



AQUATIC INVASIVE SPECIES TABLE TOP EXERCISE

Sparta, Illinois

After Action Report
January 2009



Prepared by:

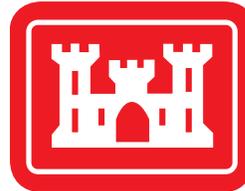


TETRA TECH

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USDA United States Department of Agriculture
Animal and Plant Health Inspection Service

Indiana Department of
Natural Resources DNR



AFTER-ACTION REPORT

AQUATIC INVASIVE SPECIES TABLE TOP EXERCISE November 5-6, 2008

Prepared for

The Mississippi Interstate Cooperative Resource Association
Mississippi River Basin Panel

Submitted by

Tetra Tech EM, Inc.
1 South Wacker, 37th Floor
Chicago, IL 60606

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Prepared by



Michelle Cullerton

Tetra Tech EM Inc.

Approved by



Bill Bolen

U.S. EPA Great Lakes
National Program Office

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AQUATIC INVASIVE SPECIES TABLE TOP EXERCISE

After-Action Report

EXECUTIVE SUMMARY

The Aquatic Invasive Species (AIS) tabletop exercise gave participating agencies the opportunity to evaluate current internal and multi-agency communication protocols, as well as assessment and response capabilities for a multi-agency AIS response event. Through exercise play and analysis of the exercise results, major strengths and potential areas for further improvement were identified.

The exercise was sponsored by the Mississippi Interstate Cooperative Resource Association (MICRA) and the Mississippi River Basin Panel (MRBP). The duration of the exercise was two days. The first day consisted of a facilitated, open discussion broken into several topic modules. The second day consisted of a recap of the previous day, the final module, and a Hotwash summarizing the exercise play and participant feedback.

The primary goals of this AIS exercise were to allow participants to:

1. Gain a general understanding of the Incident Command System (ICS) organizational and operational framework.
2. Identify and discuss lessons learned from actual rapid response efforts.
3. Discuss each agency's roles and responsibilities during an AIS rapid response; clarify jurisdictional authority; and initiate appropriate notifications (within each agency and across multiple agencies).

The AIS exercise was driven by a PowerPoint presentation that was organized into a series of Modules.

Module 1 was a general overview presentation of the ICS organizational and operational framework intended to complement the two on-line courses that were prerequisites for the participants (ICS 100 and ICS 700). The presentation covered the five primary functions of ICS; the command and general staff roles and responsibilities; and Incident Action Plan development.

Module 2 consisted of presentations from three speakers. The first presentation identified lessons learned from planning and developing an actual snakehead rapid response. The second presentation covered lessons learned from an actual response event involving multiple agencies implementing ICS. The final presentation overviewed a case study and rapid response that had occurred in Australia.

Module 3 was a facilitated discussion about a simulated rapid response effort in the Milan Bottoms area of Illinois. Participants were presented with a set of scenario descriptions followed by a series of questions. Participants also discussed the process of planning for and requesting resources from multiple agencies.

Module 4 occurred on the second day and began with a recap of the previous day's discussion, including a detailed review of each phase of the ICS "Planning P" (an operational period). Following the ICS review, the participants were placed into two groups and were tasked to complete a series of activities to prepare for a rapid response operational period.

After the group breakout, the participants conducted a Hotwash and provided feedback about the exercise and next steps for each agency to better prepare for a potential rapid response effort.

The above activities and associated discussion points are documented in this report with the intent to help local, regional, state, and federal agencies enhance their assessment and response capabilities by analyzing exercise results. Ultimately, the exercise findings will provide a foundation for the regional association to establish and implement a viable continuity program that addresses all phases of AIS discovery, assessment, and response.

AQUATIC INVASIVE SPECIES TABLE TOP EXERCISE After-Action Report

Through exercise discussion, the participants identified the following major strengths:

- Willingness of various agency representatives to participate in multi-jurisdictional discussions
- Presence of Rapid Response expertise across various agencies.

Through exercise discussion, the participants identified the following opportunities for improvement:

- Establishment of formalized reporting protocols
- Clarification of agency roles, responsibilities, and jurisdictional authority
- Development of an organized, multi-agency operational framework.

Planners and representatives of the various agencies should use the results of this exercise to resolve indicated issues and strengthen capabilities for future potential incidents. The following initiatives may be considered:

- Continued training in different levels of ICS
- Development of formalized communication protocols and rapid response standard operating procedures
- Additional practice through exercise and panel discussions under different scenarios within the Basin
- Involvement and commitment of various levels of management (field level and upper management)
- Increased funding efforts to support rapid response.

The AIS exercise demonstrated that MICRA, MRBP, U.S. EPA Great Lakes National Program Office (GLNPO), and the other participating partners are taking proactive measures to enhance communication, assessment, and response capabilities by challenging existing policies, procedures, and resources positively and constructively. Encouragingly, implementation of all phases of the exercise improvement cycle continues, including: improvement of current plans and procedures; testing, training, and exercising; incorporation of lessons learned; and development of corrective actions.

PART 1: EXERCISE OVERVIEW

Exercise Name:

Aquatic Invasive Species (AIS) Tabletop Exercise

Exercise Location:

State of Illinois Department of Natural Resources:
World Shooting Complex
1 Main Even Lane
Sparta, Illinois 62286

Type of Exercise:

Table Top Exercise

Exercise Date:

November 5-6, 2008

Participating Organizations:

STATE	
Arkansas Game and Fish Commission (AGFC)	Indiana Department of Natural Resources (Indiana DNR)
Iowa Department of Natural Resources (Iowa DNR)	Illinois Department of Natural Resources (Illinois DNR)
Missouri Department of Conservation (MDC)	Ohio Department of Natural Resources (ODNR)
FEDERAL	
U.S. Environmental Protection Agency, Great Lakes National Program Office (EPA GLNPO)	U.S. Department of the Interior (DOI)
U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS)	U.S. Fish and Wildlife Service (USFWS)
U.S. Army Corps of Engineers (USACE)	
NON-GOVERNMENT	
Gulf States Marine Fisheries Commission (GSMFC)	International Joint Commission (IJC)
Southeast Aquatic Resources Partnership (SARP)	

Funding Sources:

Mississippi Interstate Cooperative Resource Association (MICRA)
Mississippi River Basin Panel (MRBP)

Exercise Points of Contact (POC):

Name: Greg Conover
Agency: U.S. Fish and Wildlife Service
Phone: (618) 997-6869
Email: greg_conover@fws.gov

Name: Bill Bolen
Agency: U.S. Environmental Protection Agency, Great Lakes National Program Office
Phone: (312) 353-6316
Email: bolen.bill@epa.gov

Name: Michael Hoff
Agency: U.S. Fish and Wildlife Services, Fisheries Program
Phone: (612) 713-5114
Email: michael_hoff@fws.gov

Exercise Support Team POC:

Name: Michelle Cullerton
Title: Project Manager
Company: Tetra Tech EM Inc.
Phone: (312) 201-7442
Email: michelle.cullerton@ttemi.com

PART 2: EXERCISE DESIGN SUMMARY

The exercise design group established the following goals for this exercise:

EXERCISE GOALS:

1. Gain a general understanding of the Incident Command System (ICS) organizational and operational framework.
2. Identify and discuss lessons learned from actual rapid response efforts.
3. Discuss each agency's roles and responsibilities during an AIS rapid response; clarify jurisdictional authority; and initiate appropriate notifications (within each agency and across multiple agencies).

PART 3: EXERCISE EVENTS SYNOPSIS

This Exercise Events Synopsis overviews the scenario and the questions used to facilitate exercise play actions in the simulated event. The exercise was presented to the participants through a series of Modules. Copies of the information presented in the first two Modules (ICS overview and the speaker presentations) can be obtained by contacting the exercise POCs or the presenters. The remaining Modules each began with a scenario synopsis followed by a series of questions that prompted participant discussion.

The following scenario and questions were selected by the Exercise Design Team for inclusion in this AIS exercise:

MODULE 3

Scenario Synopsis (Scenario Introduction):

John Dalton, an avid outdoorsman and area native, owns and operates a small bird watching tour company that offers walking tours of the Milan Bottoms wetland area. The Milan Bottoms area is managed for waterfowl and is surrounded by agricultural land. Access is limited to trails used by boaters and hikers. The area is explored by primarily naturalists and recreationalists.

Milan Bottoms lies just below the confluence of the Rock and Mississippi Rivers. The entire Milan Bottoms wetland area encompasses approximately 1.25 square miles (1,000 acres) and drains into the Mississippi River. Ponds within the area are typically isolated during summer and winter; the wetlands frequently become an interconnected network during spring and fall.

The area is home to a wide range of fish; mammals, including bobcats; and birds, such as bald eagles and herons. The area is known to have threatened and endangered species.

On September 30, 2008, while on the first bald eagle tour of the season, one hiker notices an unusual looking lizard a few feet off the trail moving towards a nearby pond. Upon closer inspection, the hiker notes that it is not a lizard; it is actually an out-of-water “fish.”

Everyone on the tour is intrigued by the discovery and quickly snaps pictures of the roughly 20-inch, out-of-water “fish.” The “fish” has a dorsal fin that resembles a North American Bowfin with scales on its head. Its mouth is very wide and it has large teeth. Hesitant to unnecessarily kill the living creature, the hiker nudges it back into the water.

Discussion Questions:

- 1. What type of educational information is available to outdoor recreationalists about what to do when finding an unrecognizable aquatic species?*
- 2. What should an outdoor recreationalist do with an unrecognizable aquatic species when discovered?*
- 3. What agency should the outdoor recreationalist contact to report an unrecognizable aquatic species? Who is the agency contact?*
- 4. When receiving information about an unrecognizable aquatic species, what types of notifications does the agency contact make (internally and externally), and how are these notifications made (e-mail, call-down list)?*
- 5. How is the presence of an unrecognizable aquatic species confirmed by the agency? What local, state, and/or national experts are contacted?*

Scenario Synopsis (Rapid Sampling and Assessment Phase):

John Dalton studies the pictures of the fish and is convinced that it is a bowfin but he does not understand why it survived on the trail. He decides to contact a friend at the local Illinois DNR office.

Tom Gelter, the local Illinois DNR expert, agrees with John that the fish looks similar to a bowfin, but he has never heard of a bowfin crawling out of water. Tom is convinced that the fish is a snakehead. The fish is similar to those caught in Maryland in 2002 and in Wisconsin in 2003.

Tom searches the Invasive Species Experts Database for a local taxonomist who confirms that the pictured fish is a snakehead. Given the proximity of the discovery to the Rock and Mississippi Rivers, action must be taken immediately to determine the extent of the invasion.

Discussion Questions:

1. *Who has jurisdictional authority during this phase? What factors determine authority?*
2. *Determine this scenario's ICS structure and draw a flow diagram.*
3. *What are the roles and responsibilities of each participating agency?*

Discuss the next steps in determining the extent of the snakehead invasion in the Milan Bottoms area.

1. *Who will participate in the Scientific Advisory Committee (SAC) and assist in developing a rapid sampling and assessment approach?*
2. *What are the sampling and assessment objectives?*
3. *Determine the sampling and assessment boundaries, considering the Mississippi and Rock Rivers are adjacent to the area of discovery.*
4. *Where should the samples be collected and how many samples are needed to fully determine the extent of invasion?*
5. *How many teams will be needed to conduct the sampling and what agencies will conduct these activities?*
6. *Are there any specific sampling considerations if the area contains endangered species?*
7. *How is the sampling and assessment effort funded?*

Scenario Synopsis (Rapid Response Phase):

The rapid assessment and sampling results confirm the presence of adult snakeheads in the Milan Bottoms wetland area. The snakeheads were found only in the two smaller ponds in the center of the complex. Currently, there is no evidence of snakehead migration from Milan Bottoms into the Mississippi or Rock Rivers. However, migration to the rivers could occur during the spring flooding season.

The SAC recommends to agency management and the Incident Commander a rapid response to eradicate the snakeheads because:

- The current snakehead population is not widely distributed.
- The threat is significant because the snakeheads can reproduce and become established.
- The snakeheads are likely to disperse throughout the Milan Bottoms area, and could migrate and invade the entire Mississippi River Basin.

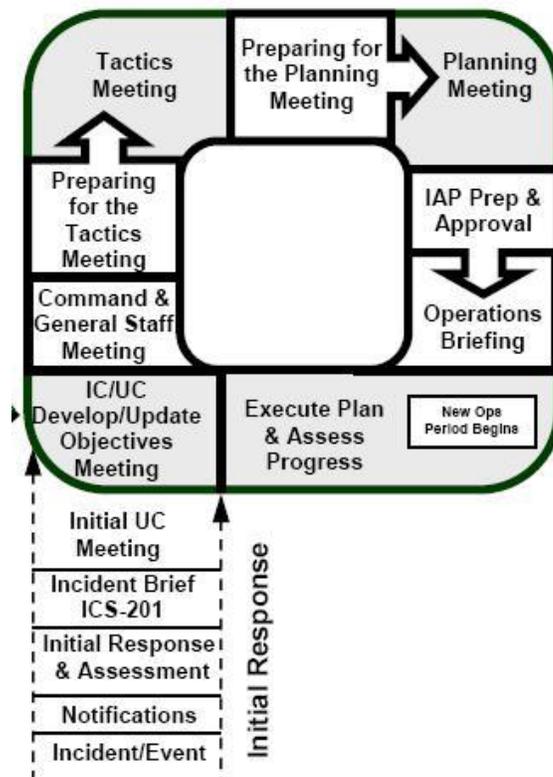
Discussion Questions:

1. *What other decision criteria are considered before justifying a rapid response effort?*
2. *What are the short- and long-term impacts of the selected response method?*
3. *Are any risks posed to humans who work or live on the water body?*

MODULE 4:

ICS Recap:

Module 4 occurred on the second day and began with a recap of the previous day's discussion, including a detailed review of each phase of the ICS "Planning P" (an operational period). Following the ICS review, the participants were placed into two groups and were tasked to complete a series of activities to prepare for a simulated rapid response operational period. The figure below shows phases of the Planning P Operational Period. A summary of each phase follows.



- IC/UC Develop/Update Objectives Meeting. The purpose of this meeting is to set the overall rapid response priorities, develop incident objectives, and establish guidelines for the Incident Management Team. The Incident Commander and select members of the Command and General Staff attend this meeting.
- Command and General Staff Meeting. The purpose of this meeting is for the Incident Commander to present the incident objectives to all of the Command and General Staff so that all Section Chiefs are on the same page. At this stage, the Incident Commander assigns tasks. All members of the Command and General Staff attend this meeting.
- Preparing for the Tactics Meeting. The Command and General Staff begin developing the plan to achieve objectives assigned to them by the Incident Commander. Typically, ICS Forms 234 and 215 may be used to assist in the planning effort. The Planning Section Chief and the Operations Section Chief have until the scheduled Tactics Meeting to draft the ICS forms.

- Tactics Meeting. The Operations Section Chief and the Planning Section Chief discuss the feasibility of implementing the proposed draft plan. All members of the Command and General Staff attend this meeting. The Operations Section Chief solicits input from the group on the feasibility of operations planned for the next operational period.
- Preparing for the Planning Meeting. The Planning, Operations, and Logistics Section Chiefs determine what they can and cannot do in the next operational period, based on resource availability (personnel and equipment). They revise and complete the original ICS 234 and 215 forms based on information received during the previous meetings.
- Planning Meeting. All members of the Command and General Staff attend this meeting in order to solidify the proposed plan for the next operational period (the work assignments and the available resources). The proposed plan is presented to the group and everyone verbally agrees to it.
- Incident Action Plan Preparation and Approval. The Incident Action plan is developed by the Planning Section Chief and copied in time to distribute during the Operations Briefing. This Incident Action Plan will be implemented during the next operational period.
- Operations Briefing. The Incident Action Plan is distributed to all members of the Command and General Staff (Operations Section Chief and field team leaders). It specifies the work assignments to be completed during the next operational period. All members of the Command and General Staff, and field team leaders attend this meeting.

Participant Breakout Session:

After the ICS recap, participants were divided into two groups based on the states that they represented. The groups were presented with a hypothetical scenario in which a viral hemorrhagic septicemia (VHS) outbreak occurred in the Mississippi River between the Illinois and Iowa border. The groups were tasked to discuss each phase of the Planning P for the initial operational period and identify tactical operations to meet the objectives of each phase.

PART 4: ANALYSIS OF ASSESSMENT AND RESPONSE ACTIVITIES

This section of the report reviews the discussion facilitated during the AIS exercise. It is organized by key topics discussed by the participants. Identification of each key topic is followed by a brief explanation and what was discussed during the exercise. Suggested recommendations for improvement are also provided. Participants should determine actions to be taken to address the recommendations.

Issue #1: *Establishment of formalized reporting protocols.*

Discussion: During the exercise discussion, participants suggested development of formalized reporting protocols in their state (if not already in place). Limited information is available about steps to take when a fisherman discovers an unidentifiable fish species. Also, it is not clear what agency a fisherman should contact to report an unidentifiable species. Expectedly, the fisherman would report the unidentifiable species to either of the state's department of natural resources; the USFWS local, central, or district offices; local AIS Coordinators (if established and if contact information is known); the local aquarium; or media.

Recommendations: More public outreach should be provided to educate the public about reporting protocols and agency contact information. The following follow-up actions are recommended:

- At a minimum, fisherman are encouraged to take quality photographs from multiple angles (and Global Positioning System [GPS] locations) of an unidentifiable fish. Additionally, states are encouraged to clarify their states' requirements regarding submitting a fish to agency representatives for identification.
- Sea Grant has identification cards available and posters displayed in limited locations; however, these cards and posters are not widely distributed, and they do not include information about snakeheads. The information cards should be updated and should also contain information about reporting procedures.
- In Missouri, poster and information cards are provided only in areas where AISs have been discovered. Missouri representatives recommend implementing a more proactive approach by disseminating information within areas not yet invaded by AIS so that the public is educated.
- In Iowa, cards containing reporting procedures are available; however, these should be distributed.
- Various types of field guides have been written (both paper and website) by MRBP; however, these guides should be updated to include information about snakeheads.
- Educational guides, posters, and cards should be distributed among bait shop owners, fisherman club members, naturalists, and pet shop owners for display. Permitting offices should also have educational guides for distribution.
- State-specific AIS hotlines and websites with links to the National Invasive Species Hotline (1-877-STOP-ANS) should be developed.
- Information about which agency leads AIS investigations should be publicized, along with the agency point of contact (local contact name, telephone number, and e-mail address).
- Contact information about local taxonomists and AIS experts should be publicized, along with information about the National Taxonomic Database (it lists primary agency contacts and secondary contacts in academia).
- AIS identification, educational classes, and taxonomic training should be offered to a variety of audiences including federal, state, tribal, and not-for-profit personnel.

Issue #2: *Clarification of agency roles and responsibilities and jurisdictional authority.*

Discussion: During the exercise, the group discussed the anticipated roles and responsibilities of various agencies during a rapid assessment and a rapid response effort. The discussion provided participants with an awareness of the type of resources (personnel and equipment) each agency maintained; some participants heard about these resources for the first time during this exercise. The following anticipated roles, responsibilities, and resources were discussed:

- Illinois DNR has jurisdictional authority during this proposed scenario, primarily because Illinois DNR is the lead for incidents involving fish and wildlife (a snakehead).
- Illinois DNR maintains adequate resources (both personnel and equipment) to conduct a rapid assessment. If required, Illinois DNR can provide up to 21 crew and boats during a rapid assessment.
- During a rapid response event, Illinois DNR maintains Command; however, Illinois DNR coordinates with other agency partners including USACE, USFWS, Iowa DNR, U.S. Geological Survey (USGS), EPA, U.S. Department of Agriculture, and APHIS.
- Illinois DNR, Iowa DNR, and USFWS can provide electro-shocking boats, trawling gear, and personnel.
- USACE can acquire National Guard helicopters to access difficult to reach locations and to assist in the application of chemicals, if required.
- Local biologists and taxonomists from various agencies can participate in a scientific advisory committee; however, the agency to assume the role of lead biologist or taxonomist is not clear.
- USGS and APHIS should be considered for support activities.

Although all participants were clear on their respective agencies' roles and responsibilities, they differed in specifying at what stage of an event additional support should be requested. Some participants indicated that they would consult other agencies and form a scientific advisory committee or guidance and support; other participants indicated that they would consult other agencies only after the assessment phase and during the rapid response phase. Ultimately, it was determined that Illinois DNR was the jurisdictional lead for a snakehead incident and would be the sole agency during the assessment phase. Illinois DNR would request additional agency support during the response phase.

Recommendations:

- Participants indicated that not all agencies have AIS rapid response infrastructure in place. Agencies should continue to make AIS rapid response a priority and continue to develop AIS protocols, strategies, and regulations.
- Illinois DNR (and other agencies) should continue exercising with a variety of participants to increase their experience with AIS assessment and response activities. Participants in future exercises should consist of personnel at a variety of management levels, including actual field responders (sampling crews), scientists, and high-level decision makers. Participating in these exercises develops relationships and builds local contacts within and across states.
- A VHS exercise including the USDA, APHIS, and USGS should be considered. Other future exercise recommendations include: (1) determining approaches to containment, (2) risk analysis, (3) case studies, (4) cases where no action is feasible, (5) long-term and large-scale scenarios, and (6) cost benefit analysis with determination of probability of success.

Issue #3: *Development of an organized, multi-agency operational framework.*

Discussion: One of the most discussed topics during this exercise was the concept of a multi-agency operational framework. Currently, various site-specific and species-specific approaches are feasible for an AIS event. Importantly, at the federal level, ICS is the mandated operational framework for response to any incident requiring a multi-agency federal response, including AIS. No particular framework is mandated at the state level. Developing a “one size fits all” framework for the Mississippi River Basin is difficult because the framework may vary from state to state and from region to region.

For this exercise, the ICS structure was used as an example framework for AIS rapid response activities. On the first day, a brief overview of the multiple sections of an ICS framework and the roles and functions of each section were discussed. Participants were then tasked to discuss what Planning and Operations Section Chiefs should consider for application of Rotenone to eradicate the snakeheads. On the second day, participants were asked to discuss each phase of an initial operational period as it related to a VHS outbreak.

Below is a summary of the topics discussed on Days 1 and 2.

- What are the rapid response overall objectives?
- How will multiply agencies be coordinated? Who will fill each ICS function?
- Will the public support this type of eradication and/or containment approach?
- What are the boundaries of the invasion and where will chemicals be applied or containment barriers placed?
- How much chemical is required to adequately eradicate snakeheads without unnecessarily impacting other organisms or habitat at those locations? What form of the chemical is appropriate (powder or liquid)?
- What are the logistical impediments to the rapid response process (site access, alternatives to boats due to sticks and vegetation, etc.)?
- How many field teams are required to apply the eradication chemical or containment barriers? What agency will provide the field personnel?
- What equipment is required and which agency will provide the equipment?
- Where will boats, equipment, and supplies be staged, stored, and secured?
- Will a location be designated for personnel relief (restrooms, water, stress-relief areas, etc.)?
- How will daily field data be collected and reported to the Incident Command center?
- How will maps of areas be generated and who will generate them?
- What health and safety considerations are necessary for these rapid response activities?
- How will field teams communicate with each other and with the Incident Command center? If cell phone coverage is not available, what other means of communication will be used?
- Are any access locations on private property? If so, are permits or consent required for access?

- Is there a time frame or limited window of opportunity for rapid response activities?
- How will the effectiveness of the eradication or containment approaches be confirmed?
- How will input and feedback from the scientific advisory committee and the public be incorporated in the rapid response planning and operations process?
- How will field teams consisting of multiple agency representatives be coordinated?
- What type of consistent and accurate public information messages will be developed?
- Who will be the main public information officer POC for all agencies?
- What various communications media (such as handouts, newspapers, local news, etc.) will be used?
- How much will the incident cost the public and how will it affect the local economy?
- Will there be a forum for public feedback?

Recommendations:

- Consider the formation of a Science Advisory Committee whose scientific members would study the abundance, distribution, and response to an AIS (and, in general, other invasive species). Members of this committee would not occupy a decision-making role (e.g., Incident Commander or Section Chief).
- Continue to participate in mock exercises to gain a better understanding of specific roles and responsibilities within each ICS Section, and how to coordinate across ICS Sections and among various agencies.
- Continue to develop an AIS operational and communication framework.
- Encourage all levels of management, including scientists, to take the free ICS on-line training. The modules provide a common level of knowledge of the ICS terminology and structure.
- Include all levels of management, including decision makers and biologists, in future exercises so that everyone who participates in a rapid response is familiar with how a response operates.
- Clarify agency roles, responsibilities, and resources before an actual event occurs.
- Utilize ICS as a common structure to track resources, personnel, and costs of large-scale events.

PART 5: CONCLUSIONS

The AIS exercise gave participating agencies the opportunity to evaluate current internal and multi-agency communication protocols, as well as assessment and response capabilities for a multi-agency AIS response event. The primary goals of the AIS exercise were to allow participants to:

1. Gain a general understanding of the ICS organizational and operational framework.
2. Identify and discuss lessons learned from actual rapid response efforts.
3. Discuss each agency's roles and responsibilities during an AIS rapid response; clarify jurisdictional authority; and initiate appropriate notifications (within each agency and across multiple agencies).

Participant feedback indicated that not enough time was available during this exercise to work through all the necessary considerations for planning and operating under a rapid response incident. It was also recognized that additional training with the ICS structure would be required to adequately and efficiently complete all the proposed questions and activities

Overall, the exercise designed by the Exercise Design Team was useful, and the exercise goals and objectives were accomplished; however, opportunities for improvement of the rapid response framework were identified. Regarding exercise objectives, more work must be done to: (1) establish formal reporting protocols; (2) clarify agency roles and responsibilities and jurisdictional authority; and (3) develop an organized, multi-agency operational framework. Specifically, planners and representatives of the various agencies should use the results of this exercise to resolve indicated issues and strengthen capabilities for possible future incidents. In particular, some recommended general initiatives include:

- Continued training in different levels of ICS
- Development of formalized communication protocols and rapid response standard operating procedures
- Additional practice through exercise and panel discussions under different scenarios within the Basin
- Involvement and commitment of various levels of management (field level and upper management)
- Increased funding efforts to support rapid response.

Implementation of the recommendations in this report will ensure continued momentum toward a viable, agency-coordinated AIS rapid response system.