studies found that response problems were far more likely to result from inadequate management than from any other single reason.

The Incident Command System:

- Is a standardized management tool for meeting the demands of small or large emergency or nonemergency situations.
- Represents "best practices" and has become the standard for emergency management across the country.
- May be used for planned events, natural disasters, and acts of terrorism.
- Is a key feature of the National Incident Management System (NIMS).

The ICS is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to enable effective and efficient domestic incident management. A basic premise of ICS is that it is widely applicable. It is used to organize both near-term and long-term field-level operations for a broad spectrum of emergencies, from small to complex incidents, both natural and manmade. ICS is used by all levels of government—Federal, State, local, and tribal—as well as by many private-sector and nongovernmental organizations. ICS is also applicable across disciplines. It is normally structured to facilitate activities in five major functional areas: command, operations, planning, logistics, and finance and administration.

Incident Complexity

"Incident complexity" is the combination of involved factors that affect the probability of control of an incident. Many factors determine the complexity of an incident, including, but not limited to, area involved, threat to life and property, political sensitivity, organizational complexity, jurisdictional boundaries, values at risk, weather, strategy and tactics, and agency policy.

Incident complexity is considered when making incident management level, staffing, and safety decisions.

Various analysis tools have been developed to assist consideration of important factors involved in incident complexity. Listed below are the factors that may be considered in analyzing incident complexity:

- Impacts to life, property, and the economy
- Community and responder safety
- Potential hazardous materials
- Weather and other environmental influences
- Likelihood of cascading events
- Potential crime scene (including terrorism)
- Political sensitivity, external influences, and media relations
- Area involved, jurisdictional boundaries
- Availability of resources

ICS Review Materials: ICS History and Features

ICS Features

The 14 essential ICS features are listed below:

Standardization:

- **Common Terminology:** Using common terminology helps to define organizational functions, incident facilities, resource descriptions, and position titles.

Command:

- **Establishment and Transfer of Command:** The command function must be clearly established from the beginning of an incident. When command is transferred, the process must include a briefing that captures all essential information for continuing safe and effective operations.

- **Chain of Command and Unity of Command:** Chain of command refers to the orderly line of authority within the ranks of the incident management organization. Unity of command means that every individual has a designated supervisor to whom he or she reports at the scene of the incident. These principles clarify reporting relationships and eliminate the confusion caused by multiple, conflicting directives. Incident managers at all levels must be able to control the actions of all personnel under their supervision.

- **Unified Command:** In incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.

Planning/Organizational Structure:

- **Management by Objectives:** Includes establishing overarching objectives; developing strategies based on incident objectives; developing and issuing assignments, plans, procedures, and protocols; establishing specific, measurable objectives for various incident management functional activities and directing efforts to attain them, in support of defined strategies; and documenting results to measure performance and facilitate corrective action.

- **Modular Organization:** The Incident Command organizational structure develops in a modular fashion that is based on the size and complexity of the incident, as well as the specifics of the hazard environment created by the incident.

- **Incident Action Planning:** Incident Action Plans (IAPs) provide a coherent means of communicating the overall incident objectives in the context of both operational and support activities.

- **Manageable Span of Control:** Span of control is key to effective and efficient incident management. Within ICS, the span of control of any individual with incident management supervisory responsibility should range from three to seven subordinates.

ICS Review Materials: ICS History and Features

ICS Features (Continued)

Facilities and Resources:

- **Incident Locations and Facilities:** Various types of operational support facilities are established in the vicinity of an incident to accomplish a variety of purposes. Typical designated facilities include Incident Command Posts, Bases, Camps, Staging Areas, Mass Casualty Triage Areas, and others as required.

- **Comprehensive Resource Management:** Maintaining an accurate and up-to-date picture of resource utilization is a critical component of incident management. Resources are defined as personnel, teams, equipment, supplies, and facilities available or potentially available for assignment or allocation in support of incident management and emergency response activities.

Communications/Information Management

- **Integrated Communications:** Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures.

- **Information and Intelligence Management:** The incident management organization must establish a process for gathering, analyzing, sharing, and managing incident-related information and intelligence.

Professionalism:

- **Accountability:** Effective accountability at all jurisdictional levels and within individual functional areas during incident operations is essential. To that end, the following principles must be adhered to:

  - **Check-In:** All responders, regardless of agency affiliation, must report in to receive an assignment in accordance with the procedures established by the Incident Commander.
  - **Incident Action Plan:** Response operations must be directed and coordinated as outlined in the IAP.
  - **Unity of Command:** Each individual involved in incident operations will be assigned to only one supervisor.
  - **Personal Responsibility:** All responders are expected to use good judgment and be accountable for their actions.
  - **Span of Control:** Supervisors must be able to adequately supervise and control their subordinates, as well as communicate with and manage all resources under their supervision.
  - **Resource Tracking:** Supervisors must record and report resource status changes as they occur.

- **Dispatch/Deployment:** Personnel and equipment should respond only when requested or when dispatched by an appropriate authority.

Transfer of Command

The process of moving the responsibility for incident command from one Incident Commander to another is called "transfer of command." It should be recognized that transition of command on an expanding incident is to be expected. It does not reflect on the competency of the current Incident Commander.

There are five important steps in effectively assuming command of an incident in progress.

Step 1: The incoming Incident Commander should, if at all possible, personally perform an assessment of the incident situation with the existing Incident Commander.

Step 2: The incoming Incident Commander must be adequately briefed.

This briefing must be by the current Incident Commander, and take place face-to-face if possible. The briefing must cover the following:

- Incident history (what has happened)
- Priorities and objectives
- Current plan
- Resource assignments
- Incident organization
- Resources ordered/needed
- Facilities established
- Status of communications
- Any constraints or limitations
- Incident potential
- Delegation of Authority

The ICS Form 201 is especially designed to assist in incident briefings. It should be used whenever possible because it provides a written record of the incident as of the time prepared. The ICS Form 201 contains:

- Incident objectives.
- A place for a sketch map.
- Summary of current actions.
- Organizational framework.
- Resources summary.

Step 3: After the incident briefing, the incoming Incident Commander should determine an appropriate time for transfer of command.

Step 4: At the appropriate time, notice of a change in incident command should be made to:

- Agency headquarters (through dispatch).
- General Staff members (if designated).
- Command Staff members (if designated).
- All incident personnel.

Step 5: The incoming Incident Commander may give the previous Incident Commander another assignment on the incident. There are several advantages of this:

- The initial Incident Commander retains first-hand knowledge at the incident site.
- This strategy allows the initial Incident Commander to observe the progress of the incident and to gain experience.

Modular Organization

Standardization of the ICS organizational chart and associated terms does not limit the flexibility of the system. (See the chart on the next page.)

A key principle of ICS is its flexibility. The ICS organization may be expanded easily from a very small size for routine operations to a larger organization capable of handling catastrophic events.

Flexibility does not mean that the ICS feature of common terminology is superseded. Note that flexibility is allowed within the standard ICS organizational structure and position titles.

Position Titles

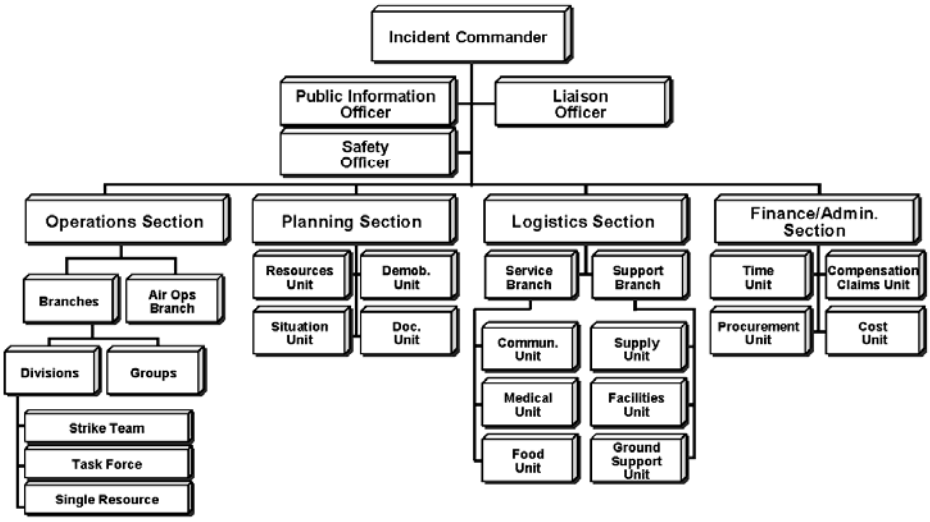
At each level within the ICS organization, individuals with primary responsibility positions have distinct titles. Titles provide a common standard for all users. For example, if one agency uses the title Branch Chief, another Branch Manager, etc., this lack of consistency can cause confusion at the incident.

The use of distinct titles for ICS positions allows for filling ICS positions with the most qualified individuals rather than by seniority. Standardized position titles are useful when requesting qualified personnel. For example, in deploying personnel, it is important to know if the positions needed are Unit Leaders, clerks, etc.

Listed below are the standard ICS titles:

Organizational Level	Title	Support Position
Incident Command	Incident Commander	Deputy
Command Staff	Officer	Assistant
General Staff (Section)	Chief	Deputy
Branch	Director	Deputy
Division/Group	Supervisor	N/A
Unit	Leader	Manager
Strike Team/Task Force	Leader	Single Resource Boss

ICS Organization



- **Command Staff:** The Command Staff consists of the Public Information Officer, Safety Officer, and Liaison Officer. *They report directly to the Incident Commander.*
- **Section:** The organization level having functional responsibility for primary segments of incident management (Operations, Planning, Logistics, Finance/Administration). The Section level is organizationally between Branch and Incident Commander.
- **Branch:** That organizational level having functional, geographical, or jurisdictional responsibility for major parts of the incident operations. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section. Branches are identified by the use of Roman Numerals, by function, or by jurisdictional name.
- **Division:** That organizational level having responsibility for operations within a defined geographic area. The Division level is organizationally between the Strike Team and the Branch.
- **Group:** Groups are established to divide the incident into functional areas of operation. Groups are located between Branches (when activated) and Resources in the Operations Section.
- **Unit:** That organization element having functional responsibility for a specific incident planning, logistics, or finance/administration activity.
- **Task Force:** A group of resources with common communications and a leader that may be pre-established and sent to an incident, or formed at an incident.
- **Strike Team:** Specified combinations of the same kind and type of resources, with common communications and a leader.
- **Single Resource:** An individual piece of equipment and its personnel complement, or an established crew or team of individuals with an identified work supervisor that can be used on an incident.

Overall Organizational Functions

ICS was designed by identifying the primary activities or functions necessary to effectively respond to incidents. Analyses of incident reports and review of military organizations were all used in ICS development. These analyses identified the primary needs of incidents.

As incidents became more complex, difficult, and expensive, the need for an organizational manager became more evident. Thus in ICS, and especially in larger incidents, the Incident Commander manages the organization and not the incident.

In addition to the Command function, other desired functions and activities were:

- To delegate authority and to provide a separate organizational level within the ICS structure with sole responsibility for the tactical direction and control of resources.
- To provide logistical support to the incident organization.
- To provide planning services for both current and future activities.
- To provide cost assessment, time recording, and procurement control necessary to support the incident and the managing of claims.
- To promptly and effectively interact with the media, and provide informational services for the incident, involved agencies, and the public.
- To provide a safe operating environment within all parts of the incident organization.
- To ensure that assisting and cooperating agencies' needs are met, and to see that they are used in an effective manner.

Incident Commander

The Incident Commander is technically not a part of either the General or Command Staff. The Incident Commander is responsible for overall incident management, including:

- Ensuring clear authority and knowledge of agency policy.
- Ensuring incident safety.
- Establishing an Incident Command Post.
- Obtaining a briefing from the prior Incident Commander and/or assessing the situation.
- Establishing immediate priorities.
- Determining incident objectives and strategy(ies) to be followed.
- Establishing the level of organization needed, and continuously monitoring the operation and effectiveness of that organization.
- Managing planning meetings as required.
- Approving and implementing the Incident Action Plan.
- Coordinating the activities of the Command and General Staff.
- Approving requests for additional resources or for the release of resources.
- Approving the use of participants, volunteers, and auxiliary personnel.
- Authorizing the release of information to the news media.
- Ordering demobilization of the incident when appropriate.
- Ensuring incident after-action reports are complete.
- Authorizing information release to the media.

Command Staff

The Command Staff is assigned to carry out staff functions needed to support the Incident Commander. These functions include interagency liaison, incident safety, and public information.

Command Staff positions are established to assign responsibility for key activities not specifically identified in the General Staff functional elements. These positions may include the Public Information Officer, Safety Officer, and Liaison Officer, in addition to various others, as required and assigned by the Incident Commander.

The table on the following page summarizes the responsibilities of the Command Staff.

General Staff

The General Staff represents and is responsible for the functional aspects of the incident command structure. The General Staff typically consists of the Operations, Planning, Logistics, and Finance/Administration Sections.

General guidelines related to General Staff positions include the following:

- Only one person will be designated to lead each General Staff position.
- General Staff positions may be filled by qualified persons from any agency or jurisdiction.
- Members of the General Staff report directly to the Incident Commander. If a General Staff position is not activated, the Incident Commander will have responsibility for that functional activity.
- Deputy positions may be established for each of the General Staff positions. Deputies are individuals fully qualified to fill the primary position. Deputies can be designated from other jurisdictions or agencies, as appropriate. This is a good way to bring about greater interagency coordination.
- General Staff members may exchange information with any person within the organization. Direction takes place through the chain of command. This is an important concept in ICS.
- General Staff positions should not be combined. For example, to establish a "Planning and Logistics Section," it is better to initially create the two separate functions, and if necessary for a short time place one person in charge of both. That way, the transfer of responsibility can be made easier.

The following table summarizes the responsibilities of the Command and General Staff.

Command Staff	Responsibilities
Public Information Officer	▪ Determine, according to direction from the IC, any limits on information release. ▪ Develop accurate, accessible, and timely information for use in press/media briefings. ▪ Obtain IC's approval of news releases. ▪ Conduct periodic media briefings. ▪ Arrange for tours and other interviews or briefings that may be required. ▪ Monitor and forward media information that may be useful to incident planning. ▪ Maintain current information, summaries, and/or displays on the incident. ▪ Make information about the incident available to incident personnel. ▪ Participate in the planning meeting.
Safety Officer	▪ Identify and mitigate hazardous situations. ▪ Ensure safety messages and briefings are made. ▪ Exercise emergency authority to stop and prevent unsafe acts. ▪ Review the Incident Action Plan for safety implications. ▪ Assign assistants qualified to evaluate special hazards. ▪ Initiate preliminary investigation of accidents within the incident area. ▪ Review and approve the Medical Plan. ▪ Participate in planning meetings.
Liaison Officer	▪ Act as a point of contact for agency representatives. ▪ Maintain a list of assisting and cooperating agencies and agency representatives. ▪ Assist in setting up and coordinating interagency contacts. ▪ Monitor incident operations to identify current or potential interorganizational problems. ▪ Participate in planning meetings, providing current resource status, including limitations and capabilities of agency resources. ▪ Provide agency-specific demobilization information and requirements.
Assistants	In the context of large or complex incidents, Command Staff members may need one or more assistants to help manage their workloads. Each Command Staff member is responsible for organizing his or her assistants for maximum efficiency.
Additional Command Staff	Additional Command Staff positions may also be necessary depending on the nature and location(s) of the incident, and/or specific requirements established by the Incident Commander. For example, a Legal Counsel may be assigned directly to the Command Staff to advise the Incident Commander on legal matters, such as emergency proclamations, legality of evacuation orders, and legal rights and restrictions pertaining to media access. Similarly, a Medical Advisor may be designated and assigned directly to the Command Staff to provide advice and recommendations to the Incident Commander in the context of incidents involving medical and mental health services, mass casualty, acute care, vector control, epidemiology, and/or mass prophylaxis considerations, particularly in the response to a bioterrorism event.

Source: NIMS

General Staff	Responsibilities
Operations Section Chief	The Operations Section Chief is responsible for managing all tactical operations at an incident. The Incident Action Plan (IAP) provides the necessary guidance. The need to expand the Operations Section is generally dictated by the number of tactical resources involved and is influenced by span of control considerations. Major responsibilities of the Operations Section Chief are to: ▪ Assure safety of tactical operations. ▪ Manage tactical operations. ▪ Develop the operations portion of the IAP. ▪ Supervise execution of operations portions of the IAP. ▪ Request additional resources to support tactical operations. ▪ Approve release of resources from active operational assignments. ▪ Make or approve expedient changes to the IAP. ▪ Maintain close contact with IC, subordinate Operations personnel, and other agencies involved in the incident.
Planning Section Chief	The Planning Section Chief is responsible for providing planning services for the incident. Under the direction of the Planning Section Chief, the Planning Section collects situation and resources status information, evaluates it, and processes the information for use in developing action plans. Dissemination of information can be in the form of the IAP, in formal briefings, or through map and status board displays. Major responsibilities of the Planning Section Chief are to: ▪ Collect and manage all incident-relevant operational data. ▪ Supervise preparation of the IAP. ▪ Provide input to the IC and Operations in preparing the IAP. ▪ Incorporate Traffic, Medical, and Communications Plans and other supporting materials into the IAP. ▪ Conduct and facilitate planning meetings. ▪ Reassign personnel within the ICS organization. ▪ Compile and display incident status information. ▪ Establish information requirements and reporting schedules for units (e.g., Resources, Situation Units). ▪ Determine need for specialized resources. ▪ Assemble and disassemble Task Forces and Strike Teams not assigned to Operations. ▪ Establish specialized data collection systems as necessary (e.g., weather). ▪ Assemble information on alternative strategies. ▪ Provide periodic predictions on incident potential. ▪ Report significant changes in incident status. ▪ Oversee preparation of the Demobilization Plan.

General Staff	Responsibilities
Logistics Section Chief	The Logistics Section Chief provides all incident support needs with the exception of logistics support to air operations. The Logistics Section is responsible for providing: ▪ Facilities. ▪ Transportation. ▪ Communications. ▪ Supplies. ▪ Equipment maintenance and fueling. ▪ Food services (for responders). ▪ Medical services (for responders). ▪ All off-incident resources. Major responsibilities of the Logistics Section Chief are to: ▪ Provide all facilities, transportation, communications, supplies, equipment maintenance and fueling, food and medical services for incident personnel, and all off-incident resources. ▪ Manage all incident logistics. ▪ Provide logistical input to the IAP. ▪ Brief Logistics Staff as needed. ▪ Identify anticipated and known incident service and support requirements. ▪ Request additional resources as needed. ▪ Ensure and oversee the development of the Communications, Medical, and Traffic Plans as required. ▪ Oversee demobilization of the Logistics Section and associated resources.
Finance/ Administration Section Chief	The Finance/Administration Section Chief is responsible for managing all financial aspects of an incident. Not all incidents will require a Finance/Administration Section. Only when the involved agencies have a specific need for finance services will the Section be activated. Major responsibilities of the Finance/Administration Section Chief are to: ▪ Manage all financial aspects of an incident. ▪ Provide financial and cost analysis information as requested. ▪ Ensure compensation and claims functions are being addressed relative to the incident. ▪ Gather pertinent information from briefings with responsible agencies. ▪ Develop an operating plan for the Finance/Administration Section and fill Section supply and support needs. ▪ Determine the need to set up and operate an incident commissary. ▪ Meet with assisting and cooperating agency representatives as needed. ▪ Maintain daily contact with agency(s) headquarters on finance matters. ▪ Ensure that personnel time records are completed accurately and transmitted to home agencies. ▪ Ensure that all obligation documents initiated at the incident are properly prepared and completed. ▪ Brief agency administrative personnel on all incident-related financial issues needing attention or followup. ▪ Provide input to the IAP.

Agency Representatives

An Agency Representative is an individual assigned to an incident from an assisting or cooperating agency. The Agency Representative must be given authority to make decisions on matters affecting that agency's participation at the incident.

Agency Representatives report to the Liaison Officer or to the Incident Commander in the absence of a Liaison Officer.

Major responsibilities of the Agency Representative are to:

- Ensure that all of their agency resources have completed check-in at the incident.
- Obtain briefing from the Liaison Officer or Incident Commander.
- Inform their agency personnel on the incident that the Agency Representative position has been filled.
- Attend planning meetings as required.
- Provide input to the planning process on the use of agency resources unless resource technical specialists are assigned from the agency.
- Cooperate fully with the Incident Commander and the Command and General Staff on the agency's involvement at the incident.
- Oversee the well-being and safety of agency personnel assigned to the incident.
- Advise the Liaison Officer of any special agency needs, requirements, or agency restrictions.
- Report to agency dispatch or headquarters on a prearranged schedule.
- Ensure that all agency personnel and equipment are properly accounted for and released prior to departure.
- Ensure that all required agency forms, reports, and documents are complete prior to departure.
- Have a debriefing session with the Liaison Officer or Incident Commander prior to departure.

Technical Specialists

Certain incidents or events may require the use of Technical Specialists who have specialized knowledge and expertise. Technical Specialists may function within the Planning Section, or be assigned wherever their services are required.

While each incident dictates the need for Technical Specialists, some examples of the more commonly used specialists are:

- Meteorologists.
- Environmental Impact Specialists.
- Flood Control Specialists.
- Water Use Specialists.
- Fuels and Flammable Specialists.
- Hazardous Substance Specialists.
- Fire Behavior Specialists.
- Structural Engineers.
- Training Specialists.

(Continued on next page.)

Additional advisory positions may also be necessary depending on the nature and location(s) of the incident, and/or specific requirements established by the Incident Commander. For example, a Legal Counsel may be assigned directly to the Command Staff to advise the Incident Commander on legal matters, such as emergency proclamations, legality of evacuation orders, and legal rights and restrictions pertaining to media access. Similarly, a Medical Advisor may be designated and assigned directly to the Command Staff to provide advice and recommendations to the Incident Commander in the context of incidents involving medical and mental health services, mass casualty, acute care, vector control, epidemiology, and/or mass prophylaxis considerations, particularly in the response to a bioterrorism event. These positions may also be considered Technical Specialists.

Intelligence/Investigations Function

- **The collection, analysis, and sharing of incident-related intelligence are important elements of ICS.**
  - Typically, operational information and situational intelligence are management functions located in the Planning Section, with a focus on three incident intelligence areas: situation status, resource status, and anticipated incident status or escalation (e.g., weather forecasts, location of supplies, etc.).
  - This information and intelligence is utilized for incident management decisionmaking. In addition, Technical Specialists may be utilized in the Planning Section to provide specific information that may support tactical decisions on an incident.
- **Incident management organizations must also establish a system for the collection, analysis, and sharing, as possible, of information developed during intelligence/investigations efforts**.
  - Some incidents require the utilization of intelligence and investigative information to support the process. Intelligence and investigative information is defined as information that either leads to the detection, prevention, apprehension, and prosecution of criminal activities (or the individuals(s) involved), including terrorist incidents, or information that leads to determination of the cause of a given incident (regardless of the source) such as public health events or fires with unknown origins.

Topic Organizational Structure

- **ICS allows for organizational flexibility, so the Intelligence/Investigations Function can be embedded in several different places within the organizational structure:**
  - **Within the Planning Section.** This is the traditional placement for this function and is appropriate for incidents with little or no investigative information requirements, nor a significant amount of specialized information.
  - **As a Separate General Staff Section.** This option may be appropriate when there is an intelligence/investigative component to the incident or when multiple investigative agencies are part of the investigative process and/or there is a need for classified intelligence.
  - **Within the Operations Section.** This option may be appropriate for incidents that require a high degree of linkage and coordination between the investigative information and the operational tactics that are being employed.
  - **Within the Command Staff.** This option may be appropriate for incidents with little need for tactical information or classified intelligence and where supporting Agency Representatives are providing the real-time information to the Command Element.

- **The mission of the Intelligence/Investigations Function is to ensure that all investigative and intelligence operations, functions, and activities within the incident response are properly managed, coordinated, and directed in order to:**
  - Prevent/deter additional activity, incidents, and/or attacks.
  - Collect, process, analyze, and appropriately disseminate intelligence information.
  - Conduct a thorough and comprehensive investigation.
  - Identify, process, collect, create a chain of custody for, safeguard, examine/analyze, and store all situational intelligence and/or probative evidence.

- **The Intelligence/Investigations Function has responsibilities that cross all departments' interests involved during an incident, but there are functions that remain specific to law enforcement response and/or mission areas.** Two examples of these are expeditious identification and apprehension of all perpetrators, and successful prosecution of all defendants.

  Regardless of how the Intelligence/Investigations Function is organized, a close liaison will be maintained and information will be transmitted to Command, Operations, and Planning. However, classified information requiring a security clearance, sensitive information, or specific investigative tactics that would compromise the investigation will be shared only with those who have the appropriate security clearance and need to know.

Unified Command

The Unified Command organization consists of the Incident Commanders from the various jurisdictions or agencies operating together to form a single command structure.

Overview

Unified Command is an important element in multijurisdictional or multiagency domestic incident management. It provides guidelines to enable agencies with different legal, geographic, and functional responsibilities to coordinate, plan, and interact effectively.

As a team effort, Unified Command overcomes much of the inefficiency and duplication of effort that can occur when agencies from different functional and geographic jurisdictions, or agencies at different levels of government, operate without a common system or organizational framework.

All agencies with jurisdictional authority or functional responsibility for any or all aspects of an incident participate in the Unified Command structure and contribute to the following process and responsibilities:

- Determining overall incident strategies.
- Selecting objectives.
- Ensuring that joint planning for tactical activities is accomplished in accordance with approved incident objectives.
- Ensuring the integration of tactical operations.
- Approving, committing, and making optimal use of all assigned resources.

The exact composition of the Unified Command structure will depend on the location(s) of the incident (i.e., which geographical administrative jurisdictions are involved) and the type of incident (i.e., which functional agencies of the involved jurisdiction(s) are required). In the case of some multijurisdictional incidents, the designation of a single Incident Commander may be considered to promote greater unity of effort and efficiency.

Source: NIMS

Unified Command

Authority

Authority and responsibility for an Incident Commander to manage an incident or event comes in the form of a delegation of authority from the agency executive or administrator of the jurisdiction of occurrence or inherent in existing agency policies and procedures. When an incident/event spans multiple jurisdictions this responsibility belongs to the various jurisdictional and agency executives or administrators who set policy and are accountable to their jurisdictions or agencies. They must appropriately delegate to the Unified Commanders the authority to manage the incident. Given this authority, the Unified Commanders will then collectively develop one comprehensive set of incident objectives, and use them to develop strategies.

Advantages of Using Unified Command

The advantages of using Unified Command include:

- A single set of objectives is developed for the entire incident.
- A collective approach is used to develop strategies to achieve incident objectives.
- Information flow and coordination is improved between all jurisdictions and agencies involved in the incident.
- All agencies with responsibility for the incident have an understanding of joint priorities and restrictions.
- No agency's legal authorities will be compromised or neglected.
- The combined efforts of all agencies are optimized as they perform their respective assignments under a single Incident Action Plan.

Planning Process

It was recognized early in the development of the ICS that the critical factor of adequate planning for incident operations was often overlooked or not given enough emphasis. This resulted in poor use of resources, inappropriate strategies and tactics, safety problems, higher incident costs, and lower effectiveness.

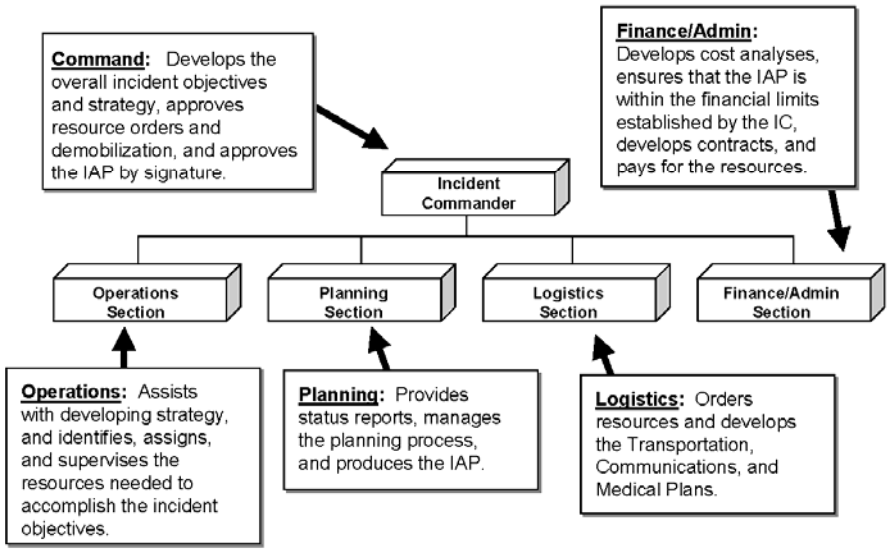
Those involved in the original ICS development felt that there was a need to develop a simple but thorough process for planning that could be utilized for both smaller, short-term incidents and events, and for longer, more complex incident planning. The planning process may begin with the scheduling of a planned event, the identification of a credible threat, or the initial response to an actual or impending event. The process continues with the implementation of the formalized steps and staffing required to develop a written Incident Action Plan (IAP).

The primary phases of the planning process are essentially the same for the Incident Commander who develops the initial plan, for the Incident Commander and Operations Section Chief revising the initial plan for extended operations, and for the incident management team developing a formal IAP, each following a similar process. During the initial stages of incident management, planners must develop a simple plan that can be communicated through concise verbal briefings. Frequently, this plan must be developed very quickly and with incomplete situation information. As the incident management effort evolves over time, additional lead time, staff, information systems, and technologies enable more detailed planning and cataloging of events and "lessons learned."

Planning involves:

- Evaluating the situation.
- Developing incident objectives.
- Selecting a strategy.
- Deciding which resources should be used to achieve the objectives in the safest, most efficient and cost-effective manner.

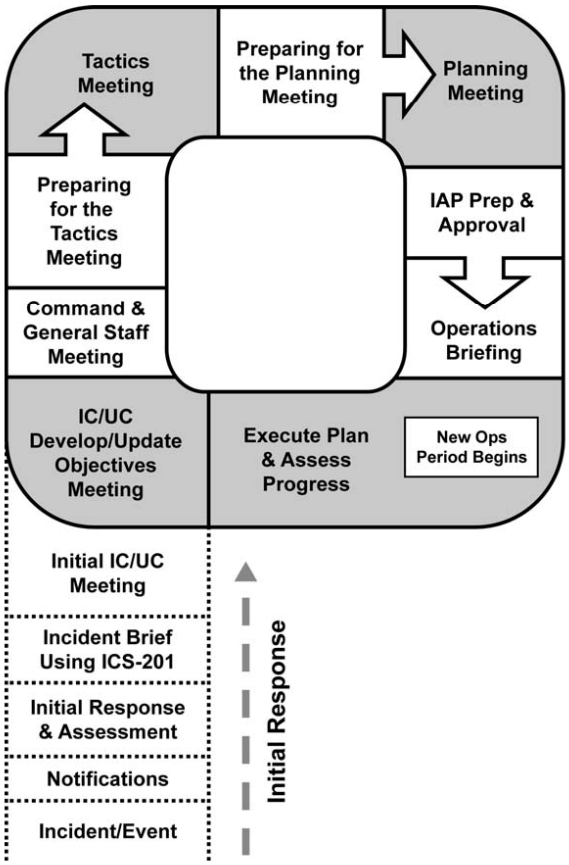
Planning Process



Caption: Organizational chart showing that Command develops the overall incident objectives and strategy, approves resource orders and demobilization, and approves the IAP by signature. Operations assists with developing strategy, and identifies, assigns, and supervises the resources needed to accomplish the incident objectives. Planning provides status reports, manages the planning process, and produces the IAP. Logistics orders resources and develops the Transportation, Communications, and Medical Plans. Finance/Administration develops cost analyses, ensures that the IAP is within the financial limits established by the Incident Commander, develops contracts, and pays for the resources.

Planning Process (Continued)

The Planning "P"



- The Planning "P" is a guide to the process and steps involved in planning for an incident. The leg of the "P" describes the initial response period: Once the incident/event begins, the steps are Notifications, Initial Response & Assessment, Incident Briefing Using ICS 201, and Initial Incident Command (IC)/Unified Command (UC) Meeting.
- At the top of the leg of the "P" is the beginning of the first operational planning period cycle. In this circular sequence, the steps are IC/UC Develop/Update Objectives Meeting, Command and General Staff Meeting, Preparing for the Tactics Meeting, Tactics Meeting, Preparing for the Planning Meeting, Planning Meeting, IAP Prep & Approval, and Operations Briefing.
- At this point a new operational period begins. The next step is Execute Plan & Assess Progress, after which the cycle begins again.

Source: draft NIMS document

Planning Process (Continued)

Initial Response

Planning begins with a thorough size-up that provides information needed to make initial management decisions.

The ICS Form 201 provides Command Staff with information about the incident situation and the resources allocated to the incident. This form serves as a permanent record of the initial response to the incident and can be used for transfer of command.

The Start of Each Planning Cycle

- **IC/UC Objectives Meeting:** The Incident Command/Unified Command establish incident objectives that cover the entire course of the incident. For complex incidents, it may take more than one operational period to accomplish the incident objectives.

  The cyclical planning process is designed to take the overall incident objectives and break them down into tactical assignments for each operational period. It is important that this initial overall approach to establishing incident objectives establish the course of the incident, rather than having incident objectives only address a single operational period.

- **Command and General Staff Meeting:** The Incident Command/Unified Command may meet with the Command and General Staff to gather input or to provide immediate direction that cannot wait until the planning process is completed. This meeting occurs as needed and should be as brief as possible.

Planning Process (Continued)

Preparing for and Conducting the Tactics Meeting

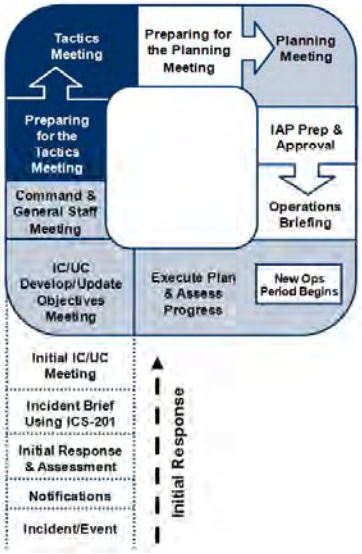
The purpose of the Tactics Meeting is to review the tactics developed by the Operations Section Chief. This includes the following:

- Determine how the selected strategy will be accomplished in order to achieve the incident objectives.
- Assign resources to implement the tactics.
- Identify methods for monitoring tactics and resources to determine if adjustments are required (e.g., different tactics, different resources, or new strategy).

The Operations Section Chief, Safety Officer, Logistics Section Chief, and Resources Unit Leader attend the Tactics Meeting. The Operations Section Chief leads the Tactics Meeting.

The ICS Forms 215, Operational Planning Worksheet, and 215A, Incident Safety Analysis, are used to document the Tactics Meeting.

Resource assignments will be made for each of the specific work tasks. Resource assignments will consist of the kind, type, and numbers of resources available and needed to achieve the tactical operations desired for the operational period. If the required tactical resources will not be available, then an adjustment should be made to the tactical assignments being planned for the Operational Period. It is very important that tactical resource availability and other needed support be determined prior to spending a great deal of time working on strategies and tactical operations that realistically cannot be achieved.



Planning Process (Continued)

Preparing for the Planning Meeting

Following the Tactics Meeting, preparations are made for the Planning Meeting, to include the following actions coordinated by the Planning Section:

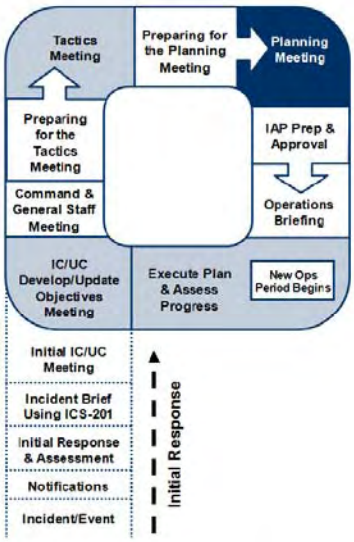
- Review the ICS Form 215 developed in the Tactics Meeting.
- Review the ICS Form 215A, Incident Safety Analysis (prepared by the Safety Officer), based on the information in the ICS Form 215.
- Assess current operations effectiveness and resource efficiency.
- Gather information to support incident management decisions.

Planning Meeting

The Planning Meeting provides the opportunity for the Command and General Staff to review and validate the operational plan as proposed by the Operations Section Chief. Attendance is required for all Command and General Staff. Additional incident personnel may attend at the request of the Planning Section Chief or the Incident Commander. The Planning Section Chief conducts the Planning Meeting following a fixed agenda.

The Operations Section Chief delineates the amount and type of resources he or she will need to accomplish the plan. The Planning Section's "Resources Unit" will have to work with the Logistics Section to accommodate.

At the conclusion of the meeting, the Planning Section Staff will indicate when all elements of the plan and support documents are required to be submitted so the plan can be collated, duplicated, and made ready for the Operational Period Briefing.



Planning Process (Continued)

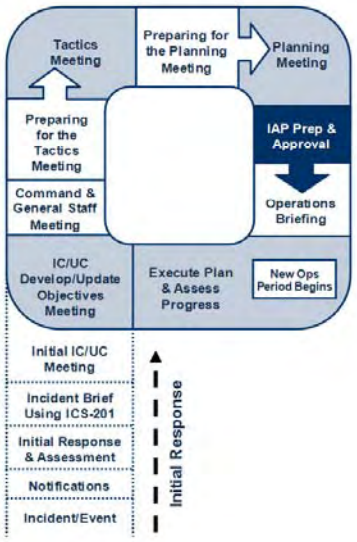
IAP Preparation and Approval

The next step in the Incident Action Planning Process is plan preparation and approval. The written plan is comprised of a series of standard forms and supporting documents that convey the Incident Commander's intent and the Operations Section direction for the accomplishment of the plan for that Operational Period.

For simple incidents of short duration, the Incident Action Plan (IAP) will be developed by the Incident Commander and communicated to subordinates in a verbal briefing. The planning associated with this level of complexity does not demand the formal planning meeting process as highlighted above.

Certain conditions result in the need for the Incident Commander to engage a more formal process. A written IAP should be considered whenever:

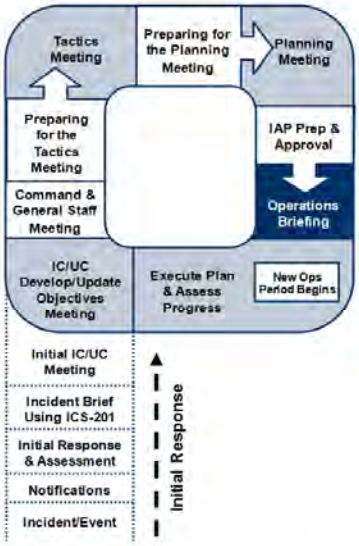
- Two or more jurisdictions are involved in the response.
- The incident continues into the next Operational Period.
- A number of ICS organizational elements are activated (typically when General Staff Sections are staffed).
- It is required by agency policy.
- A Hazmat incident is involved (required).



Operations Period Briefing

The Operations Period Briefing may be referred to as the Operational Briefing or the Shift Briefing. This briefing is conducted at the beginning of each Operational Period and presents the Incident Action Plan to supervisors of tactical resources.

Following the Operations Period Briefing supervisors will meet with their assigned resources for a detailed briefing on their respective assignments.

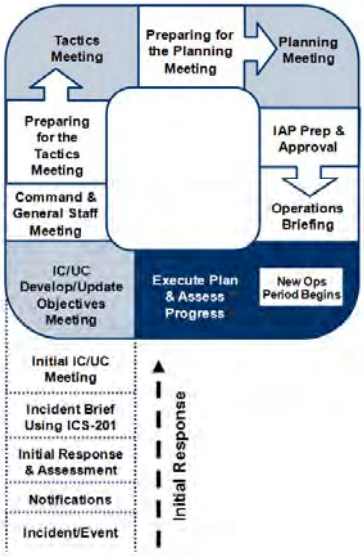


Planning Process (Continued)

Execute Plan and Assess Progress

The Operations Section directs the implementation of the plan. The supervisory personnel within the Operations Section are responsible for implementation of the plan for the specific Operational Period.

The plan is evaluated at various stages in its development and implementation. The Operations Section Chief may make the appropriate adjustments during the Operational Period to ensure that the objectives are met and effectiveness is assured.



ICS Forms

The ICS uses a series of standard forms and supporting documents that convey directions for the accomplishment of the objectives and distributing information. Listed below are the standard ICS form titles and descriptions of each form:

Standard Form Title	Description
Incident Action Plan Cover Page ICS 200	Indicates the incident name, plan operational period, date prepared, approvals, and attachments (resources, organization, Communications Plan, Medical Plan, and other appropriate information).
Incident Briefing ICS 201	Provides the Incident Command/Unified Command and General Staffs with basic information regarding the incident situation and the resources allocated to the incident. This form also serves as a permanent record of the initial response to the incident.
Incident Objectives ICS 202	Describes the basic strategy and objectives for use during each operational period.
Organization Assignment List ICS 203	Provides information on the response organization and personnel staffing.
Field Assignment ICS 204	Used to inform personnel of assignments. After Incident Command/Unified Command approve the objectives, staff members receive the assignment information contained in this form.
Incident Communications Plan ICS 205	Provides, in one location, information on the assignments for all communications equipment for each operational period. The plan is a summary of information. Information from the Incident Communications Plan on frequency assignments can be placed on the appropriate Assignment form (ICS Form 204).
Medical Plan ICS 206	Provides information on incident medical aid stations, transportation services, hospitals, and medical emergency procedures.
Incident Status Summary ICS 209	Summarizes incident information for staff members and external parties, and provides information to the Public Information Officer for preparation of media releases.
Check-In/Out List ICS 211	Used to check in personnel and equipment arriving at or departing from the incident. Check-in/out consists of reporting specific information that is recorded on the form.
General Message ICS 213	Used by: ▪ Incident dispatchers to record incoming messages that cannot be orally transmitted to the intended recipients. ▪ EOC and other incident personnel to transmit messages via radio or telephone to the addressee. ▪ Incident personnel to send any message or notification that requires hard-copy delivery to other incident personnel.

ICS Forms (Continued)

Standard Form Title	Description
Unit Log ICS 214	Provides a record of unit activities. Unit Logs can provide a basic reference from which to extract information for inclusion in any after-action report.
Operational Planning Worksheet ICS 215	Documents decisions made concerning resource needs for the next operational period. The Planning Section uses this Worksheet to complete Assignment Lists, and the Logistics Section uses it for ordering resources for the incident. This form may be used as a source document for updating resource information on other ICS forms such as the ICS 209.
Incident Action Plan Safety Analysis ICS 215A	Communicates to the Operations and Planning Section Chiefs safety and health issues identified by the Safety Officer.
Air Operations Summary ICS 220	Provides information on air operations including the number, type, location, and specific assignments of helicopters and fixed-wing aircraft.
General Plan ICS 226	Addresses long-term objectives approved by Incident Command/ Unified Command. These objectives are often expressed as milestones (i.e., timeframes for the completion of all and/or portions of incident response operations). A General Plan should identify the major tasks to be carried out through to the end of emergency response operations, the duration of the tasks, and the major equipment and personnel resources needed to accomplish the tasks within the specified duration.

Demobilization

Demobilization planning helps to:

- Eliminate waste in resources.
- Eliminate potential fiscal and legal impacts.
- Ensure a controlled, safe, efficient, and cost-effective release process.

Demobilization policies and procedures depend on size of incident and may involve:

- Fiscal/legal policies and procedures.
- Work rules.
- Special license requirements.
- Other requirements.

Appendix G

Example Aquatic Invasive Species Rapid Response Incident Action Plan

1. Incident Name **Asian Carp Rapid Response**	2. Operational Period (Date, Time) Start: **December 1, 2009, 18:00** End: **December 2, 2009, 18:00**	**IAP Cover Sheet**

3. Approved by Incident Commander (s):

Steve Shults, IDNR Bill Bolen, USEPA COL Vincent Quarles, USACE Capt. Luann Brandt, USCG

INCIDENT ACTION PLAN
Operational Period 2

The items below are included in this Incident Action Plan:

- ICS 202 Response Objectives
- ICS 203 Organization Assignment List
- ICS 204 Assignment Lists
- ICS 205 Communication Plan
- ICS 206 Medical Plan
- ICS 207 Organization Chart
- ICS 230 Meeting Schedule

Attachments

- Contact List
- Operational Locations Map
- Traffic Plan of Staging Area with Directions
- USCG Fish Barrier Enforcement Policy
- Timesheet/Daily Activity Log

4. Prepared By: Documentation Unit Leader Date/Time

Bethany Hand, TTEMI 723-904-2944 December 1, 2009 15:00

ICS Form 202

INCIDENT OBJECTIVES	1. INCIDENT NAME Asian Carp Rapid Response	2. DATE December 1, 2009	3. TIME 09:00

4. OPERATIONAL PERIOD (DATE/TIME) Staging

From: December 1, 2009 / 18:00 To: December 2, 2009 / 18:00

5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)

1) Maintain security and safety of all responders and assets in action areas.
2) Complete preparations for all aspects of rotenone application and detoxification.
3) Continue personnel and asset tracking.
4) Continue information exchange with media, active personnel, and Incident Command.
5) Communicate with UC members to ensure compliance with waterway security and maintenance.

6. WEATHER FORECAST FOR OPERATIONAL PERIOD

December 1, 2009 evening temperatures in the low 30s. No precipitation expected. Wind 5-15 mph.
December 2, 2009 Day temps in the low 40s. 30% chance of rain and snow. Wind 5-15 mph.

7. GENERAL SAFETY MESSAGE

Boat operations involve a significant risk. Get your safety briefings prior to conducting all operations and prepare float plans as appropriate. Three man crews are required for all boating operations. PFD are mandatory at all times on the water. Operations at night require added vigilance and safety precautions.

When working near the water, be aware of your situation. PFDs are required for all staff working within 15 feet of the water. Be aware of all field hazards. Slips, trips and falls are a significant hazard on uneven terrain.

Travel safely to your destinations. Know where you are headed and make sure you know your destination address and have all appropriate contact telephone numbers

Traveling by motor vehicle always involves risk, work to minimize those risks. Ensure lights, warning and safety devices are all functional. Practice defensive driving at all times and always wear your seat belts. Remain alert and be aware when operating a motor vehicle. Operations of motor vehicles during dusk and dawn, as well as night operations, require added vigilance and caution.

Be aware of the weather and any changes in the weather. Cold and wind present special challenges to stay warm. Dress appropriately for the weather, in layers.

Follow you safety plans and safety briefings.
Promptly report any injuries or accidents to your supervisor and the Safety Officer, John Glover .

9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)
Greg Conover, PSC Greg Conover Dec 1, 09	Steve Shults, IC

Organization Assignment List, ICS Form 203

ORGANIZATION ASSIGMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	Asian Carp Rapid Response	December 1, 2009	12:00

POSITION	NAME
5. INCIDENT COMMAND AND STAFF	
INCIDENT COMMANDER	**Steve Shults, IDNR**
DEPUTY	Col. Vince Quarles, USACE
UC Members	**CDR. R. Bailey, USCG/ Capt. Brandt, USCG**
	Bill Bolen USEPA
HEALTH & SAFETY OFFICER	John Glover, USEPA
PUBLIC INFORMATION OFFICER	Chris McCloud, IDNR
LIAISON OFFICER	Bill Bolen, GLNPO
6. AGENCY REPRESENTATIVES	
AGENCY	**NAME**
IDNR	Todd Main
USACE	Col. Vincent Quarles
USCG	Commander Timothy Cummins
EPA GLNPO	Bill Bolen
GLFC	John Dettmers
USFWS	Charlie Wooley
7. PLANNING SECTION	
CHIEF	**Greg Conover, FWS**
DEPUTY	Doug Vroman
RESOURCES UNIT	Joe Ferencak, IDNR
SITUATION UNIT	Randy Sauer, IDNR
DOCUMENTATION UNIT	Bethany Hand, TTEMI
DEMOBILIZATION UNIT	Phil Moy, WI SeaGrant
TECHNICAL SPECIALISTS	Ryan Jackson, USGS
	Steve Pallo, FWS
	Andrew Hulin, IDNR
8. LOGISTICS SECTION	
CHIEF	**Randy Heidorn, IDNR**
DEPUTY	W. Tim Bragg, FSI
Security Unit Leader:	Sgt Joe Morelock, IDNR
Water Security Director	Lt. B. Swintek, USCG
Boat Forces PO	BM1 Dawalt, USCG
a. SUPPORT BRANCH	
DIRECTOR	Jim Mick, IDNR
SUPPLY UNIT	Bill Ernest, IDNR
FACILITIES UNIT	Terry Beard, IDNR
GROUND SUPPORT UNIT	Jim Walker, IDNR
b. SERVICE BRANCH	
DIRECTOR	Mike Mooney, IDNR
COMMUNICATIONS UNIT	Sgt. Mike Kennedy, IDNR
MEDICAL UNIT	Jack Sleeharty,
FOOD UNIT	ARC (Dec. 2-6)

4. OPERATIONAL PERIOD (DATE/TIME) Mobilization
Monday November 30, 08:00 – Tuesday December 1, 18:00

9. OPERATIONS SECTION	
CHIEF	**Kathy Burda, APHIS**
DEPUTY	Leon Duncan
a. BRANCH I- APPLICATION	
BRANCH DIRECTOR	**Dan Sallee, IDNR**
DEPUTY	
BOOM APP. GROUP LEADER	Wayne Herndon, IDNR
DEPLOYMENT GROUP LEADER	Mike Mounce, IDNR
b. BRANCH II- DETOXIFICATION	
BRANCH DIRECTOR	**Gary Lutterbie, IDNR**
DEPUTY	
DETOX GROUP	Gary Lutterbie, IDNR
LEAKS GROUP	Brian Stephens
FLOW RATE GROUP	Gary Lutterbie, IDNR
c. BRANCH III- BIOASSAY/MONITORING	
BRANCH DIRECTOR	**Larry Willis, IDNR**
DEPUTY	
FISH MONITORING GROUP	Larry Willis, IDNR
FISH SALVAGE GROUP	Frank Jakubicek
d. BRANCH IV- RECOVERY	
BRANCH DIRECTOR	Dan Stephenson, IDNR
DEPUTY	
NETS/FISH COLLECTION	Bob Kavesetski,
	(5 boats per unit)
10. FINANCE/ADMINISTRATION SECTION	
CHIEF	**Truman Scheller, IDNR**
DEPUTY	
TIME UNIT	Truman Scheller, IDNR
PROCUREMENT UNIT	Karen Reuter
COMPENSATION/CLAIMS UNIT	Truman Scheller, IDNR
COST UNIT	Mike Hoff, FWS

PREPARED BY (DOCUMENTATION UNIT)	Date/Time
Bethany Hand, TTEMI 734-904-2944	December 1, 2009 1400

DIVISION ASSIGNMENT LIST	1. Branch *Application*	2. Division/Group
3. Incident Name *Asian Carp Rapid Response*	4. Operational Period Date: *12/1/09-12/2/09* Time: *18:00-18:00*	

5. Operations Personnel

Operations Chief	*Kathy Burda*	Division/Group Supervisor	
Branch Director	*Dan Sallee*	Air Attack Supervisor No.	*NA*

6. Resources Assigned this Period

Strike Team/Task Force/Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT.or Reporting Location/Time	Pick Up PT. or Location/Time
Deployment Group	*Mike Mounce*	*8*	*NA*	*Staging Area*	*7:00*
Application Station Group	*Wayne Herndon*	*3*	*NA*	*Staging Area*	*7:00*

7. Control Operations

Deployment Group: Air Diffusion Personnel will work for Mike Mounce. Complete construction and deploy systems in water.

App Station: Locate and place all rotenone at application stations and other needed areas.

8. Special Instructions

See 204a for personnel listing

9. Division/Group Communication Summary

Function	System	Grp/Channel	Frequency	Function	System	Grp/Channel	Frequency
Command				**Support**			

Prepared by (DocUL)	Approved by (PSC)	Date	Time
Bethany Hand	*Greg Conover*	*12/1/2009*	*10:00*

ICS-204

Asian Carp Rapid Response
November 30, 2009 – December 6th, 2009
Incident Command Instructions
(ICS 204a)
Application Branch

Application Stations Group

- Branch Director: Dan Sallee
- Div/Sup: Wayne Herdon
- List of Personnel:
    - Wayne Herndon
    - Ken Russel
    - Rob Hilsabeck
- Personnel report to main staging area

Deployment Group- Wildlife Services

- Branch Director: Dan Sallee
- Div/Sup: Mike Mounce
- List of Personnel:
    - Ben Nelson
    - Rusty Biermier
    - John Hinde- Air Diffusion, Andre Osborne- Contractor
    - Jesse Lujan
    - Tim White
    - Thomas Hutton
    - Mike Mounce
- Personnel report to main staging area

DIVISION ASSIGNMENT LIST	1. Branch *Detox*	2. Division/Group
3. Incident Name *Asian Carp Rapid Response*	4. Operational Period Date: *12/1/09-12/2/09* Time: *18:00-18:00*	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director	*Gary Lutterbie*	Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT.or Reporting Location/Time	Pick Up PT. or Location/Time
Flow Rate Group	*Gary Lutterbie*	*2*	*NA*	*Staging Area*	*8:00*
Detox Group	*Gary Lutterbie*	*2*	*NA*	*Staging Area*	*8:00*
Leaks Group	*Brian Stephens*	*9*	*NA*	*Staging Area*	*8:00*

7. Control Operations

Flow Group: Measure flows in CSSC and calculate rotenone, permanganate and citric acid if needed. Wayne Herndon and Garry Lutterbie to make calculations.

Detox Group: Spot the KMnO4 and ensure proper placement

8. Special Instructions

Contact Deployment group for use of boat for flow testing.

9. Division/Group Communication Summary

Function	System	Grp/Channel	Frequency	Function	System	Grp/Channel	Frequency
Command				**Support**			

Prepared by (RESL)	Approved by (PSC)	Date	Time
ICS-204		*12/1/2009*	*10:00*

Asian Carp Rapid Response
November 30, 2009 – December 6th, 2009
Incident Command Instructions
(ICS 204a)

Detox Branch

DETOX BRANCH

Flow Rate Group

- Branch Director: Gary Lutterbie
- Div/Sup: Gary Lutterbie
- List of Personnel:
  - Gary Lutterbie
  - Wayne Herndon
  - Ryan Jackson- USGS
- Personnel report to main staging area

Leaks Group

- Branch Director: Gary Lutterbie
- Div/Sup: Brian Stephens
- List of Personnel:
  - Shawn Robertson
  - Brian Stephens
  - Jaime Storozuk
  - Paul Sullivan
- Personnel report to main staging area

Detox/KMnO4 Group

- Branch Director: Gary Lutterbie
- Div/Sup: Gary Lutterbie
- List of Personnel:
  - Gary Lutterbie
  - Mike Hooe
- Personnel report to main staging area

DIVISION ASSIGNMENT LIST	1. Branch *Monitoring*	2. Division/Group
3. Incident Name *Asian Carp Rapid Response*	4. Operational Period Date: *12/1/09-12/2/09* Time: *18:00-18:00*	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director	*Larry Willis*	Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT.or Reporting Location/Time	Pick Up PT. or Location/Time
Fish Salvage Group	*Frank Jakubicek*	*12*	*NA*	*Staging Area*	*7:00*

7. Control Operations

Collect Sentinal fish and game fish to be transferred to hatchery truck. Check in with Branch Director at the end of operations.

8. Special Instructions

9. Division/Group Communication Summary

Function	System	Grp/Channel	Frequency	Function	System	Grp/Channel	Frequency
Command				**Support**			

Prepared by (DocUL)	Approved by (PSC)	Date	Time
Bethany Hand	*Greg Conover*	*12/1/2009*	*10:00*

ICS-204

Asian Carp Rapid Response
November 30, 2009 – December 6th, 2009
Incident Command Instructions
(ICS 204a)

Monitoring Branch

Fish Monitoring Group

- Branch Director: Larry Willis
- Div/Sup: Larry Willis
- List of Personnel:
  - Boat #1
    - Curt Paine
    - Mack Sitzes
    - Mark Sart
  - Boat #2
    - Nate Goetter
    - Fred Cronin
    - Rob Bartlett
  - Boat #3
    - Shawn Hirst
    - Butch Atwood
    - Trent Thomas
- Personnel report to main staging area

Fish Salvage Group

- Branch Director: Larry Willis
- Div/Sup: Frank Jakubicek
- List of Personnel:
  - Vic Santucci
  - Frank Jakubicek
  - Kim Larson
  - Steve Pescitelli
  - Bob Rung
  - Dan Makawskas
  - Bob Miller
  - Steve Robilard
  - Barry Newman
  - Jeff Hoffelt
  - Rick Bushman
  - Scott Bartell
- Personnel report to main staging area

DIVISION ASSIGNMENT LIST	1. Branch *Recovery*	2. Division/Group
3. Incident Name *Asian Carp Rapid Response*	4. Operational Period Date: *12/1/09-12/2/09* Time: *18:00-18:00*	

5. Operations Personnel

Operations Chief	*Kathy Burda*	Division/Group Supervisor	
Branch Director	*Dan Stephenson*	Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT.or Reporting Location/Time	Pick Up PT. or Location/Time
Nets/Fish Collection Group	*Bob Kavetsky*	*10*	*NA*	*Staging Area*	*7:00*

7. Control Operations

Complete setup of fish collection systems. SET personnel to work under Bob Kavetsky (FWS)

8. Special Instructions

SET personnel to work under Bob Kavetsky (FWS)
SET leader is Mark Picquet: 847-846-1716
See 204a for personnel listing

9. Division/Group Communication Summary

Function	System	Grp/Channel	Frequency	Function	System	Grp/Channel	Frequency
Command				**Support**			

Prepared by (DocUL)	Approved by (PSC)	Date	Time
Bethany Hand	*Greg Conover*	*12/1/2009*	*10:00*

ICS-204

Asian Carp Rapid Response
November 30, 2009 – December 6th, 2009
Incident Command Instructions
(ICS 204a)

Recovery Branch

Net/Fish Collection Group

- Branch Director: Dan Stevenson
- Div/Sup: Bob Karestki
- List of Personnel:
  - Mark Parquette (SET) + 9 additional SET personnel
- Personnel report to main staging area

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME
	ACRRP	11-17-09 / 0900	11-30-09/0800 to 12-07-09/1700

4. BASE RADIO CHANNEL UTILIZATION

SYSTEM/CACHE CHANNEL		FUNCTION	FREQUENCYTONE ASSIGNMENT		REMARKS
IEMA STARCOM CACHE	ZONE AA Channel 15	Command & Control	RGN 4A	Command & General Staff	Communications to Command Center and between Command and General Staff
IEMA STARCOM CACHE	ZONE AA Channel 16	Operations	RGN 4B	Field Staff	Field Staff to Field Staff communicaitons
CONSERVATION POLICE STARCOM RADIOS	ZONE & Channel Vary	Law Enforcement	R2-DET-A	Conservation Police	CPO to CPO communications

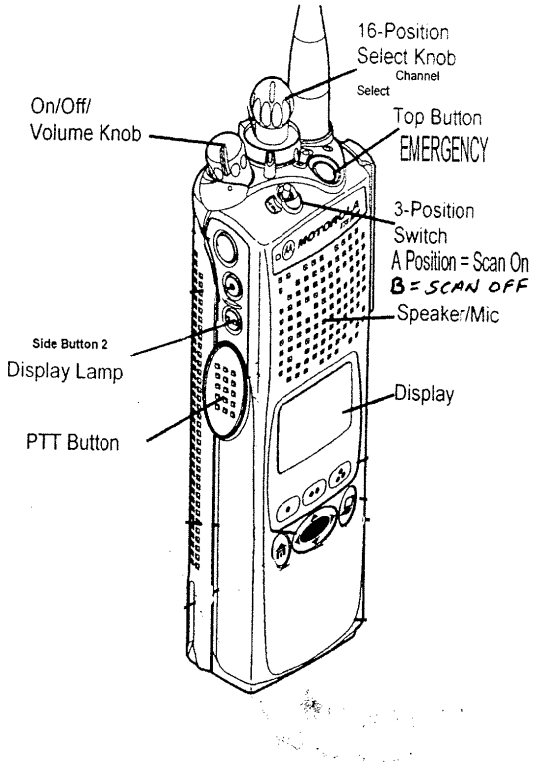
5. PREPARED BY (COMMUNICATIONS UNIT)
Lt. Mike Kennedy

205 ISC (9/66) NFES 1330

ACRRP Communications Plan
Motorola XTS 5000 Portable
Operations Manual

The Motorola XTS 5000 portable is being used on the State of Illinois STARCOM 800/700 MHz trunked radio system for the ACRRP detail.

XTS 5000 Functional Controls



Radio Operation

Turn you radio on with the ON/OFF/VOLUME knob. To create noise to initially adjust the volume level, flip the small silver toggle switch to C to hear a beep.

Switch the silver toggle back to A to scan both detail channels, or to B to scan only the channel selected shown on the radio's display.

The portable was initially set to Zone AA on Field Tactical channel RGN 4B which is channel 16. To go to Command channel RGN 4A, simply switch the channel selector knob from 16 to channel 15.

On the display of the radio, you should see the following; RGN 4B or RGN 4A in the middle of the screen, the word ZONE in the bottom left, and the zone letters AA in the upper left corner. Above the AA is a small tower icon that indicates signal strength. In the lower right is the word BATT, and above that is the battery strength indicator. A symbol that looks like a Z next to the battery indicates the radio is in the scan mode (when the silver toggle switch in the A position).

TRANSMITTING: Push the Push To Talk (PPT) button and begin talking AFTER the short series of beeps. If you get a series of low pitched tones, the channel may be busy with traffic you cannot hear. Your radio will beep when the channel is clear for you to talk.

ACRRP detail communications will be "plain language". **Illinois Conservation Police Officers (CPOs) can be contacted on either RGN 4A or RGN 4B.** (CPOs are equipped with the exact same portable radio and can answer most questions on how to operate it.)

Emergency Button. When pressed, the **Top Orange Button** will *send an emergency page message to IEMA Dispatch in Springfield with the radio ID number.* You should be called immediately by the Dispatcher and asked the nature of your emergency. If you have pressed this button accidentally, you need to advise dispatch "ACCIDENTAL ACTIVATION, NO EMERGENCY. Then you must cancel the emergency activation by holding the orange button down for 2 seconds or until the beeping goes away.

If you temporarily travel 30 miles or more away from the ACRRP detail area, please do not leave your portable on in order to scan detail traffic. While the portable is capable of scanning detail traffic from anywhere in Illinois, the further away you are from the detail, the more trunking system towers your portable ties up which could affect public safety users on the system.

Channel Utilization:
RGN 4A in Zone AA channel 15 for Command Center/General Staff
RGN 4B in Zone AA channel 16 for Field Staff/Tactical Field Operations
R2-DET-A in CPO radios only, for CPO to CPO traffic

MEDICAL PLAN	1. Incident Name Asian Carp Recovery Project	2. Date Prepared 11/30/09	3. Time Prepared 1200	4. Operational Period From: November 30, 2009, 1200 To: December 6, 2009, 1200

5. Incident Medical Aid Station

Medical Aid Stations	Location	Paramedics Yes	Paramedics No
First Aid Station	On-site at intersection of Rt. 7 and Rt. 53, Lockport, Illinois		X
IIDNR F127 (Rescue /Patrol Boat)	Area Command		X
IDNR F236 (Rescue/Patrol Boat)	Below Lockport Locks		X

6. Transportation

A. Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
Lockport Fire Department	19623 Renwick Road, L0ockport, Illinois	911 (815) 791-4686	X (2)	

B. Incident Ambulances

Name	Location	Paramedics Yes	Paramedics No

7. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Silver Cross	1200 Maple Road, Joliet, IL			815-740-1100	X			
St. Joseph -Provena	333 North Madison Street, Joliet, IL			815- 725-7133	X			
Adventist Bolingbrook	500 Remington Blvd. Bolingbrook, IL			630-312-5000	X			
Palos Community Hospital	12251 S. 80th Ave. Palos Heights, IL			708-923-4000	X			

8. Medical Emergency Procedures

Dial 911 or all medical emergencies. On site personnel to provide first aid as appropriate until fire department personnel arrive. There will be approximately 40 Conservation Police Officers onsite who are trained in First Aid. These officers will be onsite each day during the project. During chemical applications on 12/02/09 (1700) to 12/03/09 (1800), an ambulance service from the Lockport Fire Department EMS will be onsite with two paramedics.

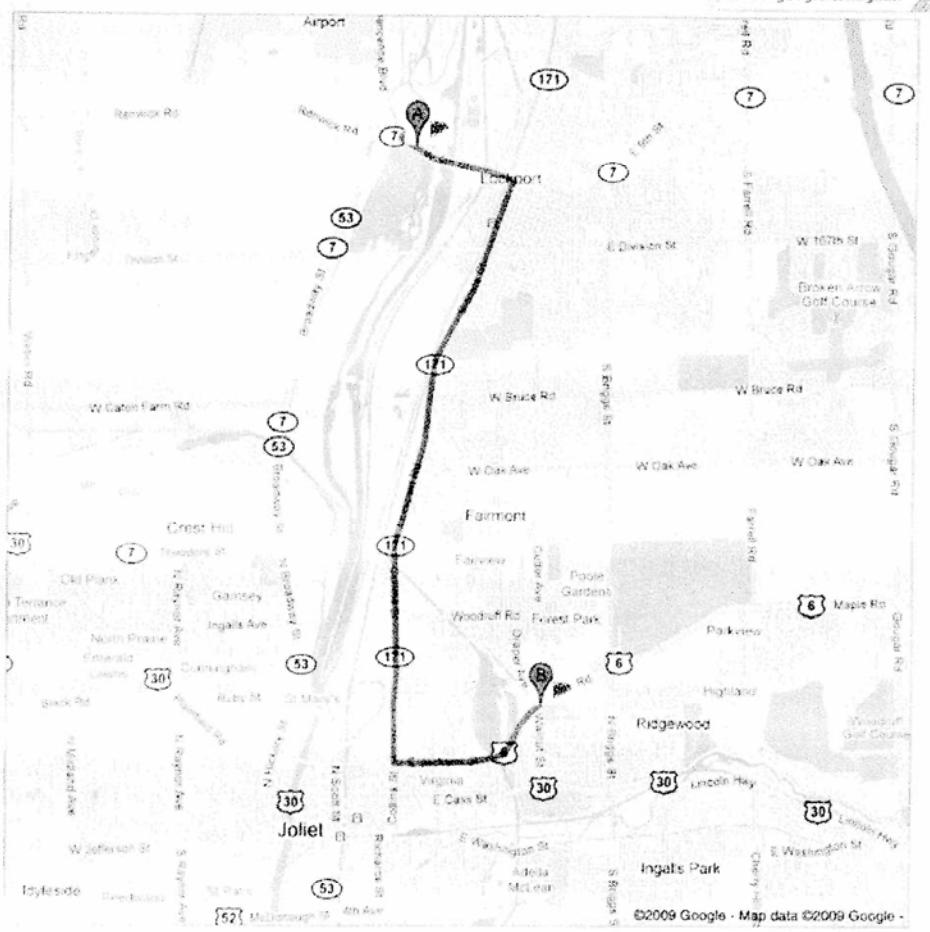
IDNR Rescue boats are available at The Staging Area and below the Locks at Lockport to provide water rescue in the event of a worker falling into the canal. Lockport EMS also has a water rescue team available that has been notified of the operation and is on standby.

ICS 206

Google maps

Directions to 1200 Maple Rd, Joliet, IL 60432
6.3 mi – about **12 mins**

Save trees. Go green!
Download Google Maps on your phone at google.com/gmm

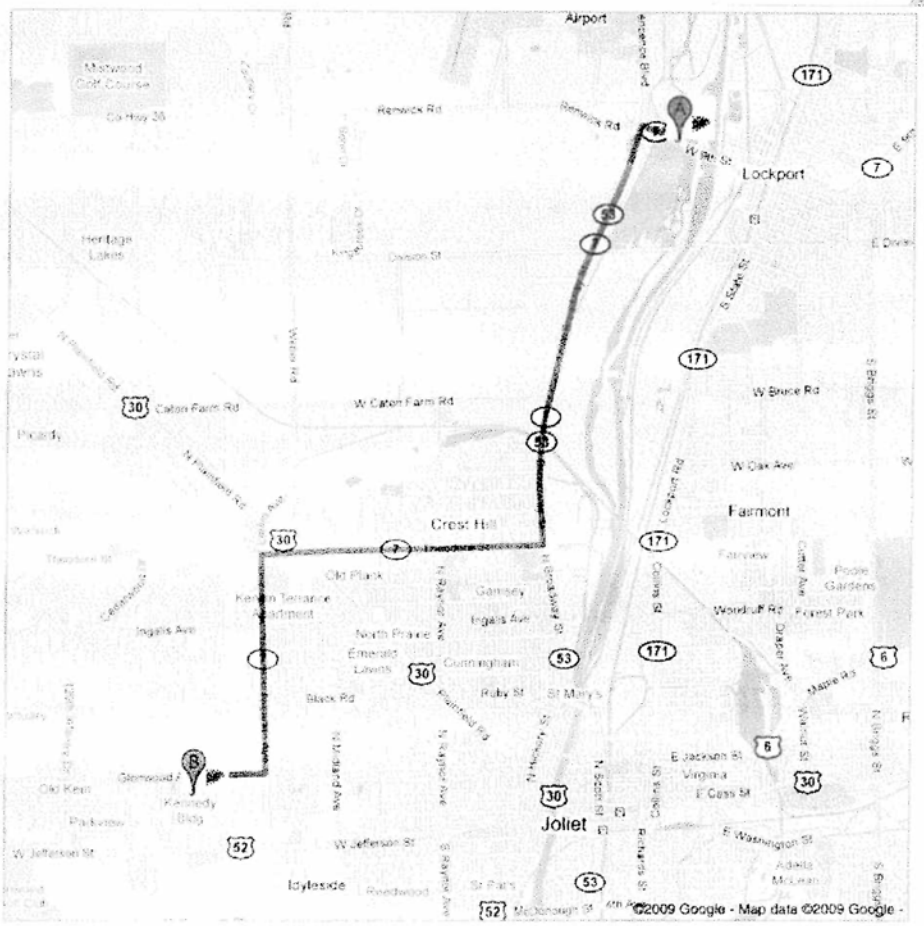


file://C:\DOCUME~1\MIKE~1.MOO\LOCALS~1\Temp\2NXCEYQL.htm 11/27/200

Google maps

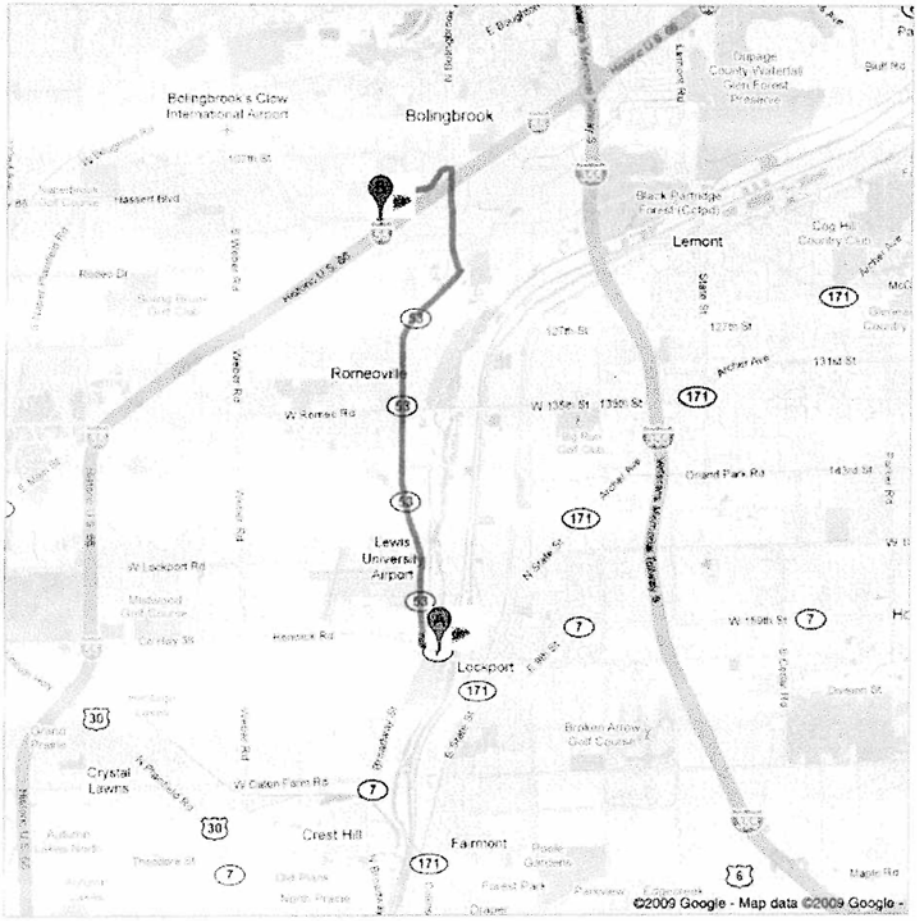
Directions to 333 Madison St, Joliet, IL 60435
7.4 mi – about **15 mins**

Save trees. Go green!
Download Google Maps on your phone at google.com/gmm



Google maps

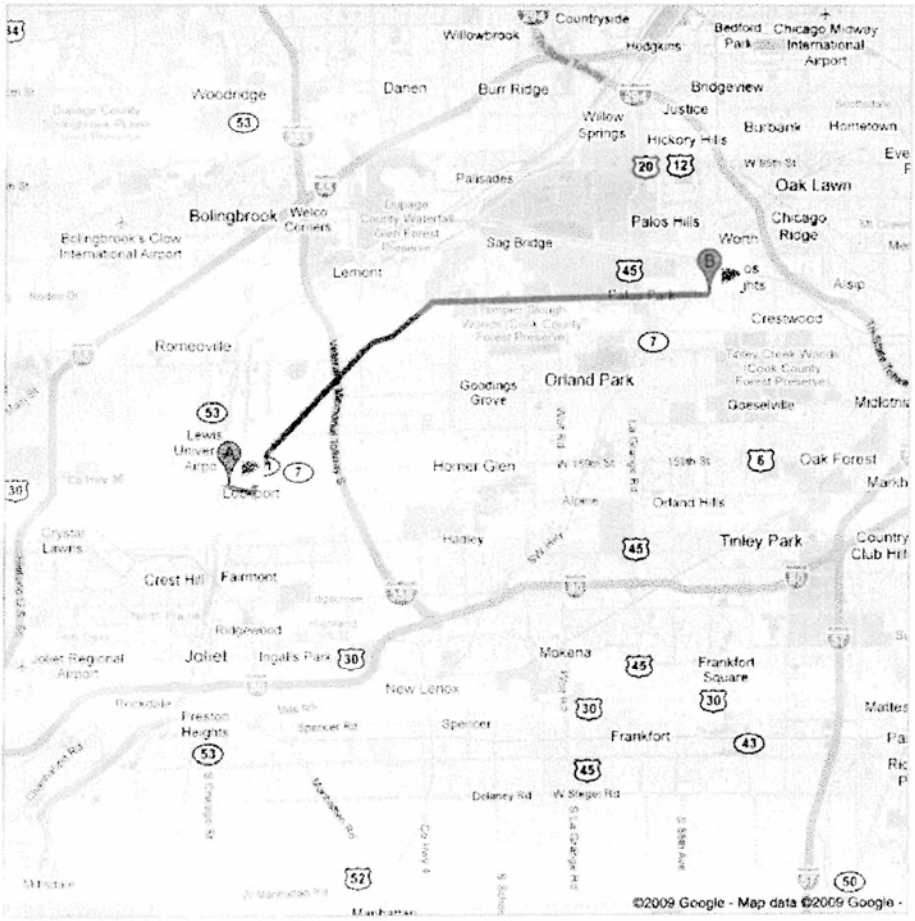
Directions to 500 Remington Blvd, Bolingbrook, IL 60440
8.4 mi – about **16 mins**

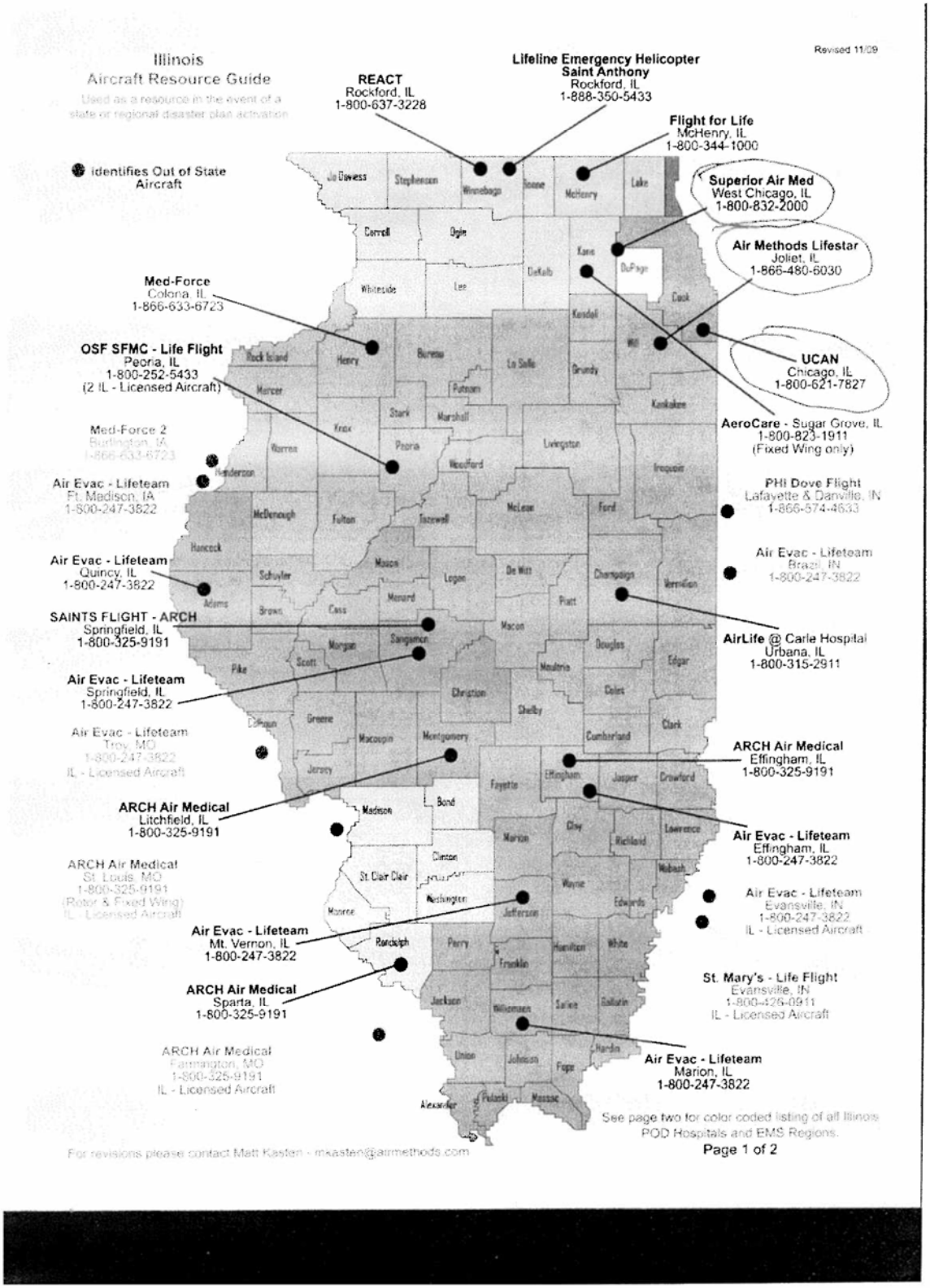


Google maps

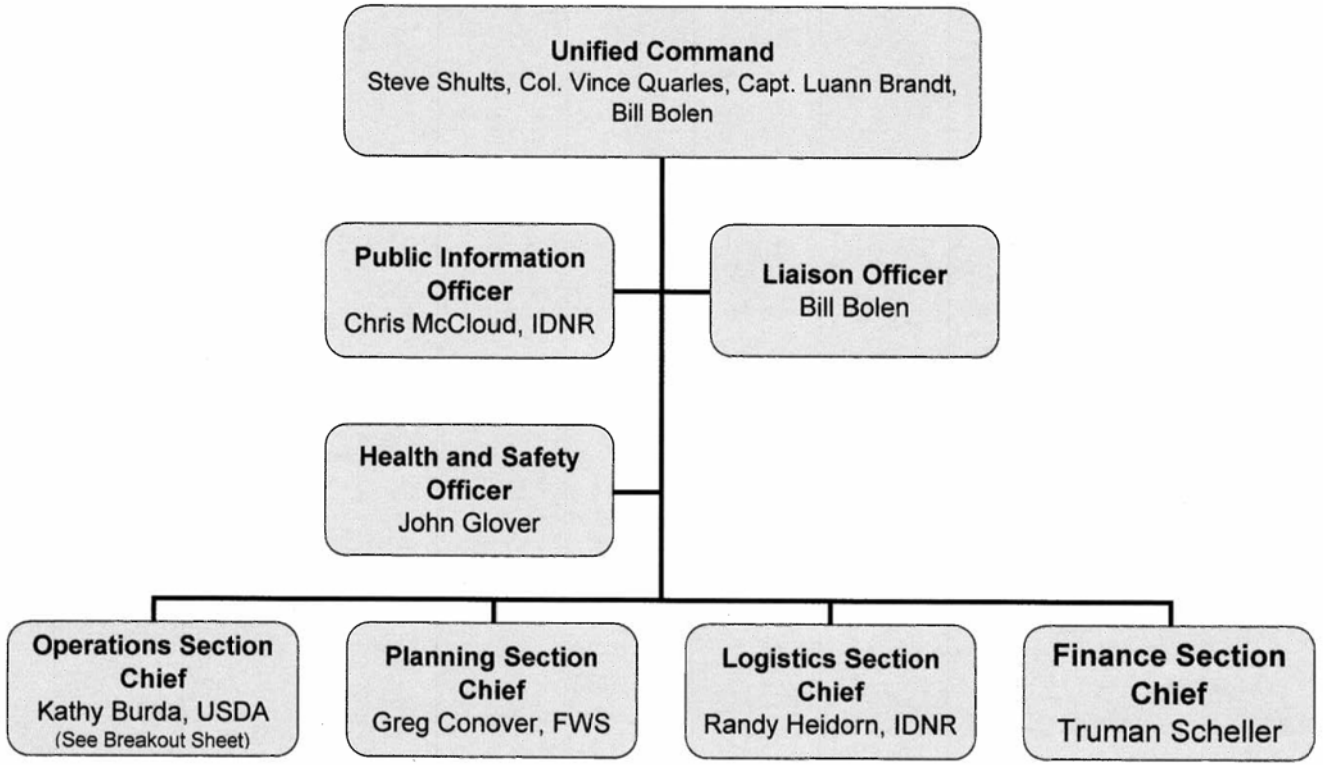
Directions to 12251 S 80th Ave, Palos Heights, IL 60463
16.1 mi – about **32 mins**

Save trees. Go green!
Download Google Maps on your phone at google.com/gmm



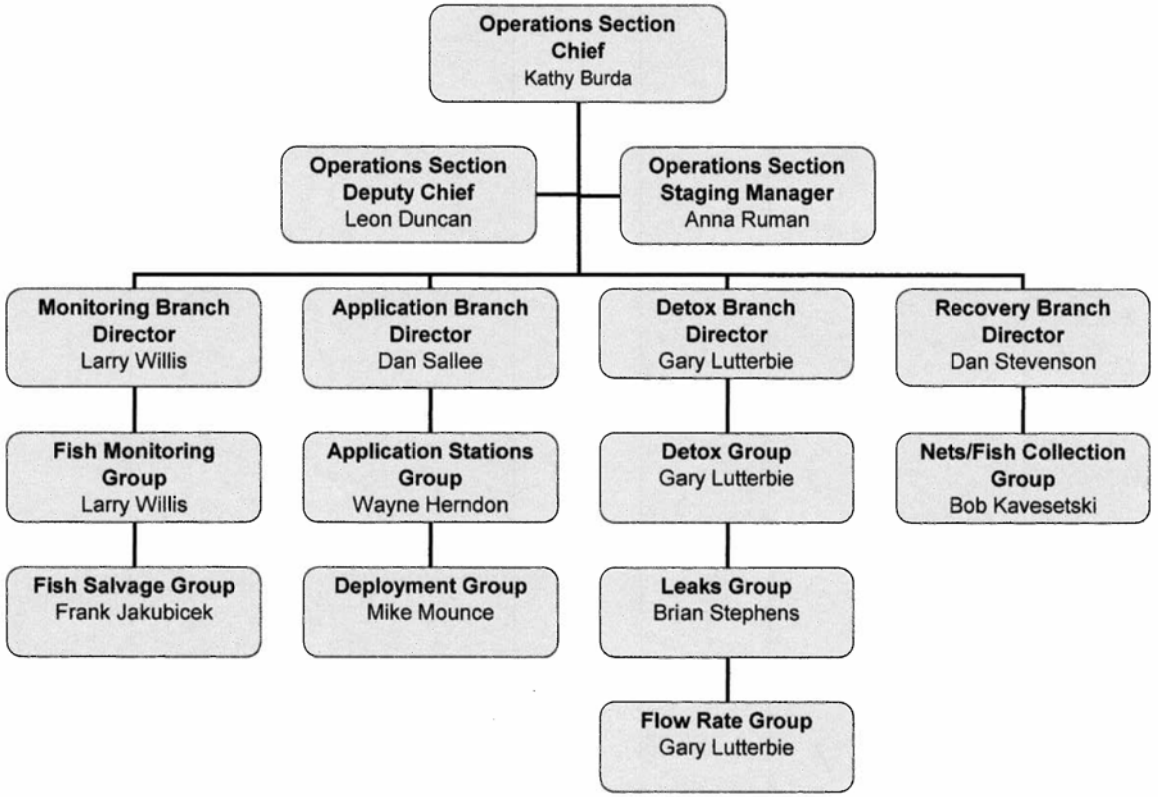

Illinois
Aircraft Resource Guide
Used as a resource in the event of a state or regional disaster plan activation
Revised 11/09
Identifies Out of State Aircraft
REACT
Rockford, IL
1-800-637-3228
Lifeline Emergency Helicopter
Saint Anthony
Rockford, IL
1-888-350-5433
Flight for Life
McHenry, IL
1-800-344-1000
Superior Air Med
West Chicago, IL
1-800-832-2000
Air Methods Lifestar
Joliet, IL
1-866-480-6030
Med-Force
Colona, IL
1-866-633-6723
OSF SFMC - Life Flight
Peoria, IL
1-800-252-5433
(2 IL - Licensed Aircraft)
UCAN
Chicago, IL
1-800-621-7827
AeroCare - Sugar Grove, IL
1-800-823-1911
(Fixed Wing only)
Med-Force 2
Burlington, IA
1-866-633-6723
Air Evac - Lifeteam
Ft. Madison, IA
1-800-247-3822
PHI Dove Flight
Lafayette & Danville, IN
1-866-574-4633
Air Evac - Lifeteam
Quincy, IL
1-800-247-3822
Air Evac - Lifeteam
Brazil, IN
1-800-247-3822
SAINTS FLIGHT - ARCH
Springfield, IL
1-800-325-9191
AirLife @ Carle Hospital
Urbana, IL
1-800-315-2911
Air Evac - Lifeteam
Springfield, IL
1-800-247-3822
Air Evac - Lifeteam
Troy, MO
1-800-247-3822
IL - Licensed Aircraft
ARCH Air Medical
Effingham, IL
1-800-325-9191
ARCH Air Medical
Litchfield, IL
1-800-325-9191
Air Evac - Lifeteam
Effingham, IL
1-800-247-3822
ARCH Air Medical
St. Louis, MO
1-800-325-9191
(Rotor & Fixed Wing)
IL - Licensed Aircraft
Air Evac - Lifeteam
Evansville, IN
1-800-247-3822
IL - Licensed Aircraft
Air Evac - Lifeteam
Mt. Vernon, IL
1-800-247-3822
St. Mary's - Life Flight
Evansville, IN
1-800-426-0911
IL - Licensed Aircraft
ARCH Air Medical
Sparta, IL
1-800-325-9191
ARCH Air Medical
Farmington, MO
1-800-325-9191
IL - Licensed Aircraft
Air Evac - Lifeteam
Marion, IL
1-800-247-3822
See page two for color coded listing of all Illinois POD Hospitals and EMS Regions.
Page 1 of 2
For revisions please contact Matt Kasten - mkasten@airmethods.com

1. Incident Name: Asian Carp Rapid Response	2. Operational Period: (Date/Time) December 1, 2009 18:00 - December 2, 2009 18:00	ICS 207 Assignment List



3. Prepared by (DocUL)	Date/time	Reviewed By (PSC)	Date/Time	Reviewed by (OSC)	Date/Time
Bethany Hand	12-1-09 11:30	Greg Conover	12-1-09 1530	K Burda	12-1-09 1545

1. Incident Name:	2. Operational Period: (Date/Time)	ICS 207
Asian Carp Rapid Response	December 1, 2009 18:00 - December 2, 2009 18:00	Assignment List



3. Prepared by (DocUL)	Date/time	Reviewed By (PSC)	Date/Time	Reviewed by (OSC)	Date/Time
Bethany Hand	12-1-09 11:30	Greg Conover	12-1-09 1530		12-1-09 1545

Meeting Schedule for Dec 2, 2009

Wednesday, December 2

- 0730 UC conference call
- 0730 IMT Report to Willowbrook EOC
- 0800 Command & General Staff Meeting
- 0900 Tactics Meeting
  - PSC, OPS, LSC, SO, RESL, SITL
- 1200 Planning Meeting
  - All Command and General Staff
- 1700 Ops Briefing (ICP Mess Hall onsite)
- 1800 Situation Report
- 1930 UC Conference call

All meetings will be held at the EOC unless otherwise stated.

Revised 12-1-09 15:00

Appendix H

Aquatic Invasive Species Sighting Report Form

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:		

Source: Rapid Response Planning for Aquatic Invasive Species: A Template, Smits and Moser (2009).

Appendix I

Rapid Risk Screening Tool

Model for a Natural Resources Agency
Risk Assessment and Risk Management Process

Mississippi River Basin Panel on Aquatic Nuisance Species
Working Draft Version
May 12, 2009

Background and Purpose of Risk Assessment and Risk Management

This model, risk assessment and risk management process (Process) has been developed as a tool for use by either agencies (natural resources and agricultural agencies may have regulatory authority), to determine classifications of species and need for management action, or by industries to self-regulate species they use. The Mississippi River Basin Panel on Aquatic Nuisance Species (Panel) developed this Process, so all members and associates could provide their expertise in development of it. Neither the entire process nor any part of it is compulsory for any agency or industry to adopt. The following steps outline the Process, which integrates the full range of risk assessment and risk management actions. The Panel reserves the opportunity to revise this Process as new information and approaches become available.

The "Rapid **Screening" process** (**Step 2** below) is defined as an approach taken to quickly and efficiently evaluate a list of species (from **Step 1** below), and then decide which are assessed as: 1) low risk of impact (i.e., no need for regulation, additional risk assessment, or other action, at this time), 2) high risk of impact (i.e., immediately take action by regulating, conducting outreach and/or education, managing in public waters, etc.), and 3) species for which a more detailed risk assessment is recommended (**Steps 3 and 4** below). Detailed "risk assessments" require much more in-depth analysis than is required for screening species, so screening is recommended to minimize the number of risk assessments that an agency will conduct. "Species" refers to any nonnative organism. **Steps 5**-7 describe the development, implementation, and evaluation and adaptation of agency regulation and management approaches. The entire Risk Assessment and Risk Management Process is depicted in Figure 1).

"Nonnative" is defined as, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem (Executive Order 13112). An "invasive" species is one whose introduction does or is likely to cause economic or environmental harm or harm to human health. The Panel recognizes that many nonnative species are not invasive, and support human livelihoods or a preferred quality of life (National Invasive Species Council 2006).

This draft was developed and revised as the result of: 1) first draft sent to the Panel for review, 2) revision based on Panel comments, 3) revision suggestions from three working groups facilitated at a Panel workshop convened on January 24, 2008, 4) additional considerations by the leader of this project, 5) comments submitted by Panel Members during February and March 2008, and 6) additional work to search for tools to help in decisions that address questions in Step 2. The **Appendix** contains notes from discussions during the January 2008 Panel workshop to refine the version of this Process available then.

Our Panel recognizes that our Rapid Screening process is not validated. We are attempting to conduct this validation by partnering with research and management entities to comparatively evaluate our Rapid Screening process (Step 2) with any available from around the world. Our recommended validation approach will require: 1) constructing a data base of species (e.g., Introduced and established in U.S.; Potential invaders to U.S.; Unlikely to establish in U.S.; and Were introduced into U.S., but failed to establish self-sustaining populations), 2) convening a panel of experts who will run each screening process for each species in the data base, 3) analyzing results of expert screenings to determine accuracy and precision of species categorizations, and 4) either recommending approaches to developing a "gold standard" screening process, or actually developing that process. Screening processes that do not incorporate climate may be suited to only one area of the U.S. However, our process incorporates a climate tool, so our process is intended to be suited to the entire Mississippi River Basin (and actually anywhere on the planet).

Due to differences in agency rulemaking, we have not included, in the following steps, where stakeholder and public comments would be included in the rapid screening process. Also, how and when industries would involve their stakeholders will vary. One option for agencies is to develop memberships of public and stakeholder groups early in the screening process, and then rapidly receive their input after the screening is completed. These groups may provide valuable information for decision makers.

Step 1 – Identify Species for Screening

In this step, a list of aquatic plant and animal species will be developed, and then screening will be conducted (**Step 2**) using that list. That list will include species in each of the following categories.

- Is the species listed as injurious under the Lacey Act or recognized as a noxious plant by USDA?
- Is the species listed as restricted, invasive, etc., by a neighbour State or region?
- Nonnative species in the waters of the State or region that have not been reviewed
- Nonnative species that are in nearby States, Provinces, or regions that have been problematic
- Nonnative species that are problematic in areas of similar climate to the State or regions where this process is applied, and that are in high risk pathways
- Nonnative species ranked, by the applicable State Invasive Species Council or other similar entity, as potentially impacting ecosystems, economies, infrastructure, and human health
- Nonnative species either currently traded or proposed for trade in the State, neighbouring jurisdiction, or region

Step 2 – Rapid Screening Process

This step contains the recommended rapid screening process to assess risk. The process begins at Question 1, and directs the assessor through a series of questions (below, and see also **Figure**

2, which graphically depicts the Rapid Screening Process) to a conclusion about whether the species is low risk, high risk, or recommended for a more detailed risk assessment **(Steps 3 and 4)**. The same questions should be answered in this Step and in the detailed risk assessment (**Step 4**).

The factors most positively correlated with species invasiveness are history of invasion, and climate-habitat matches of source and sink locations (Hayes and Barry 2008). Propagule pressure is a factor also positively correlated with species invasiveness, but the action of screening is intended to minimize or eliminate this pressure, so that factor will not be discussed further.

Decision-support tools that are appropriate for rapidly addressing the factors of history of species invasiveness and climate-habitat matches are:

- For history of species invasion - International Union for the Conservation of Nature (IUCN; In Preparation, 2008), Food and Agricultural Organization (2008), and Froese and Pauly (2008). Scientific literature about a species can be quickly assembled by searching Googlescholar (www.googlescholar.com), and then the most pertinent literature about species invasiveness should be read, synthesized, and documented. (Note: You can query the IUCN database, which is in preparation, by working through Mike Hoff [Michael_hoff@fws.gov, 612-713-5114].)
- For climate match - the Australia Bureau of Rural Sciences (2004)
- For river habitat match of source and sink locations - Department of Fisheries and Oceans Canada (In preparation).

Decision-support tools referenced above are ones known to be available at this time. As additional tools become available, they will be added to recommended tools associated with each question (and then this document will be updated).

Some situations may require only the most rapid and coarsest screening process supported by science. As stated above, the factors most positively correlated with species invasiveness are history of invasion and climate-habitat matches of source and sink locations (Hayes and Barry 2008). Therefore, the most rapid screening would address the questions of history of invasiveness, and climate-habitat match of source and sink locations. This screening process will only answer Questions 4 and 6, while using decision-support tools associated with those questions. In this most coarse screen, valuable information about regulations on the subject species will be included in the output.

Question:

1) Is there either a scientific basis (e.g., models, comparison with environmental variables in similar habitats, available risk assessments that are pertinent and applicable, and/or expert opinion) or enough other information to support a prediction that individuals of the species will survive (for any substantial time – not necessarily for the potential lifespan of the organism) in my State (or a neighbouring state or region)? (Yes/No/Unknown or Maybe) (The recommended tool for decision support include: Australia Bureau of Rural Sciences 2004, Froese and Pauly 2008).
   a) If Yes, then go to Question 2.

b) If No, then the species is considered low risk, and the conclusion is reached that no management action (e.g., regulation) is needed, at this time.
c) If unknown, then treat as Yes (Go to Question 2).

2) If climate change is accounted for, then is there enough information to support a prediction that individuals of the species could survive (for any substantial time – not necessarily for the potential lifespan of the organism) in my State (or a neighbouring state or region) at +2 degrees C conditions? (e.g., +2 degrees C mean temperatures in coldest month and warmest month 2 degrees higher than recent historic mean)(Yes/No/Unknown or Maybe) (Note: A recommended decision-support tool is Australia Bureau of Rural Sciences 2004, Froese and Pauly 2008.)
   a) If Yes, then go to Question 3.
   b) If No, then the species is considered low risk, and the conclusion is reached that no management action (e.g., regulation) is needed, at this time.
   c) If unknown, then treat as Yes (Go to Question 3).
3) Is there scientific basis that the organism is at risk to carry nonnative parasites or pathogens that are known to be detrimental? (Yes/No/Unknown or Maybe)
   a) If Yes, then either regulate trade, or require testing for parasites/pathogens prior to shipment.
   b) If No, then go to Question 4.
   c) If uncertain, then prioritize for a detailed risk assessment **(Step 3 below)**.
4) Is there either a scientific basis, or enough other information, to support a prediction that the species will develop self-sustaining populations in my State, neighbouring State, or region? (If climate change is accounted for, then will the species develop self-sustaining populations at +2 degrees C conditions? [e.g., mean temperatures in coldest month and warmest month 2 degrees higher than recent historic mean].) (Note: Recommended tools for decision support include: Department of Fisheries and Oceans Canada In preparation a, Kolar and Lodge 2002, Australia Bureau of Rural Sciences 2004, University of Kansas 2004, Phillips et al. 2006, Keller et al. 2007, Froese and Pauly 2008) (Yes/No/Unknown or Maybe)
   a) If Yes, then go to Question 6.
   b) If No, then go to Question 5.
   c) If uncertain, then prioritize for a detailed risk assessment **(Step 3 below)**.
5) Is there either a scientific basis, or enough other information, that non-reproducing populations of the species can cause substantial harm to the environment, economies, infrastructure, and human health (including as a carrier of a pathogen, or negatively impact Threatened, Endangered, or species of special concern)? (Note: Recommended decision-support tools include International Union for the Conservation of Nature In Preparation, 2008; Froese and Pauly 2008; Food and Agricultural Organization 2008) (Yes/No/Unknown or Maybe)
   a) If Yes, then take appropriate management action (e.g., regulate trade, and manage extant populations).
   b) If No, then the species is assessed as low risk, so no management action is needed at this time.
   c) If Unknown or Maybe, then prioritize for a detailed risk assessment **(Step 3 below)**.
6) Is there either scientific documentation, or enough other information that established, self-sustaining populations of the species can cause substantial environmental, economic, or infrastructural harm to the environment, economies, infrastructure, and human health

(including as a carrier of a pathogen, or negatively impact Threatened or Endangered species)? (Note: Recommended decision-support tools include International Union for the Conservation of Nature In Preparation, 2008; Froese and Pauly 2008; Food and Agricultural Organization 2008) (Yes/No/Unknown or Maybe)

a) If Yes, then take appropriate management action (e.g., regulate trade, and manage extant populations).
b) If No, then the species is assessed as low risk, so management action is not warranted at this time.
c) If uncertain, then prioritize for a detailed risk assessment **(Step 3 below)**.

An alternate risk assessment process is available for freshwater fishes (Copp et al. 2005), and another alternate risk assessment process if available for plants. Another alternative risk assessment process is available for various taxa (Department of Fisheries and Oceans In Preparation b). However, those processes will probably not be completed rapidly. Certainly, using a second process for screening may either provide information supporting the initial screening results from the Panel's process, or may show a different result. Differing results from the two screenings support the need for a more detailed risk assessment.

Results of rapid screening should be accompanied by a qualitative description of screener certainty of risk categorization. For example, the screener may be highly certain, based on results of screening, that a species impact risk is either low or high. Screener certainty information will help guide the decision to regulate, self regulate, or not. As stated above, if a screener is highly uncertain, then the species should be considered for detailed risk assessment (**Step 3 below**).

Step 3 Prioritization for Detailed Risk Assessment

This step will prioritize the list of species recommended for detailed risk assessment **(result of Step 2)** using either the approach developed by the Aquatic Nuisance Species Task Force (1996) or another tenable approach (or more than one approach, if desired)**.** Detailed risk assessments **(Step 4)** will be conducted as staff and fiscal resources allow. The Panel directs the Prevention and Control Committee to develop a ranking system using criteria and weightings for those criteria. Some criteria include the following.

- Is the species in the State or region (either in waters of the State or region, or presently traded)?
- How many pathways (i.e., bait, live food, aquarium, water garden, aquaculture, or other) are used to trade or transport the species and fellow travelers?
- What is the amount of the species in each pathway(s)?
- What is the extent of potential geographic range (survival and recruitment) in the State or region?
- What is the potential for significant, negative ecological impacts?
- What is the potential for significant, negative economic impact?
- What is the potential for significant, negative human health impacts?
- Is there a scientific basis that the organism can be effectively and efficiently controlled **after introduction occurs**? Include cost-effectiveness of control mechanism.

- Is there a scientific basis that negative consequences of the importation/introduction can be effectively and efficiently **prevented**? (For example, importation of only triploid fish)
- Is a self-sustaining population established in a neighbouring State or interjurisdictional water body?
- What are the economic, social, etc., benefits of the species?
- Does the organism possess ease of movement via non-trade pathways (boats, animals, etc)
- Is the life history of the organism known and documented?

Step 4 –Agency Risk Assessment

In this step, detailed risk assessments will be conducted beginning with the highest priority species ranked in **Step 3**, and continuing until fiscal and staff resources are exhausted. The Panel considers it important to develop a set of recommended risk assessment approaches. Action to develop that set of approaches has not yet been taken by the Panel.

Three general approaches have been used to assess the risk of invasiveness. The three approaches listed below rely on identifying patterns in species traits that are predictive of invasion.

1. Statistical approaches (e.g., Keller et al. 2007, Kolar and Lodge 2002)
2. Quantitative questions (or trait ranking systems: e.g., Australian [Pheloung et al. 1999], New Zealand [Champion and Clayton 2000], and Florida (Gordon et al. 2008) weed and plant risk assessment tools), and
3. Detailed literature surveys, reviews, analysis and risk categorization (Aquatic Nuisance Species Task Force 1996).

The Panel recognizes that additional and alternative approaches are needed, and will facilitate and/or support development of those approaches, as our resources allow.

Step 5 – Develop Agency Actions to Regulate and Manage

In this step, agency actions, for each species that has been screened/assessed, can be recommended based on a decision tree or other decision support tool, but no such tool has been developed. Agency actions may include:

- Development of rules to designate species and infested waters
- Development of rules to prevent transport, trade, or use in waters of the State or region
- Development of management and control or program goals, objectives, strategies, and tactics
- Development of outreach and education programs

Step 6 -- Implement Agency Priority Actions

In this step, the agency will implement actions listed in **Step 5**.

Step 7 -- Evaluate Agency Actions, and Adapt Management Programs

In this step, the agency will evaluate the actions implemented in **Step 6**, and adapt programs as needed.

REFERENCES

Aquatic Nuisance Species Task Force. 1996. Generic Nonindigenous Aquatic Organisms Risk Analysis Review Process. Risk Assessment and Management Committee, Arlington, VA. (http://www.anstaskforce.gov/Documents/ANSTF_Risk_Analysis.pdf, accessed on October 7, 2008)

Australia Bureau of Rural Sciences. 2004. Climate. Canberra. (http://affashop.gov.au/product.asp?prodid=13506, accessed October 9, 2008)

Champion, P.D., and J. S. Clayton. 2000. Border control for potential aquatic weeds. Stage 1. Weed risk model. Science for Conservation No. 141, Department of Conservation Wellington, New Zealand.

Department of Fisheries and Oceans Canada. In preparation a. FRESHmap.

Department of Fisheries and Oceans Canada. In preparation b. Quantitative Risk Assessment Tool (QBRAT).

Food and Agricultural Organization. 2008. Database on Introductions of Aquatic Species (DIAS). Fisheries and Aquaculture Department. (http://www.fao.org/fishery/dias, accessed October 9, 2008)

Froese, R., and D. Pauly. Editors. 2008. FishBase. World Wide Web electronic publication. www.fishbase.org, version (07/2008). (accessed October 9, 2008)

Gordon, D. R., A. M. Fox, D.A. Onderdonk, and C. Gantz. 2008. IFAS Assessment – Predictive Tool. Florida Institute of Food and Agricultural Sciences. (http://plants.ifas.ufl.edu/assessment/, accessed on March 13, 2009)

Hayes, K. R., and S. C. Barry. 2008. Are there any consistent predictors of invasion success? Biological Invasions 10:483-506.

International Union for the Conservation of Nature. In preparation. Global register of invasive species. Invasive Species Survival Commission. University of Aukland, New Zealand.

International Union for the Conservation of Nature. 2008. Global invasive species database. Invasive Species Survival Commission. University of Aukland, New Zealand. (http://www.issg.org/database/welcome/, accessed October 9, 2008)

Keller, R. P., J. M. Drake, and D. M. Lodge. 2007. Fecundity as a basis for risk assessment of nonindigenous freshwater molluscs. Conservation Biology 21:191-200.

Kolar, C. S., and D. M. Lodge. 2002. Ecological Predictions and Risk Assessment for Alien Fishes in North America. Science 298:1233-1236.

Morse, L. E., J. M. Randall, N. Benton, R. Heibert, and S. Lu. 2004. An invasive species assessment protocol: Evaluating non-native plants for their impact on biodiversity. Version 1. NatureServe, Arlington, VA.

(http://www.natureserve.org/library/invasiveSpeciesAssessmentProtocol.pdf, accessed on December 5, 2008)

National Invasive Species Council. 2006. Invasive species definition and clarification guidance white paper. Definitions Subcommittee of the Invasive Species Advisory Committee. (http://www.invasivespeciesinfo.gov/docs/council/isacdef.pdf, accessed on March 10, 2008)

Pheloung, P. C., P. A. Williams, S. R. Halloy. 1999. A weed risk assessment model for use as a biosecurity tool evaluating plant introductions. Journal of Environmental Management 57:239-251.

Phillips, S. J. R. P. Anderson, and R. E. Schapire. 2006. Maximum entropy modeling of species geographic distributions. Ecological Modeling 190:231-259.

University of Kansas. 2004. Desktop GARP. (http://www.nhm.ku.edu/desktopgarp/Download.html, accessed October 9, 2008)

Figure 1. Flow chart summarizing the entire risk assessment and risk management process described in Steps 1-7.

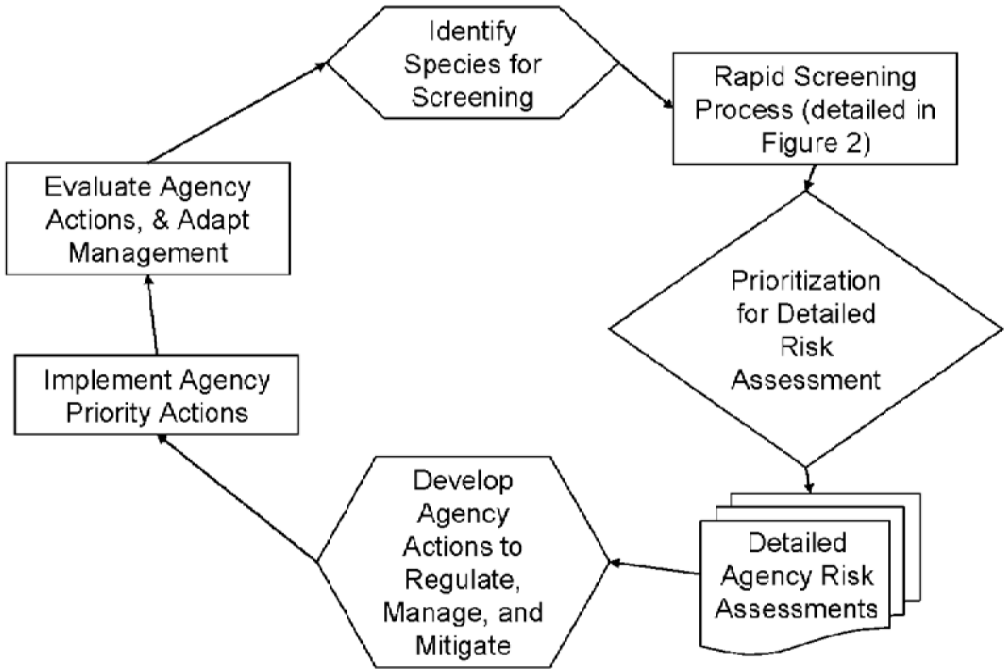


Figure 2. Flow chart summarizing the rapid screening process described in Step 2.