



MICHIGAN DEPARTMENT OF NATURAL RESOURCES
Wildlife Division Report No. 3582
March 2014

After-Action Report

European Frog-bit Early Detection Rapid Response An Evaluation of the Incident Command System for Aquatic Invasive Plant Response

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EXECUTIVE SUMMARY

Two new reports of the invasive species European frog-bit (*Hydrocharis morsus-ranae*) were received during the summer of 2013 by the Department of Natural Resources, Wildlife Division. As part of an Early Detection Rapid Response program, these reports were verified and evaluated. Due to their locations and to the species' potential to cause significant harm to wildlife resources, these reports became a high priority for response efforts.

Meetings with several state and regional partners were held to discuss response options. Following many internal and external discussions, and with Division management support, it was determined that invoking the Incident Command System (ICS) was an appropriate course of action for responding to these new infestations.

Command authority was established August 2013, and an Incident Commander and subsequent Command, General, and Advisory staff were appointed. An initial briefing was held, where formal objectives and operational periods were established. All subsequent response planning and implementation for these locations was conducted through the standard ICS processes. In October 2013, upon conclusion of this first year of response activity, the ICS was demobilized, and this after action report was developed.

The use of the Incident Command System during those efforts proved to be beneficial, by defining roles and responsibilities, establishing an adaptive management framework for response actions, and ensuring a formal review of activities. The system is flexible, both in scope and scale, and this recent experience suggests it is a tool with potential to increase the effectiveness of a variety of future response activities.

INTRODUCTION

The most effective and efficient means of reducing the impact of invasive species beyond prevention is to respond efficiently to new invasions or new outlier populations of invasive species. Experience shows even the best prevention program cannot keep all invasive species out, but a program that responds quickly, uses cost-effective methods, and engages key stakeholders in planning and control actions will minimize the threat of invasions impacting the natural resources of Michigan.

The Michigan Department of Natural Resources, Wildlife Division (WLD) is currently leading a federal grant-funded project focused on aquatic invasive plants. The first goal of this project is to help develop a state-wide Early Detection Rapid Response (EDRR) program. Some of this work has been accomplished through revision and implementation of the Michigan Aquatic Invasive Species State Management Plan (AIS SMP). Efforts to revise and implement the AIS SMP, funded through a separate, but collaborative grant, have been led by the State of Michigan Aquatic Invasive Species Core Team, which is chaired by the Michigan Department of Environmental Quality (DEQ), and includes staff from Michigan's Departments of Agriculture and Rural Development (MDARD), Transportation (MDOT), and Natural Resources (DNR). Within the recently revised AIS SMP, a framework for an EDRR program was developed and described (Figure 1, Appendix 1 excerpt only). Additional efforts to implement the AIS SMP resulted in additional tools which were used throughout the response effort described in this report. These tools include: the Invasive Species Contact Table; Invasive Species Watch List; and the Response Plan for Aquatic Invasive Species in Michigan (Appendix 2). Additional support to establish the current EDRR program has come from the Michigan Natural Features Inventory (MNFI), Michigan State University, and many other partners.

The second goal of this grant project is to initiate management actions to eradicate/control six to eight high threat aquatic invasive plant species in Michigan. Six species are listed specifically in the grant due to low abundance previously reported by other survey projects. These field based efforts have been very useful in evaluating and expanding our capacity for EDRR, while reducing the negative impacts of several new high threat aquatic invasive plants.



Figure 1. EDRR Framework

The DNR WLD has been responding to new detections of aquatic invasive species as part of this grant project since July 2011. To date, WLD has responded to over 300 new reports, surveyed 159 locations, (with 61 unique detections), and treated 21 priority sites. Adapting and using the Incident Command System (ICS) as a tool to help respond to AIS detections was another goal of this project. The reports of European frog-bit in Alpena and Chippewa Counties in summer 2013 proved to be an appropriate opportunity for invoking and evaluating the use of ICS.

This after action report is a direct product of the ICS and demonstrates where this system was advantageous to our response efforts, and where future efforts may be improved. A separate, final project report will summarize all of the activities conducted during the EDRR grant project, while **this report specifically examines the use of ICS in this unique scenario.**

RESPONSE SUMMARY

In June and July, 2013, two separate reports were received by EDRR program staff regarding potential European frog-bit infestations. The first report was received from Oregon State University researchers who were working in Munuscong Bay, in Chippewa County. The second report was received from Michigan State University Extension staff who noticed the species while vacationing at a park in Alpena County. Following the standard framework of the EDRR program, these reports followed a chain of decision making processes outlined in the Response Plan for Aquatic Invasive Species.

European frog-bit is a “watch-list” species in Michigan, and is also a target species for the EDRR grant project. Recent surveillance has shown moderate levels of European frog-bit distribution in the southeastern Lower Peninsula. These two new reports represent the northern-most known occurrences of this species in Michigan, and are considered likely outlier populations. All of these factors made these reports a high priority for the EDRR program.

The sources of each report exceeded our minimum standards for confident species verification. Both sources had extensive experience identifying aquatic plant species, and the additional data and photos which were provided supported that determination.

Initial evaluation of the reports began immediately (late June through July). This involved email and phone correspondence with the sources of the reports, and with local biologists and partners. Through these efforts we were able to determine land ownership and land use; site accessibility; additional data points (other nearby locations); and local contacts and partners. Based on all the available information both sites were determined to be candidates for response.

On August 5, 2013 a meeting was held in Lansing to review the assessment progress, and to discuss potential response options. The meeting included staff from the DNR, DEQ, and MNFI. Topics that were discussed included: site access; personnel availability; proper timing of response; equipment needs; established protocols; permitting requirements; and any additional available data. The use of the Incident Command System was also discussed at this meeting, with an explanation of the use of the ICS provided by DNR Forest Resources Division staff.

On August 7, 2013 a meeting with EDRR staff was held in Lansing, to determine whether or not to recommend invoking ICS, and if invoked, whether to include additional ongoing program activities into ICS, whether to have separate ICS for each location, who should be involved in ICS, and at what level within the Department should command be set. It was agreed that ICS should be recommended, including both

response locations under one system and excluding other ongoing response activities (e.g., those occurring in southeast Michigan). It was also agreed the primary participants in ICS should consist of EDRR staff, and that command would be assumed from within those ranks. These recommendations were supported by WLD management, and the ICS response was formally initiated.

Upon invoking ICS, EDRR program staff discussed and appointed an Incident Commander (IC) and subsequent Command Staff (CS), General Staff (GS) and Advisory Staff (AS). The decision was made to keep the initial ICS limited in size, with the option of expanding in the future, if deemed necessary. It was also agreed that multiple positions could be filled by the same individual. The ICS roles were filled based upon relevant areas of expertise and task specific experience (Figure 2).

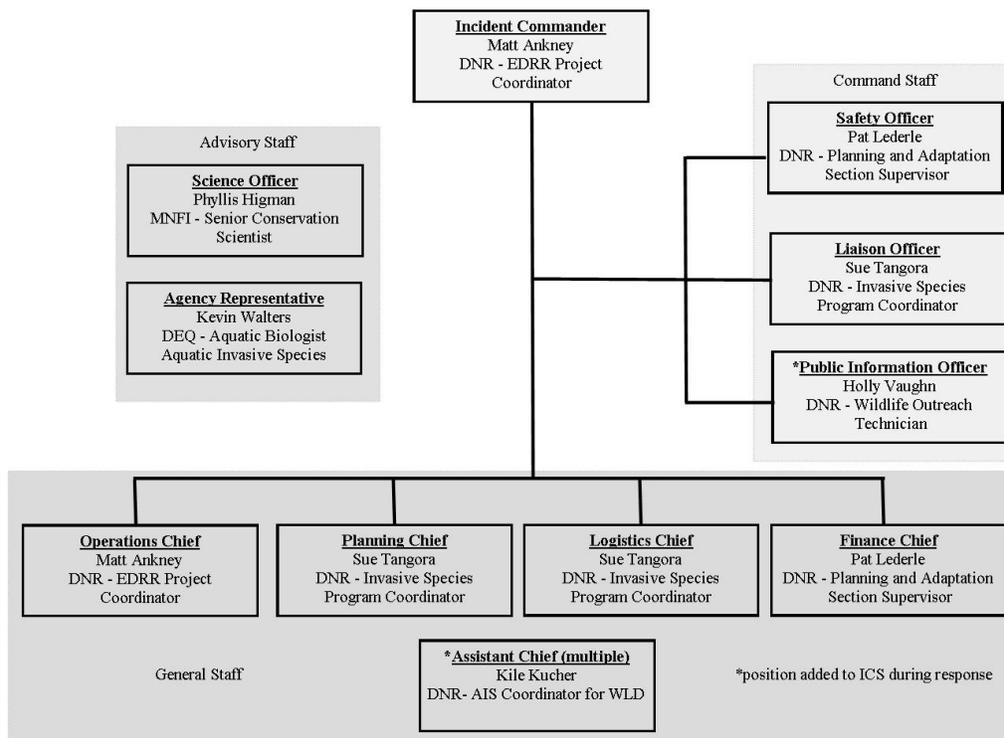


Figure 2: ICS Command (right), Advisory (left) and General (bottom) Staff.

In addition to the CS, AS, and GS, two strike teams also were established. These strike teams consisted of short-term staff currently assisting with the EDRR program. The strike teams were not involved with the weekly briefings, but were involved regularly throughout each operational period. The strike teams worked under the direction of the General Staff, and reported to the respective Chiefs based upon their assigned tasks.

Command staff also met with the DNR Public Information Officer, and WLD Public Outreach and Education Unit Manager. The purpose of this meeting was to brief communications staff on the response effort, develop a general communications strategy, and to select an appropriate staff member to act as ICS Public Information

Officer (PIO) when appropriate. The PIO was assigned and briefed, but was not “activated” until late in the response efforts, when a press release was developed.

After reviewing the ICS “Planning P” (Figure 3), the first actions were development of objectives and preparation of an incident briefing. To accomplish these goals, the IC reviewed information available at the federal [ICS Resource website](#). Standard ICS forms used to track activities and other ICS efforts were reviewed for applicability, and adopted as appropriate. From the twenty one available forms, five were chosen for use due to their perceived applicability to our standard response parameters. The following forms are available for review as Appendices 3 – 7, respectively; Form 201 Incident Briefing: Form 202 Incident Objectives: Form 205A Communications List: Form 214 Activity Log: and Form 215 Operations Planning Worksheet.

Form 201 and 202 were completed and distributed to all ICS members. These forms detailed objectives and goals, general health and safety information, current and planned actions, strategies and tactics, the organizational structure, and a summary of available resources. Form 205A was completed and distributed to provide contact information for all ICS members. Forms 214 and 215 were used throughout the response process for tracking activities and planning upcoming operations.

Once these components were in place, operational periods were established. Weekly operational periods were chosen, initiated each Friday afternoon with two hour conference calls with CS, GS, and AS all participating. The first half of the call was dedicated to operations briefing, with status updates from the previous operational period. The second hour was used for assessing progress and setting tasks and actions for the next operational period. Notes from these meetings were captured by the Planning Chief, and were distributed to the ICS as a weekly updated Incident Action Plan (IAP).

Other *ad hoc* briefings and meetings took place, as needed, throughout the operational periods, primarily planning and tactics discussions between the Planning and Operations Chiefs. With this new formal structure and schedule in place, response planning and implementation was conducted in weekly cycles, and ICS efforts were formally concluded on October 11, 2013.

Throughout the weekly operational periods, ICS staff served a broad variety of functions. The following information is a general recap of the roles and responsibilities for each of the ICS staff (many of these functions were collaborative in nature, but primary leads are listed for each task).

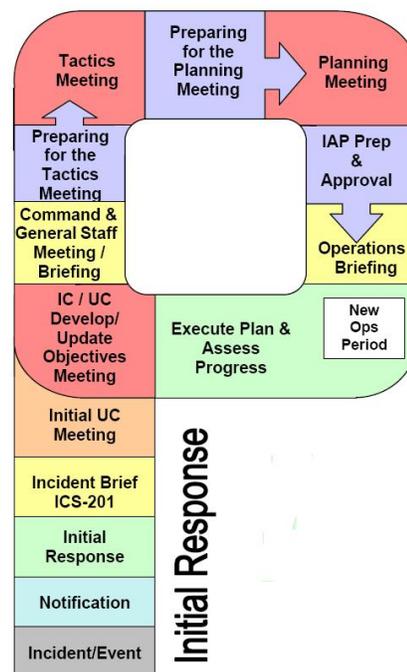


Figure 3: ICS “Planning P”

Incident Commander: Prepared briefings, established and updated objectives, selected ICS forms for use, established ICS organizational chart, lead efforts for command center establishment, oversaw general progress.

Safety Officer: Provided general safety guidelines, coordinated with regional staff for emergency preparedness, adapted safety messages as needed.

Liaison Officer: Provided updates to regional staff and local partners, gathered information from regional staff and local partners.

Public Information Officer: Developed press release regarding response efforts, worked with media to respond to requests for additional information.

Science Officer: Assisted with review of response options (herbicide and mechanical), assisted with review of local threatened and endangered species information, and assisted with plant identification.

Agency Representative: Provided information regarding permit requirements for response options, provided updates to/from DEQ.

Operations Chief: Directed response activities, helped develop and implement tactics, assisted with planning and logistics.

Planning Chief: Recorded and disseminated briefing notes (as weekly IAP), coordinated weekly response activities with local partners and regional staff, established time table for weekly activities.

Logistics Chief: Directed inventory management and resource procurement, established assembly areas for response mobilization, coordinated travel requirements (hotels, vehicles, etc.).

Finance Chief: Reviewed available funding levels, briefed Division finance staff on ICS process, established expedited procurement process.

Assistant Chief (multiple roles): Assisted with review of response options (herbicide and mechanical), assisted with threatened and endangered species information, and assisted General Staff with various tasks.

Strike Teams (2): Conducted additional on-site assessments, served as “first responders” during removal efforts in the field, helped establish local contacts and begin mobilization at on site assembly areas, assisted command staff with various tasks.

DISCUSSION OF USING THE ICS APPROACH

Strengths

The explicit roles and responsibilities of ICS allowed for consistent decision making and allowed individual staff to focus on specific tasks as they related to the broader response objectives. While some of the ICS roles and responsibilities paralleled the existing relationships between staff involved, having clear assignments during this response helped to separate areas that may otherwise overlap, or may not be addressed thoroughly during our standard response efforts.

The “Planning P” concept of ICS establishes an adaptive management framework based on cyclical operational periods. During the planning and implementation stages of response efforts, this process required continual assessment of our progress and assignment of new tasks accordingly. As unexpected issues emerged during each operational period, there was always an opportunity to have these issues addressed by the ICS staff during the weekly briefing. Further, the response activities that were conducted at the first location in Munuscong Bay provided critical feedback in preparing for the second response effort in Alpena. The effectiveness of our planning process, and more significantly, the efficiency of our operations seemingly increased from each operational period to the next.

A weakness typically reported in ICS is communications. During this response, however, the frequency and structure of the operational periods and briefings, combined with the relatively small ICS staff, improved our communications when compared with our standard (non ICS) response activities. In addition to improving internal communications, the assignment of a dedicated Liaison Officer also helped to increase our communications with regional staff and with local partners. While some of this increase in communication may be due to additional staff assisting with these response activities, the ICS framework promoted frequent and focused discussion among all staff involved and improved the actual response.

From an organizational standpoint, the forms used during this response provided easy collection and standardization of critical information. The role of Logistics Officer was especially helpful in maintaining a list of available and needed resources. By working with the Finance Officer, procuring needed resources was timely and efficient. Tracking equipment and resources as they were mobilized to multiple locations was very important, and would have been much more challenging following our typical response procedures. Conducting response activities on two separate sites outside of our typical work area, combined with the many variables at each location, and the short turn-around time from initial reports to on-the-ground response, would likely not have been feasible without this formal structure in place.

An additional strength of the Incident Command System was its flexibility. Being able to expand and contract the ICS throughout our response provided opportunities to increase our effectiveness and efficiency, respectively. For example, after our initial discussions with internal communications staff, a Public Information Officer was added

towards the end of response activities, in order to help create a press release to provide an update to the general public. While communication was necessary throughout the entire response process, the majority of those tasks fell into existing roles and responsibilities (i.e. liaison officer and agency representative). When the need for specific assistance in creating a press release was needed, the position had been assigned, but not yet activated, so this process occurred very seamlessly.

Weaknesses

A clearly designated and recognized level of command authority is critical to ICS function. In this case, the Incident Commander and assigned staff were provided significant autonomy by WLD management. However, it would have been prudent for the IC to provide the Incident Briefing to management, and to request having it distributed to all WLD. This would have provided appropriate background material; raised general awareness with any potentially affected staff, and would help to avoid any potential confusion regarding the newly assigned responsibilities. During this response to European frog-bit, those issues did not prove to be problematic, however, in future ICS scenarios, this should be considered as a potential obstacle, which can be easily avoided.

Staff involved had a variable degree of experience and expertise with ICS. A few staff had previous training and real-world experience with ICS, while others had very limited or no previous experience or training. In general, this issue became less burdensome once basic functions were explained and appropriate forms were understood. The descriptions of ICS processes and of roles and responsibilities, which were made available through the *Response Plan*, also helped to provide a basic working knowledge of ICS to all staff involved. This knowledge and experience gap was anticipated, and was cited as an additional reason to use ICS, in hopes to further understand and ultimately strengthen capacity for other response scenarios.

An issue that was recognized during our response efforts was a lack of a true command center. While most resources and equipment were located in one location, staff was stationed at multiple sites. The ability to mobilize resources and equipment was not problematic, nor were standard communications among staff due to existing teleconferencing capabilities. The main constraint was a lack of a central repository for shareable data and documents. Email and network drives that are the typical option for data and document sharing provided some function, however, the bulk of email that is already received, and the lack of network access for project partners, made these less than ideal options. Efforts were made to develop a "virtual command center," where information could be shared by anyone that was granted access by ICS command. The first option which was examined was to develop a web-based site through the State of Michigan domain. However, due to extreme logistical constraints, this option was quickly dismissed. Discussion with outside partners suggest that in the future, setting up a web based command center through a separate domain may be feasible, and would allow for easier sharing of data and documents for all parties involved. This would very likely be a critical improvement for future response efforts.

Recommendations

The Incident Command System often comes with preconceived perceptions of complexity and rigidity. Through our recent experience, however, the simplicity and flexibility of ICS seemingly proved to be its greatest value. The basic management principles on which ICS is founded allow for easy adaptation to a great variety of scenarios. Defined command authority, clear roles and responsibilities, a focus on progress assessment and adaptive management, and a consistent level of open communication, are all important components of any effective management system. The Incident Command System is a valuable tool and worked very well for the response activities described above.

Training available to staff through the National Incident Management System website is a valuable way to get basic knowledge of ICS concepts. However, using ICS in real world scenarios provides a much greater understanding of the actual processes involved, and a true working knowledge of the system in action. Future ICS activities, mock or real, would help establish greater Division-wide capacity for future response efforts. In lieu of potential emergencies, as staff become more familiar and comfortable with ICS, there may be other opportunities when it could be a preferred management system for specific activities.

ACKNOWLEDGEMENTS

The Early Detection and Rapid Response program, and the activities described throughout this report, have been funded through a grant from the US Environmental Protection Agency. This three year, \$1,000,000 grant is part of the Great Lakes Restoration Initiative, and was awarded to the DNR through a competitive application process (Grant #EPA R5-GL2010-1).

US Environmental Protection Agency
Great Lakes Restoration Initiative
Michigan Department of Environmental Quality
Michigan Department of Agriculture and Rural Development
Michigan Natural Features Inventory
Midwest Invasive Species Information Network
Michigan State University Extension
Oregon State University
Eastern Upper Peninsula Cooperative Weed Management Area
Alpena Wildlife Sanctuary
Michigan United Conservation Clubs
City of Alpena
Huron Pines

APPENDIX 1

(Excerpt from) [The State of Michigan Aquatic Invasive Species State Management Plan](#)

2.3 GOAL III – DEVELOP A STATEWIDE INTERAGENCY EDRR PROGRAM TO ADDRESS NEW INVASIONS OF AIS

The most effective and efficient means of reducing the effect of invasive species beyond prevention is to respond efficiently to new invasions or existing outlier populations of invasive species. Even the best prevention program cannot keep all invasive species out, but a program that responds quickly, uses cost-effective methods, and engages key stakeholders will minimize the threat of invasions affecting the waters of Michigan. The purpose of this section of the SMP is to highlight the necessary components for developing EDRR capacity for new AIS invasions within the State of Michigan. Objectives for this goal are listed at the end of this section. 43

2.3.1 Background and Current Status

Michigan initiated the process to create components of a rapid response system, with efforts focusing on a rapid response plan for Hydrilla. While extensive, the draft report was not finalized and questions remain on roles, responsibilities, and procedures to implement such a response (Hydrilla Task Force 2006).

Michigan has extensive biological monitoring programs that satisfy a variety of purposes (Dupre 2011). AIS may be detected through incidental observance during the course of these monitoring activities depending on level of crew training and knowledge. However, there are currently no statewide monitoring programs designed specifically to target AIS.

The MDNR's WLD received a GLRI grant (EPA R5-GL2010-1) in October 2010 for the development of an EDRR Program in Michigan. This three-year grant project provides funding for one full-time employee housed in the WLD that works in collaboration with partner agencies to define program standards, develop an EDRR framework, and then implement the strategic actions that are outlined in Section 3, Implementation Table. This grant project also provides funding to control and/or eradicate six aquatic invasive plant species that had been reported (but not confirmed) in Michigan. These species are: Flowering rush, Water lettuce, Water hyacinth, European frogbit, Brazilian elodea, and Parrot feather..

The following information highlights some of the current work that is underway as part of this project and outlines the framework that will be used to implement a newly created statewide EDRR Program that will be informed by the outputs from this project. In addition, any new EDRR activities will integrate with existing activities and plans including The Proposed Plan for the Prevention, Detection, Assessment, and Management of Asian Carps in Michigan Waters (MDNR 2012), and binational rapid response planning efforts that are under development by the IJC and other partners.

Michigan is addressing AIS early detection and response needs by conducting interdisciplinary, multijurisdictional training and by establishing the Midwest Invasive Species Information Network (MISIN). The MISIN database is led and managed by Michigan State University and captures, aggregates, and distributes invasive species data statewide to help direct monitoring efforts and alert resource managers to new detections. However, a comprehensive decision-support system, integration of current monitoring efforts, an adequately trained professional and volunteer work force, and a manual of best treatment techniques for new invaders are lacking. Additional resources are needed to develop these and to expand and maintain the MISIN, so that real-time, quality data can be uploaded to local, regional, and global databases to inform response activities.

Building upon Michigan's experience and tools developed from these initiatives and guided by the Draft Rapid Response Plan for Hydrilla, the MDNR and MDEQ, with input from partners, will build and implement an EDRR for aquatic invaders. The state agencies will work in conjunction with Michigan Natural Features Inventory (MNFI) to gather and use the best scientific data available to detect, assess, prioritize, survey, monitor, and treat high threat invasive species. This builds on an existing contract with MNFI to address terrestrial and wetland invaders in a strategic and cost-effective manner. This project

addresses shortcomings in the current program: (1) lack of focus on all aquatic invaders; (2) lack of resources; and (3) a program and process to implement rapid response efforts.

The EDRR plan will be designed to direct efforts towards the highest priority species and sites in Michigan using a defined decision-support framework. The process for determining priorities will continue to be refined but will ultimately focus on four goals: (1) treating all new high threat invaders; (2) closing vectors and pathways; (3) managing and controlling outliers of high threat invaders already established; and (4) taking advantage of available resources to successfully contain or eradicate high threat AIS. The MDNR's WLD will review the National Wildfire Coordinating Group's Basic Incident Command System (ICS) and other systems to help define an effective decision-support system for invasive species response in Michigan. The benefit of using a model similar to the ICS for complex response activities is that hundreds of state and nonprofit employees are already trained in this system.

After development of the decision-support framework that includes potential AIS responses, a mock rapid response exercise will test the effectiveness and completeness of the program. The exercise will identify gaps in knowledge, capability, and responsibilities. The EDRR plan should be evaluated annually and refinements continuously implemented to address gaps, shortfalls, and opportunities. Additionally, this project will build success by using prevailing monitoring protocols at strategic locations. This will ensure management and control activities are applied to the highest priority sites in Michigan.

Management and control efforts offer opportunities to engage and train stakeholders and the public about the EDRR. The MDNR's WLD will use AIS management efforts for training stakeholders, outreach to media outlets, and general project dissemination. The MDNR will demonstrate effectiveness of EDRR through treatments applied at 15 sites containing isolated populations of aquatic invasive plants.

Typically, invasive species control efforts in Michigan have been applied by a locally-driven network of resource managers who have the knowledge, motivation, and adequate resources to mount a sustainable effort against invasive species. This ground-up model supports decisions that treat invasive species in high quality habitats such as dunes, shoreline, coastal wetlands, and remnant natural communities or other locations such as a private landowner's lake or a township park. What the current model lacks is a comprehensive statewide evaluation of Michigan's new invaders and coordinated response mechanisms to contain, and in some cases, eradicate new invaders before they become widespread.

2.3.2 Program Structure

The following sections of the EDRR Program are intended to follow in sequential order. The duration of a response will vary depending on the unique circumstances presented by each event. It is important to note that even though these are chronological steps, many will overlap, and all steps should be considered throughout a response event (i.e., planning and communication are vital throughout the program, but have a separate, goal-specific step when responding to a new invader).

Surveillance

Establishing and maintaining a well-trained surveillance network is critical to early detection efforts. Observers need to be aware of current invasive species distribution, in addition to being able to recognize potential new invaders. While some observers in the surveillance network may have specific directives and/or projects focused specifically on invasive species, it is important to also take advantage of the many programs and projects that may indirectly encounter invasive species.

Accurate and timely reporting of any potential new sites of concern requires defined protocols and procedures for follow-up verification. A reporting system needs to be readily available to any potential observer and needs to provide immediate feedback to managers when new threats are suspected.

Verification

Newly reported AIS must be verified by a recognized expert. When possible and deemed necessary, samples should be verified by a second expert. Voucher specimens should be retained and stored properly for future analysis.

Assessment

An on-site assessment of newly verified AIS must be conducted to determine the extent of infestation. An initial assessment should include, at a minimum: population estimate/distribution, potential for establishment, pathways that lead to introduction, pathways that could further disperse the population, potential short-term and long-term effects, and site accessibility for potential treatment options.

Planning and Communication

Following an accurate assessment, a response plan must be developed in conjunction with or shared with relevant stakeholders and partners, depending on the scenario. A response plan must have inherent flexibility in order to accommodate circumstances that may be difficult to predict or control. There may be little or no information available for newly introduced invasive species that relates to a particular situation (i.e., treatment and control strategies), so preparing multiple strategies may be required.

Upon verification of an invasion and the assembly of a response team, an assigned lead agency will work with partners to develop a communications plan. The communications plan should consider providing information to the general public; local, state, and federal decision makers; project partners; and any others determined to be appropriate by the response team.

An important consideration in response plan development is funding, as the unpredictability of invasive species introduction and detection make budgeting this program difficult. In addition, as multiple agencies may at times be involved, funding a response could become collaborative, but also more complex or constrained.

Implementation

Due to the broad range of potential response plans that may be developed, general implementation principles need to be in place to allow for adaptive management practices. These principles will include sections that address environmental and economic effects, personal safety, public support/awareness, regulatory compliance, and other key areas as identified by the lead agency and team members. These general principles will also be applicable during the initial response planning and need to be in place prior to any future planning events.

During a rapid response event that is complex, involves multiple agencies or jurisdictions, and involves efforts outside of normal agency activities, the ICS format or elements of the ICS may be used. From the general ICS principles, the corresponding officer will develop event-specific guidelines, as needed.

Monitoring of Response Activity

A site-specific monitoring program must also be developed as part of a response plan. The duration, scope, and intensity of the monitoring program will need to be compatible with the specific treatment actions taken (if any), and may also be limited by available funding. Monitoring efforts should be tasked during planning, with specific timelines established for reporting to the response team.

Monitoring programs should be standardized to allow for multiple groups to work on the same site at different times, if necessary. A predetermined set of terms and metrics that provide accurate and useful data for decision-makers needs to be agreed upon by the partners involved.

Since an adequate monitoring program may likely exist over several years, the ICS will not serve this stage of the response effectively. As such, maintaining a working relationship between the response team members will be especially important during this stage.

Finalize EDRR Plans and Maintain Preparedness

Developing and maintaining an active EDRR Program will require consistent cooperation and coordination between partner agencies, as well as volunteers, NGOs, and all other available stakeholders. Public outreach and education, regular staff training, and a general heightened social awareness of the importance of EDRR are critical to the success of the program. Once the program has been fully implemented, long-term funding and public support will need to be acquired in order to carry on the work of the current grant project.

The objectives and strategic actions that apply to Goal III: Develop a statewide interagency EDRR Program to address new invasions of AIS are presented in Section 3, Implementation Table.



**Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE**

Original Effective Date: February 3, 2014	Subject: Response Plan for Aquatic Invasive Species in Michigan	
	Revised Date:	Number: QOL-1-2014 Page 1 of 10

A Quality of Life (QOL) Policy and Procedure cannot establish regulatory requirements for parties outside of the QOL. This document provides direction to QOL staff regarding the implementation of rules and laws administered by the QOL. It is merely explanatory; does not affect the rights of, or procedures and practices available to, the public; and does not have the force and effect of law.

INTRODUCTION:

The most effective and efficient means of reducing the effect of invasive species beyond prevention is to respond rapidly, prudently, and efficiently to new invasions or existing outlier populations of invasive species. Even the best prevention program cannot keep all invasive species out, but a program that responds prudently, uses cost-effective methods, relies on science-based decision-making, and engages key stakeholders will help minimize the threat of invasions negatively affecting the waters of Michigan.

This response plan for aquatic invasive species (AIS) is an internal, interagency decision support tool for the Michigan Department of Environmental Quality (MDEQ), Michigan Department of Natural Resources (MDNR), and Michigan Department of Agriculture and Rural Development (MDARD). This plan outlines the steps to follow after receiving a report of an AIS and serves as a guide for determining when a response is appropriate and what type of response should be considered. The plan has varying degrees of application, relevance, and utility, depending upon the details of a particular invasion or report.

ACKNOWLEDGEMENTS:

This policy and procedure was produced by the State of Michigan's AIS Core Team (see below) and was heavily influenced and guided by similar AIS response plans from the Invasive Species Council of Pennsylvania and the Ohio Department of Natural Resources' Division of Wildlife.

AUTHORITY:

Communication and collaboration with pertinent agency staff, management, stakeholder, and other groups is critical throughout the plan and should be carefully considered during each action. Michigan has established an AIS Core Team composed of representatives from each of the state agencies with environmental or natural resource responsibilities: MDEQ's Water Resources Division and Office of the Great Lakes; MDNR's Fisheries Division, Wildlife Division, Parks and Recreation Division, Forest Resources Division, and Law Enforcement Division; MDARD's Pesticide and Plant Pest Management Division and Animal Industry Division; and the Michigan Department of Transportation's Project Planning Division. The AIS Core Team should

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
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POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 2 of 10

be kept informed of new reports of AIS and subsequent action, or nonaction, as a result of this response plan.

In general, the MDEQ, MDNR, and MDARD share responsibility for AIS policy, legislation, regulation, education, monitoring, assessment, management, and control. In the event of a newly-identified AIS in Michigan waters, the departments will work together to identify a lead agency depending on the taxa of concern, the location of the issue, and existing agency authority.

The MDNR is responsible for conserving, protecting, and managing the use and enjoyment of the state's natural resources with a focus on fisheries, wildlife, parks and recreation, forests, mineral and fire management, land and facilities, and law enforcement. In particular, the MDNR's Fisheries and Wildlife Divisions are currently involved in response activities for Bighead carp (*Hypophthalmichthys nobilis*), Silver carp (*H. molitrix*), Sea lamprey (*Petromyzon marinus*), and several priority invasive aquatic plants, respectively. MDNR's Forest Resources Division actively works to prevent and control invasions of non-native insects and diseases, such as emerald ash borer and beech bark disease that impact forest resources and habitat.

The MDARD protects the food, agricultural, environmental, and economic interests of the citizens of Michigan and is positioned to provide expertise on emergency response, as well as invasive aquatic plants and organisms in trade.

The MDEQ is responsible for protecting and sustaining the health of the state's citizens and natural resources. Within the MDEQ, the Water Resources Division is responsible for coordinating the implementation of Michigan's AIS State Management Plan. The MDEQ also houses the Office of the Great Lakes, which has lead responsibility for the state's role in the development of interjurisdictional policies, programs, and initiatives affecting the water and related natural resources of the Great Lakes-St. Lawrence River Basin. The Office of the Great Lakes is a primary point of contact for many regional Great Lakes' entities.

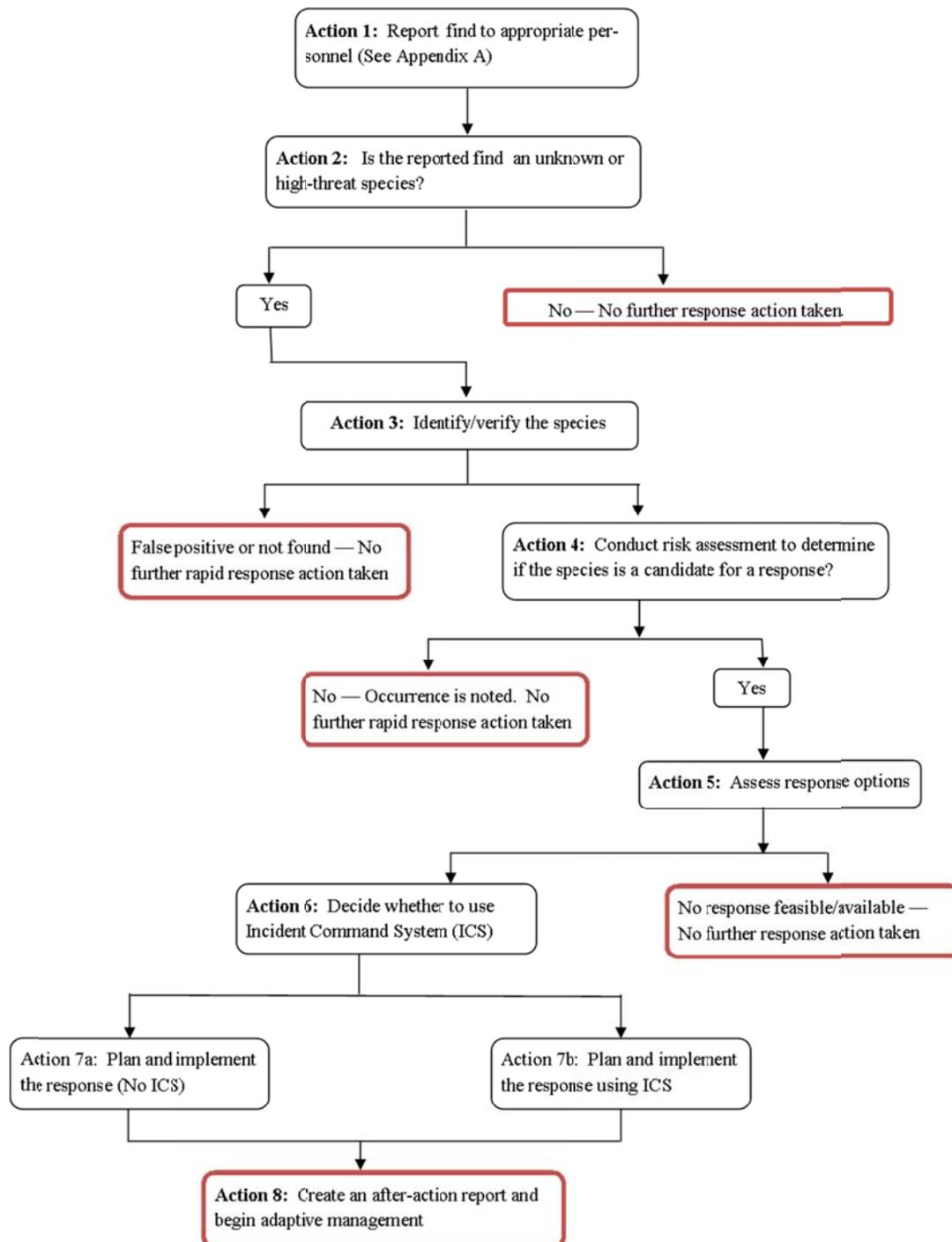
POLICY:

The MDEQ, MDNR, and MDARD will coordinate response to AIS threats while operating under existing authorities and areas of expertise.

PROCEDURES:

The response action steps given below and diagrammed in Figure 1 should be followed chronologically, but the process may end at varying points depending upon the details of each specific situation. In addition, this plan is designed to complement and be used in conjunction with other existing response plans (e.g., Michigan's AIS State Management Plan, Michigan's Asian Carp Management Plan, and the Asian Carp Binational Rapid Response Plan). The response flowchart (Figure 1) is intended to accompany the narrative section of the response plan, below, but can also be used as a summary/overview of the response plan actions. Action 1 commences upon receiving a report of an AIS.

Figure 1: AIS Response Flow



Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 4 of 10

Action 1: *Report finding of invasive species to appropriate personnel*

Reports of invasive species come from a wide variety of sources, including the general public, partner organizations, and state agencies. The agency receiving the report will record the information listed below on the *Invasive Species Reporting Work Sheet* (Appendix A) and, if necessary, use Appendix B, *Contacts for Invasive Species Information in Michigan* (also online at www.michigan.gov/invasivespecies), to direct the report to the proper state agency staff. Transferred reports of high-priority species (Appendix C) should be confirmed as having been received by appropriate staff to ensure timely response and so that the information is not inadvertently lost.

The following information should be recorded by/from the person submitting a report of a new invasive species:

- Name and contact information (phone and e-mail) of reporter and/or data collector.
- Type of AIS being reported (e.g., fish, invertebrate, plant, etc.).
- Common and scientific name of species being reported (if known).
- Date of observation.
- Location of observation (water body, township, county, latitude/longitude, and any additional details), habitat, and environmental condition of the site.
- Photos, if available (photos are a priority for preliminary identification).
- Additional detailed information (e.g., approximate size, physical description, estimate percent cover for plants, living or preserved specimens obtained, etc.).

Action 2: *Is the report an unknown or high-threat species?*

When an AIS report is received, the appropriate staff (as determined from Action 1, above) uses his or her best professional judgment to determine threat level and priority. If any of the following high-threat priority species are reported from a credible source with an appropriate level of documentation (photos, detailed description, etc.), and species identification and verification (Action 3) is initiated:

- Silver carp (*Hypophthalmichthys molitrix*)
- Bighead carp (*Hypophthalmichthys nobilis*)
- Grass carp (*Ctenopharyngodon idella*)
- Northern snakehead (*Channa argus*)
- Red swamp crayfish (*Procambarus clarkia*)
- Parrot feather (*Myriophyllum aquaticum*)
- European frog-bit (*Hydracharis morsus-ranae*)
- Flowering rush (*Butomus umbellatus*)
- Brazilian elodea (*Egeria densa*)
- Hydrilla (*Hydrilla verticillata*)
- Water chestnut (*Eleocharis dulcis*)
- Water hyacinth (*Eichornia crassipes*)

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 5 of 10

- Water lettuce (*Pistia stratiotes*)
- Nutria (*Myocastor coypus*)
- Any unknown aquatic plant or animal

Note: If the reported species is for any of the three Asian carp species shown above (Silver, Bighead, Black, and/or Grass), Michigan's Asian Carp Management Plan¹ and status report² should be used in conjunction with this more generalized response plan.

High-threat/priority reports may also include invasive species that represent previously-known invasive species from Michigan but are also:

- Outlier populations/occurrences – invasive species that may already be present in Michigan, but are being reported in a unique, new regional location (e.g., first occurrence for the Upper Peninsula, etc.).
- Threats to rare and endangered native species and/or habitat.
- A leading edge of an expanding invasive species occurrence.

If the reported species does not meet the above criteria, no further response action is taken using this procedure. The outcome of this action should be reported back to the original person or entity that submitted the report. The report may be noted, recorded, or shared with other entities, as appropriate.

Action 3: Identify/verify the species

Once it has been determined that a report is for a high-threat priority species, the agency with jurisdictional authority and/or the appropriate personnel, as identified in Appendix B, will facilitate verification of the report and/or specimen. If the report includes tribal lands, the appropriate department tribal coordinators need to be contacted. In some cases, Action 3 can occur in collaboration with the risk assessment in Action 4.

Newly-reported AIS must be verified by an expert who is recognized by the responding agency. When possible, and deemed necessary, specimens should be verified by a second expert and voucher specimens should be retained and stored properly for future analysis. A site visit may also be necessary for species identification/verification if a specimen or sufficient evidence was not provided. In some instances, the information provided from the initial report in Action 1 may be enough to properly identify a species and verify its existence. This is particularly true if a voucher specimen is provided by the original reporter. Proper permitting should be obtained for federal or state restricted and prohibited invasive species during this action.

¹ Clapp, D. F., J. L. Mistak, K. M. Smith, and M. A. Tonello. 2012a. Proposed 2010 plan for the prevention, detection, assessment, and management of Asian carps in Michigan waters. Michigan Department of Natural Resources, Fisheries Special Report 60, Lansing.

² Clapp, D. F., J. L. Mistak, K. M. Smith, and M. A. Tonello. 2012b. Status report for the proposed 2010 plan for the prevention, detection, assessment, and management of Asian carps in Michigan waters, April 2012. Michigan Department of Natural Resources, Fisheries Special Report 61, Lansing.

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 6 of 10

If the reported species is confirmed to be a native species (*false-positive* report), or a known occurrence of an AIS, then no further response action is taken. Similarly, if the species is unable to be found or located as reported, the responding agency may use its best professional judgment to end the response action or conduct a more thorough search. The report may be noted in a log to track common misidentifications and other reporting trends. Results from this action may be communicated to relevant partners and stakeholders, as appropriate.

Initial communication with key partners, stakeholders, and other appropriate entities should be considered during this action. For example, if the reported AIS has been verified to be an invasive plant species regulated under the federal noxious weed list or an injurious species regulated under the Lacey Act, Title 16 of the United States Code, §§ 3371-3378, as amended, the U.S. Department of Agriculture and/or the U.S. Fish and Wildlife Service should be notified. Entities with jurisdictional and/or management authority for the location of the infestation should also be considered for contact during this action. In some cases, property owners may need to be contacted for permission so that verification can occur. A press release or other public notification should also be considered after positive verification has occurred to facilitate additional detections, to aid in containment and limit the spread of the invasion, as well as to raise awareness about the issue.

Action 4: *Conduct risk assessment to determine if the species is a candidate for response*

Confirmation of a new occurrence of a high-threat priority AIS in the state or watershed will result in a risk assessment of the invasion and specific situation. In some cases, this process can occur in collaboration with Action 3, above. AIS reports being considered as part of this action are deemed to represent high-threat priority AIS. The specific details of a particular occurrence or invasion (magnitude, location, etc.) will inform the decision about whether a response is feasible and necessary. The risk assessment conducted as part of Action 4 is intended as an information gathering process to determine the potential environmental, economic, or human health threat, and evaluate if the AIS and the particular details of the occurrence make it a candidate for a response. There are some quantitative and concrete criteria that can be used for the assessment; however, best professional judgment of the circumstances will be used to determine if a response is appropriate to minimize threat.

The agency with jurisdictional authority and/or the appropriate personnel, with the assistance from other sources if needed, will conduct the risk assessment and record related details on the *Invasive Species Response Risk Assessment Work Sheet* (Appendix D). The following factors may be used:

- Is the species a new invasion to the state or to a geographic location within the state?
- Is the species known to cause significant impacts in its native range and/or is the species known to be invasive outside of its native range?
- Is there knowledge of the source of introduction and risk of reintroduction or further spread?
- Was the invasion detected early?
- Is the infestation small and localized?

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 7 of 10

- Can the species be quarantined/contained while control measures are planned and implemented?
- Is there acceptance that not responding will have serious impacts?
- Is the location public or directly connected to public resources (i.e., public land or water)?
- How quickly should a response occur?

Following the risk assessment, the invasion should be classified as either low-, high-, or unknown risk. If the outcome is low risk, the occurrence is noted but no further response action is taken using this plan. If the outcome is high or unknown risk, proceed to Action 5.

Results from this action may be communicated to relevant partners and stakeholders, per the discretion of the responding agency. Nearby property owners (individuals and/or associations), municipalities (city, township, or county), and other relevant parties should be considered. Many of these entities may be valuable resources for conducting the risk assessment and may be able to provide information that might not otherwise be available to the responding agency.

The lead responding agency should also consider a press release during this action to raise awareness for the issue and stay in front of misinformation, rumors, and general questions. The press release should include mention of the initial report, confirmation of species identification, biological information, and appropriate results from the risk assessment in Action 4. Lastly, the press release should also give a general description of the next steps ("assess response options," etc.) and provide a point of contact for questions and additional information.

Action 5: *Assess response options*

To determine the appropriate response options, previously-obtained scientific information on the species and the infestation will be used to evaluate response availability and feasibility. The agency with jurisdictional authority and/or the appropriate personnel, with the assistance from other sources, as appropriate, will assess the response options using best professional judgment. This assessment may include, but is not limited to, additional questions such as:

- Are known successful treatment/response options available?
- Are there serious environmental issues or regulatory hurdles that will lead to delays or greatly increase the cost of the response?
- Are there threatened or endangered species present?
- Is the AIS in a high-priority, natural community?
- Is the AIS in the vicinity of a public utility?
- Is the AIS on tribal lands? If yes, then appropriate tribal department coordinators should be contacted.
- Are there social or economic reasons to treat?
- Are there concerns with infrastructure or human safety?
- If permits are needed, can they be obtained in a timely manner?
- Is there a need for law enforcement or investigation associated with the infestation?
- What are the unintended or nontarget impacts of the response options?

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 8 of 10

- Does the response require multiple uses or long-term control?
- Is there adequate physical access to the site?
- Will permission be necessary and available from local landowners?
- What are the current funding conditions for response efforts?
- Can response efforts be conducted by agency staff or will response efforts require contract assistance (or both)?
- Are there opportunities for collaboration with stakeholders and partner agencies?
- Are there regulatory requirements for the management and disposal of any materials removed during a response?

While some response options are focused on eradication, it is important to also consider options such as biological control, monitoring, and education and outreach efforts. If eradication is not feasible or desirable, alternate options may be useful for preventing further spread of the AIS or raising awareness in other locations that could potentially become invaded. In some instances, no response may be feasible or available and, therefore, no further response action may be taken. The results of Action 5 should be shared with appropriate partners, federal agencies, local municipalities, property owners, and other relevant entities to ensure consistent and accurate sharing of information. Once the assessment of response options is complete, proceed to Action 6.

Action 6: *Decide whether to use an Incident Command System (ICS)*

The first step in planning a response is to determine if an ICS is appropriate. Certain response scenarios can benefit from a highly coordinated and structured format, such as an ICS. An ICS is a systematic tool used for the command, control, and coordination of emergency responses and is commonly used by federal and state agencies to respond to emergency events such as floods, fires, and other high-threat situations. See Appendix E for more details on an ICS and how to implement the system for AIS response.

As with many of the above actions, determining whether or not to use an ICS in a response to AIS is ultimately decided using best professional judgment. Specific factors to consider include:

- Are federal resources or federal agencies involved?
- Is the response jurisdictionally or operationally complex (multiple agencies involved, several levels of authorities, AIS invasion and response cross state/federal borders, etc.)?
- Is the response action outside of the “routine operations” of the responding agency?
- Is chemical control part of the response action?
- What is the scale of the response action (local, regional, statewide, etc.)?
- Is there a significant threat to public health and safety?

An AIS response that does NOT involve an ICS typically includes a response that is within routine operations of the lead responding agency and is jurisdictionally simple (only one agency has clear authority).

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 9 of 10

If an ICS will NOT be used for response planning and implementation, proceed to Action 7a. If an ICS will be used, proceed to Action 7b.

Action 7a: *Plan and implement the response (no ICS)*

This action involves the logistical and operational planning and implementation for the chosen response and is performed by the agency with jurisdictional authority and/or the appropriate personnel, with assistance from other sources, as appropriate. While Action 7a does not involve ICS protocols, some elements of an ICS may be used where applicable. For example, it may be beneficial to appoint an incident commander and a command team for decision-making.

In general, planning and implementing an AIS response without using an ICS should:

- Follow standard decision support and chain of command protocols of the lead responding agency.
- Follow standard lead responding agency policies for communication, safety, operations, logistics, equipment, personnel, and finance/spending.

The AIS Core Team should be notified of response planning and implementation. Additionally, communication should continue with any of the entities contacted during the previous actions to keep everyone updated and informed of progress. A second press release may be issued during this action to notify constituents and the general public of the response process and progress.

Once the response has been implemented, proceed to Action 8.

Action 7b: *Plan and implement the response using ICS*

This action uses the ICS to plan and ultimately implement a response. For more details about an AIS response involving an ICS, refer to Appendix E. The following are general steps/guidelines for an AIS response that involves an ICS:

Planning Phase:

- Appoint Incident Commander/Unified Command (IC/UC).
- IC/UC review of all previous information obtained during Actions 1-5.
- IC/UC refers to ICS flowchart to determine current status within the ICS "Planning P" (see Appendix E, Figure 2).
- Proceed as directed by IC/UC following the "Planning P" (appoint appropriate officers, etc.).
- Develop an Incident Action Plan (see Appendix E).

Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Department of Agriculture and Rural Development
POLICY AND PROCEDURE

Number: QOL-1-2014

Subject: Response Plan for Aquatic Invasive Species
in Michigan

Page 10 of 10

Implementation Phase:

- Carry out the Incident Action Plan (IAP) following the "Planning P" (see Appendix E).
- Follow policies developed by IC/UC and appropriate ICS officers.
- Follow protocols and procedures developed by, and under the direction of, IC/UC and appropriate ICS officers.

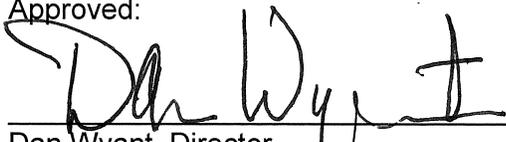
Once ICS response planning and implementation are complete, proceed to Action 8.

Action 8: *Create an after-action report and begin adaptive management*

An after-action report will be produced after each response to summarize and document the process from the initial report of the invasion through the conclusion of the response implementation. While a full after-action report is only needed for responses that continue beyond Action 4, other reports of AIS that end prior to Action 4 should still be documented for future reference and decision support.

Adaptive management is a process for continually improving management policies and practices by learning from the outcomes of operational programs. Adaptive management is crucially important to the implementation of a response to AIS. Ideally, adaptive management will include an evaluation of response effectiveness, mitigation and/or restoration of treatment areas, an assessment of reintroduction risks, and post-procedure monitoring. Additionally, education and outreach efforts should continue during the adaptive management phase of the response plan to help articulate/communicate outcomes of the response.

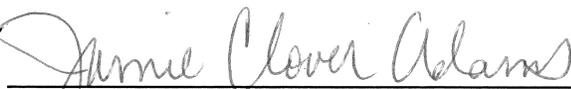
Approved:



Dan Wyant, Director
Michigan Department of Environmental Quality



Keith Creagh, Director
Michigan Department of Natural Resources



Jamie Clover Adams, Director
Michigan Department of Agriculture and Rural Development

Appendix A: Invasive Species Reporting Work Sheet



Quality of Life Group

Departments of Environmental Quality, Natural Resources, and Agriculture and Rural Development

Invasive Species Reporting Work Sheet

Reporter's Contact Information:

Name (first and last):

Phone:

E-mail:

Type of invasive species being reported (check one):

- Fish Invertebrate Aquatic Plant Terrestrial Plant
 Mammal Bird Unknown

Common name:

Scientific name (if known):

Physical description (approximate size, color, density, etc.):

Specimen obtained: Yes No

Date of observation:

Location of observation (county, township, and/or water body):

Coordinates (latitude/longitude):

Additional location details (habitat, environmental conditions, etc.):

Appendix B: Contacts for Invasive Species Information in Michigan

Aquatic Invasive Species	Contact	E-Mail and Phone
<p>Aquatic Invasive Species Program Questions on overall Aquatic Invasive Species Program and Michigan's Aquatic Invasive Species State Management Plan. www.michigan.gov/aquaticinvasives</p>	<p>Sarah LeSage AIS Program Coordinator Water Resources Division, MDEQ</p>	<p>lesages@michigan.gov 517-284-5472</p>
<p>Aquatic Invasive Plants General questions about aquatic plant identification and early detection, rapid response, and monitoring. www.michigan.gov/invasivespecies</p> <p><i>Chemical Control</i> - Questions on the chemical control of aquatic species, permitting, and submerged plant identification. www.michigan.gov/deqinlandlakes</p> <p><i>Mechanical Removal</i> - Questions about mowing and other forms of mechanical control, permitting, and Great Lakes shoreline management. www.michigan.gov/deqwetlands (follow "Information" to "Great Lakes Shoreline Management")</p> <p><i>Phragmites</i> - Questions about identification and the control of invasive phragmites. www.michigan.gov/aquaticinvasives</p>	<p>Matt Ankney Wildlife Biologist Wildlife Division, MDNR</p> <p>Aquatic Nuisance Control Program Staff Water Resources Division, MDEQ</p> <p>Anne Hokanson Coastal Wetland Ecologist Water Resources Division, MDEQ</p> <p>Kevin Walters Aquatic Biologist Water Resources Division, MDEQ</p>	<p>ankneym2@michigan.gov 517-641-4903, Ext. 260</p> <p>DEQ-WRD-ANC@michigan.gov 517-284-5593</p> <p>hokansona@michigan.gov 517-284-5535</p> <p>waltersk3@michigan.gov 517-284-5473</p>
<p>Aquatic Invasive Animals Questions about Asian carp identification, status in Michigan, Michigan's Asian Carp Management Plan, other fish (e.g., snakehead) and aquatic animals (e.g., crayfish). www.michigan.gov/asiancarp</p>	<p>Tom Goniea Fisheries Biologist Fisheries Division, MDNR</p>	<p>gonieat@michigan.gov 517-284-5825</p>
<p>Great Lakes Regional Coordination Questions on Great Lakes coordination, restoration, and management. www.michigan.gov/deqgreatlakes</p>	<p>Matt Preisser Lake Coordinator Office of the Great Lakes, MDEQ</p>	<p>preisserm@michigan.gov 517-284-5039</p>
<p>Ballast Water General questions on Michigan's ballast water program and Michigan's Section 401 certification. www.michigan.gov/aquaticinvasives</p> <p><i>Permits</i> - Questions on Michigan's ballast water permit and application. www.michigan.gov/deqnpdes</p> <p><i>Reporting</i> - Questions regarding the requirement for oceangoing vessels and nonoceangoing vessels to report compliance with ballast water management practices. www.mi.gov/ballastwaterprogram</p>	<p>Sarah LeSage AIS Program Coordinator Water Resources Division, MDEQ</p> <p>Sean Syts Permits Section Water Resources Division, MDEQ</p> <p>Roger Eberhardt Office of the Great Lakes, MDEQ</p>	<p>lesages@michigan.gov 517-284-5472</p> <p>syts@michigan.gov 517-284-5469</p> <p>eberhardtr@michigan.gov 517-284-5055</p>

Appendix B: Contacts for Invasive Species Information in Michigan

Page 2

<i>Terrestrial Invasive Species</i>	<i>Contact</i>	<i>E-Mail and Phone</i>
Terrestrial Invasive Plants, Mammals, and Birds Questions about identification, management, and control of terrestrial invasive species. www.michigan.gov/invasivespecies	Sue Tangora Wildlife Biologist Wildlife Division, MDNR	tangoras@michigan.gov 517-284-6223
Insects <i>Agricultural and Landscape Pests</i> - Questions about invasive species that impact agriculture and landscapes. MDARD Plant Pest Management <i>Forest Pests</i> - Questions about invasive insects, tree diseases, and invasive species impacts to forestry. www.michigan.gov/invasivespecies (follow "Invasive Species Links" to "Forest Pests")	Mike Bryan Pesticide and Plant Pest Management Division, MDARD Ron Murray Forest Resources Division, MDNR	bryanm@michigan.gov 517-284-5648 murrayr@michigan.gov 517-335-3353

<i>General (Aquatic and Terrestrial) Invasive Species</i>	<i>Contact</i>	<i>E-Mail and Phone</i>
Invasive Species Laws/Regulations Questions about Part 413, Transgenic and Nonnative Organisms, of the NREPA; prohibited and restricted species law, other regulations, species identification, and permits. www.michigan.gov/invasivespecies (follow "Invasive Species Laws" link)	<i>Plants and insects:</i> Mike Bryan Pesticide and Plant Pest Management Division, MDARD <i>All other species:</i> Tom Goniea Fisheries Biologist Fisheries Division, MDNR Steve Huff Law Enforcement Division, MDNR	bryanm@michigan.gov 517-284-5648 gonieat@michigan.gov 517-284-5825 huffs@michigan.gov 231-922-5280, Ext. 6804
State Parks and State-Administered Boat Launches Questions about invasive species and associated issues in state parks and at state-administered boat launches.	Alicia Ihnken Stewardship Analyst Parks and Recreation Division, MDNR	ihnkena@michigan.gov 517-284-6129
Enforcement To report invasive species law/regulation violations, please call the MDNR's Report All Poaching (RAP) Line.	RAP Line Law Enforcement Division, MDNR	1-800-292-7800
Disposal of Invasive Species Waste Materials Questions about regulatory requirements and disposal of invasive species materials from a response/control program.	Steve Sliver Office of Waste Management and Radiological Protection, MDEQ	slivers@michigan.gov 517-284-6595
Additional Information For general inquiries, or if none of the above contacts fit with your question.	Environmental Assistance Center, MDEQ	1-800-662-9278

Appendix C: Reporting Aquatic Invasive Species in Michigan

Aquatic Invasive Species “Watch List” (AIS that should be reported immediately and directly to staff)

The AIS on the watch list (categorized by taxa below) are priority species that have been identified as being an immediate and significant threat to Michigan’s natural resources. These species have either never been confirmed in Michigan or have very limited distribution. Early detection and timely reporting of these species is crucial for increasing the chances of stopping an invasion and limiting ecological and economic impacts. *Use the contacts listed below to report watch list species.*

Fish and other Aquatic Animals (except mammals)

- Asian carps
 - Silver carp (*Hypophthalmichthys molitrix*)
 - Bighead carp (*Hypophthalmichthys nobilis*)
 - Grass carp (*Ctenopharyngodon idella*)
- Northern snakehead (*Channa argus*)
- Red swamp crayfish (*Procambarus clarkia*)
- Any unknown fish or aquatic animal (e.g., other crayfish or mussel)

Report the species above to Tom Goniea, Fisheries Division, MDNR, gonieat@michigan.gov or 517-284-5825; or for Asian carp, report electronically at www.michigan.gov/asiancarp

Aquatic Plants

- Parrot feather (*Myriophyllum aquaticum*)
- European frog-bit (*Hydrocharis morsus-ranae*)
- Flowering rush (*Butomus umbellatus*)
- Brazilian elodea (*Egeria densa*)
- Hydrilla (*Hydrilla verticillata*)
- Water chestnut (*Trapa natans*)
- Water hyacinth (*Eichhornia crassipes*)
- Water lettuce (*Pistia stratiotes*)
- Any other unidentified invasive plant

Report the species above to Matt Ankney, Wildlife Division, MDNR, ankneym2@michigan.gov or 517-641-4903, Ext. 260

Mammals

- Nutria (*Myocastor coypus*)

Report the species above to Sue Tangora, Wildlife Division, MDNR, tangoras@michigan.gov or 517-284-6223

Appendix D: Invasive Species Response Risk Assessment Work Sheet



Quality of Life Group

Departments of Environmental Quality, Natural Resources, and Agriculture and Rural Development

Invasive Species Response Risk Assessment Work Sheet

	YES	NO
1. Is the species a new invasion to the state or to a geographic location within the state? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the species known to cause significant impacts in its native range and/or is the species known to be invasive outside of its native range? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
3. Is there knowledge of the source of introduction and risk of reintroduction or further spread? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
4. Was the invasion detected early? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the infestation small and localized? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
6. Can the species be quarantined/contained while control measures are planned and implemented? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
7. Is there acceptance that not responding will have serious impacts? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the location public or directly connected to public resources (i.e., public land or water)? NOTES:	<input type="checkbox"/>	<input type="checkbox"/>

Appendix E: Incident Command System for Invasive Species Response

The Incident Command System (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.
- Establishes common processes for planning and managing resources.

The ICS is flexible and can be used for incidents of any type, scope, and complexity because it allows users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents at varying scales. In Aquatic Invasive Species (AIS) response situations, an ICS provides a systematic approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work together seamlessly.

In Michigan, if a response to a newly-reported AIS is determined to be appropriate for ICS (see **Action 6** in *Response Plan for Aquatic Invasive Species in Michigan*), the ICS organizational structure, planning, and implementation details, below, will be used.

The ICS organizational structure has five major functional elements: command, operations, planning, logistics, and finance and administration; and develops in a modular fashion, as needed, based on the size and complexity of the incident. As deemed necessary, the Incident Commander (IC) may appoint a Legal Advisor, Science Advisor, Safety Officer, Liaison Officer, and/or Public Information Officer, collectively known as the “Command Staff.” The “General Staff” may consist of an Operations Chief, a Planning Chief, a Logistics Chief, and a Finance/Administration Chief, or any necessary combination of these positions. The IC is ultimately responsible for establishment and expansion of the ICS organization, based on needs and requirements of the response.

The organizational structure of the AIS response personnel can impact the efficiency and effectiveness of overall AIS response operations, including staffing and resource decisions. Using an ICS as the core organizational framework, the IC can establish Sections, Branches, Groups, Units, and Strike Teams based on incident demands. Each of these functional divisions should be managed by a Chief, Director, Supervisor, or Leader as defined by the National Incident Management System. The management span of control for any one individual should not be less than three or exceed seven direct reports. Using this collaborative methodology, the framework for interoperability and compatibility will be established by the Command and General Staff as depicted in Figure 1.

Appendix E: Incident Command System for Invasive Species Response Page 2

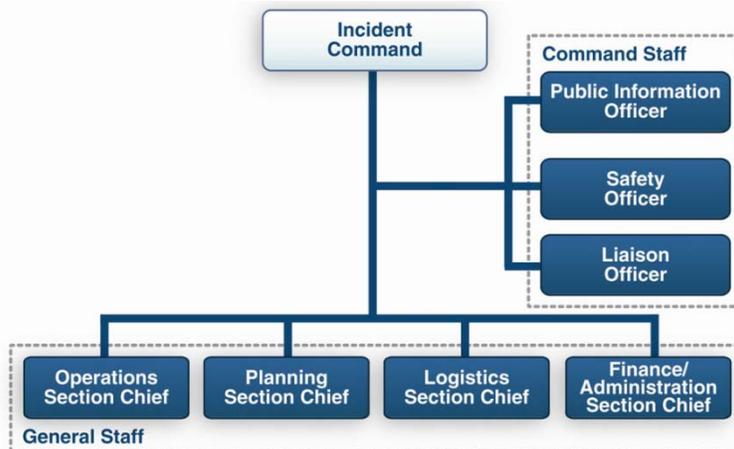


Figure 1: Basic ICS Organizational Structure

Incident command is accomplished using one of two approaches. When an incident (priority AIS invasion) occurs within a single jurisdiction, and without jurisdictional or functional agency overlap, a single IC is designated with overall incident management responsibility by the appropriate jurisdictional authority. However, when a response involves multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, establishment of a Unified Command (UC) allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.

A UC is essentially the shared responsibility of command among several ICs. Attributes and responsibilities of a UC are identical to an IC. Indicators that the response should be managed by a UC include when an incident:

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

If you can answer “yes” to all four of the following questions for the particular type of incident that you are responding to, then a UC is appropriate:

- 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?

An AIS response can span multiple geographic or functional authorities and require the use of a UC. By working together as a team under a UC, all agencies with jurisdictional authority or functional responsibility for the incident jointly provide management direction through a common set of incident objectives and a single planning process. Under a UC, a single agency may still be designated as the overall lead and that agency’s official or preestablished representative is identified as the IC for incident management.

Appendix E: Incident Command System for Invasive Species Response

Page 3

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

1. Sets overall priorities within an assigned geographical area.
2. Determines appropriate strategies for use in achieving priorities.
3. Develops and issues assignments, plans, procedures, and protocols.
4. Establishes specific measurable tactics or tasks in support of defined strategies.
5. Allocates critical resources based on priorities.
6. Ensures objectives are met and strategies are followed.
7. Documents results to measure performance and facilitates corrective actions.

The systematic operation of AIS response actions may require a repetitive schedule to promote internal and external continuity during and following staffing transitions. During each operational period, situation reports (SITREP) help staff understand the incident situation and responders' efforts. The Incident Action Plan (IAP) establishes goals for future operational periods. Figure 2 illustrates the initial typical ICS operational cycle ("Planning P"). Subsequent cycles skip the initiation procedures and resources are continuously identified and distributed based on guidance from the IC, Operations Section Chief, and the IAP.

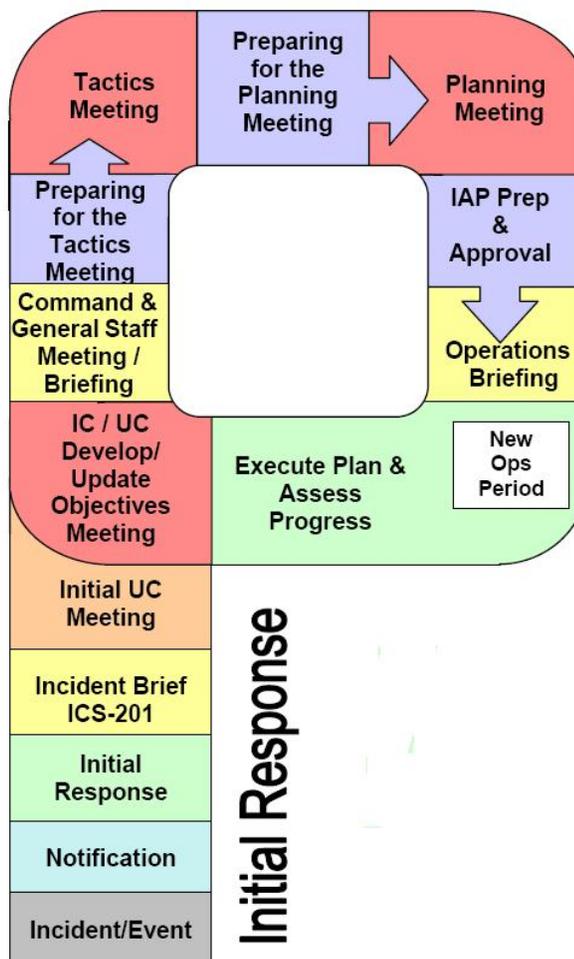


Figure 2: ICS "Planning P"

Appendix E: Incident Command System for Invasive Species Response

Page 4

An IAP is the central tool for conveying planning and operational instructions for all response participants and should provide a clear statement of objectives and actions, a basis for measuring work effectiveness and progress, and a record of accountability. The level of detail required in an IAP varies according to the size and complexity of the response. Regardless of the number of response partners, a single IAP should be generated by the IC/UC. The following explains the planning process required to develop an IAP.

The IAP is prepared by the Planning Section with direction from the Command Staff and input from the appropriate Sections, Branches, and Units of the General Staff. It should be written at the outset of response and revised continually. The goals and objectives are laid out and reviewed by each section based on its objectives. Each section is responsible for the following items to produce the IAP:

- Incident Command/UC
 - Incident objectives and strategy
 - Overall management and strategy
- Planning Section
 - Leadership of planning meeting and operation shift briefing
 - Preparation of the IAP
- Operations Section
 - Determination of resource requirements
 - Determination of division boundaries
 - Determination of tactics
 - Determination of Division/Group work assignments for Operations personnel
- Logistics Section
 - Determination of logistical objectives
 - Determination of logistical staging areas and facilities
 - Determination of logistical assignments and progress
 - Determination of redeployable resources accountability
 - Determination of in-transit resources status
 - Assurance that Logistics Section can support the IAP
- Finance/Administration Section
 - Determination of cost implications of incident objectives
 - Assurance that IAP is within the financial limits established by the IC

The contents of the IAP include all of the following:

- Event name – the name of the response event, typically based on location of the most-heavily impacted area and the type of event (e.g., “Operation Grand Haven Goby”)
- Date/time prepared – the date/time the IAP was prepared
- Operational period – the time frame the IAP covers
- General control objectives – a prioritized list of measurable tasks to be accomplished in the specified operational period
- Status updates – objectives completed during past operational periods, resource status/availability

Appendix E: Incident Command System for Invasive Species Response

Page 5

- Organization and chain of command – written description of the organizational/command structure
- Safety/hazard information
- Demobilization instructions/plans

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 IC chooses his or her staff, the list of primary responsibilities may help the staff to understand his or her role in the ICS response process.

Incident Commander

Desired Attributes: Proven leader, experienced in risk management, and 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.
- Evaluate contingencies.

Operations Section Chief

Desired Attributes: Leader, gives clear direction, and conscientious.

Primary Responsibilities:

- Manage tactical operations.
- Ensure tactical operations are conducted safely.
- Maintain close communications with the IC/UC.
- Identify required tactical resources to accomplish response objectives.

Planning Section Chief

Desired Attributes: Strong facilitator and communicator.

Primary Responsibilities:

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

Appendix E: Incident Command System for Invasive Species Response

Page 6

Logistics Section Chief

Desired Attributes: Experienced in logistical support, detail-oriented, and 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 IAP.
- 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, etc.).

Finance/Administration Section Chief

Desired Attributes: Experienced in finance/administration, detail-oriented, and 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 AIS, knowledge of environmental implications of all eradication and/or control options, ability to communicate with scientists and nonscientists alike, and network of colleagues on whom to call if needed.

Primary Responsibilities:

- Consult with other scientific experts to inform decisions and assemble scientific advisory panel if necessary.
- Provide any necessary technical guidance to those preparing an IAP.
- Participate in planning process.
- Ensure rigorous oversight of response's scientific and environmental objectives.
- Provide expert input to IC 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 environmental laws and permitting, and network of colleagues on whom to call if needed.

Primary Responsibilities:

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

Appendix E: Incident Command System for Invasive Species Response

Page 7

Liaison Officer

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

Primary Responsibilities:

- Provide agencies and organizations with a schedule for each incident and determine their information needs.
- Keep the IC/UC informed on issues dealing with assisting agencies, cooperating agencies, and 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, and industry partners.
- Identify public and private concerns related to the incident.
- Maintain master list of contact numbers.

Public Information Officer

Desired Attributes: Experienced in public affairs and communications savvy.

Primary Responsibilities:

- Support the public communications needs of the IC/UC.
- 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 communication requirements such as holding press conferences, disseminating press releases, and answering media queries.
- Attend command meetings to exchange information with the IC/UC 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, and 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 IAP.
- 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.

For more information on the ICS, please see the Federal Emergency Management Agency (FEMA) Web site: <http://www.fema.gov/incident-command-system>.

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: _____ Time: HHMM
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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):



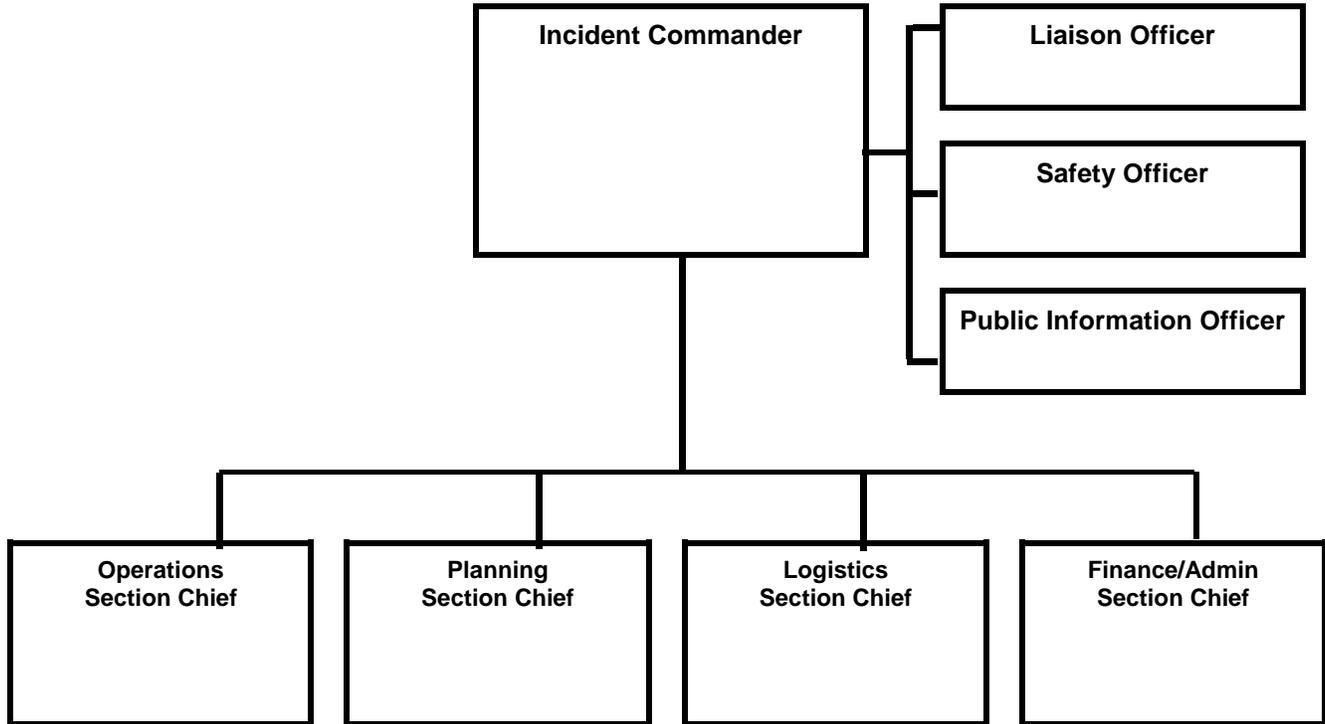
5. **Situation Summary and Health and Safety Briefing** (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.

6. Prepared by: Name: _____ Position/Title: _____ Signature: _____

INCIDENT BRIEFING (ICS 201)

1. Incident Name:	2. Incident Number:	3. Date/Time Initiated: Date: _____ Time: HHMM
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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: Date _____	

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 • 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)	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. 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). North should be at the top of page unless noted otherwise.
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 • 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.
	<ul style="list-style-type: none"> • Resource 	Enter the number and appropriate category, kind, or type of resource ordered.
	<ul style="list-style-type: none"> • Resource Identifier 	Enter the relevant agency designator and/or resource designator (if any).
	<ul style="list-style-type: none"> • Date/Time Ordered 	Enter the date (month/day/year) and time (24-hour clock) the resource was ordered.
	<ul style="list-style-type: none"> • ETA 	Enter the estimated time of arrival (ETA) to the incident (use 24-hour clock).
	<ul style="list-style-type: none"> • Arrived 	Enter an "X" or a checkmark upon arrival to the incident.
	<ul style="list-style-type: none"> • Notes (location/assignment/status) 	Enter notes such as the assigned location of the resource and/or the actual assignment and status.

INCIDENT OBJECTIVES (ICS 202)

1. Incident Name:	2. Operational Period:	Date From: Date Time From: HHMM	Date To: Date Time To: HHMM
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):			
<input type="checkbox"/> ICS 203	<input type="checkbox"/> ICS 207	<u>Other Attachments:</u>	
<input type="checkbox"/> ICS 204	<input type="checkbox"/> ICS 208	<input type="checkbox"/>	_____
<input type="checkbox"/> ICS 205	<input type="checkbox"/> Map/Chart	<input type="checkbox"/>	_____
<input type="checkbox"/> ICS 205A	<input type="checkbox"/> Weather Forecast/Tides/Currents	<input type="checkbox"/>	_____
<input type="checkbox"/> ICS 206		<input type="checkbox"/>	_____
7. Prepared by: Name: _____	Position/Title: _____	Signature: _____	
8. Approved by Incident Commander: Name: _____		Signature: _____	
ICS 202	IAP Page	Date/Time: Date	

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: S pecific – Is the wording precise and unambiguous? M easurable – How will achievements be measured? A ction-oriented – Is an action verb used to describe expected accomplishments? R ealistic – Is the outcome achievable with given available resources? T 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	<p>Incident Action Plan (the items checked below are included in this Incident Action Plan):</p> <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>	<p>Check appropriate forms and list other relevant documents that are included in the IAP.</p> <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	<p>Prepared by</p> <ul style="list-style-type: none"> • Name • Position/Title • Signature 	<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>
8	<p>Approved by Incident Commander</p> <ul style="list-style-type: none"> • Name • Signature • Date/Time 	<p>In the case of a Unified Command, one IC may approve the ICS 202. If additional IC signatures are used, attach a blank page.</p>

ICS 205A Communications List

Purpose. The Communications List (ICS 205A) records methods of contact for incident personnel. While the Incident Radio Communications Plan (ICS 205) is used to provide information on all radio frequencies down to the Division/Group level, the ICS 205A indicates all methods of contact for personnel assigned to the incident (radio frequencies, phone numbers, pager numbers, etc.), and functions as an incident directory.

Preparation. The ICS 205A can be filled out during check-in and is maintained and distributed by Communications Unit personnel. This form should be updated each operational period.

Distribution. The ICS 205A is distributed within the ICS organization by the Communications Unit, and posted as necessary. All completed original forms must be given to the Documentation Unit. If this form contains sensitive information such as cell phone numbers, it should be clearly marked in the header that it contains sensitive information and is not for public release.

Notes:

- The ICS 205A is an optional part of the Incident Action Plan (IAP).
- This optional form is used in conjunction with the ICS 205.
- If additional pages are needed, use a blank ICS 205A 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	Basic Local Communications Information	Enter the communications methods assigned and used for personnel by their assigned ICS position.
	<ul style="list-style-type: none"> • Incident Assigned Position 	Enter the ICS organizational assignment.
	<ul style="list-style-type: none"> • Name 	Enter the name of the assigned person.
	<ul style="list-style-type: none"> • Method(s) of Contact (phone, pager, cell, etc.) 	For each assignment, enter the radio frequency and contact number(s) to include area code, etc. If applicable, include the vehicle license or ID number assigned to the vehicle for the incident (e.g., HAZMAT 1, etc.).
4	Prepared by <ul style="list-style-type: none"> • 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).

ICS 214 Activity Log

Purpose. The Activity Log (ICS 214) records details of notable activities at any ICS level, including single resources, equipment, Task Forces, etc. These logs provide basic incident activity documentation, and a reference for any after-action report.

Preparation. An ICS 214 can be initiated and maintained by personnel in various ICS positions as it is needed or appropriate. Personnel should document how relevant incident activities are occurring and progressing, or any notable events or communications.

Distribution. Completed ICS 214s are submitted to supervisors, who forward them to the Documentation Unit. All completed original forms must be given to the Documentation Unit, which maintains a file of all ICS 214s. It is recommended that individuals retain a copy for their own records.

Notes:

- The ICS 214 can be printed as a two-sided form.
- Use additional copies as continuation sheets as needed, and indicate pagination as used.

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	Name	Enter the title of the organizational unit or resource designator (e.g., Facilities Unit, Safety Officer, Strike Team).
4	ICS Position	Enter the name and ICS position of the individual in charge of the Unit.
5	Home Agency (and Unit)	Enter the home agency of the individual completing the ICS 214. Enter a unit designator if utilized by the jurisdiction or discipline.
6	Resources Assigned	Enter the following information for resources assigned:
	<ul style="list-style-type: none"> • Name 	Use this section to enter the resource's name. For all individuals, use at least the first initial and last name. Cell phone number for the individual can be added as an option.
	<ul style="list-style-type: none"> • ICS Position 	Use this section to enter the resource's ICS position (e.g., Finance Section Chief).
	<ul style="list-style-type: none"> • Home Agency (and Unit) 	Use this section to enter the resource's home agency and/or unit (e.g., Des Moines Public Works Department, Water Management Unit).
7	Activity Log <ul style="list-style-type: none"> • Date/Time • Notable Activities 	<ul style="list-style-type: none"> • Enter the time (24-hour clock) and briefly describe individual notable activities. Note the date as well if the operational period covers more than one day. • Activities described may include notable occurrences or events such as task assignments, task completions, injuries, difficulties encountered, etc. • This block can also be used to track personal work habits by adding columns such as "Action Required," "Delegated To," "Status," etc.
8	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).

ICS 215

Operational Planning Worksheet

Purpose. The Operational Planning Worksheet (ICS 215) communicates the decisions made by the Operations Section Chief during the Tactics Meeting concerning resource assignments and needs for the next operational period. The ICS 215 is used by the Resources Unit to complete the Assignment Lists (ICS 204) and by the Logistics Section Chief for ordering resources for the incident.

Preparation. The ICS 215 is initiated by the Operations Section Chief and often involves logistics personnel, the Resources Unit, and the Safety Officer. The form is shared with the rest of the Command and General Staffs during the Planning Meeting. It may be useful in some disciplines or jurisdictions to prefill ICS 215 copies prior to incidents.

Distribution. When the Branch, Division, or Group work assignments and accompanying resource allocations are agreed upon, the form is distributed to the Resources Unit to assist in the preparation of the ICS 204. The Logistics Section will use a copy of this worksheet for preparing requests for resources required for the next operational period.

Notes:

- This worksheet can be made into a wall mount.
- Also available as 8½ x 14 (legal size) and 11 x 17 chart.
- If additional pages are needed, use a blank ICS 215 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	Enter the Branch of the work assignment for the resources.
4	Division, Group, or Other	Enter the Division, Group, or other location (e.g., Staging Area) of the work assignment for the resources.
5	Work Assignment & Special Instructions	Enter the specific work assignments given to each of the Divisions/Groups and any special instructions, as required.
6	Resources	Complete resource headings for category, kind, and type as appropriate for the incident. The use of a slash indicates a single resource in the upper portion of the slash and a Strike Team or Task Force in the bottom portion of the slash.
	• Required	Enter, for the appropriate resources, the number of resources by type (engine, squad car, Advanced Life Support ambulance, etc.) required to perform the work assignment.
	• Have	Enter, for the appropriate resources, the number of resources by type (engines, crew, etc.) available to perform the work assignment.
	• Need	Enter the number of resources needed by subtracting the number in the "Have" row from the number in the "Required" row.
7	Overhead Position(s)	List any supervisory and nonsupervisory ICS position(s) not directly assigned to a previously identified resource (e.g., Division/Group Supervisor, Assistant Safety Officer, Technical Specialist, etc.).
8	Special Equipment & Supplies	List special equipment and supplies, including aviation support, used or needed. This may be a useful place to monitor span of control.
9	Reporting Location	Enter the specific location where the resources are to report (Staging Area, location at incident, etc.).
10	Requested Arrival Time	Enter the time (24-hour clock) that resources are requested to arrive at the reporting location.

Block Number	Block Title	Instructions
11	Total Resources Required	Enter the total number of resources required by category/kind/type as preferred (e.g., engine, squad car, ALS ambulance, etc.). A slash can be used again to indicate total single resources in the upper portion of the slash and total Strike Teams/ Task Forces in the bottom portion of the slash.
12	Total Resources Have on Hand	Enter the total number of resources on hand that are assigned to the incident for incident use. A slash can be used again to indicate total single resources in the upper portion of the slash and total Strike Teams/Task Forces in the bottom portion of the slash.
13	Total Resources Need To Order	Enter the total number of resources needed. A slash can be used again to indicate total single resources in the upper portion of the slash and total Strike Teams/Task Forces in the bottom portion of the slash.
14	Prepared by <ul style="list-style-type: none"> • 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).