

Binational AIS Rapid Response Plan for the Great Lakes-St. Lawrence River Basin

-A Pilot Plan for the Lake Huron/ Lake Erie Corridor-



Prepared for:

**Work Group on Aquatic Invasive Species Rapid Response
International Joint Commission**

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Table of Contents

Preface.....	i
Executive Summary	ii
Section One: Introduction.....	1
A. The Rapid Response Planning Process	
B. Plan Development: Background, Scope and Methodology	
C. Key Definitions	
Section Two: The Setting.....	6
A. Pilot Plan Boundaries	
B. Physical and Ecological Characteristics- An Overview	
C. Current/ Prospective High Risk AIS Threats in the Corridor	
D. Existing/ Prospective AIS Rapid Response Capabilities in the Corridor	
E. Current State of Rapid Response Planning in the Corridor	
Section Three: Rapid Response Framework.....	12
A. Organizational Structure	
B. Incident Command/ Unified Command	
C. Operational Planning Process: the “Planning P”	
D. Preparatory Actions to Facilitate AIS Rapid Response	
Section Four: Rapid Response Protocol	17
A. Overview of an AIS Rapid Response Action	
B. Steps in the “Planning P” Process	
Appendices	
A. Acronyms	
B. Great Lakes Priority Invasive Species List	
C. ICS Organization Chart and Position Responsibilities	
D. AIS Sighting Report	
E. AIS Confirmation Flowchart	
F. Preliminary Evaluation of AIS Sighting	
G. Incident Briefing Form	
H. Threat Characterization Checklist	
I. Detailed ICS Organization Structure Template	
J. Legislative Authorities for Rapid Response in the Corridor	
K. AIS Rapid Response Plan References	
L. Incident Action Plan Development Forms	
Figures	
A. AIS Rapid Response Flow Chart.....	18

PREFACE

This document has been prepared at the request of the International Joint Commission (IJC) Work Group on Aquatic Invasive Species (AIS) Rapid Response. The Work Group has supported the IJC's "Nearshore Priority" over the last several years, advising the Canadian and United States governments on binational rapid response planning and implementation.

This is the fourth in a series of studies undertaken by the Work Group. An initial effort, titled, "Toward a Binational Aquatic Invasive Species Rapid Response Policy Framework" (July 2009), provided the IJC with "strategic and specific policy direction" to facilitate the development and implementation of a binational AIS Rapid Response Plan. That effort was followed by a "Gap Analysis: Asian Carp Rapid Response Planning and Implementation" (August 2011) that further informed rapid response planning efforts by identifying "best practices" and "lessons learned" from the 2009 Asian Carp eradication effort in the Chicago Area Waterways System (CAWS). Subsequently, an "Analysis of Jurisdictional Roles and Capabilities" (August 2012) was prepared in support of the development of a pilot Binational AIS Rapid Response Plan for the Lake Huron/ Lake Erie Corridor, as presented within. In addition, two background reports were contracted by the Work Group: "An Assessment of Early Detection Monitoring and Risk Assessments for Aquatic Invasive Species in the Great Lakes-St. Lawrence Basin" (July 2011) and "Aquatic Invasive Species Early Detection and Rapid Response- Assessment of Chemical Response Tools." (July 2011) The study presented within builds upon these efforts.

Special appreciation is extended to several Work Group members: Mark Burrows- IJC project manager; Dr. William Taylor- University of Waterloo (Co-chair); Gavin Christie- Fisheries and Oceans Canada (Co-chair) for leadership with project scoping, advice/ guidance, and review of various iterations of project deliverables. Other Work Group members include Bill Bolen, U.S. Environmental Protection Agency; Dr. Eugene Braig, Ohio State University; Eric Boysen, Ontario Ministry of Natural Resources; Suzanne Hanson, Minnesota Pollution Control Agency; Dr. Joseph E. Koonce, Case Western Reserve University; Dr. Hugh MacIsaac, University of Windsor; Scott Millard, Fisheries and Oceans Canada; Dr. John Dettmers, Great Lakes Fishery Commission; Brian Grantham, Ontario Ministry of Natural Resources; and Chris Wiley, Transport Canada/ Fisheries and Oceans Canada.

Appreciation is also extended to the Great Lakes Panel on Aquatic Nuisance Species, which hosted a project workshop instrumental in both the jurisdictional analysis and pilot plan development process. Finally, appreciation is extended to the numerous individuals (i.e., resource managers, response practitioners, researchers) interviewed for this study; their perspectives were also invaluable.

This initiative is supported through Great Lake Restoration Initiative (GLRI) funding provided by the U. S. Environmental Protection Agency.

The project consultant is Dr. Michael J. Donahue, Vice President for Water Resources and Environmental Services at URS Corporation. He was assisted, on a subcontractual basis, by Dr. Gail Krantzberg and Professor Marcia Valiente. Dr. Donahue was also project consultant and principal author of three of the previously mentioned studies.

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EXECUTIVE SUMMARY

The International Joint Commission (IJC) has long recognized the current and potential impact of aquatic invasive species (AIS) in compromising the ecological integrity of the binational Great Lakes-St. Lawrence River Basin and the economic health of Basin residents. In 2007, this issue was identified as one of the IJC's "nearshore priorities" and the Commission formed a Work Group on Aquatic Invasive Species Rapid Response consisting of designated representatives of the Water Quality Board, Science Advisory Board, Council of Great Lakes Research Managers, and invited experts. The Work Group subsequently produced two key studies that acknowledged the continued importance of AIS prevention and control as a "first line" of defense, while also recognizing the need for a "back-up plan"; a rapid response mechanism to quickly and decisively address AIS once an infestation has been reported. The IJC embraced these recommendations, and subsequently secured Great Lakes Restoration Initiative (GLRI) funding from the U.S. Environmental Protection Agency (USEPA) to advance efforts to develop a Binational AIS Rapid Response Plan.

The goal of this project, as stated in the Scope of Work, is to assist the United States and Canadian federal governments in meeting obligations under the Great Lakes Water Quality Agreement (GLWQA) by providing "advice on binational cooperative action to develop a pilot Binational Aquatic Invasive Species (AIS) Rapid Response Plan for the boundary waters connecting Lake Huron and Lake Erie." Objectives associated with this goal include 1) preparation of a descriptive inventory and analysis of jurisdictional roles and capabilities to support prospective binational AIS rapid response efforts; 2) identification of "key considerations" in developing and implementing a Binational AIS Rapid Response Plan; and 3) development of a pilot plan for the Lake Huron/ Lake Erie Corridor. The first two of these objectives have been addressed in a companion report ("Analysis of Jurisdictional Roles and Capabilities") released in (final draft form) in December 2012 and revised in August 2013. The third objective, which builds upon the jurisdictional analysis, is addressed in this pilot plan.

The pilot plan for the Lake Huron/ Lake Erie Corridor embraces the Incident Command System (ICS) and its Planning "P" approach; a rigorous and prescriptive means to respond to any form of emergency involving multiple jurisdictions and agencies. Drawing from an extensive literature review, series of interviews and an Experts Workshop, a rapid response protocol for the Corridor (with relevance to all binational waters in the Great Lakes-St. Lawrence River Basin) is provided. Plan elements include an introductory section, a description of the setting (i.e., physical and ecological attributes of the Corridor); identification of the "institutional infrastructure" (i.e., agency/ organizational roles and responsibilities for rapid response); and a "step-by-step" review of the ICS Planning "P" process as applied to AIS rapid response in the Corridor.

This plan is a "living document" and, as such, must be refined and expanded over time to ensure a timely and effective response to AIS threats in binational waters of the Lake Huron/ Lake Erie Corridor and, more generally, the Great Lakes-St. Lawrence River Basin. Toward this end, critical next steps will include (among others), achieving "buy in" from all agencies and

organizations with a proposed role/ responsibility in plan development/ execution; implementation of items in the “Corridor Checklist” associated with each of the fourteen “Planning P” steps presented within; and initiation and maintenance of “table top” and other training activities.

SECTION ONE- INTRODUCTION

A. The Rapid Response Planning Process

1. Goal

The goal of this Binational Aquatic Invasive Species Rapid Response Plan is to provide a template that can be used to prevent or otherwise minimize the likelihood that viable populations of high risk aquatic invasive species (AIS) will be established in the binational waters of the Great Lakes-St. Lawrence River Basin (Basin), or use those waters as a pathway for establishing viable populations elsewhere. To address this goal, a "pilot" plan focusing specifically on the Lake Huron/ Lake Erie Corridor has been developed with structural and operational characteristics that facilitate Canada-United States collaboration applicable to all binational waters in the Basin.

2. Objectives

Several objectives must be met to achieve the above-mentioned goal, and include the following plan features:

- *Early Detection and Reporting Process:* The potential effectiveness of any given rapid response action is directly proportional to the time required to detect and report a potential infestation to the parties authorized to initiate such action. Thus, early detection and reporting is a critical component of the plan development and implementation process.
- *Rapid Risk Assessment Methodology:* Assessing the risk of a potential infestation immediately upon detection determines whether a rapid response action is warranted and, if so, the nature and extent of the response action. This includes measurement of the abundance and distribution of the species of concern.
- *Decision Making and Response Protocol:* A well-defined decision making protocol is essential for success, and must identify 1) the roles and responsibilities of those with decision making authority; and 2) the process to be employed to effect those decisions.
- *Prompt, Efficient and Effective Response Actions:* Once a decision has been made to initiate a rapid response action, a detailed and clearly stated methodology to execute the plan is essential. The methodology must be rigorous and prescriptive while, at the same time, sufficiently flexible to accommodate the unique circumstances associated with any given infestation.

- *Continuous Plan Assessment and Adaptive Management:* Given the uncertainties and “surprises” typically encountered in a rapid response action, plan elements and associated execution strategies must be continuously assessed and adjusted to meet evolving circumstances and needs. Similarly, ensuring the relevance and effectiveness of the plan requires that it be a “living” document, constantly updated and refined by incorporating “lessons learned” and “best practices” gleaned from the successes (and failures) of rapid response actions elsewhere.

B. Plan Development: Background, Scope and Methodology

1. Impetus for Plan Development

This plan has been developed at the initiative of the International Joint Commission (IJC), which has long recognized the current and potential impact of AIS in compromising the ecological integrity of the Basin and the economic health of its residents. The IJC further recognizes that multiple rapid response plans are in place (or under development) on a species or jurisdiction-specific basis in the Basin, but a specific focus on binational waters (and associated requirements for joint Canada-United States action) is presently lacking.

In 2007, the AIS issue was identified as one of the IJC’s “nearshore priorities” and received concerted attention through the formation of a Work Group on Aquatic Invasive Species Rapid Response. The Work Group subsequently commissioned two key studies, the first establishing the framework for a Binational AIS Rapid Response Plan; and the second identifying “lessons learned” and “best practices” gleaned from the 2009 Asian Carp eradication effort in the Chicago Area Waterways System (CAWS). Both studies recognized preventive action as the “first line of defense” (i.e., preferred approach) in safeguarding the Basin from the adverse ecological and economic implications of an AIS infestation. At the same time, however, these studies acknowledged the need for a “back-up plan”; a binational rapid response mechanism to quickly and decisively address AIS once an infestation has been reported.

The IJC embraced these recommendations, subsequently securing Great Lakes Restoration Initiative (GLRI) funding from the U.S. Environmental Protection Agency (USEPA) to support preparation of both a jurisdictional analysis and a pilot plan focusing on the binational Lake Huron/ Lake Erie Corridor. In so doing, the IJC recognized that “the ability of the United States and Canadian federal governments to meet Great Lake Water Quality Agreement (GLWQA) objectives will be determined, in part, by the ability of the two nations to successfully identify and implement cooperative solutions to implement AIS prevention and response protocols at the binational level.” Once developed, the pilot plan would provide a template for adaptation to all binational waters within the Basin.

2. Plan Breadth and Content

This plan focuses specifically on the binational Lake Huron/Lake Erie Corridor, the geographic boundaries of which are defined in detail in Section 2. As a pilot plan, its primary emphasis is

on presenting the structural and operational components of a single, fully-unified mechanism to respond to AIS infestations in the binational waters of the Basin. It is not species-specific, and offers a rapid response protocol that can be applied to any AIS (animal or plant) that poses an existing or potential threat to the Basin ecosystem.

The plan consists of the following sections: Introduction (Section One); The Setting (Section Two); Rapid Response Framework (Section Three); and Rapid Response Protocol (Section Four). The latter presents an overview of the Planning “P” process associated with the Incident Command System (ICS) approach, along with 14 steps that begin with initial detection of potential AIS and end with plan implementation and assessment. Also included is an extensive series of appendices identifying various documents that support plan implementation (e.g., process flow charts and forms, ICS organization charts, position descriptions). Appendix A provides a listing of acronyms used throughout the document.

3. Plan Development Methodology

This plan is the culmination of a multi-faceted course of inquiry consisting of the following:

- An extensive literature review including several dozen existing AIS rapid response plans, both species-specific and jurisdiction-specific;
- a series of individual interviews with AIS researchers, managers and responders;
- an “Experts Workshop” yielding advice on key structural and operational characteristics;
- an analysis of jurisdictional roles and capabilities in the pilot area;
- the identification and analysis of key considerations for plan development and execution;
- the analysis and characterization of “high risk” species and associated pathways;
- the identification/assessment of various alternative approaches to binational AIS rapid response; and
- a second workshop to “ground truth” and refine the draft plan.

Based on this research and, consistent with consensus emerging from the individual interviews and experts workshop, ICS was embraced as the “organizing function”, as was the associated “Planning P” process described in detail in Section Four. Further, of the many planning documents reviewed, two were found to be particularly relevant and provided guidance in plan development. These included “Rapid Response Planning for Aquatic Invasive Species- A Maryland Example” (Mid-Atlantic Panel on Aquatic Invasive Species, June 2009), and “Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species”, (Lake Champlain Basin Program, May 2009).

4. Plan Principles

Principles providing guidance during the plan development process include the following:

- The various Canadian and United States jurisdictions within the Basin recognize the need for a consistent and coordinated binational response to AIS infestations as a means to augment ongoing prevention and control measures.
- The plan will be tailored to address AIS rapid response requirements within the pilot area (i.e., Lake Huron/ Lake Erie Corridor), but will be sufficiently broad to serve as a template for other components of the binational Basin.
- The ICS process (and associated “Planning P”) will be employed as the “organizing function” for plan design and execution.
- Plan components will be shaped by the outcomes of the various workshops and the numerous personal interviews (i.e., researchers, managers, practitioners) conducted as part of the several previously referenced studies prepared for the IJC Work Group on Aquatic Invasive Species Rapid Response.
- Where possible, the plan will draw from and include relevant components of other AIS rapid response plans, as determined through an extensive literature review and analysis.
- The plan will complement and strengthen existing jurisdiction and species-specific AIS rapid response plans within the Basin.

5. Plan Assumptions

Assumptions associated with the plan development process include the following:

- The draft plan will be subject to review by all agencies and organizations identified as having a current or prospective role in AIS rapid response actions within the Lake Huron/ Lake Erie Corridor. Any resultant comments will be carefully considered and incorporated, as appropriate.
- The plan will be a “living document” to be refined over time, as needs dictate, via “table top” exercises and other means.
- The plan will serve as a template for application in other binational settings within and beyond the Basin.

C. Key Definitions

The following definitions will apply to several key terms used throughout the plan document:

- *Aquatic Invasive Species:* The definition of AIS, as presented in (U.S. Presidential) Executive Order 13112, guides plan development and implementation: “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to

human health.” Within the Corridor, AIS may include nonindigenous plants, animals, and/ or pathogens whose presence threatens (or has the potential to threaten) the health of native species (in terms of populations and/ or diversity) or the overall ecological health of infested waters and associated water-based uses (e.g., agriculture, recreational/ commercial fishing, aquaculture).

- *Rapid Response:* The definition of “rapid response”, as developed by the (U.S.) National Council on Invasive Species (NISC) will be used: “a systematic effort to eradicate, contain, or control a potentially invasive non-native species introduced into an ecosystem while the infestation of that ecosystem is still localized.” The term “rapid” is a relative one, and will be a function of such variables as the species of concern; its reproductive characteristics; the location, vector and pathway of the infestation; whether a viable population is present; the selected response mechanism (i.e., chemical, biological, mechanical); and the characteristics of the area targeted for response (e.g., ecological sensitivities, human uses).
- *Incident vs. Issue:* This plan is focused on an AIS “incident”, defined as the isolated introduction of a species that has yet to fully establish itself in the ecosystem. An “issue”, on the other hand, refers to ongoing challenges associated with the control/ eradication of an established AIS population.
- *Incident Command System:* As defined by the (U.S.) Federal Emergency Management Agency (FEMA), ICS is “a standardized, on-scene, all-hazards incident management approach that allows for the integration of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure; enables a coordinated response among various jurisdictions and functional agencies, both public and private; and establishes common practices for planning and managing resources.” Developed several decades ago (originally by the U.S. Forest Service), ICS has been embraced by all levels of government to address a range of issues that include (among many others) natural disasters, oil and hazardous material spills, and forest fires. Among others, the (U.S.) Aquatic Nuisance Species Task Force (ANSTF) has embraced ICS as a recommended approach to AIS rapid response. ICS features a “management by objective” approach that includes establishing incident objectives; developing associated strategies; developing and issuing assignments through a highly formalized and prescribed organizational structure; devising and executing tactics; monitoring; and documenting outcomes to assess performance and initiate corrective actions, as needed.

SECTION TWO- THE SETTING

A. Pilot Plan Boundaries

The physical boundaries addressed by the pilot plan, as defined by the IJC, include “the boundary waters connecting Lake Huron and Lake Erie.” More specifically, this includes the southernmost portion of Lake Huron at the headwaters of the St. Clair River through the outlet of the Detroit River at the westernmost portion of Lake Erie. All watersheds draining into these boundary waters are to be addressed in the pilot plan to the extent that they may provide a pathway for AIS introductions and/ or provide habitat that facilitates the establishment and proliferation of such species. *This document is intended to serve as a template that can be readily adapted to other components of the larger binational Basin.*

B. Physical and Ecological Characteristics- An Overview

The Lake Huron/ Lake Erie Corridor connects the southern end of Lake Huron (at the headwaters of the St. Clair River) with the northwestern portion of Lake Erie (at the outlet of the Detroit River). Major water bodies within the Corridor include the St. Clair River, Lake St. Clair, the Detroit River, and all tributaries and associated watersheds. This Corridor is approximately 108 miles, or 174 kilometres (km) in length and, collectively, the watersheds of the St. Clair River, Lake St. Clair and Detroit River encompass approximately 12,217 square miles, or 31,642 square kilometres (km²) of land and water. The Corridor is a vitally important ecological component of the Great Lake-St. Lawrence River Basin, as it connects the upper and lower Great Lakes, is a major conduit for fish species and other aquatic life, and is home to both Lake St. Clair (the most biologically productive component of the larger system), and the largest freshwater delta in the world.

Further detail on the major components of the Corridor is as follows:

- The *St. Clair River* connects Lakes Huron and St. Clair, flows for approximately 41 miles (90 km) and serves as both a major commercial navigation corridor and the international boundary between Canada and the United States. The river, with an average flow rate of approximately 182,000 cubic feet per second (cfs), or 5,154 cubic metres per second (cms), is generally a straight channel characterized by significant reaches of hardened shoreline (e.g., retaining walls), some narrow beaches, and vegetated cliffs. Associated with the river system is an extensive delta at its outlet, featuring substantial wetlands in the St. Johns Marsh on the west (near Anchor Bay in Michigan) and on the north shore of Mitchell’s Bay in Ontario. Despite these ecologically significant features, human uses of St. Clair River have dramatically altered the natural processes of the system, and the great majority of the watershed’s original landscape has been replaced by residential, commercial, and/ or agricultural development.

- *Lake St. Clair* is a shallow lake with an average depth of approximately 12 feet or 3.7 metres (m) and a maximum natural depth of just over 21 feet (6.4 m). Its navigation channel is dredged to 27 feet (8.2 m) to accommodate commercial vessels. The lake is approximately 26 miles (41.8 km) long and 24 miles (38.6 km) wide, with a surface area of 470 square miles (1,217 km²) and 130 miles (209 km) of shoreline. The Michigan portion of the watershed is highly urbanized with dense coastal development. In contrast, the eastern portion in Ontario is comprised of the wetlands of the Walpole Island First Nation and low-lying areas with both diked and undiked marshes that provide habitat for migrating waterfowl. Land use on the eastern shore is predominantly agricultural and recreational in nature, with the southern shore characterized primarily by residential and recreational uses. Lake St. Clair is highly productive from a biological standpoint, provides critical habitat for a variety of plant and animal species, and has been identified as a “Biodiversity Investment Area” in recognition of its ecological significance and high concentrations of rare species and/ or high quality natural areas (2000 State of the Lakes Ecosystem Conference- SOLEC).
- *Major tributaries to Lake St. Clair* include the *Clinton River* (United States) and the *Sydenham and Thames Rivers* (Canada). All are potentially significant from an AIS rapid response standpoint.
- The *Detroit River*, extending some 28 miles (45 km), connects Lake St. Clair with Lake Erie, the latter being the most biologically productive of the Great Lakes. The river, with an average flow rate of 188,000 cfs (5,324 cms), provides a connection between the colder and deeper upper Great Lakes (Lakes Superior, Michigan and Huron) and the warmer and shallower lower Great Lakes (Lakes Erie and Ontario). The river is a moderately productive ecosystem and an important migratory corridor for fish and waterfowl. It is heavily utilized for fishing, recreation, and as an international shipping corridor. The Michigan Department of Natural Resources (MDNR) and Ontario Ministry of Natural Resources (MNR) recognize the Detroit River as one of the most ecologically diverse water bodies in the Great Lakes-St. Lawrence River Basin.

Stressors associated with the ecological integrity of the Corridor’s water and related land resources reflect the highly developed and intensively used nature of the area. Among others, these stressors include point sources of pollution due to industrial outfalls; nonpoint sources of pollution due to urban and agricultural run-off; legacy contaminants from historical industrial activity; shoreline erosion and sedimentation; habitat loss due to shoreline hardening, dredging and filling, and wetland loss; and AIS from various pathways including the ballast water of commercial vessels.

The magnitude and extent of these stressors is reflected in the fact that the Corridor is home to five of the 43 designated Areas of Concern (AOCs) throughout the Great Lakes-St. Lawrence River Basin (i.e., St. Clair River, Clinton River, Rouge River, River Raisin, Detroit River).

Thirteen of the 14 Beneficial Use Impairments (BUIs) identified in the GLWQA are found in one or more of these AOCs (i.e., all but degradation of phytoplankton and zooplankton populations). The last two decades have seen a continued, concerted effort to characterize these stressors and initiate targeted restoration projects designed to de-list the BUIs and, ultimately, de-list the AOCs. The impact of invasive species figures prominently in all five AOCs within the Lake Huron/ Lake Erie Corridor.

C. Current/ Prospective High Risk AIS Threats in the Corridor

The Lake Huron/ Lake Erie Corridor is among the Basin's most vulnerable areas with regard to the infestation and establishment of AIS populations. As the sole hydrologic connection between the upper and lower components of the Basin System, the Corridor is a major migration route for a range of species. Much of the Corridor is characterized by dense residential, commercial and industrial development and a range of water-based activities that can advance the introduction and establishment of AIS (e.g., commercial navigation, recreational boating, sport fishing). Further, the Corridor's diverse hydrologic characteristics (e.g., fast flowing river, numerous tributaries, back water areas, wetlands) and biological productivity not only facilitate the establishment of AIS populations, but also pose significant challenges in the selection and execution of rapid response actions.

There is presently no definitive list of "high risk" AIS specific to the Lake Huron/ Lake Erie Corridor. However, the Great Lakes Priority Invasive Species List (maintained by the Great Lakes Panel on Aquatic Nuisance Species) provides a useful Basin-wide reference on which to build. First developed in 2005 and regularly updated over time, the list is "intended to draw attention to those organisms with known and significant adverse impacts on the Great Lakes-St. Lawrence River ecosystem, its users and uses." It is presently comprised of 27 species in the categories of fishes (9); zooplankton (2); plants (7); macroinvertebrates (4); pathogens (4); and phytoplankton (1). Of these species, 20 are identified as "Tier 1" (i.e., established, harmful, non-native) and seven species are identified as "Tier 2" (i.e., potentially harmful invaders). The list is managed by the Panel's Research Coordination Committee (comprised largely of public agency managers and academic researchers). Criteria used to determine whether a species should be listed include proven or potential ability for significant adverse impacts; not intentionally introduced or managed; no demonstrated beneficial use; likelihood of constituting an emerging threat; and no economically viable means of control. The list is presented in Appendix B.

Current and prospective pathways for infestation within the Lake Huron/ Lake Erie Corridor reflect the area's diverse physical attributes and intensive multiple-use characteristics. This includes, for example:

- *Commercial navigation:* The Corridor is an exceptionally busy route for commercial vessels engaged in both interlake and overseas trade. Ballast water within commercial vessels has been a leading cause of AIS introductions into the Great Lakes-St. Lawrence River Basin, as well as advancing the spread of AIS within the Basin.

- *Recreational boating:* The Corridor is characterized by intensive recreational boating activity, both for vessels that are home-ported within the Corridor or are transiting through the Corridor between the upper and lower lakes. Such vessels can facilitate the introduction and spread of AIS via bilge water, cooling water, boat hull, and/ or trailer.
- *Accidental and intentional releases:* The water resources of the Lake Huron/ Lake Erie Corridor are home to intensive, multiple use activities and, as such, are subject to a range of accidental and intentional AIS releases. This can include releases associated with recreational fishing (i.e., via bait bucket); bait dealers; home aquariums; aquaculture; ornamental fish ponds, transportation of live fish, and many others.
- *Migration corridor:* As the “point of connection” between the upper and lower Great Lakes, the Corridor is a major migration route for many native and non-native aquatic species. Its diverse physical, ecological, and hydrologic characteristics suggest a highly receptive environment for multiple species.

D. Existing/ Prospective Rapid Response Capabilities in the Corridor

An analysis of approximately 100 Canadian, U.S. and binational entities (public and non-governmental) operating in and/ or relevant to the Lake Huron/ Lake Erie Corridor was conducted by the IJC Work Group on Aquatic Invasive Species Rapid Response. These entities were assessed to determine their respective capability (current and potential) to contribute to AIS rapid response in the Corridor in three areas: 1) primary planning and execution; 2) planning, scientific, and monitoring support; or 3) policy, advocacy, education, and outreach support. Based upon these and other findings from previous analyses, it was determined that the following entities should have primary roles in AIS rapid response planning and execution for the Lake Huron/ Lake Erie Corridor:

- *International/ Binational:* Great Lakes Fishery Commission (GLFC);
- *Canadian Federal:* Fisheries and Oceans (DFO), Environment Canada (EC);
- *Provincial:* Ontario Ministry of Natural Resources (MNR);
- *Canadian Regional/ Local:* Conservation Authority (CA), county and municipality proximate to the rapid response action;
- *U.S. Federal:* U.S. Fish and Wildlife Service (USFWS), U. S. Environmental Protection Agency (USEPA), U.S. Coast Guard (USCG);
- *State:* Michigan Department of Natural Resources (MDNR), Michigan Department of Environmental Quality (MDEQ);
- *U.S. Regional/ Local:* Southeast Michigan Council of Governments (SEMCOG), county and municipality proximate to the rapid response action; and

- *Tribal/ First Nations:* Walpole Island First Nation, other First Nation Reserve(s) proximate to the rapid response action.

The nature of these roles is further addressed in Section Four. Numerous other entities have current/ prospective capability to support these primary entities via planning, science and monitoring support, and/ or policy, advocacy, education, and outreach assistance. They are identified in the previously noted jurisdictional analysis report prepared for the IJC Work Group on Aquatic Invasive Species Rapid Response.

E. Current State of Rapid Response Planning in the Corridor

A series of developments over the last two decades has gradually moved public entities in the Basin and, more specifically, the Lake Huron/ Lake Erie Corridor, closer to development of a Binational AIS Rapid Response Plan. Among others, this has included a pronounced increase in public awareness and policy actions; the emergence of an elaborate framework of AIS-focused laws, regulations, policies, and programs; a proliferation of lake and jurisdiction-specific AIS management plans (some of which now address rapid response actions); and the development of a model Great Lakes AIS Rapid Response Plan prepared by the Great Lakes Commission (GLC) for the Great Lakes Panel on Aquatic Nuisance Species.

AIS planning efforts to date have been largely directed at prevention as opposed to response, recognizing the former as the preferred “first line of defense”. Accordingly, they have focused on programs that include education/ outreach, promoting best practices, and promulgating regulations. There is, however, a growing number of rapid response planning initiatives specific to AIS that include, among many others, the following:

- “Hydrilla Rapid Response Plan” and current AIS rapid response planning initiative, Office of the Great Lakes, MDEQ;
- “Proposed 2010 Plan for the Prevention, Detection, Assessment, and Management of Asian Carps in Michigan Waters” (2010) prepared by MDNR;
- “A Canadian Rapid Response Framework for Aquatic Invasive Species” (2012) prepared by DFO;
- “Asian Carp Rapid Response Plan” (2012) prepared by MNR;
- “Emergency Response Plan for Viral Hemorrhagic Septicemia” (2008) prepared by the National Park Service (NPS) in partnership with the Grand Portage Band of Lake Superior Chippewa;
- “Quagga/ Zebra Mussel Infestation Prevention and Response Planning Guide” (2007) prepared by the National Ocean Service (NOS);
- “Asian Carp Monitoring and Rapid Response Plan”, coordinated by the Illinois Department of Natural Resources (IDNR); and

- “Preparedness and Response Plan” and an “Incident Management Team Implementation Plan” prepared by USEPA- Region V.

The above examples are evidence of an increased focus on AIS rapid response. With few exceptions, however, these initiatives consist primarily of jurisdiction, lake and/ or species-specific planning exercises (at the domestic level) that are best characterized as broad frameworks rather than detailed operational guidance. *This plan, therefore, addresses an unmet need: a binational protocol capable of rapidly mobilizing agencies, resources, and species-specific treatment techniques (in the Lake Huron/ Lake Erie Corridor and at the Basin level) to address an AIS infestation.*

SECTION THREE- RAPID RESPONSE FRAMEWORK

A. Organizational Structure

Binational AIS Rapid Response Team

Overall leadership for AIS rapid response efforts in the Lake Huron/ Lake Erie Corridor will be provided by a Binational AIS Rapid Response Team (RRT) comprised of qualified designees drawn from the following entities:

- International/ Binational: GLFC;
- Canadian Federal: DFO, EC;
- Provincial: MNR; MOE;
- U.S. Federal: USFWS, USEPA, USCG;
- State: MDNR, MDEQ; and
- First Nations/ Tribal Authorities: Walpole Island First Nation.

Associate members of the RRT, to be engaged in those instances where a prospective rapid response action is targeted in their respective jurisdictions, will include:

- Canadian Regional/ Local: CA, county and municipality proximate to the prospective rapid response action;
- U.S. Regional/ Local: SEMCOG, county and municipality proximate to the prospective rapid response action; and
- First Nations/ Tribal Authorities: those proximate to the rapid response action.

It is recommended that the RRT be co-chaired by DFO and USFWS, in recognition of their respective authorities and current roles in AIS prevention, control and response, and the fact that that the AIS rapid response actions are directed at the binational waters of the Basin. (Special Note: Chairmanship responsibilities are limited to convening and coordinating the RRT and associated meetings. No existing management authorities at the state or provincial level will be superseded, and the response strategy for a specific action will follow ICS protocol, with a prospective lead role for the relevant state/ provincial jurisdiction).

Collectively, the RRT membership will have overall leadership and decision making authority relative to developing, updating, maintaining, and implementing the Binational AIS Rapid Response Plan. Toward that end, a charter defining this authority (and detailing associated operational aspects) will be developed and approved by the RRT.

Note: By design, this organizational framework is focused specifically on the binational Lake Huron/ Lake Erie Corridor. It is recognized that this framework will need to be harmonized with frameworks focusing on other binational waters as well as the entire binational Great Lakes-St. Lawrence River Basin. This is a critically important consideration to ensure the efficient allocation of limited resources (i.e., personnel, funding, equipment).

RRT Advisory Committees

The RRT has the authority to appoint advisory committees, as needed, to ensure ready access to the data and information required to fully inform all actions under the RRP. Four such standing committees will be established and augmented by others, on an ad hoc basis, as circumstances dictate. The four standing committees are presented below, accompanied by a description of key functions.

- *Scientific Advisory Committee:* Investigates and confirms potential AIS infestations; develops/ selects preferred risk assessment methodologies; assesses risk; identifies/ evaluates rapid response objectives; advises on rapid response alternatives based upon site characteristics, AIS of concern, and related ecological considerations; provides on-site scientific support; and advises on the design, conduct, and outcomes analysis of monitoring programs.
- *Legal/ Regulatory Advisory Committee:* Collaborates on the development of binational protocols for rapid response; harmonizes the various jurisdiction-specific AIS rapid response procedures; ensures that jurisdiction-specific legal and regulatory requirements (including permits) are in place; facilitates unimpeded cross-border movement of personnel, equipment, and supplies during an AIS rapid response action; seeks and secures necessary jurisdiction-specific legislation; and develops binational mechanisms (e.g., treaty, convention, Memorandum of Agreement/ Understanding) to formalize RRT authority.
- *Operations Advisory Committee:* Ensures that all prospective responders are fully versed and trained in ICS procedures; engages in periodic “table top” and field exercises; assists in the development of Incident Action Plans; maintains lists of operations personnel in the various Corridor jurisdictions; and maintains lists of qualified contractors to support specific AIS rapid response actions.
- *Logistics Advisory Committee:* Ensures ready access to necessary personnel and equipment for an AIS rapid response action; tracks and monitors stockpiling of treatment chemicals and equipment; identifies staging areas within the Corridor; makes arrangements for expedited cross-border movement; and secures/ advises on funding requirements.

By design, these four standing committees are consistent with the ICS organizational structure for AIS rapid response. Each committee will be populated with experienced personnel in multiple relevant disciplines, drawn largely from Corridor jurisdictions (i.e., public agencies), academia, and other non-governmental entities, as appropriate. An equitable distribution between Canadian and United States members will be sought. Committee size will vary at the discretion of the RRT but is expected to be in the range of 8-12 per committee.

The Advisory Committees serve at the pleasure of the RRT, which will establish specific terms of reference regarding appointment lengths, responsibilities and expectations. Once an AIS rapid response action is initiated, the ICS framework will be activated and Incident Command (IC)/ Unified Command (UC) leadership will be designated to oversee the response action. It is anticipated that the IC/ UC will draw heavily upon the RRT Standing Committee membership when populating ICS Command and General Staff positions, and when seeking various types of advice in Incident Action Plan development and execution.

RRT Secretariat

Secretariat responsibilities will be provided by a highly qualified, full-time RRT Coordinator (and support staff, as needed). A suggested host agency is the GLFC, with the Invasive Species Centre (ISC) as a potentially viable alternative. Baseline funding will be accessed through an annual assessment of each RRT member agency and augmented, where possible, via public agency and foundations grants. Financial support for specific rapid response actions (including personnel, equipment, and related expenses) will be provided through a dedicated binational fund established jointly by Canada and the United States. The mechanism for capitalizing the fund will be a matter for binational discussions at the initial stages of the plan development process.

The Secretariat will provide a full range of administrative, coordinative, and technical services to support the mission of the RRT. These services will include, among others, coordinating all RRT member activities; organizing, conducting, and following up on RRT meetings; formulating/ implementing RRT policies and procedures; assisting the RRT with the formation and population of standing advisory committees and ad hoc committees; developing and maintaining “experts” lists on AIS-related topics; arranging for ICS training including “table top” and field exercises; managing the RRT budget; providing intergovernmental liaison services; undertaking and coordinating education/ outreach efforts; assisting with Incident Action Plan development; and providing full service support, as needed, during AIS rapid response actions.

B. Incident Command/ Unified Command

In the development and implementation of the RRP, organizational arrangements and protocols associated with ICS will be employed. More specifically, the UC approach will be followed, recognizing the binational nature of AIS rapid response actions in the Lake Huron/ Lake Erie Corridor. The UC approach is relevant when the target area is multi-jurisdictional in nature; involves multiple levels of government; impacts different functional responsibilities; and/ or entails different statutory responsibilities.

The organizational structure defining leadership for an AIS rapid response action in the Corridor is presented in Appendix C. As noted, the IC/ UC has overall authority for the response action, assisted by five Command Staff members (i.e., Science Advisor, Legal Advisor, Public Information Officer, Liaison Officer, Safety Officer), and five General Staff members (i.e., Section Chiefs for Operations, Planning, Logistics, and Finance/ Administration). This selection of Command and General Staff Member categories is recommended based upon a review of the

“classic” ICS structure, as well as the structures employed in AIS rapid response initiatives in other regions. Desired attributes and primary responsibilities for each category are presented in Appendix C.

These roles (and the personnel to fill them) are to be defined and filled through action of the RRT and can be revised, as needed, to address the unique requirements of a given response action.

C. Operational Planning Process: the Planning “P”

The ICS framework is operationalized through the Planning “P” process originally developed by USCG and employed in a variety of settings where a well-defined hierarchy and response methodology is critical to success. The process refers to the “P” as presented in Section Four; a series of 14 sequential steps beginning with “Incident/ Event” and concluding with “Execute Plan and Assess Progress.”

D. Preparatory Actions to Facilitate AIS Rapid Response

Employing the ICS process in the execution of an AIS rapid response action in the Corridor is a necessary yet insufficient condition to ensure a successful eradication/ control effort. The response action will be fundamentally reliant upon a series of other supporting actions. The following checklist represents a selection of “best practices” gleaned from a review of numerous AIS rapid response plans accessed from jurisdictions/ regions throughout Canada and the United States. Each of these is key to the effective development, execution, and long-term sustainability of a Binational AIS Rapid Response Plan.

- *The RRT and associated ICS process must be “officially” sanctioned by the Canadian and United States governments to vest it with the authority needed to implement binational AIS rapid response actions.*
- *Formal agreements (e.g., Memoranda of Agreement/ Understanding) among and between the various public entities with a prospective role in AIS rapid response must be secured to facilitate collaboration.*
- *Long-term and reliable financing mechanisms, both to support ongoing RRT activities and specific rapid response actions, must be established to avoid any undue delays.*
- *Monitoring and surveillance programs (both agency-sponsored and volunteer/ citizen-based) must be in place in the Corridor to increase the likelihood that a potential AIS infestation incident is promptly observed and reported.*
- *RRT membership and associated ICS organizational arrangements/ appointments must be in place and operational.*

- *Pre-qualified contractors* to undertake/ support AIS rapid response actions must be identified and placed on “ready” status to ensure immediate availability, as needed.
- *Training programs* must be developed and regularly offered (e.g., “table top” and field exercises) for all parties with a prospective involvement in an AIS rapid response action.
- *Public entities with a prospective leadership/ support role* in AIS rapid response must ensure that they have the requisite authority and resources to meet their assigned responsibilities.
- *Jurisdiction-specific laws, regulations, policies, and programs* must be harmonized (i.e., achieve a base level of consistency) to facilitate joint action and necessary approvals for various rapid response alternatives.
- *Species-specific treatment protocols (i.e., chemical, biological, mechanical)* must be developed, tested (as feasible), and pre-approved (i.e., permitted) to ensure immediate access to a “tool box” of alternatives.
- *Stockpiling of AIS rapid response materials* (e.g., chemicals, mechanical equipment, boats) at strategic, readily accessible locations must be undertaken to ensure immediate availability.
- *Research needs must be addressed on an ongoing basis* (e.g., identifying “high risk” species and preferred control/ eradication methodologies), and ready access to scientific expertise must be maintained.
- *Public information protocols* must be in-place to ensure prompt notification of impending AIS rapid response actions, and provide information/ education services during/ after a response action has taken place.

The RRT will be responsible for initiating, promoting and overseeing such actions, many of which will require both an “up-front” commitment of resources as well as long-term maintenance and updating.

SECTION FOUR- RAPID RESPONSE PROTOCOL

A. Overview of AIS Rapid Response Action

The ICS protocol will be followed in responding to a prospective AIS discovery in the Lake Huron/ Lake Erie Corridor. Specifically, the 14 step Planning “P” process will be adapted for Corridor use. These steps, as discussed in detail in this section, include the following: 1) Incident/ Event; 2) Notification; 3) Initial Response and Assessment; 4) Incident Brief; 5) Initial UC Meeting; 6) Objectives Meeting; 7) Command and General Staff Meeting/ Briefing; 8) Preparing for the Tactics Meeting; 9) Tactics Meeting; 10) Preparing for the Planning Meeting; 11) Planning Meeting; 12) Incident Action Plan Preparation and Approval; 13) Operations Briefing; and 14) Plan Execution and Assessment.

(Note: This process provides structure and guidance to an AIS Rapid Response action and can be modified, as needed, to ensure an efficient and effective response.)

The following page presents a simplified AIS Rapid Response Flow Chart (Figure 1). The flow chart identifies and incorporates the various Planning “P” steps into the progression of actions that begin with the sighting of a prospective AIS and continue through the execution and assessment of a selected plan for eradication, containment, or control. As noted, the RRT is responsible for addressing all prospective AIS discoveries in the Lake Huron/ Lake Erie Corridor and, subsequently, activating the ICS process should initial assessment efforts indicate the discovery of an AIS of concern.

B. Planning “P” Applications to AIS Rapid Response

This section offers a detailed, “step-by-step” description of the 14 Planning “P” steps as applied to AIS Rapid Response in the Lake Huron/ Lake Erie Corridor. Each description presents an overview of, and objectives relating to the step; a “checklist” of key considerations specific to the Corridor; and a “Resources/ References” section to provide the reader with additional information in formulating and executing a response action.

Figure 1

AIS Rapid Response Flow Chart

(Process Overview with Planning “P” Steps Identified)

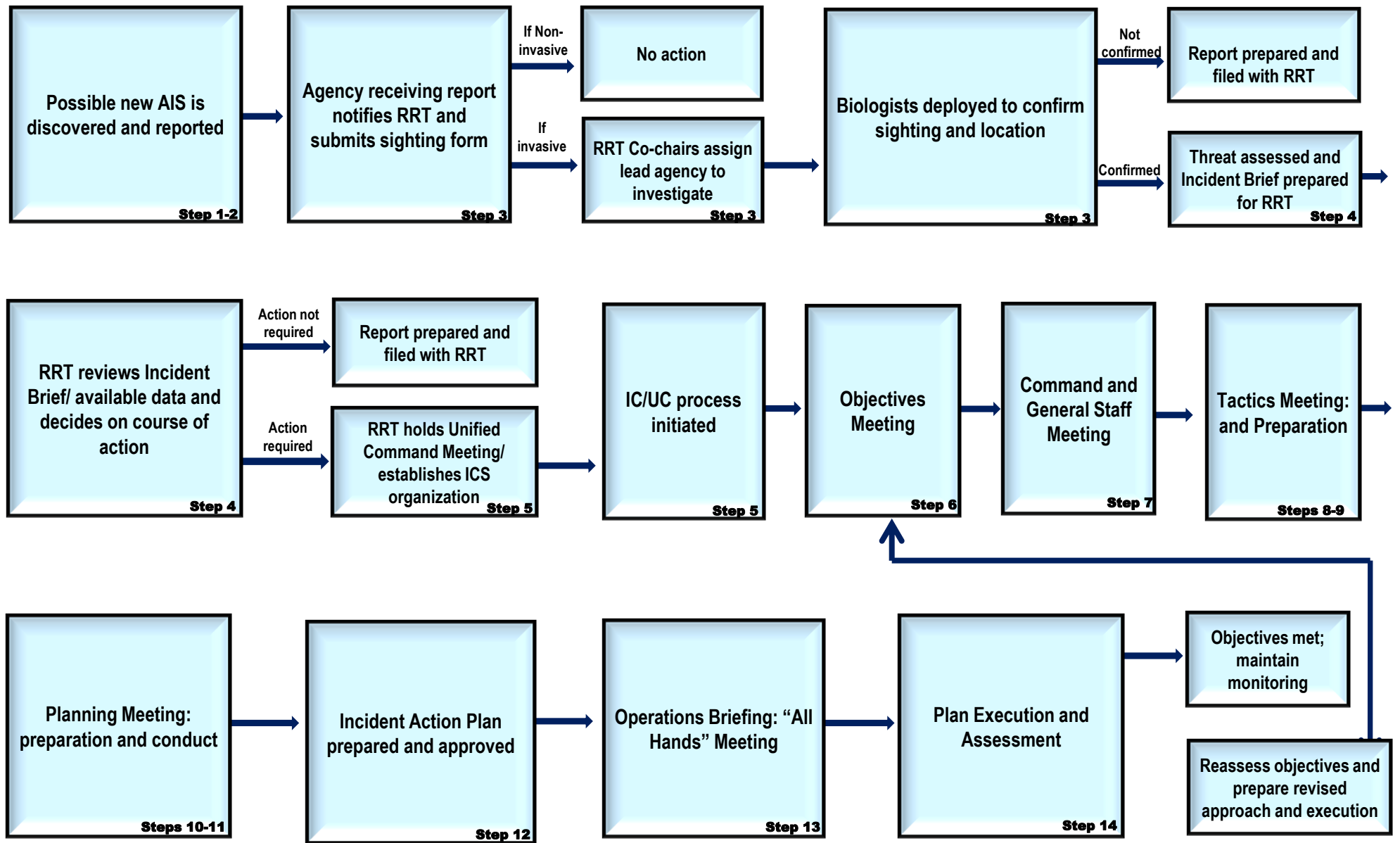


Figure 1

Step 1: Incident/ Event

Overview and Objectives

The discovery of a possible AIS (i.e., fish, zooplankton, plant, macroinvertebrate, pathogen, phytoplankton) in the Corridor triggers the Planning “P” process within the ICS framework. The discovery may originate with any one of a variety of sources (e.g., researcher, biologist, resource manager, recreational user, waterfront property owner).

Early detection of a possible AIS is critical to its successful eradication, containment or control. This is particularly true in the Lake Huron/ Lake Erie Corridor, where conditions are favorable for a range of AIS to either establish populations and/ or use the Corridor as a pathway to spread between the lower and upper portions of the Great Lakes system.

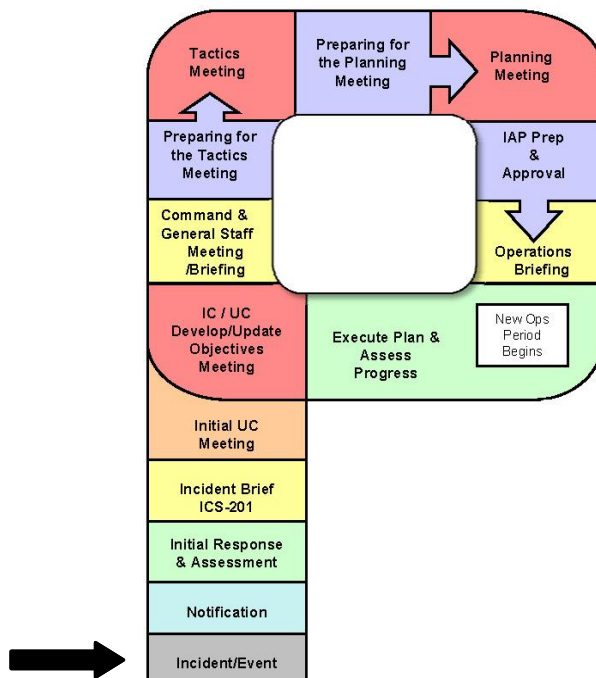
A comprehensive monitoring and surveillance program within the Corridor will enhance the likelihood of an early discovery and, consequently, facilitate a prompt response. Such a program should have two dimensions: 1) a “formal”, science-based initiative conducted by agency, academic, or other trained personnel; and 2) education/ outreach efforts focused on identification of AIS by trained volunteers.

Participants: The discovery may originate from any one of a variety of sources.

Corridor Checklist

- ☒ A fully integrated binational monitoring and surveillance network in the Corridor is needed to maximize the likelihood of early detection. Key Canadian agencies include DFO, EC, MNR, MOE, CAs, and GLIER. Key U.S. agencies include USFWS, USEPA, USGS, NOAA, MDNR, MDEQ, and selected universities/ institutes.
- ☒ Education/ outreach programs targeted at recreational anglers, boaters and others are needed to facilitate early detection. Mechanisms include, among others, AIS identification cards and a trained network of volunteers strategically located throughout the Corridor. Key Canadian entities include CAs, OFAH, and First Nations. Key U.S. entities include Michigan Sea Grant (MSG), Southeast Michigan Council of Governments (SEMCOG), Clinton River Watershed Council, and various citizen environmental organizations and user groups (e.g., angler associations).
- ☒ Research identifying AIS present in the Corridor, as well as prospective introductions (and their respective pathways and risk profiles) must be maintained, with results regularly provided to resource managers and the public.
- ☒ Species-specific eDNA testing throughout the Corridor should be conducted on a regular basis.

Planning Process



Resources/ References

- AIS-related outreach/ education materials are available from numerous public and non-governmental entities in the Corridor. Among others, key contacts include MSG (www.miseagrant.org); OFAH (www.ofah.org); OGL (www.michigan.gov/deq); and the MNR (www.mnr.gov.on.ca).
- AIS inventories in the Corridor (present or threatening to infest) are available through the “Great Lakes Priority Invasive Species List”- Great Lakes Panel on Aquatic Nuisance Species (www.glc.org/ans/); the “Great Lakes Aquatic Nuisance Species Information System”- GLANSIS (www.glerl.noaa.gov/res/Programs/glansis/glansis.html); and the “Non-native Species of Concern and Dispersal Risk” (www.glmris.anl.gov/documents/ans/). The first of these is the most relevant, and is found in Appendix B.
- The Great Lakes Panel on Aquatic Nuisance Species (supported by the Great Lakes Commission) maintains information of AIS management plans/ initiatives in all Basin jurisdictions.

Step 2: Notification

Overview and Objectives

The notification process begins when a sighting of a potential AIS within the Corridor is reported to a public official (i.e., local, state, provincial, federal) or other party (e.g., academic institution, charter captain) in a position to alert the RRT. Due to the diverse circumstances typically associated with a sighting (e.g., location, timeframe), the early stages of the notification process are likely to be equally diverse.

The objective of the notification process is to provide resource managers and decision makers with the data and information needed to promptly assess the prospective infestation and take corrective action, if necessary, in an expeditious manner.

The timeliness of the notification process will be significantly enhanced via education/ outreach programs (e.g., workshops, informational materials, web sites, Public Service Announcements), distribution of AIS identification cards (with reporting procedures), establishment of one or more AIS “hotlines”, and the development/ use of a sighting form that captures vital information.

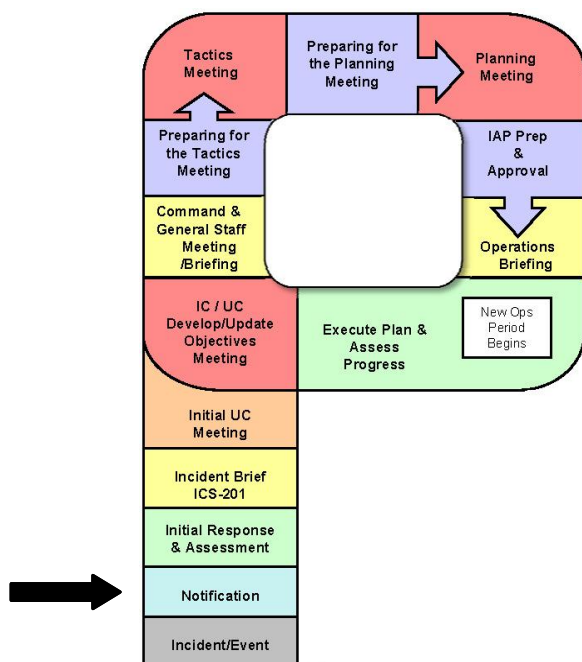
The governmental entity first notified of the reported infestation will promptly contact an RRT co-chair or member, and/ or a designated official responsible for passing the report along to the RRT.

Participants: The individual making the discovery may notify any one of a number of entities (e.g., state or local agency, university, citizen environmental organization).

Corridor Checklist

- ☒ A broadly distributed “AIS Sighting Form”, to be used by entities reporting a prospective AIS discovery to the RRT, will help ensure that a reasonably comprehensive description of the sighting and associated circumstances is provided to the agency tasked with investigating the discovery.
- ☒ Education/ outreach materials (e.g., identification cards, Public Service Announcements, AIS web sites) should include contact information for RRT members/ other appropriate entities tasked with receiving and processing prospective AIS discoveries.
- ☒ AIS “hotlines” should be maintained/ established by responsible agencies in Ontario and Michigan.
- ☒ A mechanism should be established, through the RRT Secretariat, to ensure that all prospective sightings within the Corridor are promptly shared among all RRT members, using the “AIS Sighting Form” to ensure consistency and comprehensiveness.
- ☒ The RRT Secretariat should maintain a data base of all reported sightings.

Planning Process



Resources/ References

- A sample “AIS Sighting Form”, customized for the Lake Huron/ Lake Erie Corridor, is available in Appendix D.
- A USGS form can also be used and is accessible online at <http://nas.er.usgs.gov/SightingReport.asp>.
- An additional form (Ontario) for prospective use/ adaptation is available at www.invadingspecies.com.
- Education/ outreach materials for AIS identification/ notification can be found on multiple web sites: see agencies/ organizations identified in Step 1.

Step 3: Initial Response and Assessment

Overview and Objectives

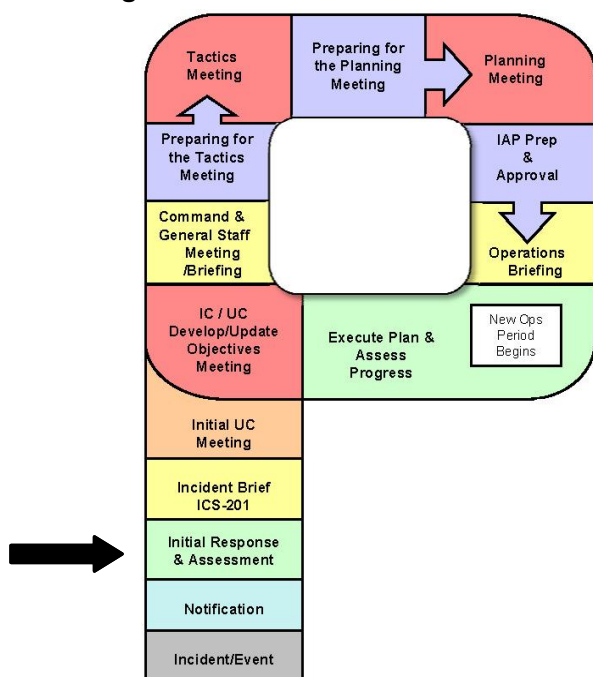
The objective of this step is to ensure the timely characterization of a prospective AIS infestation and, if circumstances warrant, initiate a rapid response action.

Immediately upon receipt of a report, the RRT co-chairs will assign a lead agency (drawn from the RRT membership) to oversee initial response and assessment. That agency will request/ collect a sample, and subsequently determine whether follow-up action is warranted. If a positive identification is made, the agency will promptly notify the RRT and recommended a course of action. The RRT will determine whether public notification is appropriate, or further investigation is warranted. If the former is advised, the RRT co-chairs (in consultation with RRT membership) will coordinate the process to ensure a consistent message.

If a positive identification is not made, the lead agency will consult with experts to verify the sample. If it is determined that an AIS of concern was not sighted, the process will terminate, with details of the incident duly recorded and filed with the RRT.

If a sample is not readily available (i.e., a prospective AIS is observed but not “captured”), the lead agency will report the incident to the RRT and a determination will be made as to whether monitoring and surveillance activities at the site should be initiated or enhanced.

Planning Process



Participants: RRT co-chairs, RRT members, designated lead agency

Overview and Objectives (cont)

The RRT-designated lead agency will initiate a detailed and expedited assessment process that entails delineating, isolating and securing the site; characterizing the nature of the prospective infestation including associated risk; and developing recommendations for further action. The assessment process will follow a detailed protocol prepared and implemented by the RRT and its standing Scientific Advisory Committee, augmented by additional experts (as needed) familiar with local conditions. The AIS Sighting Form mentioned in Step 2 (Appendix D) will provide the basis for the assessment report.

Corridor Checklist

- ☒ Criteria for clearly and promptly assigning the appropriate lead agency for a specific incident should be established in advance, and be based on factors such as incident location, agency authority, and resources.
- ☒ The RRT must be prepared to promptly designate IC/ UC membership/ assignments upon positive identification of an AIS of concern.
- ☒ Maintain a single, binational “AIS Experts” list (specific to the Corridor) to draw from when confirming a sighting and formulating an initial response.
- ☒ Maintain a standing, multi-disciplinary Scientific Advisory Committee to assist in formulating follow-up actions.
- ☒ Trained and fully qualified ICS personnel within each RRT member agency must be available.
- ☒ The RRT Secretariat will support the Initial Response and Assessment process, and maintain a data base of assessment outcomes.

Resources/ References

- An “AIS Confirmation” flowchart is presented and described in Appendix E. It depicts, in detail, Step 3 actions within the ICS framework.
- A second flowchart associated with Step 3 (“Preliminary “Evaluation of AIS Sighting”) is presented in Appendix F.
- Various lists of AIS “experts” have been prepared by entities such as the Aquatic Nuisance Species Task Force (<http://www.anstaskforce.gov/>); the Great Lakes Panel on Aquatic Nuisance Species (www.glc.org/ans/); and the International Association for Great Lakes Research (<http://www.iaglr.org/experts/directory.php>). A Corridor-specific list is not presently available, and should be developed.

Step 4: Incident Brief

Overview and Objectives

Immediately upon conclusion of the initial assessment process (and the confirmation of the presence of an AIS of concern), a written Incident Brief will be prepared by the lead agency with assistance (as needed) from RRT members, RRT advisory committee members, and other available experts with special knowledge of local conditions and/ or the AIS of concern.

Objectives of the Incident Brief include:

- Summarize the nature of the incident by providing, at a minimum, the incident name, situation, initial response objectives, current actions, planned actions (if advised), personnel involved, resources in use, and resources needed;
- Present the collective knowledge base of local area AIS experts; and
- Fully inform the RRT of all known data and information to facilitate its assessment of the situation and make a preliminary determination of prospective response actions, including confirmation of the agency(ies) best equipped to lead.

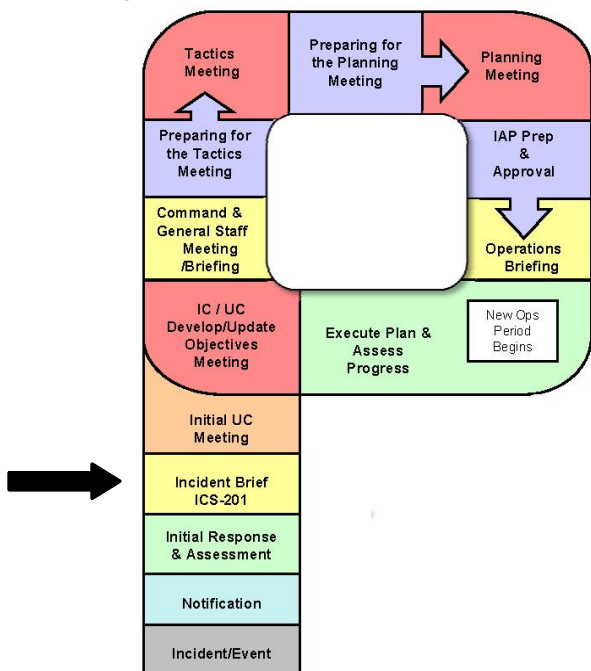
The Incident Brief is provided to the RRT in preparation for the Initial Unified Command Meeting (should such an action be advised). That meeting signals full engagement of the ICS process.

Participants: Lead agency, with assistance from RRT members, advisory committees and others, as designated

Corridor Checklist

- ☑ A standardized format for the Incident Brief should be used to ensure consistency from one incident to the next.
- ☑ Local jurisdictions and organizations should be engaged, as appropriate, during this stage to assist in characterization of the incident and provide needed background on local conditions and site-specific details.
- ☑ The RRT should be fully prepared to activate the ICS organizational structure and process, ensuring that assignments of qualified individuals are made.
- ☑ The RRT Secretariat should maintain a database of all Incident Briefs and their disposition (i.e., recommendation of "Action", "No Action", or "Further Evaluation of Potential Action.")

Planning Process



Resources/ References

- An Incident Briefing Form, adapted from the ICS-201 Form (provided in Appendix G), should be used to structure the brief.
- The "Threat Characterization Checklist" provided in Appendix H should be used to assess the AIS threat prior to Incident Brief preparation, and determine the advisability/ nature of an action.

Step 5: Initial Unified Command Meeting

Overview and Objectives

The Incident Brief will provide the basis for an Initial Unified Command Meeting. The goal of the meeting is to establish a definitive course of action by accomplishing four objectives:

- Form and populate ICS organizational arrangements by selecting appropriately qualified UC members and making assignments to Command Staff positions (i.e., Science Advisor, Legal Advisor, Public information Officer, Liaison Officer, Safety Officer) and General Staff positions (i.e., Section Chiefs for Operations, Planning, Logistics, and Finance/ Administration).
- Determine incident priorities that may include (among others), avoiding ecological harm, protecting human health, maintaining economic value, and/ or reducing the risk of spread.
- Establish rapid response objectives that may include, among others, determining the nature, extent, and source of the infestation; assessing the need for a law enforcement investigation; determining risk (i.e., environmental, human health, economic); identifying preferred containment/ control/ eradication alternatives and associated equipment, cost and labor implications; formulating a public information strategy and specific actions; and monitoring to assess response effectiveness.

Participants: Convened by the RRT Co-chairs and involving RRT members, advisory committee members, and any other key parties/ advisors the RRT may specify.

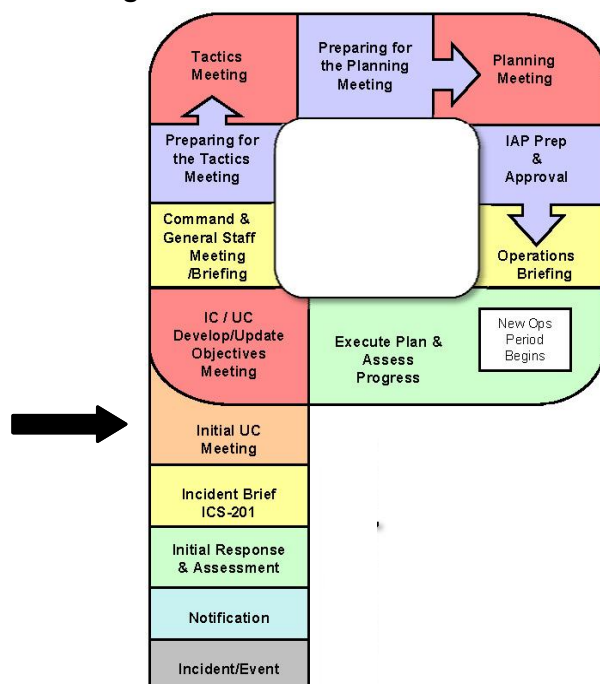
Overview and Objectives (cont)

- Identify key support actions to facilitate rapid response, including funding arrangements; communications with political leadership/ other key officials in affected jurisdictions; resource mobilization; and site-specific considerations (e.g., access, staging areas).

Corridor Checklist

- ☑ The RRT Secretariat will assist the RRT in planning and convening the meeting, and ensuring that all essential personnel (or their designees) are present.
- ☑ Selection of the UC leadership should be based on specific criteria, similar to that used for "lead agency" selection in Step 3 (Initial Response and Assessment). Familiarity with ICS is essential.
- ☑ Selection of individuals for Command and General Staff positions should also be based on familiarity with ICS and specific technical expertise in the various positions.
- ☑ The entire ICS Team must be prepared to dedicate significant time and resources (up to and including a 100% commitment) toward establishing incident priorities, developing rapid response objectives, and identifying specific actions in preparation for the rapid response action.

Planning Process



Resources/ References

- An Organization Chart (featuring key Command and General Staff positions) is included in Appendix C. A more detailed chart is provided in Appendix I.

Step 6: Objectives Meeting

Overview and Objectives

The Objectives Meeting develops and refines the operational aspects of the “definitive course of action” determined in the preceding Initial Unified Command Meeting. The meeting is preceded by an intensive focus on establishing rapid response priorities and objectives, and evaluating rapid response alternatives (i.e., chemical, biological, mechanical).

Specific objectives of the meeting are as follows:

- Select a preferred rapid response alternative based upon analyses of RRT advisors and their recommendations.
- Refine the previously developed objectives for incident response based upon the selection of the preferred alternative.
- Refine organizational arrangements (i.e., Command and General Staff), as needed, based upon the selection of the preferred alternative.
- Determine a time frame for the response action in light of variables that may include (among others) operational/ resource requirements and availability, changes in the status of the incident, weather conditions, responder safety, and permitting/ regulatory considerations.
- Designate and secure support facilities for the rapid response action including (among others), an Incident Command Post and staging areas.

Participants: IC/UC leadership, Command and General Staff members, RRT members, and any other parties so designated by the RRT

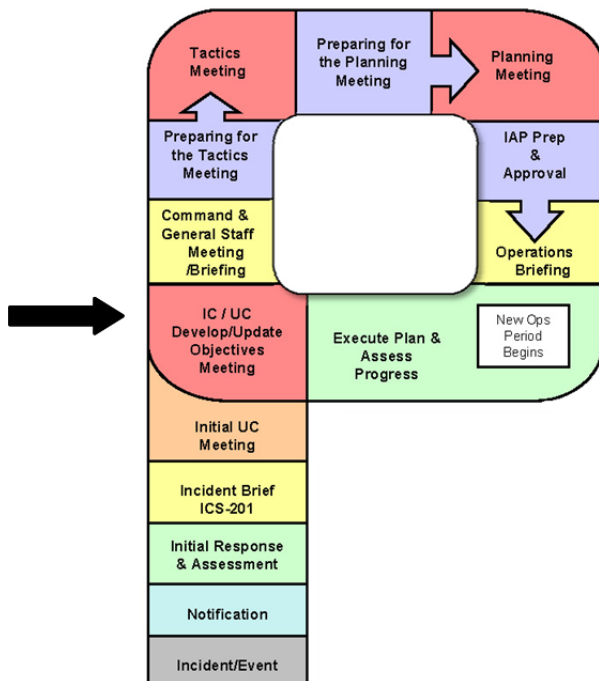
Overview and Objectives (cont)

- Identify and address constraints and limitations that may impede or otherwise dictate the parameters of the rapid response action. Among others, these may include site-specific conditions (e.g., physical characteristics, access), nature of the selected response action; availability of trained personnel; legislative/ regulatory/ permitting requirements; scientific uncertainties/ knowledge limitations; and funding sources/ constraints.

Corridor Checklist

- ☒ Develop and maintain a detailed, “pre-approved” inventory of AIS treatment alternatives from which to select.
- ☒ Have a comprehensive list of qualified personnel (drawn from the RRT and elsewhere) that can populate the ICS organizational structure should selection of the treatment alternative dictate refinements to ICS assignments.
- ☒ Anticipate and address any prospective issues that may adversely impact an expedited rapid response schedule (e.g., permitting, legislative authority, site access, resource availability, funding, staging areas, mobilization, ecological understanding/ limitations).
- ☒ Develop and continuously update a planning/ rapid response execution schedule.

Planning Process



Resources/ References

- A summary of legislative authorities for AIS rapid response (i.e., Canadian and United States federal agencies, Ontario, Michigan) should be included in Appendix J and regularly updated.

Step 7: Command and General Staff Meeting/ Briefing

Overview and Objectives

Led by the IC/ UC leadership, this meeting is focused on two primary objectives:

- Update the Command and General Staff members on the current status of the AIS incident, including a review of decisions made to date, response objectives and priorities, constraints and limitations to be addressed/ resolved, and expectations for the rapid response action (including the preferred alternative for AIS control, containment, or eradication).
- Develop and implement a Communications Strategy targeted at stakeholders, the general public, and the media, including a process to coordinate information dissemination within the various affected jurisdictions.

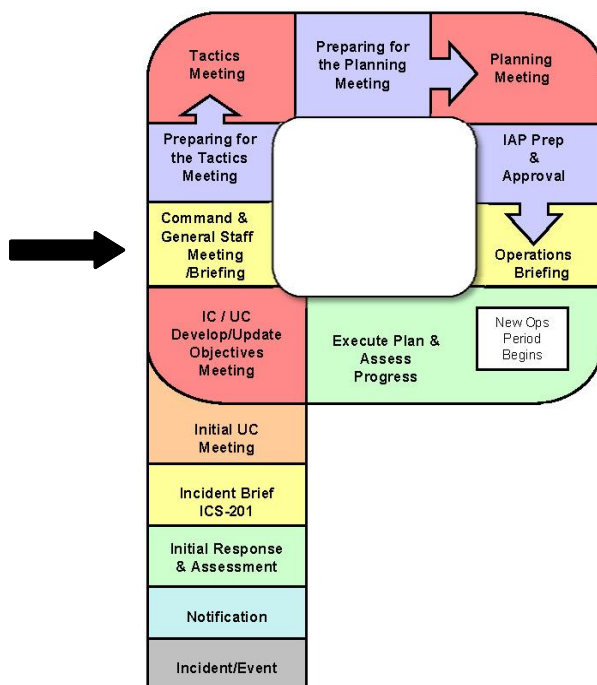
An important component of the second objective is to present a consistent message to all parties in both Canada and the United States. This will include a determination as to whether a Joint Information Center may be advisable.

Participants: IC/ UC leadership and all Command and General Staff members, with the RRT and its various committees at the discretion of the IC/ UC leadership

Corridor Checklist

- ☑ The ICS Public Information Officer should develop and maintain a comprehensive list of media contacts (including education/ outreach providers) throughout the Corridor.
- ☑ The ICS Liaison Officer should maintain a similar list that includes key officials from all public jurisdictions within the Corridor (i.e., federal, state, provincial, municipal, First Nations) as well as businesses, user groups, and citizen interests potentially affected by the rapid response action.
- ☑ Consideration should be given to specific elements of the Communications Strategy that might include press releases and press briefings (on site and via teleconference); designated Points of Contact for media and general inquiries; incident updates on web sites of RRT members; and tightly controlled access to the site to allow for observers without interfering with rapid response operations.

Planning Process



Resources/ References

- Communication strategies developed for other AIS rapid response actions (within and outside the basin) should be consulted in developing a Corridor-specific strategy.

Step 8: Preparing for the Tactics Meeting

Overview and Objectives

This preparatory meeting operationalizes the previously established goals, objectives, and expectations of the rapid response action. Objectives include:

- Prepare draft strategies to implement each identified objective.
- Identify specific resource needs (e.g., personnel, equipment, staging areas) required to execute the strategies.
- Assign resource procurement responsibilities to those with the requisite authority.
- Identify objectives that may require legal review and/ or approval.

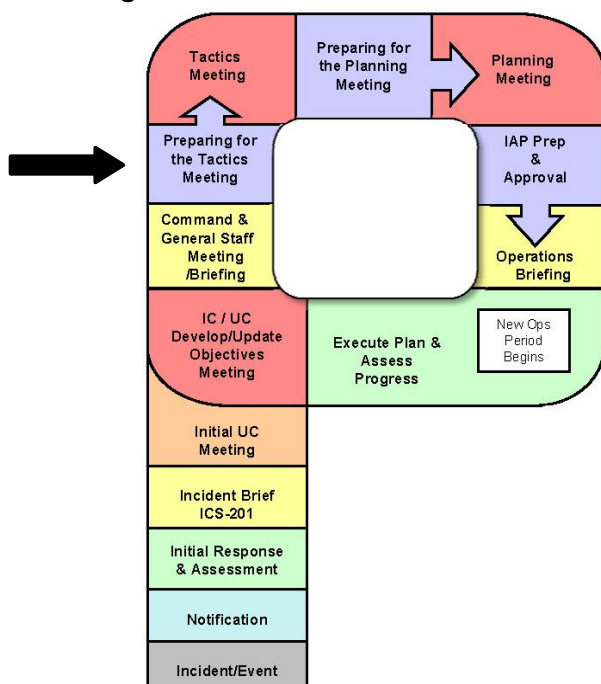
A key component of this preparatory activity is a thorough assessment of all available AIS treatment alternatives including biological, chemical, and mechanical. Each alternative is rigorously examined on the basis of criteria that include (among others), anticipated effectiveness for AIS eradication, containment, or control (as dictated by established objectives); minimal or no adverse effects to other aquatic life in the treatment area; no adverse human health considerations; necessary legislative/ regulatory approvals; available resources for prompt execution; and adequate funding.

Participants: Operations and Planning Section Chiefs, Legal and Science Advisors

Corridor Checklist

- ☑ The RRT should develop procedures and explicit criteria to guide the evaluation of alternative treatments following the discovery and confirmation of an AIS of concern.
- ☑ A range of alternative treatments (to accommodate various AIS, pathways, and locations in the Corridor) should be developed, evaluated, and permitted (to the extent possible) in the interest of having pre-approved “on-the-shelf” alternatives available for application on short notice.
- ☑ The RRT and its Secretariat should establish and maintain communications with AIS rapid response entities in other regions of North America in the interest of quickly accessing information and advice on their experience with treatment alternatives that may be relevant to the Corridor.
- ☑ Participants (noted above), as well as support/ technical personnel, must be available to be “detailed out” to their ICS functions on an intensive, full-time basis.
- ☑ The designated Legal and Science Advisors under the ICS framework should rely upon their support staff/ advisory committees to ensure 1) the expedited review/ evaluation of treatment alternatives; 2) the selection of a preferred alternative; and 3) the necessary analyses/ approvals associated with any other aspect of the rapid response tactics.

Planning Process



Resources/ References

- A listing of references for other AIS rapid response plans and responsible agencies/ organizations is provided in Appendix K.
- A descriptive inventory of selected chemical treatment alternatives developed for the IJC provides valuable guidance (“Aquatic Invasive Species Early Detection and Rapid Response – Assessment of Chemical Response Tools”, July 25, 2011).

Step 9: Tactics Meeting

Participants: Section Chiefs for Planning, Operations and Logistics; Science and Legal Advisors; Safety Officer; and other technical/ support personnel, as needed

Overview and Objectives

The Tactics Meeting operationalizes priorities and objectives, and determines how the AIS rapid response action will be conducted. Objectives include:

- Review established priorities and objectives in light of identified limitations and constraints.
- Select the AIS eradication/ containment/ control measure(s) to be used for the response action.
- Refine the organization structure for response by establishing, within the Operations Section (and other sections, as needed), manageable units and work assignments specific to the response action.
- Identify resources required to successfully execute the response action (e.g., personnel, equipment, treatment supplies, permits, staging areas).

The success of this step is dependent upon preparatory activities leading up to this meeting and, most notably, a determination of the preferred AIS rapid response alternative. That determination must be promptly followed by the identification of required technical and support personnel that are primarily (though not exclusively) associated with the Operations Section under the ICS framework. This will entail the establishment of divisions, groups and/ or units, explicit definition of responsibilities, and the appointment of qualified lead/ support personnel.

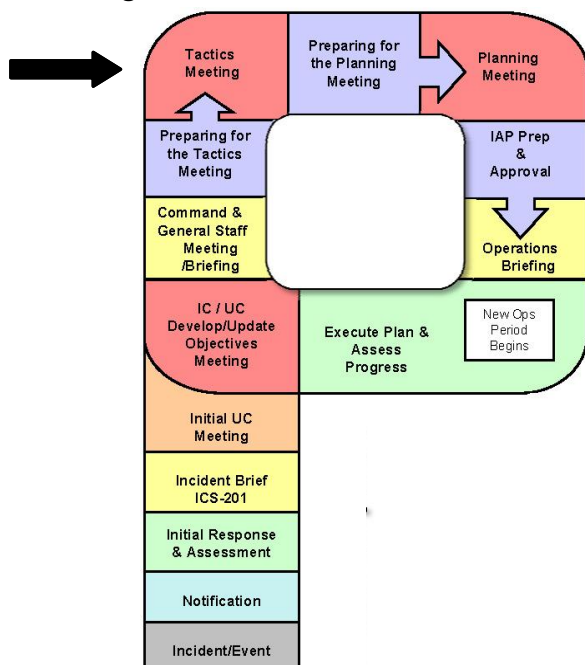
Overview and Objectives (cont)

The outcome of this meeting will be a draft tactical plan (for review and approval in subsequent steps) that identifies the preferred AIS rapid response alternative; presents (in detail) the organizational structure for executing the alternative; assigns specific tasks to all personnel; and identifies all resources needed for successful execution.

Corridor Checklist

- ☒ Participants must be fully prepared (and have the requisite authority/ approvals) to make critical decisions relative to 1) selecting and executing a preferred AIS rapid response treatment methodology; 2) making key assignments to “fill out” a detailed ICS organization structure; and 3) committing the necessary personnel, equipment and other resources to execute the response in a timely manner.
- ☒ Given the “operational emphasis” of this meeting, consideration should be given to appointing qualified local personnel to key positions in the ICS organization structure, given their presumed familiarity with local issues, conditions, and needs.
- ☒ The Safety Officer will need to draft (or adapt an existing) Safety and Health Plan to assess/ address potentially hazardous situations.
- ☒ The Legal Advisor will need to verify that all necessary approvals/ permits for the selected alternative are (or will be) in place.
- ☒ The RRT Secretariat will have a particularly important role (at the direction of the IC/ UC) in organizing, facilitating and following up on action outcomes of this meeting.

Planning Process



Resources/ References

- Appendix I presents an ICS organization chart template providing additional detail on branches and units associated with the Operations and Planning Sections (ICS-207 form).
- A descriptive inventory of AIS rapid response alternatives, as noted in the preceding step, will be a valuable reference for the Tactics Meeting.

Step 10: Preparing for the Planning Meeting

Participants: IC/ UC leadership, all Command and General Staff, RRT members and committee representatives, as well as other technical specialists and advisors (if requested by the IC/ UC leadership)

Overview and Objectives

The intent of this preparatory activity is to ensure that all operational details and considerations have been addressed prior to the Planning Meeting at which an Incident Action Plan will be developed. Objectives include:

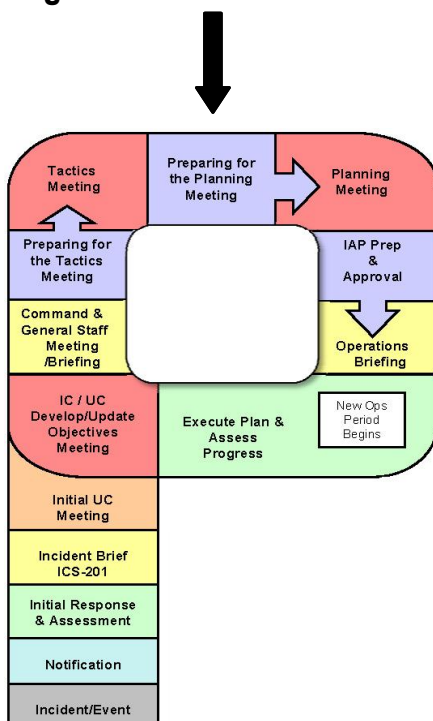
- Present an updated status report on the AIS incident.
- Discuss additional available information that will further inform the design/ application of the selected rapid response action.
- Confirm the availability of all resources required for the full and timely execution of the selected rapid response action.
- Review and verify the accuracy of all information to be presented at the Planning Meeting.

Planning Meeting preparations include the review and refinement of the draft Tactical Plan, which will be “formally” presented at the Planning Meeting and, ultimately, provide the basis for an Incident Action Plan. Refinements to the Tactical Plan may be required at this time, in the event that 1) new information about (or changing conditions associated with) the AIS infestation affects rapid response strategy; and/ or 2) issues associated with the legal and/ or operational aspects of the selected alternative require some modification to the previously outlined approach.

Corridor Checklist

- ☑ It is critical that all key staff associated with the ICS structure be fully engaged in these preparatory activities, as the subsequent Planning Meeting will be pivotal in the development and consensus-based approval of an Incident Action Plan.
- ☑ Checklists to assist the Section chiefs in confirming that all prerequisites for executing the selected alternative have been addressed should be available to ensure a thorough assessment and avoid any “show stoppers” that would otherwise require a return to the Tactics Meeting step for re-evaluation of alternatives.
- ☑ The Public Information Officer on the ICS team should identify, for discussion at the Planning Meeting, the various issues/ anticipated reactions to a public announcement of the selected alternative and associated approach to execution. A draft Communications Strategy fully coordinated among relevant Canadian and United States agencies/ organizations, should be developed for presentation/ discussion at the Planning Meeting.

Planning Process



Resources/ References

- Consultation with agencies experienced in the execution of AIS treatment plans (e.g., GLFC, DFO, USFWS, OMNR, MDNR) in the binational Great Lakes- St. Lawrence Basin is advised as the Tactics Plan is refined in preparation for the Planning Meeting.
- Consultation with principal agencies/ organizations involved in multi-jurisdictional rapid response actions elsewhere is advised in the interest of benefitting from “lessons learned”.

Step 11: Planning Meeting

Participants: IC/ UC leadership, all Command and General Staff, RRT members and committees, and other technical specialists and advisors as requested by the IC/ UC leadership

Overview and Objectives

The Planning Meeting is the culmination of all previous steps in the ICS process, and entails two objectives:

- Secure consensus-based approval of the draft Tactical Plan among Planning Meeting participants, employing an agreed-upon consensus-building facilitation technique.
- Discuss and reach consensus on elements of the overall Incident Action Plan to guide response to the AIS of concern.

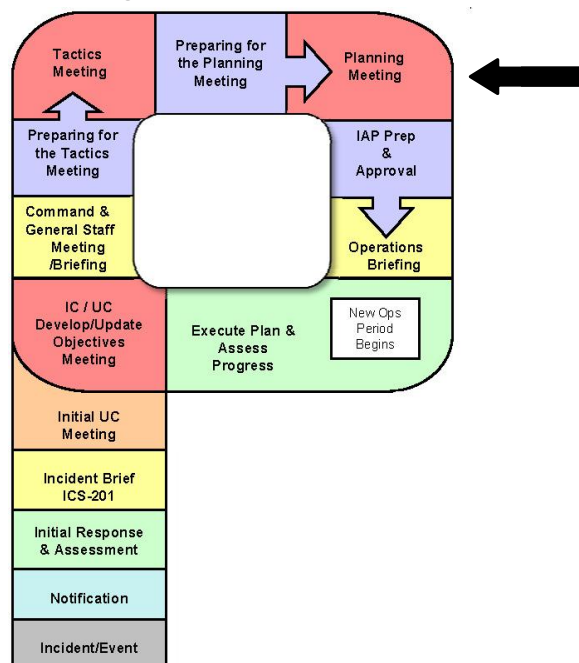
At this point in the ICS process, the draft Tactical Plan will contain the requisite level of detail to guide the selected response action. Further, its content will be verified; the availability of needed personnel, equipment, and resources will be confirmed; and all legal/ regulatory/ permitting requirements will be satisfied.

Prior to the Planning Meeting, all participants will receive the Draft Tactical Plan for review, and have the opportunity to share comments and observations with other participants. This will help facilitate formal approval of the plan at the Planning Meeting, and provide a foundation for the development of an Incident Action Plan- a key outcome of this step in the ICS process.

Corridor Checklist

- ☑ The success of the Planning Meeting will be determined, in large part, by the ability of participants to reach consensus on both a Tactical Plan and the general content of an Incident Action Plan. To facilitate this, actions should include 1) advance work to garner support for these documents and avoid any “surprises” at the meeting; 2) select and incorporate a preferred facilitation technique(s) best suited to fostering consensus during the planning meeting; 3) provide participants, in advance of the meeting, with adequate training in such technique(s); and 4) identify, in advance, “ground rules” on how to proceed in the absence of consensus.
- ☑ Full participation by all parties with a key role in the rapid response action is essential at the Planning Meeting, given that critical decisions will be made and “buy-in” will be important to the success of that action.
- ☑ Identification of the key elements of an Incident Action Plan, and availability of sample plans, will be helpful in providing participants with an understanding of desired plan content.
- ☑ The RRT Secretariat will play a key role in the success of the Planning Meeting through the advance preparation and dissemination of materials; the selection/ application of a consensus-based facilitation technique; and advance communications with all participants to avoid “surprises” at the Planning Meeting.
- ☑ Establishing an RRT Advisory Committee comprised of individuals experienced in the ICS process (AIS-specific or otherwise), will provide immediate access, as needed, to those experienced in the formulation and execution of Incident Action Plans.

Planning Process



Resources/ References

- Representative examples of Incident Action Plans (AIS-specific or otherwise) should be accessed and provided to participants in advance of the Planning Meeting to provide a common understanding of typical content and level of detail. Plan development forms are provided in Appendix L (ICS 202, 203 and 204)
- Plan development forms are provided in Appendix L (ICS 202, 203 and 204).

Step 12: Incident Action Plan Preparation and Approval

Participants: Section Chiefs for Planning and Operations, and other technical/ support staff as requested

Overview and Objectives

This step entails one or more working sessions. Outcomes of the preceding Planning Meeting are reviewed and incorporated into a draft Incident Action Plan for final approval by the IC/UC leadership. Objectives include:

- Finalize incident objectives. (Planning Section Chief)
- Finalize list of organization assignments. (Operations Section Chief)
- Finalize operational details of response plan execution. (Operations Section Chief)
- Secure IC/ UC leadership approval of the final draft Incident Action Plan.

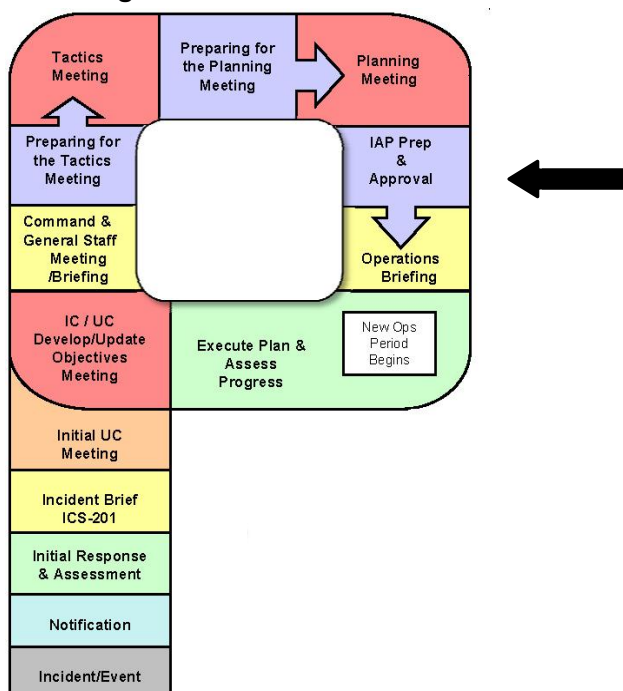
The Planning Meeting will yield consensus agreement- at the conceptual level- on the key elements and approaches to be incorporated into the Incident Action Plan, including (among others), response “end points”, and demobilization and monitoring plans. The Sections Chiefs for Planning and Operations will have lead responsibility for translating points of consensus into a highly detailed, “step by step” approach to rapid responsive via an iterative and consultative process.

Upon completion, the draft Incident Action Plan will be presented to the IC/ UC leadership for review and approval.

Corridor Checklist

- ☑ In preparing the draft Incident Action Plan, the Section Chiefs for Planning and Operations should make full use of readily available forms, including 1) the ICS-202 form presenting objectives of the rapid response action; 2) the ICS-203 form presenting the names and positions of key personnel on the ICS organization chart; and 3) the ICS-204 form addressing the operational details of the action.
- ☑ As the Incident Action Plan is drafted, other relevant considerations in the plan execution process (e.g., “buy-in” at the political/ policy maker levels in the various Canadian and United States jurisdictions) should be acknowledged and addressed, facilitated by the Liaison Officer.
- ☑ The Incident Action Plan should include an “adaptive management” component that provides guidance and direction in the event that changing circumstances warrant deviation (at some level) from the previously selected alternative and/ or tactics.
- ☑ The previously developed Communications Strategy should be refined and implemented to notify all affected/ interested parties of the impending action, its local impacts (if any), and intended outcomes.

Planning Process



Resources/ References

- As noted in Step 11, forms for developing the Incident Action Plan are provided in Appendix L (i.e., ICS -202, ICS-203, ICS-204). They can also be accessed at: http://training.fema.gov/EMIWeb/IS/ICSResource/ICSResCntr_Forms.htm
- Examples of Incident Action Plans (for AIS-related responses or other purposes) should be accessed for additional guidance in plan preparation.

Step 13: Operations Briefing

Overview and Objectives

This “all hands” meeting involves the IC/ UC leadership, Command and General Staff, and the various operational personnel with specific assignments. Depending on the organizational arrangements devised by the Operations Section Chief, this may include leadership for branches, divisions, groups, units, and/ or strike teams. The briefing is a thorough and detailed presentation on all aspects of the rapid response action, recognizing that some critical participants have not been fully engaged in earlier elements of the ICS sequence. Briefing objectives include:

- Updating AIS incident status.
- Reviewing response strategy, priorities, and expected outcomes/ accomplishments.
- Addressing safety and security considerations.
- Reporting protocol for accidents/ injuries.
- Reviewing logistical arrangements for acquiring and staging equipment; coordinating personnel de-briefs and related on-site meetings; managing equipment and supplies; and transporting personnel.
- Clarifying individual assignments, performance expectations, and chain of command protocols.

Participants: “All hands” meeting including the IC/ UC leadership, Command and General Staff, and various operations personnel with specific assignments during the rapid response action

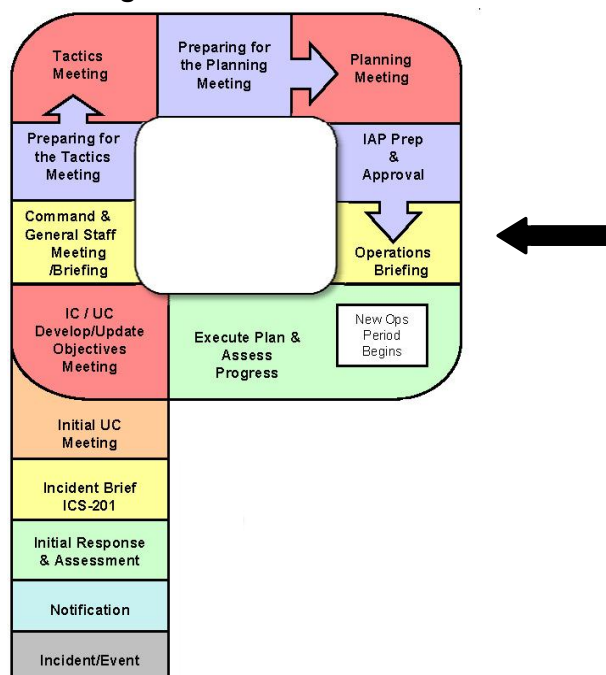
Overview and Objectives (cont)

- Adapting to changing conditions and issues during the rapid response action.
- Reviewing communications protocols, both internal and external, for both routine and sensitive/ critical information.
- Reviewing de-briefing instructions during/ following the rapid response action.

Corridor Checklist

- ☒ Full participation by all agencies, organizations and individuals identified on the ICS organization chart is essential during this briefing. This should include all incident-specific contractors.
- ☒ Ongoing training in ICS, including “table top” and field exercises, should be required of all rapid response participants to ensure adequate familiarity with the overall rapid response operation and their respective responsibilities.
- ☒ The Incident Action Plan is the centerpiece of the Operations Briefing and should be thoroughly studied by all rapid response participants

Planning Process



Resources/ References

- Resources/ references associated with all previous steps are relevant in preparing participants for the Operations Briefing and subsequent plan execution.

Step 14: Plan Execution and Assessment

Participants: Entire ICS Team, including incident-specific contractors

Overview and Objectives

This 14th and final step in the ICS process is the culmination of all previous ones, and entails the execution of the rapid response action and associated follow-up activities. Specific objectives include the following:

- Implementation of the Incident Action Plan.
- Adaptive management during implementation, as needed, to adjust to changing conditions/ circumstances.
- Short and long-term monitoring to gauge success in achieving the eradication, control or containment objective.

The Incident Action Plan will include an adaptive management component, with further guidance provided by on-site scientific advisors and other technical personnel. Adaptation may include, among many others, a change in the application of the selected treatment; selection and use of an alternate (or additional) treatment; adjustment in the target area; and/ or adjustment in the time frame for the rapid response action.

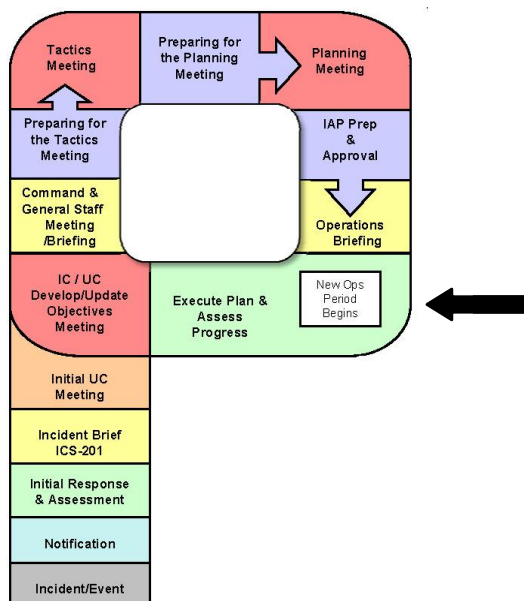
Short-term monitoring (i.e., during/ immediately following the response action) will be undertaken to provide a basis for adaptive management actions, and will be addressed in detail in the Incident Action Plan. Outcomes of this monitoring activity may trigger another iteration of the "Planning P" process, starting with Step 6 (Objectives Meeting).

Long-term monitoring will also be addressed in the Incident Action Plan; a critical consideration given the physical characteristics of the Corridor and the nature of the AIS that pose a potential threat.

Corridor Checklist

- ☑ Baseline (i.e., pre-treatment) conditions in the target area should be determined, and treatment objectives fully quantified, to facilitate assessment of the rapid response action.
- ☑ "Back-up" treatment methodologies should be available for immediate application should changing circumstances/ conditions warrant an adaptive response that may include augmenting or replacing the preferred methodology.
- ☑ A thorough documentation of the rapid response action, including the outcomes of the "hot wash" (i.e., post-action evaluation) immediately following, is needed to make necessary adjustment to the process to enhance future effectiveness, and identify "lessons learned" and "best practices" for application in the Corridor and beyond.
- ☑ Accommodating observers (particularly elected officials, policy makers and opinion leaders) is essential in building/ maintaining support for future AIS rapid response capabilities.
- ☑ Full implementation of a Communications Strategy is critically important to ensure that all interested/ affected parties are fully informed of the process, impacts, and outcomes.

Planning Process



Resources/ References

- Inventories of AIS of potential concern in the Corridor (either present or threatening to infest) are available through the "Great Lakes Priority Invasive Species List"- Great Lakes Panel on Aquatic Nuisance Species (www.glc.org/ans/); the "Great Lakes Aquatic Nuisance Species Information System"- GLANSIS (www.glerl.noaa.gov/res/Programs/glansis/glansis.html); and the "Non-native Species of Concern and Dispersal Risk" (www.glmris.anl.gov/documents/ans/). The first list is most relevant and is found in Appendix B.
- The Great Lakes Panel on Aquatic Nuisance Species (supported by the GLC) maintains information on AIS management plans/ initiatives in all Basin jurisdictions.

APPENDICES

Appendix A: Acronyms

AIS- Aquatic Invasive Species
ANSTF- Aquatic Nuisance Species Task Force
AOC- Area of Concern
BUI - Beneficial Use Impairment
CA - Conservation Authority
Cfs- cubic feet per second
Cms- cubic metres per second
DFO- Department of Fisheries and Oceans
EC- Environment Canada
FEMA- Federal Emergency Management Administration
GLC- Great Lakes Commission
GLFC- Great Lakes Fishery Commission
GLIER- Great Lakes Institute for Environmental Research (University of Windsor)
GLRI- Great Lakes Restoration Initiative
GLWQA- Great Lakes Water Quality Agreement
IC- Incident Command
ICS- Incident Command System
IJC- International Joint Commission
ISC- Invasive Species Centre
IDNR- Illinois Department of Natural Resources
km- kilometer
km² – square kilometres
m- metre
MDEQ- Michigan Department of Environmental Quality
MDNR- Michigan Department of Natural Resources
MNR- Ministry of Natural Resources (Ontario)
MOE- Ministry of Environment (Ontario)
NISC- National Invasive Species Council
NOS- National Ocean Service
NPS- National Park Service
OGL- Office of Great Lakes (Michigan)
RRT- Rapid Response Team
SEMCOG- Southeast Michigan Council of Governments
SOLEC- State of the Lakes Ecosystem Conference
UC- Unified Command
USCG- United State Coast Guard
USEPA- United States Environmental Protection Agency
USFWS- United States Fish and Wildlife Service

Appendix B: Great Lakes Priority Invasive Species List

This appendix pertains to Steps 3 and 4 of the Planning “P” process.

While there is no definitive list of “high risk” AIS specific to the Lake Huron/ Lake Erie Corridor, the IJC’s Work Group on Aquatic Invasive Species Rapid Response has determined that the “Great Lakes Priority Invasive Species List” is the most relevant to rapid response planning in the Lake Huron/ Lake Erie Corridor.

Developed in 2005 and regularly updated by the Great Lakes Panel on Aquatic Nuisance Species, this list is “intended to draw attention to those organisms with known and significant adverse impacts on the Great Lakes- St. Lawrence River ecosystem, its users and uses.” It is presently comprised of 27 species in the categories of fishes (9); zooplankton (2); plants (7); macroinvertebrates (4); pathogens (4); and phytoplankton (1). Of these species, 20 are identified as “Tier 1” (i.e., established, harmful, non-native) and seven species are identified as “Tier 2” (i.e., potentially harmful invaders). The list is managed by the Panels’ Research Coordination Committee (comprised largely of public agency managers and academic researchers). The following criteria are used to consider species for inclusion: proven or potential ability for significant adverse impacts; not intentionally introduced or managed; no demonstrated beneficial use; likelihood of constituting an emerging issue; and no economically viable means of control. A descriptive inventory is included in the following table.

As AIS rapid response efforts move forward in the Lake Huron/ Lake Erie Corridor, additional work will be needed to develop a listing of high risk AIS *specific* to the Corridor. In addition, further study of the nature of inter-species relationships (i.e., between native and invasive species) will be required to develop and refine treatment protocols (i.e., chemical, mechanical, biological) that effectively target high risk AIS without undue adverse impacts on native species.

**Great Lakes Panel on Aquatic Nuisance Species
Priority Invasive Species List - 2008**

Tier 1 = established, harmful, non-native
Tier 2 = potential harmful invader

Grouping	Tier	Common Name	Taxon	Species	Origin	Date	Location	Mechanism	Justification
Fish		2 silver carp (Asian carp)	Cyprinidae	<i>Hypophthalmichthys molitrix</i>	Asia	ST	N/A	Release (Aquaculture, Accidental)	Closing in on the Great Lakes via river systems; significantly outcompetes native fish and greatly reduces or eliminates fish biodiversity; also a threat to human health by jumping impact
		2 bighead carp (Asian carp)	Cyprinidae	<i>Hypophthalmichthys nobilis</i>	Asia	ST	N/A	Release (Aquaculture, Accidental)	Closing in on the Great Lakes via river systems; significantly outcompetes native fish and greatly reduces or eliminates fish biodiversity; also a threat to human health by jumping impact
		2 black carp (Asian carp)	Cyprinidae	<i>Mylopharyngodon piceus</i>	Asia	ST	N/A	Release (Aquaculture, Accidental)	A voracious molluscivore, likely to threaten native mussel populations
		2 grass carp (Asian carp)	Cyprinidae	<i>Ctenopharyngodon idella</i>	Asia	ST	N/A	Release (Deliberate)	Can reduce submerged rooted vegetation to such degree that essential habitat & sediment stability are severely compromised.
		1 Eurasian ruffe	Percidae	<i>Gymnocephalus cernuus</i>	Eurasia	1988	St. Louis River (S)	Shipping (Ballast Water)	Competition for forage, predation on native species
		1 round goby	Gobiidae	<i>Neogobius melanostomus</i>	Eurasia	1990	St. Clair River (SIC)	Shipping (Ballast Water)	Aggressive predator, outcompete native fish, raids native fish nests, takes over native fish habitat
		1 sea lamprey	Petromyzonidae	<i>Petromyzon marinus</i>	Atlantic	1830s	Lake Ontario	Canals, Shipping (Fouling)	Well documented threat to survival of Great Lakes sports fish (esp. trout and salmon); present control measures are costly and imperfect.
		1 white perch	Perichthyidae	<i>Morone americana</i>	Atlantic	1960	Cross Lake (O)	Canals	Competition for forage, predation on native species
		2 northern snakehead	Channidae	<i>Channa argus</i>	Asia and Russia	ST	N/A	Release (Fish Markets)	Adverse impact on native fisheries through direct predation, resource competition and the alteration of food webs
Zooplankton		1 fish-hook waterflea	Cladocera	<i>Cercopagis pengoi</i>	Black Sea	1998	Unknown	Unknown	Clogs fishing nets and lines, decreases nutrition in juvenile fish, competes with essential native zooplankton for food
		1 spiny water flea	Cladocera	<i>Bythotrephes longimanus</i>	Eurasia	1984	Lake Huron	Shipping (Ballast Water)	Competition for forage, predation on native species
Plants		2 Brazilian elodea	Hydrocharitaceae	<i>Egeria densa</i>	South America	N/A	N/A	Release (Deliberate, Fishing)	Adverse habitat and recreation impacts
		1 curly pondweed	Potamogetonaceae	<i>Potamogeton crispus</i>	Eurasia	1879	Keuka Lake (O)	Release (Aquarium, Accidental)	Adverse habitat and recreation impacts
		1 Eurasian water milfoil	Haloragaceae	<i>Myriophyllum spicatum</i>	Eurasia	1952	Lake Erie	Release (Aquarium, Delib.), Ship fouling	Adverse habitat and recreation impacts
		1 European frog-bit	Hydrocharitaceae	<i>Hydrocharis morsus-ranae</i>	Eurasia	1972	Lake Ontario		Adverse habitat and recreation impacts
		2 hydrilla	Hydrocharitaceae	<i>Hydrilla verticillata</i>	Eurasia	ST	N/A	Adverse habitat and recreation impacts	Adverse habitat and recreation impacts
		1 water chestnut	Trapaceae	<i>Trapa natans</i>	Eurasia	<1959	Lake Ontario (T)	Release (Accidental, Aquarium)	Adverse habitat and recreation impacts
		1 phragmites, common reed and giant reed	Poaceae	<i>Phragmites australis</i>	North America and Europe	1800s	Unknown	Shipping (Ballast Water)	Outcompetes and eliminates other marsh species with similar habitat requirements
Macroinvert		1 amphipod	Amphipoda	<i>Echinogammarus ischnus</i>	Black Sea	1995	Unknown	Unknown	Outcompetes and displaces native amphipod species in select habitats
		1 mud snail	Gastropoda	<i>Potamopyrgus antipodarum</i>	New Zealand	1981	Unknown	Unknown	Reduces diversity by competing with other macroinvertebrates for food and habitat
		1 quagga mussel	Dreissenidae	<i>Dreissena rostriformis bugensis</i>	Eurasia	1991	Lake Ontario	Shipping (Ballast Water)	Dominant benthic settler, crowds out other benthic organisms, changes character of benthic habitat, damages submerged structures, clogs unwater pipelines, eliminates native plankton at bottom of food web, diverts food energy to bottom habitat.
		1 zebra mussel	Dreissenidae	<i>Dreissena polymorpha</i>	Eurasia	1988			Dominant benthic settler, crowds out other benthic organisms, changes character of benthic habitat, damages submerged structures, clogs unwater pipelines, eliminates native plankton at bottom of food web, diverts food energy to bottom habitat
Pathogens		1 parasite	Microsporidia	<i>Heterosporis</i> spp.	???	2000	Lake St. Clair	Shipping (Ballast Water)	
		1 myxosporean	Myxozoa	<i>Sphaeromyxa sevastopoli</i>	Black Sea	1994	Lake Ontario	Pet Release	Adverse fish condition and recreation impacts
		1 salmonid whirling disease	Protozoa	<i>Myxobolus cerebralis</i>	Unknown	1968	Ohio (E)	Release (Fishing)	Adverse fish condition impacts
		1 VHS (viral hemorrhagic septicemia) virus	Rhabdoviridae	<i>Novirhabdovirus</i> sp.	North America	2006	Lake St. Clair	Unknown	Adverse population impacts
									Implicated in the mortality of significant numbers of fish, especially trout
Phytoplankton		1 Cylindro blue-green algae	Cyanobacteria	<i>Cylindrocapsa raciborskii</i>	Unknown	1971	Lake Erie	Unknown	Forms large subsurface blooms; produces a toxin that may result in gastrointestinal illness in humans and potential chronic liver damage; some strains produce a neurotoxin (although so far these have only been found in Brazil); toxins also are detrimental to zooplankton and invertebrate grazers. Can co-occur with surface scum forming algae like Microcystis by taking up a niche lower in the water column (1-2 m deep).

Appendix C: ICS Organization Chart and Position Responsibilities

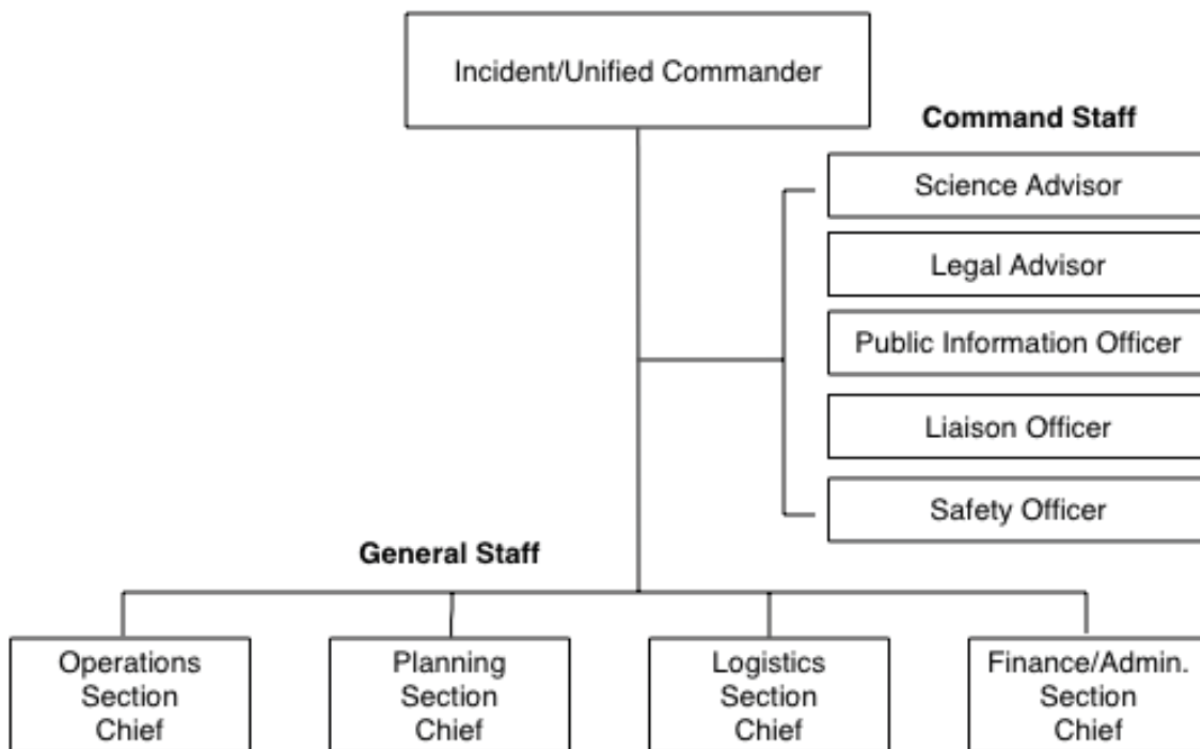
This appendix pertains to Step 5 of the Planning “P” process.

This material (with minor adaptations) is excerpted from the report titled, “Rapid Response Planning for Aquatic Invasive Species- A Maryland Example”, prepared for the Mid-Atlantic Panel on Aquatic Invasive Species (January 2009).

ICS position titles enable responders to speak a common language and avoid the confusion that may result when different agencies (with differences in terminology) all respond to the same AIS incident. ICS eliminates uncertainty by using titles that are not dependent on the title of a person’s daily job – a Natural Resources Planner for one agency may be a Field Biologist for another. In this way, positions are filled by the people most qualified to do the job, independent of their previous ranks or titles.

The figure in this appendix illustrates the upper level of personnel organization for the ISC. The IC/UC leadership oversees the entire response effort and performs all management functions (i.e., Operations, Planning, Logistics, Finance/Administration) until they are delegated to others.

Once the IC/UC leadership delegates these management functions, the chiefs of each section will comprise the General Staff. The General Staff reports directly to the IC/UC leadership. Command Staff help the IC/UC leadership and General Staff manage incident safety, communicate with the public and personnel, conduct outreach to other agencies, and advise on legal and scientific issues. Although the Command Staff positions are shown above the General Staff, they are not actually in the chain of command.



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

Incident Commander

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

Primary Responsibilities:

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

Unified Command

Unified Command is the shared responsibility of command among several Incident Commanders. Attributes and responsibilities of a Unified Command are identical to an Incident

ICS Organization Chart and Position Responsibilities

Commander. Indicators that the response should be managed by a Unified Command include when an incident:

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

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

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

Operations Section Chief

Desired Attributes: Leader, gives clear direction, conscientious.

Primary Responsibilities:

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

Planning Section Chief

Desired Attributes: Strong facilitator and communicator.

Primary Responsibilities:

- Keep everyone working together.
- Provide current, accurate situation status and concise briefings in support of the ICS process meeting schedule.
- Accurately track all resources.
- Facilitate the planning process by conducting timely meetings and working closely with the Operation Section Chief, Logistics Section Chief, and Command Staff.
- Ensure thorough documentation of all key decisions.

ICS Organization Chart and Position Responsibilities

- Establish and maintain a complete list of things that must be accomplished, ensuring that each item on the list is assigned to the appropriate ICS element (e.g., Operations, Logistics, etc.).
- Ensure that a complete and thorough Incident Action Plan is delivered in support of the operations.

Logistics Section Chief

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

Primary Responsibilities:

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

Finance/Administration Section Chief

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

Primary Responsibilities:

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

Science Advisor

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

ICS Organization Chart and Position Responsibilities

Primary Responsibilities:

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

Legal Advisor

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

Primary Responsibilities:

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

Liaison Officer

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

Primary Responsibilities:

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

ICS Organization Chart and Position Responsibilities

Public Information Officer

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

Primary Responsibilities:

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

Safety Officer

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

Primary responsibilities:

- Work with the Operations Section Chief to identify and mitigate safety hazards associated with planned strategies and tactics.
- Participate in the planning process.
- Identify hazardous situations associated with the incident.
- Participate in the development of the Incident Action Plan.
- Exercise authority to stop or prevent unsafe tactics.
- Investigate accidents and injuries that have occurred in the incident areas.
- Develop appropriate safety plans for the response.
- Monitor compliance with safety requirements.

Appendix D: AIS Sighting Report

This Appendix pertains to Step 3 of the Planning “P” process.

The form provided in this appendix is to be completed by the agency initially contacted by an individual reporting the potential discovery of an AIS in the Lake Huron/ Lake Erie Corridor. The completed form is then sent to all members of the RRT for review and discussion, as coordinated by the Co-chairs (DFO, USFWS). Data and information contained on the form will provide the basis for initial decisions concerning a prospective response. An on-line version of the form is to be available on the RRT web site and the web sites of all RRT member agencies. Further, local agencies and non-governmental organizations in the Corridor are encouraged to link to the form on their respective web sites and note the availability of the form in their education/ outreach materials.

This template form was excerpted from a report titled, “Rapid Response Planning for Aquatic Invasive Species – A Maryland Example”, prepared for the Mid-Atlantic Panel on Aquatic Invasive Species (January 2009).

An additional AIS Sighting Form has been prepared by USGS and can be found online at (<http://nas.er.usgs.gov/SightingReport.asp>). Upon report receipt, USGS will notify all members of the RRT of the potential AIS discovery.

		<h2>Aquatic Invasive Species Sighting Report</h2>	
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:			

Appendix E: AIS Confirmation Flowchart

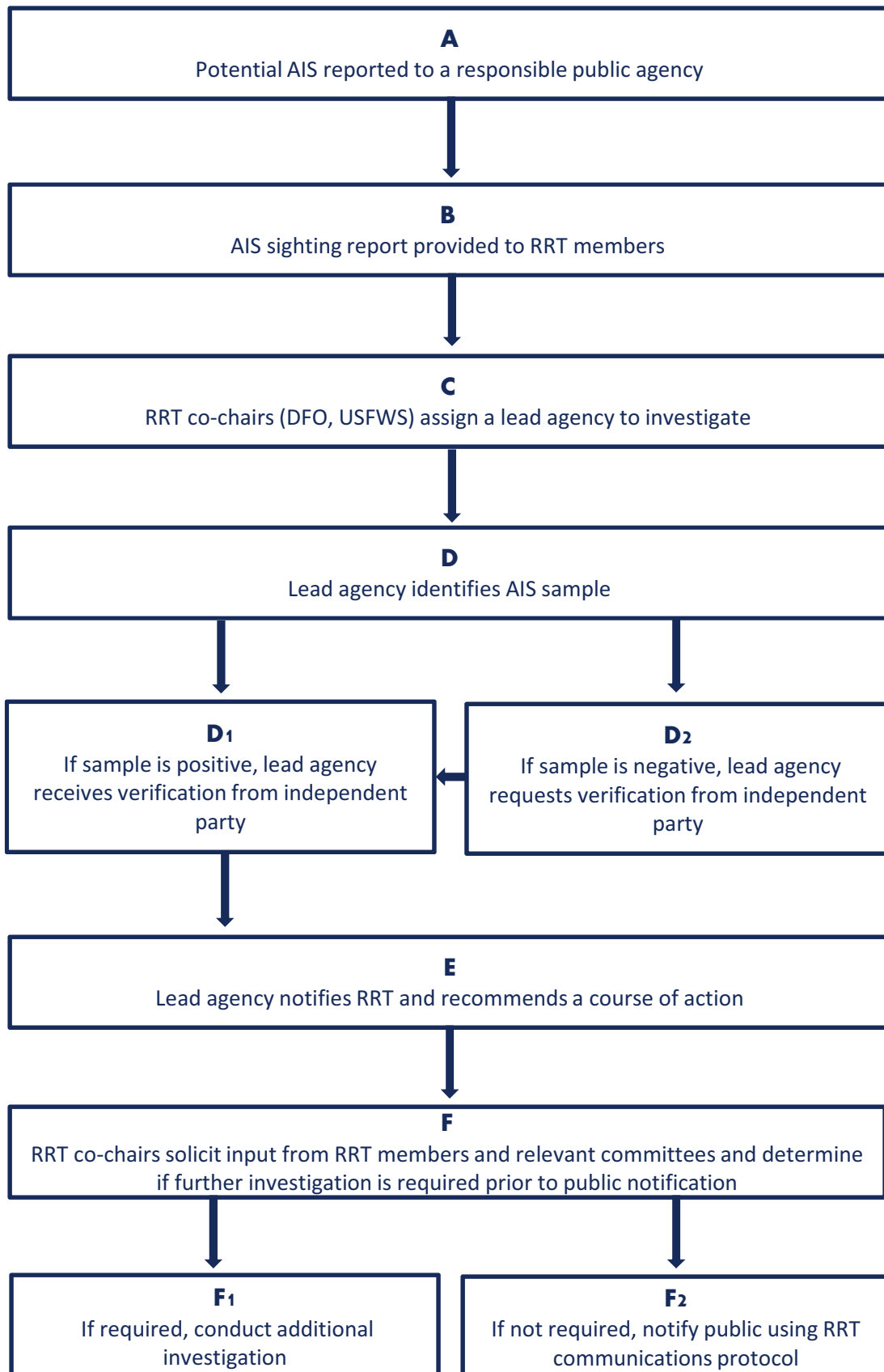
This appendix pertains to Steps 3-5 of the Planning “P” process.

The attached flowchart depicts the sequence of events from the point that a potential AIS is discovered to the point of positive identification and a subsequent decision as to whether additional investigation is needed prior to public notification. (This flowchart is adapted from the “Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species, prepared by the Lake Champlain Basin Program Aquatic Nuisance Species Subcommittee Rapid Response Workgroup, May 2009).

Each of the six primary steps on the attached flowchart is briefly described below:

- A. The discovery of a potential AIS within the Lake Huron/ Lake Erie Corridor is reported to a responsible public agency. This agency may vary considerably from one report to the next, depending upon the location of the potential AIS discovery (e.g., Canada or the U.S.), the nature of the discovery, and the knowledge level of the individual making the discovery.
- B. The public agency informed of the potential discovery completes an AIS Sighting Report from (see Appendix B) and promptly forwards that report to RRT members.
- C. The RRT Co-chairs (DFO, USFWS) promptly assign a lead agency to investigate the potential AIS. Lead agency determination will be a function of the location of the sighting, the nature of the AIS, and the capacity of the agency to promptly conduct an investigation, make a positive identification, and formulate an initial recommended response. The lead agency is likely to a provincial or state agency (e.g., MDNR, MNR) but may be a regional or local agency (e.g., CA, county agency) if adequate capacity and expertise is present.
- D. The lead agency designated by the RRT Co-chairs requests or otherwise secures the AIS sample or, if a sample is not available, investigates the site to determine the presence of the potential AIS. The lead agency will make a determination as to whether the sample is positive or negative, calling upon an independent third party (i.e, RRT Scientific Advisory Committee) for verification.
- E. The lead agency notifies the RRT of the outcome of the identification process, accompanied by a recommended course of action. If the outcome is negative, recommendations may range from terminating the investigation and notifying the public, to continued monitoring and surveillance. If the outcome is positive, recommendations may include further investigation and, potentially, aggressive action to eradicate/ contain/ control the AIS.
- F. The RRT Co-chairs will solicit input on lead agency recommendations by consulting with the RRT membership and various relevant RRT committees. The Co-chairs will then facilitate a decision by the RRT members as to whether further investigation is required prior to public notification. The ICS communications protocol will be used to ensure that a consistent message is provided to all interested/ affected parties.

Appendix E: AIS Confirmation Flowchart



Appendix F: Preliminary Evaluation of AIS Sighting

This appendix pertains to Steps 3-5 of the Planning “P” process.

The attached flowchart depicts the sequence of events from the point that a positive AIS is made to the point that a preliminary assessment and selection of rapid response options is completed (i.e., eradication, containment, control). (This flowchart is adapted, with modifications, from the “Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species”, prepared by the Lake Champlain Basin Program Aquatic Nuisance Species Subcommittee Rapid Response Workgroup, May 2009).

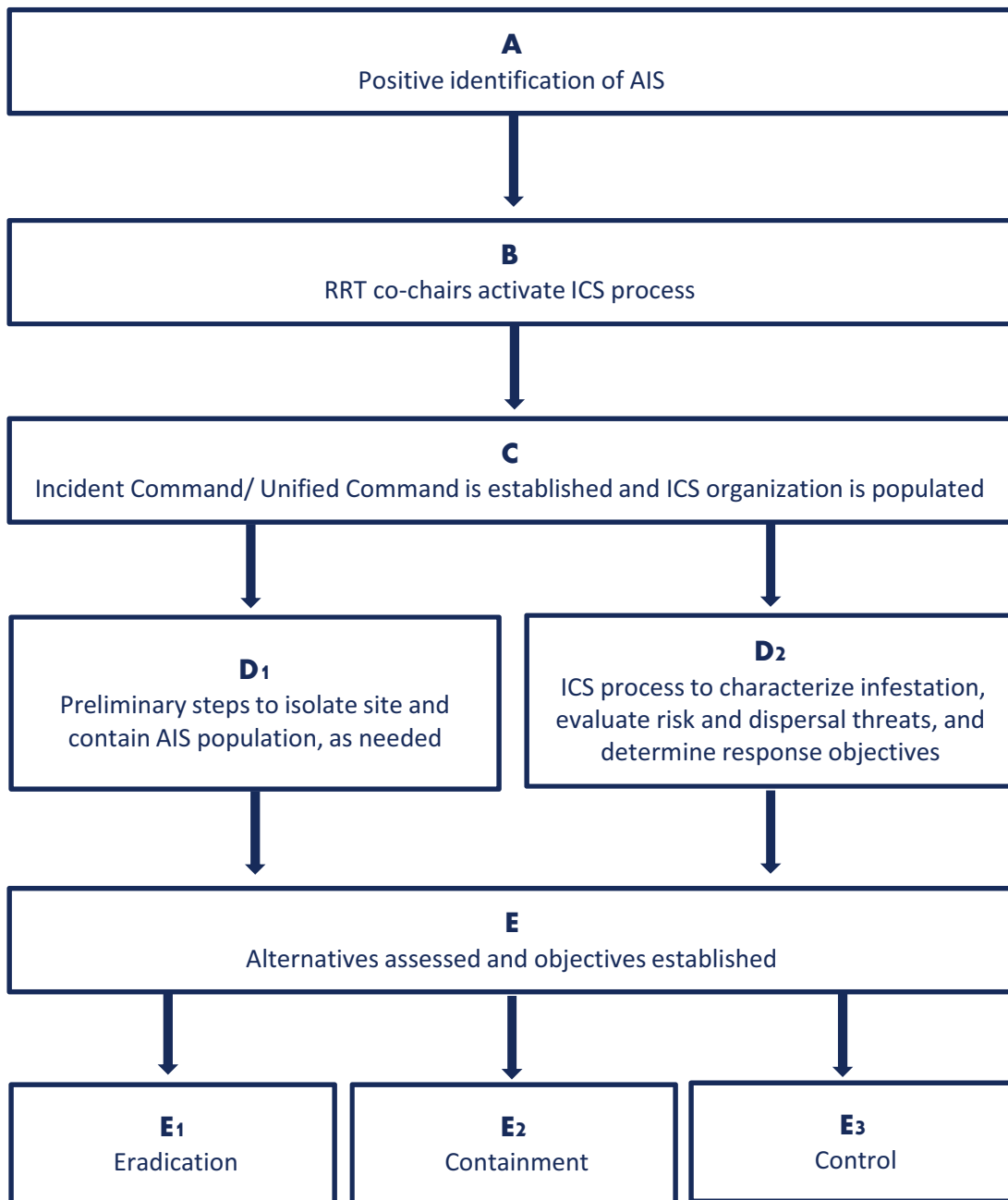
Each of the five primary steps on the attached flowchart is briefly described below:

- A. A positive identification of an AIS of concern is made by the designated lead agency, with confirmation from an independent third party, such as the Scientific Advisory Committee of the RRT.
- B. Upon notification of the positive identification, the RRT Co-chairs activate the ICS process. The RRT Secretariat (housed at the GLFC) facilitates this process.
- C. The RRT Co-chairs, with input from RRT membership, designate the IC/UC leadership based upon the location and nature of the AIS and the response capacity/ authority of the various jurisdictions in the Corridor. The ICS organization structure is then populated on the basis of the nature of the AIS infestation.
- D. The UC/IC leadership, with input from Command and General Staff as well as RRT Committees (as appropriate), will initiate preliminary steps (if needed) to isolate the site and contain the AIS population while rapid response alternatives are evaluated (D1). This may include such actions as installing temporary barriers, screening outlets, and preventing recreational uses that may exacerbate or otherwise encourage AIS spread. Concurrently, the ICS process will be activated to characterize the infestation, evaluate risk (i.e., ecological, human health, economic) and determine rapid response objectives (D2).

Note: Appendix H (Threat Characterization Checklist) can be used to facilitate the AIS characterization and risk evaluation process.

- E. Based upon the outcomes of the characterization and evaluation process, a preliminary assessment is made (through the ICS structure) relative to rapid response alternatives (i.e., eradication, containment, control) and specific measures (i.e., chemical, biological, mechanical). Criteria to be applied include (among others) technical feasibility, demonstrated/ anticipated effectiveness, collateral ecological impacts, human health implications, resource use implications, funding/ equipment/ personnel requirements, and public acceptability.

Appendix F: Preliminary Evaluation of AIS Sighting



Appendix G: Incident Briefing Form

This appendix pertains to Step 4 of the Planning “P” process.

The attached Incident Briefing Form (ICS-201) was developed by the Federal Emergency Management Agency (FEMA) for broad application in addressing an incident requiring rapid response. It has direct applicability to AIS rapid response in the Lake Huron/ Lake Erie Corridor, as it provides for a thorough summary of known information on the AIS sighting.

The designated lead agency will complete this form and present it to RRT members at the Incident Briefing, where a decision may be made to activate the ICS organizational structure. As noted, the attached form provides for an incident name; date and time the briefing is prepared; a sketch/ map of the location of the sighting; a situation summary and health and safety briefing; current and planned objectives; current and planned actions, strategies and tactics; current organization; and a summary description of resources ordered and employed. Specific directions for completing the form are included.

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: _____ Time: _____
4. Map/Sketch (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment):		
5. Situation Summary and Health and Safety Briefing (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.		
6. Prepared by: Name: _____ Position/Title: _____ Signature: _____		
ICS 201, Page 1	Date/Time: _____	

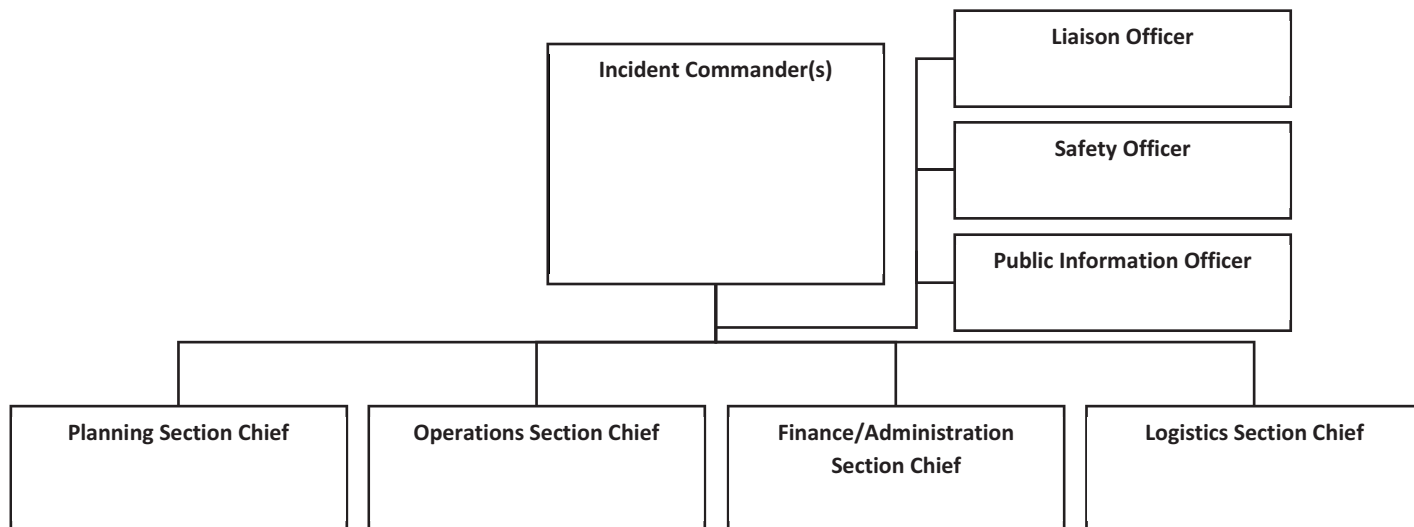
INCIDENT BRIEFING (ICS 201)

[illegible]

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: _____ Time: _____
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9. Current Organization (fill in additional organization as appropriate):



6. Prepared by: Name: _____	Position/Title: _____	Signature: _____
ICS 201, Page 3	Date/Time: _____	

INCIDENT BRIEFING (ICS 201)

1. Incident Name:		2. Incident Number:		3. Date/Time Initiated: Date: Time:	
10. Resource Summary:					
Resource	Resource Identifier	Date/Time Ordered	ETA	Arrived	Notes (location/assignment/status)
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
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				<input type="checkbox"/>	
				<input type="checkbox"/>	
6. Prepared by: Name: _____ Position/Title: _____ Signature: _____					
ICS 201, Page 4			Date/Time: _____		

ICS 201

Incident Briefing

Purpose. The Incident Briefing (ICS 201) provides the Incident Commander (and the Command and General Staffs) with basic information regarding the incident situation and the resources allocated to the incident. In addition to a briefing document, the ICS 201 also serves as an initial action worksheet. It serves as a permanent record of the initial response to the incident.

Preparation. The briefing form is prepared by the Incident Commander for presentation to the incoming Incident Commander along with a more detailed oral briefing.

Distribution. Ideally, the ICS 201 is duplicated and distributed before the initial briefing of the Command and General Staffs or other responders as appropriate. The “Map/Sketch” and “Current and Planned Actions, Strategies, and Tactics” sections (pages 1–2) of the briefing form are given to the Situation Unit, while the “Current Organization” and “Resource Summary” sections (pages 3–4) are given to the Resources Unit.

Notes:

- The ICS 201 can serve as part of the initial Incident Action Plan (IAP).
- If additional pages are needed for any form page, use a blank ICS 201 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Incident Number	Enter the number assigned to the incident.
3	Date/Time Initiated <ul style="list-style-type: none"> • Date, Time 	Enter date initiated (month/day/year) and time initiated (using the 24-hour clock).
4	Map/Sketch (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment)	<p>Show perimeter and other graphics depicting situational status, resource assignments, incident facilities, and other special information on a map/sketch or with attached maps. Utilize commonly accepted ICS map symbology.</p> <p>If specific geospatial reference points are needed about the incident's location or area outside the ICS organization at the incident, that information should be submitted on the Incident Status Summary (ICS 209).</p> <p>North should be at the top of page unless noted otherwise.</p>
5	Situation Summary and Health and Safety Briefing (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.	Self-explanatory.
6	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	Enter the name, ICS position/title, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).
7	Current and Planned Objectives	Enter the objectives used on the incident and note any specific problem areas.

Block Number	Block Title	Instructions
8	Current and Planned Actions, Strategies, and Tactics <ul style="list-style-type: none"> • Time • Actions 	Enter the current and planned actions, strategies, and tactics and time they may or did occur to attain the objectives. If additional pages are needed, use a blank sheet or another ICS 201 (Page 2), and adjust page numbers accordingly.
9	Current Organization (fill in additional organization as appropriate) <ul style="list-style-type: none"> • Incident Commander(s) • Liaison Officer • Safety Officer • Public Information Officer • Planning Section Chief • Operations Section Chief • Finance/Administration Section Chief • Logistics Section Chief 	<ul style="list-style-type: none"> • Enter on the organization chart the names of the individuals assigned to each position. • Modify the chart as necessary, and add any lines/spaces needed for Command Staff Assistants, Agency Representatives, and the organization of each of the General Staff Sections. • If Unified Command is being used, split the Incident Commander box. • Indicate agency for each of the Incident Commanders listed if Unified Command is being used.
10	Resource Summary	Enter the following information about the resources allocated to the incident. If additional pages are needed, use a blank sheet or another ICS 201 (Page 4), and adjust page numbers accordingly.
	• Resource	Enter the number and appropriate category, kind, or type of resource ordered.
	• Resource Identifier	Enter the relevant agency designator and/or resource designator (if any).
	• Date/Time Ordered	Enter the date (month/day/year) and time (24-hour clock) the resource was ordered.
	• ETA	Enter the estimated time of arrival (ETA) to the incident (use 24-hour clock).
	• Arrived	Enter an "X" or a checkmark upon arrival to the incident.
	• Notes (location/assignment/status)	Enter notes such as the assigned location of the resource and/or the actual assignment and status.

Appendix H: Threat Characterization Checklist

This appendix pertains to Steps 4-7 of the Planning “P” process.

The checklist and associated table will assist in assessing ecological, human health and economic risk associated with the discovery of an AIS in the Corridor. Material in this appendix is adapted from the “Species Evaluation Questionnaire” contained in the appendix to the “Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species”, prepared by the Lake Champlain Basin Program Aquatic Nuisance Species Subcommittee Rapid Response Workgroup (May 2009). The process is as follows:

1. The risk screening will be prepared by one assessor and reviewed by two experts, as appointed by the IC/UC leadership.
2. Risk screening values are relative and do not prescribe a specific rapid response strategy; they should be used as one tool in decisions regarding a prospective rapid response action.
3. Values associated with the two categories of criteria (i.e., Impact, Management) are to be considered separately when making decisions regarding a prospective rapid response action.
4. The species name, name of assessor, and date of assessment should be recorded at the top of the first page.
5. For each criterion, the assessor assigns a score between 1 and 5. For the Impact criteria, a score of 1 represents the least amount of risk; a score of 5 represents the greatest risk. For the Management criteria, a score of 1 represents a low likelihood of management while a score of 5 represents a high likelihood of management. Table 1 (below) provides a more thorough description of each criterion.
6. For each criterion, the assessor writes a brief paragraph justifying the given score, providing significant information where possible (e.g., biology, invasion history, existing control technologies, regulatory considerations). Relevant references are to be included where possible.
7. Scores for the Impact and Management criteria are to be totaled –individually and collectively to characterize the risk in relative terms.
8. The assessor provides a recommendation (with explanation) in the space provided at the end of the sheet. A summary of the recommendation is also to be included in the space provided at the top of the first page.
9. A Certainty Code is assigned to each criterion to allow reviewers to consider the assessor’s confidence in assigning the value. These codes are based on the Generic Nonindigenous Aquatic Organism Risk Analysis Review Process codes: Very Certain (VC); Reasonably Certain (RC); Moderately Certain (MC); Reasonably Uncertain (RU), Very Uncertain (VU).

The checklist is provided on the following pages, accompanied by Table 1 describing the impact and management criteria.

Appendix H: Threat Characterization Checklist

Species:		Date Updated:	
Assessor:		Recommendation:	
CERTAINTY CODE	SCORE	Characterization (check one)	NOTES
		IMPACT CRITERIA	
		CURRENT DISTRIBUTION	
		1. Widespread in Corridor; established in area where siting occurred	
		2. Widespread in Corridor; rare in area where siting occurred	
		3. Rare in Corridor; established in area where siting occurred	
		4. Rare in Corridor; rare in area where siting occurred	
		5. First occurrence in Corridor or future threat	
		INVASION POTENTIAL	
		1. Species not considered invasive in Corridor	
		2. Species has been introduced to Corridor but invasiveness is limited/ unknown	
		3. Other closely related species considered invasive; invasiveness of this species unknown	
		4. Species considered somewhat invasive	
		5. Species considered highly invasive	
		ESTABLISHMENT POTENTIAL BIOLOGICAL/ ECOLOGICAL CHARACTERISTICS	
		1. Species unlikely to establish itself in Corridor	
		2. Low survivorship/spread expected if introduced to Corridor	
		3. Medium survivorship/ low invasion potential expected	
		4. High survivorship/ medium invasion potential expected	
		5. High survivorship/ high invasion potential expected	
		LIKELIHOOD OF SPREADING BEYOND POINTS OF INVASION	
		1. Introduced to isolated environment/ low risk of human/or ecological dispersal	
		2. Introduced to semi-isolated environment, high risk of human and/or ecological dispersal	
		3. Scope of introduction and risk of human/ ecological dispersal unknown	
		4. Introduced to unconfined environmental, low risk of human and/or ecological dispersal	
		5. Introduced to unconfined environment, high risk of human/ecological dispersal	

CERTAINTY CODE	SCORE	Characterization (check one)	NOTES
IMPACT CRITERIA			
		POTENTIAL ENVIRONMENTAL IMPACT	
		1. Unlikely to cause harm to environment	
		2. Low probability of environmental impact in Corridor	
		3. Medium probability of environmental impact	
		4. High probability of environmental impact in Corridor	
		5. High probability , particularly to threatened species and/or sensitive habitat	
		POTENTIAL OF ECONOMIC IMPACT	
		1. Unlikely to cause economic impact	
		2. Low probability of economic impact	
		3. Medium probability of economic impact	
		4. High probability of economic impact	
		5. High probability, particularly to crucial/sensitive economic activities	
		POTENTIAL OF HUMAN IMPACT	
		1. Unlikely to cause human health impact	
		2. Low probability of non-serious human health hazard	
		3. High probability of non-serious human health hazard	
		4. Low probability of serious human health hazard	
		5. High probability of serious human health hazard	
Total (out of 35)			

CERTAINTY CODE	SCORE	Characterization (check one)	NOTES
MANAGEMENT CRITERIA			
		FEASIBILITY OF CONTROL: POPULATION CHARACTERISTICS	
		1. Well established at site and in Corridor, control	
		2. High densities at site; control unlikely	
		3. Medium densities at site; control possible	
		4. Low densities at site; control likely	
		5. Very few individuals; eradication likely	
		FEASIBILITY OF CONTROL: HABITAT CHARACTERISTICS	
		1. Well established in multiple habitats; control unlikely	
		2. Unconfined habitat (e.g., open lake, river); control unlikely	
		3. Interconnected habitat (e.g., tributaries); control possible	
		4. Isolated habitat or limited distribution (e.g., pond, small bay); eradication likely	
		5. Species not yet established; eradication likely	
		KNOWN TECHNOLOGIES FOR CONTROL AND/OR ERADICATION	
		1. No methods to control or eradicate species	
		2. Ineffective methods to control or eradicate species	
		3. Technologies effective for temporary, local control	
		4. Technologies effective for widespread control with active management	
		5. Effective methods for eradication	
SECONDARY IMPACTS OF CONTROL METHODS			
		1. No known control methods/ methods cannot currently be applied	
		2. Methods have serious long-term secondary impacts	
		3. Methods have minor long-term or serious short-term secondary impacts	
		4. Methods have minor and short-term secondary impacts	
		5. Methods known to be safe to human health and the environment	

CERTAINTY CODE	SCORE	Characterization (check one)	NOTES
MANAGEMENT CRITERIA			
		COST EFFECTIVENESS, FUNDING AND STAFF REQUIREMENTS FOR APPLICABLE CONTROL METHODOLOGY	
		1. No known control methods	
		2. Costs <i>will</i> outweigh benefits	
		3. Methods are <i>not</i> cost-effective	
		4. Methods are cost-effective	
		5. Benefits will outweigh the costs	
		LEGAL/REGULATORY REQUIREMENTS FOR APPLICABLE CONTROL METHODOLOGY	
		1. No known control methods	
		2. Methods cannot be applied due to regulatory requirements	
		3. Methods will require permits that may not allow for rapid response	
		4. Methods require permits already obtained or can be expedited	
		5. Control methods require no special legal/regulatory requirements	
		PREVENTING REINTRODUCTION	
		1. Not possible to slow or prevent (re)introduction to Corridor	
		2. Unlikely to slow (re)introduction to Corridor	
		3. Possible to slow (re) introduction to Corridor	
		4. Possibility of preventing (re) introduction to Corridor	
		5. Existing prevention mechanisms in Corridor	
Total (out of 35)			

Recommendation (with comments)

Citations:

Table 1: Description of Criterion

Criteria	Description
Distribution	The occurrence of the species relative to the Corridor; invasion history.
Invasion	The likelihood that the species will be invasive, based on its past invasion history and/or the invasiveness potential of closely related species.
Establishment	The likelihood that the species will be able to survive and become established based on all biological and ecological attributes of the species, e.g., temperature tolerance, salinity tolerance, fecundity, and reproductive mechanisms.
Likelihood of spread	The probability of spread widely in the Corridor from the colonized area based on known pathways of introduction to new sites (environmental and human mechanisms). This criterion must take into consideration all possible vectors for transport and spread and the probability of transport by these vectors (e.g., Are these vectors regulated? Are these vectors frequent or rare?)
Environmental impacts	The potential for environmental degradation given the biological characteristics, invasion potential of the species, and given the habitat quality and parameters of the invaded habitat. Special consideration must be given to critical habitats and threatened species that may be further endangered by the presence of the introduced species.
Economic impacts	The potential for economic damage given the biological characteristics/invasion potential of the species and given the economic activities in the invaded area. Special consideration must be given to invaded areas where crucial or sensitive economic activities may occur.
Human health impacts	The potential for the organism to act as a public health threat or to host a parasite that may cause harm to human health.

Control: population characteristics	Feasibility to control/eradicate the species based on the characteristics of the current population.
Control: habitat characteristics	Feasibility to control/eradicate the species based on the characteristics of the habitat it has colonized.
Technologies for control & eradication	Efficacy of known control technologies for the species.
Secondary impacts of control methods	Applicability of control technologies given negative secondary impacts. Must consider the short-term and long-term effects of applying the control technology.
Cost effectiveness, funding and staff requirements for control methodology	Status of current funding and manpower/staffing required to prevent or control the species. Must consider not just the actual cost of control, but the cost-benefit ratio.
Legal/regulatory requirements for control methodology	The feasibility of applying control technologies based on legal or regulatory restrictions.
Preventing reintroduction	Feasibility to prevent the occurrence or reintroduction of an introduced species once the species is controlled/eradicated (e.g., through legislation, education and outreach).

Appendix I: Detailed ICS Organization Structure Template

This appendix pertains to Step 5 of the Planning “P” process.

The basic ICS organization structure, as depicted in Appendix C, provides the overall framework for a “customized” structure that adds multiple additional levels (e.g., managers, directors, group and unit leaders, specialists) to meet the specific demands of the rapid response action.

Attached is an Incident Organization Chart (ICS-207), developed by FEMA, that provides a more detailed template for populating the ICS organization chart for an AIS rapid response. As noted, the fundamental ICS framework (i.e., IC/UC, Command and General Staff, Section Chiefs for Operations, Planning, Logistics and Finance) provides the basis for a series of additional roles and responsibilities specific to the response action.

INCIDENT ORGANIZATION CHART (ICS 207)

1. Incident Name:		2. Operational Period:		Date From:		Date To:	
				Time From:		Time To:	
3. Organization Chart							
<div><div><div>Incident Commander(s)</div><div>Liaison Officer</div><div>Safety Officer</div><div>Public Information Officer</div></div><div><div>Operations Section Chief</div><div>Staging Area Manager</div></div><div><div>Planning Section Chief</div><div>Logistics Section Chief</div><div>Finance/Admin Section Chief</div></div><div><div>Resources Unit Ldr.</div><div>Situation Unit Ldr.</div><div>Documentation Unit Ldr.</div><div>Demobilization Unit Ldr.</div><div></div></div><div><div>Support Branch Dir.</div><div>Supply Unit Ldr.</div><div>Facilities Unit Ldr.</div><div>Ground Spt. Unit Ldr.</div><div>Service Branch Dir.</div></div><div><div>Time Unit Ldr.</div><div>Procurement Unit Ldr.</div><div>Comp./Claims Unit Ldr.</div><div>Cost Unit Ldr.</div><div></div></div><div><div>Comms Unit Ldr.</div><div>Medical Unit Ldr.</div><div>Food Unit Ldr.</div></div></div>							
ICS 207	IAP Page	4. Prepared by: Name:	Position/Title:	Signature:	Date/Time:		

ICS 207

Incident Organization Chart

Purpose. The Incident Organization Chart (ICS 207) provides a **visual wall chart** depicting the ICS organization position assignments for the incident. The ICS 207 is used to indicate what ICS organizational elements are currently activated and the names of personnel staffing each element. An actual organization will be event-specific. The size of the organization is dependent on the specifics and magnitude of the incident and is scalable and flexible. Personnel responsible for managing organizational positions are listed in each box as appropriate.

Preparation. The ICS 207 is prepared by the Resources Unit Leader and reviewed by the Incident Commander. Complete only the blocks where positions have been activated, and add additional blocks as needed, especially for Agency Representatives and all Operations Section organizational elements. For detailed information about positions, consult the NIMS ICS Field Operations Guide. The ICS 207 is intended to be used as a wall-size chart and printed on a plotter for better visibility. A chart is completed for each operational period, and updated when organizational changes occur.

Distribution. The ICS 207 is intended to be **wall mounted** at Incident Command Posts and other incident locations as needed, and is not intended to be part of the Incident Action Plan (IAP). All completed original forms must be given to the Documentation Unit.

Notes:

The ICS 207 is intended to be **wall mounted** (printed on a plotter). Document size can be modified based on individual needs.

Also available as 8½ x 14 (legal size) chart.

ICS allows for organizational flexibility, so the Intelligence/Investigative Function can be embedded in several different places within the organizational structure.

Use additional pages if more than three branches are activated. Additional pages can be added based on individual need (such as to distinguish more Division/Groups and Branches as they are activated).

Block Number	Block Title	Instructions
1	Incident Name	Print the name assigned to the incident.
2	Operational Period Date and Time From Date and Time To	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Organization Chart	Complete the incident organization chart. For all individuals, use at least the first initial and last name. List agency where it is appropriate, such as for Unified Commanders. If there is a shift change during the specified operational period, list both names, separated by a slash.
4	Prepared by Name Position/Title Signature Date/Time	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Appendix J: Legislative Authorities for Rapid Response in the Corridor

This appendix pertains to all steps in the Planning “P” process.

This appendix is to be prepared by the RRT members. It will include a fully referenced descriptive inventory of jurisdiction-specific laws, regulations, policies and guidance relevant to AIS rapid response. This will include all key jurisdictions in the Corridor (e.g., federal, state, provincial, local, First Nations).

Appendix K: AIS Rapid Response Plan References

This appendix pertains to all steps in the Planning “P” process.

Numerous agencies and organizations within Canada and the United States have prepared AIS rapid response plans, either as “stand-alone” documents or as components of a larger AIS Management Plan. With some notable exceptions, these plans tend to be focused on a single jurisdiction, discrete area (land and/or water), and/or a specific species. In addition, they exhibit significant variance with regard to level of detail, ranging from highly proscriptive, “step-by-step” procedures to broad overviews and checklists of actions that need to be taken to formulate a plan.

While no single existing plan is suited for wholesale application to the binational waters of the Lake Huron/ Lake Erie Corridor, many offer “best practices” that can be selectively applied to the needs of the Corridor. Presented below is a representative sampling of rapid response plans (and related documents) that may be of benefit to those responsible for shaping and implementing AIS rapid response actions in the Corridor. (Internet links are provided where available)

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Appendix L: Incident Action Plan Development Forms

This appendix pertains to Steps 10-12 of the Planning “P” process.

Development of the Incident Action Plan is facilitated by the use of three ICS forms:

- ICS-202 (Incident Objectives)
- ICS-203 (Organization Assignment List)
- ICS 204 (Assignment List)

Each of these forms, and associated narrative, is provided within this appendix. It was excerpted from an ICS forms booklet prepared by FEMA and titled the “National Incident Management System Incident Command System” (September 2010).

INCIDENT OBJECTIVES (ICS 202)

1. Incident Name:	2. Operational Period: Date From: _____ Time From: _____	Date To: _____ Time To: _____											
3. Objective(s):													
4. Operational Period Command Emphasis:													
General Situational Awareness													
5. Site Safety Plan Required? Yes <input type="checkbox"/> No <input type="checkbox"/> Approved Site Safety Plan(s) Located at:													
6. Incident Action Plan (the items checked below are included in this Incident Action Plan): <table style="width: 100%; border: none;"><tr><td><input type="checkbox"/> ICS 203</td><td><input type="checkbox"/> ICS 207</td><td rowspan="5" style="vertical-align: top;"><u>Other Attachments:</u> <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____</td></tr><tr><td><input type="checkbox"/> ICS 204</td><td><input type="checkbox"/> ICS 208</td></tr><tr><td><input type="checkbox"/> ICS 205</td><td><input type="checkbox"/> Map/Chart</td></tr><tr><td><input type="checkbox"/> ICS 205A</td><td><input type="checkbox"/> Weather Forecast/Tides/Currents</td></tr><tr><td><input type="checkbox"/> ICS 206</td><td></td></tr></table>			<input type="checkbox"/> ICS 203	<input type="checkbox"/> ICS 207	<u>Other Attachments:</u> <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____	<input type="checkbox"/> ICS 204	<input type="checkbox"/> ICS 208	<input type="checkbox"/> ICS 205	<input type="checkbox"/> Map/Chart	<input type="checkbox"/> ICS 205A	<input type="checkbox"/> Weather Forecast/Tides/Currents	<input type="checkbox"/> ICS 206	
<input type="checkbox"/> ICS 203	<input type="checkbox"/> ICS 207	<u>Other Attachments:</u> <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____											
<input type="checkbox"/> ICS 204	<input type="checkbox"/> ICS 208												
<input type="checkbox"/> ICS 205	<input type="checkbox"/> Map/Chart												
<input type="checkbox"/> ICS 205A	<input type="checkbox"/> Weather Forecast/Tides/Currents												
<input type="checkbox"/> ICS 206													
7. Prepared by: Name: _____ Position/Title: _____ Signature: _____													
8. Approved by Incident Commander: Name: _____ Signature: _____													
ICS 202	IAP Page _____	Date/Time: _____											

ICS 202

Incident Objectives

Purpose. The Incident Objectives (ICS 202) describes the basic incident strategy, incident objectives, command emphasis/priorities, and safety considerations for use during the next operational period.

Preparation. The ICS 202 is completed by the Planning Section following each Command and General Staff meeting conducted to prepare the Incident Action Plan (IAP). In case of a Unified Command, one Incident Commander (IC) may approve the ICS 202. If additional IC signatures are used, attach a blank page.

Distribution. The ICS 202 may be reproduced with the IAP and may be part of the IAP and given to all supervisory personnel at the Section, Branch, Division/Group, and Unit levels. All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 202 is part of the IAP and can be used as the opening or cover page.
- If additional pages are needed, use a blank ICS 202 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident. If needed, an incident number can be added.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Objective(s)	Enter clear, concise statements of the objectives for managing the response. Ideally, these objectives will be listed in priority order. These objectives are for the incident response for this operational period as well as for the duration of the incident. Include alternative and/or specific tactical objectives as applicable. Objectives should follow the SMART model or a similar approach: <u>S</u> pecific – Is the wording precise and unambiguous? <u>M</u> easurable – How will achievements be measured? <u>A</u> ction-oriented – Is an action verb used to describe expected accomplishments? <u>R</u> ealistic – Is the outcome achievable with given available resources? <u>T</u> ime-sensitive – What is the timeframe?
4	Operational Period Command Emphasis	Enter command emphasis for the operational period, which may include tactical priorities or a general weather forecast for the operational period. It may be a sequence of events or order of events to address. This is not a narrative on the objectives, but a discussion about where to place emphasis if there are needs to prioritize based on the Incident Commander's or Unified Command's direction. Examples: Be aware of falling debris, secondary explosions, etc.
	General Situational Awareness	General situational awareness may include a weather forecast, incident conditions, and/or a general safety message. If a safety message is included here, it should be reviewed by the Safety Officer to ensure it is in alignment with the Safety Message/Plan (ICS 208).
5	Site Safety Plan Required? Yes <input type="checkbox"/> No <input type="checkbox"/>	Safety Officer should check whether or not a site safety plan is required for this incident.
	Approved Site Safety Plan(s) Located At	Enter the location of the approved Site Safety Plan(s).

Block Number	Block Title	Instructions
6	Incident Action Plan (the items checked below are included in this Incident Action Plan): <input type="checkbox"/> ICS 203 <input type="checkbox"/> ICS 204 <input type="checkbox"/> ICS 205 <input type="checkbox"/> ICS 205A <input type="checkbox"/> ICS 206 <input type="checkbox"/> ICS 207 <input type="checkbox"/> ICS 208 <input type="checkbox"/> Map/Chart <input type="checkbox"/> Weather Forecast/ Tides/Currents <u>Other Attachments:</u>	Check appropriate forms and list other relevant documents that are included in the IAP. <input type="checkbox"/> ICS 203 – Organization Assignment List <input type="checkbox"/> ICS 204 – Assignment List <input type="checkbox"/> ICS 205 – Incident Radio Communications Plan <input type="checkbox"/> ICS 205A – Communications List <input type="checkbox"/> ICS 206 – Medical Plan <input type="checkbox"/> ICS 207 – Incident Organization Chart <input type="checkbox"/> ICS 208 – Safety Message/Plan
7	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature 	Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).
8	Approved by Incident Commander <ul style="list-style-type: none"> • Name • Signature • Date/Time 	In the case of a Unified Command, one IC may approve the ICS 202. If additional IC signatures are used, attach a blank page.

ORGANIZATION ASSIGNMENT LIST (ICS 203)

1. Incident Name:		2. Operational Period: Date From: _____ Date To: _____ Time From: _____ Time To: _____	
3. Incident Commander(s) and Command Staff:		7. Operations Section:	
IC/UCs		Chief	
		Deputy	
Deputy		Staging Area	
Safety Officer		Branch	
Public Info. Officer		Branch Director	
Liaison Officer		Deputy	
4. Agency/Organization Representatives:		Division/Group	
Agency/Organization	Name	Division/Group	
		Division/Group	
		Division/Group	
		Division/Group	
		Branch	
		Branch Director	
		Deputy	
5. Planning Section:		Division/Group	
Chief		Division/Group	
Deputy		Division/Group	
Resources Unit		Division/Group	
Situation Unit		Division/Group	
Documentation Unit		Branch	
Demobilization Unit		Branch Director	
Technical Specialists		Deputy	
		Division/Group	
		Division/Group	
		Division/Group	
6. Logistics Section:		Division/Group	
Chief		Division/Group	
Deputy		Air Operations Branch	
Support Branch		Air Ops Branch Dir.	
Director			
Supply Unit			
Facilities Unit		8. Finance/Administration Section:	
Ground Support Unit		Chief	
Service Branch		Deputy	
Director		Time Unit	
Communications Unit		Procurement Unit	
Medical Unit		Comp/Claims Unit	
Food Unit		Cost Unit	
9. Prepared by: Name: _____		Position/Title: _____ Signature: _____	
ICS 203	IAP Page _____	Date/Time: _____	

ICS 203

Organization Assignment List

Purpose. The Organization Assignment List (ICS 203) provides ICS personnel with information on the units that are currently activated and the names of personnel staffing each position/unit. It is used to complete the Incident Organization Chart (ICS 207) which is posted on the Incident Command Post display. An actual organization will be incident or event-specific. **Not all positions need to be filled.** Some blocks may contain more than one name. The size of the organization is dependent on the magnitude of the incident, and can be expanded or contracted as necessary.

Preparation. The Resources Unit prepares and maintains this list under the direction of the Planning Section Chief. Complete only the blocks for the positions that are being used for the incident. If a trainee is assigned to a position, indicate this with a "T" in parentheses behind the name (e.g., "A. Smith (T)").

Distribution. The ICS 203 is duplicated and attached to the Incident Objectives (ICS 202) and given to all recipients as part of the Incident Action Plan (IAP). All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 203 serves as part of the IAP.
- If needed, more than one name can be put in each block by inserting a slash.
- If additional pages are needed, use a blank ICS 203 and repaginate as needed.
- ICS allows for organizational flexibility, so the Intelligence/Investigations Function can be embedded in several different places within the organizational structure.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Incident Commander(s) and Command Staff <ul style="list-style-type: none"> • IC/UCs • Deputy • Safety Officer • Public Information Officer • Liaison Officer 	Enter the names of the Incident Commander(s) and Command Staff. Label Assistants to Command Staff as such (for example, "Assistant Safety Officer"). For all individuals, use at least the first initial and last name. For Unified Command, also include agency names.
4	Agency/Organization Representatives <ul style="list-style-type: none"> • Agency/Organization • Name 	Enter the agency/organization names and the names of their representatives. For all individuals, use at least the first initial and last name.
5	Planning Section <ul style="list-style-type: none"> • Chief • Deputy • Resources Unit • Situation Unit • Documentation Unit • Demobilization Unit • Technical Specialists 	Enter the name of the Planning Section Chief, Deputy, and Unit Leaders after each position title. List Technical Specialists with an indication of specialty. If there is a shift change during the specified operational period, list both names, separated by a slash. For all individuals, use at least the first initial and last name.

Block Number	Block Title	Instructions
6	Logistics Section <ul style="list-style-type: none"> • Chief • Deputy Support Branch <ul style="list-style-type: none"> • Director • Supply Unit • Facilities Unit • Ground Support Unit Service Branch <ul style="list-style-type: none"> • Director • Communications Unit • Medical Unit • Food Unit 	<p>Enter the name of the Logistics Section Chief, Deputy, Branch Directors, and Unit Leaders after each position title.</p> <p>If there is a shift change during the specified operational period, list both names, separated by a slash.</p> <p>For all individuals, use at least the first initial and last name.</p>
7	Operations Section <ul style="list-style-type: none"> • Chief • Deputy • Staging Area Branch <ul style="list-style-type: none"> • Branch Director • Deputy • Division/Group Air Operations Branch <ul style="list-style-type: none"> • Air Operations Branch Director 	<p>Enter the name of the Operations Section Chief, Deputy, Branch Director(s), Deputies, and personnel staffing each of the listed positions. For Divisions/Groups, enter the Division/Group identifier in the left column and the individual's name in the right column.</p> <p>Branches and Divisions/Groups may be named for functionality or by geography. For Divisions/Groups, indicate Division/Group Supervisor. Use an additional page if more than three Branches are activated.</p> <p>If there is a shift change during the specified operational period, list both names, separated by a slash.</p> <p>For all individuals, use at least the first initial and last name.</p>
8	Finance/Administration Section <ul style="list-style-type: none"> • Chief • Deputy • Time Unit • Procurement Unit • Compensation/Claims Unit • Cost Unit 	<p>Enter the name of the Finance/Administration Section Chief, Deputy, and Unit Leaders after each position title.</p> <p>If there is a shift change during the specified operational period, list both names, separated by a slash.</p> <p>For all individuals, use at least the first initial and last name.</p>
9	Prepared by <ul style="list-style-type: none"> • Name • Position/Title • Signature • Date/Time 	<p>Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).</p>

ASSIGNMENT LIST (ICS 204)

1. Incident Name:		2. Operational Period: Date From: _____ Date To: _____ Time From: _____ Time To: _____		3. Branch: Division: Group: Staging Area:	
4. Operations Personnel: Name _____ Contact Number(s) _____ Operations Section Chief: _____ Branch Director: _____ Division/Group Supervisor: _____					
5. Resources Assigned:		# of Persons	Contact (e.g., phone, pager, radio frequency, etc.)	Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information	
Resource Identifier	Leader				
6. Work Assignments:					
7. Special Instructions:					
8. Communications (radio and/or phone contact numbers needed for this assignment): Name/Function _____ Primary Contact: indicate cell, pager, or radio (frequency/system/channel) _____ _____/_____ _____/_____ _____/_____ _____/_____					
9. Prepared by: Name: _____ Position/Title: _____ Signature: _____					
ICS 204	IAP Page _____	Date/Time: _____			

ICS 204

Assignment List

Purpose. The Assignment List(s) (ICS 204) informs Division and Group supervisors of incident assignments. Once the Command and General Staffs agree to the assignments, the assignment information is given to the appropriate Divisions and Groups.

Preparation. The ICS 204 is normally prepared by the Resources Unit, using guidance from the Incident Objectives (ICS 202), Operational Planning Worksheet (ICS 215), and the Operations Section Chief. It must be approved by the Incident Commander, but may be reviewed and initialed by the Planning Section Chief and Operations Section Chief as well.

Distribution. The ICS 204 is duplicated and attached to the ICS 202 and given to all recipients as part of the Incident Action Plan (IAP). In some cases, assignments may be communicated via radio/telephone/fax. All completed original forms must be given to the Documentation Unit.

Notes:

- The ICS 204 details assignments at Division and Group levels and is part of the IAP.
- Multiple pages/copies can be used if needed.
- If additional pages are needed, use a blank ICS 204 and repaginate as needed.

Block Number	Block Title	Instructions
1	Incident Name	Enter the name assigned to the incident.
2	Operational Period <ul style="list-style-type: none"> • Date and Time From • Date and Time To 	Enter the start date (month/day/year) and time (using the 24-hour clock) and end date and time for the operational period to which the form applies.
3	Branch Division Group Staging Area	This block is for use in a large IAP for reference only. Write the alphanumeric abbreviation for the Branch, Division, Group, and Staging Area (e.g., "Branch 1," "Division D," "Group 1A") in large letters for easy referencing.
4	Operations Personnel <ul style="list-style-type: none"> • Name, Contact Number(s) <ul style="list-style-type: none"> – Operations Section Chief – Branch Director – Division/Group Supervisor 	Enter the name and contact numbers of the Operations Section Chief, applicable Branch Director(s), and Division/Group Supervisor(s).
5	Resources Assigned	Enter the following information about the resources assigned to the Division or Group for this period:
	<ul style="list-style-type: none"> • Resource Identifier 	The identifier is a unique way to identify a resource (e.g., ENG-13, IA-SCC-413). If the resource has been ordered but no identification has been received, use TBD (to be determined).
	<ul style="list-style-type: none"> • Leader 	Enter resource leader's name.
	<ul style="list-style-type: none"> • # of Persons 	Enter total number of persons for the resource assigned, including the leader.
	<ul style="list-style-type: none"> • Contact (e.g., phone, pager, radio frequency, etc.) 	Enter primary means of contacting the leader or contact person (e.g., radio, phone, pager, etc.). Be sure to include the area code when listing a phone number.
5 (continued)	<ul style="list-style-type: none"> • Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information 	Provide special notes or directions specific to this resource. If required, add notes to indicate: (1) specific location/time where the resource should report or be dropped off/picked up; (2) special equipment and supplies that will be used or needed; (3) whether or not the resource received briefings; (4) transportation needs; or (5) other information.
6	Work Assignments	Provide a statement of the tactical objectives to be achieved within the operational period by personnel assigned to this Division or Group.
7	Special Instructions	Enter a statement noting any safety problems, specific precautions to be exercised, dropoff or pickup points, or other important information.

Block Number	Block Title	Instructions
8	Communications (radio and/or phone contact numbers needed for this assignment) <ul style="list-style-type: none"> Name/Function Primary Contact: indicate cell, pager, or radio (frequency/system/channel) 	<p>Enter specific communications information (including emergency numbers) for this Branch/Division/Group.</p> <p>If radios are being used, enter function (command, tactical, support, etc.), frequency, system, and channel from the Incident Radio Communications Plan (ICS 205).</p> <p>Phone and pager numbers should include the area code and any satellite phone specifics.</p> <p>In light of potential IAP distribution, use sensitivity when including cell phone number.</p> <p>Add a secondary contact (phone number or radio) if needed.</p>
9	Prepared by <ul style="list-style-type: none"> Name Position/Title Signature Date/Time 	<p>Enter the name, ICS position, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).</p>