

Bay Delta Rapid Response Plan For Dreissenid Mussels

July 2011

Ronald Smith and Louanne McMartin
Aquatic Invasive Species Program
Pacific Southwest Region
U.S. Fish and Wildlife Service
Stockton, CA

Developed for:
California Department of Fish and Game
Invasive Species Program
Sacramento, CA

Funding:
CalFed Non-native Invasive Species Program – California
Department of Fish and Game #P0685514

The Bay Delta Rapid Response Plan for Dreissenid Mussels (Plan) was adapted from the *Rapid Response Planning for Aquatic Invasive Species* template produced by the Mid-Atlantic Panel on Aquatic Invasive Species and Maryland Sea Grant (MAP 2009); *California Aquatic Invasive Species Management Plan* (CDFG 2007; 2008); *Columbia River Basin Interagency Invasive Species Response Plan: Zebra Mussels and Other Dreissenid Species* (CRB 2008); and *Zebra Mussel Rapid Response Plan for California* (Veldhuizen 2004).

This Plan was prepared with funding support from the CalFed Non-Native Invasive Species Program administered by the California Department of Fish and Game (CDFG) under grant award P0685514. The statements, findings, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of the CDFG or other cooperating agencies.

The editors wish to thank the members of the CDFG for their comments and ideas throughout the preparation of this plan.

For more information on this publication contact:

U.S. Fish and Wildlife Service
Aquatic Invasive Species Program
4001 N. Wilson Way
Stockton, California 95205
www.fws.gov/stockton

Table of Contents

Executive Summary	4
I – Introduction	5
Definition of Rapid Response	5
Incident vs. Issue	6
Incident Command System	6
II – Rapid Response Procedure.....	7
Overview	7
ICS Planning “P” Process.....	9
Figure 2.....	9
Incident	10
<i>Notification</i>	10
<i>Incident Brief</i>	12
<i>Initial Unified Command Meeting</i>	12
<i>Objectives Meeting</i>	14
<i>Command and General Staff Meeting</i>	15
<i>Preparing for the Tactics Meeting</i>	15
<i>Tactics Meeting</i>	16
<i>Preparing for the Planning Meeting</i>	16
<i>Planning Meeting</i>	17
<i>Incident Action Plan Preparation and Approval</i>	17
<i>Operations Briefing</i>	18
<i>Execute Plan and Assess Progress</i>	18
Literature Cited	20
<i>Appendix A</i>	21
Decision Tree for When to Take Action on Quagga/Zebra Mussels in the Delta	21
<i>Appendix B</i>	22
Incident Command System Job Descriptions	22
<i>Appendix C</i>	28
Examples of Press Releases	28
Press Releases for San Justo Reservoir Quagga/Zebra Mussel Incident	32
<i>Appendix D</i>	34
Selected Aquatic Invasive Species Resources	34
<i>Appendix E</i>	35
Federal and State Legal Authorities for Rapid Response in California.....	35
<i>Appendix F</i>	42
Aquatic Invasive Species Sighting Report Form Links and Template	42

Executive Summary

Dreissena rostriformis bugensis (quagga) and *Dreissena polymorpha* (zebra) mussels, pose a significant environmental and economic threat to the ecosystems and communities of California's Delta region and beyond. While preventing the introduction of these invasive species is the preferred management strategy, managers must be prepared to take action when prevention measures fail. The Plan provides guidelines for responding to an invasive dreissenid mussel incident quickly and effectively. The Plan's foundation is the Incident Command System (ICS), a standardized protocol that allows for a common response framework across agencies and jurisdictions.

Major components of the Plan include:

- **Overview of Rapid Response Effort Flowchart.** The flowchart provides a step-by-step view of the entire Rapid Response effort.
- **Operational Planning "P."** Developed by the United States Coast Guard, the Planning "P" is a visual representation of the Incident Command System planning process. The Rapid Response Procedure is based upon the steps outlined in the Planning "P."
- **Decision Tree for When to Take Action on Aquatic Invasive Species.** Deciding whether to take action on an invasive species is a crucial component of any Rapid Response Plan. This tree breaks the decision down into three steps.
- **Dry run/exercise scenario.** A table-top exercise will be conducted to identify current shortfalls, conflicts or gaps in existing policies, plans, regulations and State Code that limit response and recovery efforts when an invasive mussel incident affects a California waterbody.
- **Aquatic Invasive Species Sighting Report Form.** Gathering critical information on an invasive species sighting is the first step to an effective response. This form (Appendix G) streamlines the information-gathering and reporting process.

I – Introduction

Invasive species are organisms that are introduced into a non-native ecosystem and which cause, or are likely to cause, harm to the economy, environment or human health. Brought here from Europe in ships' ballast water; dreissenid mussels, or quagga and zebra mussels, were first discovered in the Great Lakes region in 1988. These aquatic invasive mussels have inflicted tremendous damage to native ecosystems and to facilities using water, like power plants and municipal water suppliers. Quagga/zebra mussels are filter feeders that can consume large quantities of the microscopic plants and animals that native species depend on. As a result, the ecological balance of an entire water body can be disturbed, displacing native species. Quagga/zebra mussels also pose an economic threat to California's infrastructure and recreation industries. Mussels may impede water distribution clogging water intakes, and fish screens; impede distribution of municipal water supplies, agricultural irrigation, and power plant operation. Mussels can also affect recreation by limiting recreational opportunities, encrusting docks and beaches, colonizing recreational equipment including watercraft hulls, engines, and steering components. Because of these and other devastating effects that invasive mussels can cause, it is important that officials are notified of potential infestations to determine what actions to take. (Detailed description on life cycle and identification can be found on the CDFG website (<http://www.DFG.ca.gov/invasives/quaggamussel/>)).

Quagga mussels were discovered in Lake Mead in Nevada on 6 January 2007 and later throughout Lake Mead's lower basin. It was the first discovery of these mussels west of the Continental Divide. Subsequent surveys found smaller numbers of quagga mussels in Lakes Mohave and Havasu in the Colorado River, and in the Colorado River Aqueduct, which serves Southern California. Surveys in August 2007 found quagga mussels in Lake Dixon and San Vicente Reservoir in San Diego County. All reservoirs, lakes and watersheds receiving raw Colorado River water have been exposed to quagga mussels. On 10 January 2008, zebra mussels were discovered at San Justo Reservoir, the first confirmed find of zebra mussels in California.

This Plan is to assist state and federal agencies in initiating a unified, timely, and thorough response to the detection of quagga/zebra mussel incident in California's Delta region. State and federal agencies that could be involved in initial responses to dreissenid mussel incidents in California include the California Departments of Fish and Game (CDFG), Water Resources (DWR), Food and Agriculture (CDFA), Boating and Waterways, Parks and Recreation, Forestry and Fire Protection (Cal Fire), Transportation (Caltrans), State Water Resources Control Board, State Lands Commission, and the Natural Resources Agency; federal agencies would include: U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Geological Survey, National Park Service, and Bureau of Reclamation. Depending on the location and jurisdictional authorities involved, these and other agencies would or may play a role in future dreissenid mussel responses within California.

Definition of Rapid Response

Preventing introductions of invasive mussels is crucial to avoid their establishment and spread. Prevention measures, however, are not foolproof and government officials and natural resource managers must be prepared to take action in the event of a quagga/zebra mussel introduction.

Bay Delta Rapid Response Plan for Dreissenid Mussels

The National Invasive Species Council (NISC) defines rapid response as a systematic effort to eradicate, or contain invasive species while infestations are still localized (NISC 2008). To be most effective, a response to an introduction should occur quickly. Organizing an appropriate and timely response requires significant coordination and analysis.

Incident vs. Issue

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

Incident Command System

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

By becoming familiar with ICS and using this plan as a guideline, managers will be able to respond quickly and effectively when faced with the threat of a dreissenid mussel incident.

II– Rapid Response Procedure

Overview

The following guidance is intended to direct rapid response efforts for a new quagga/zebra mussel incident in California’s Delta region.

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

In California, CDFG’s Invasive Species Program (ISP) is the first point of contact to report suspect invasive mussel sighting. If the report is deemed credible; the ISP will send regional staff to identify the specimen to confirm the sighting and location. If the presence of dreissenid mussels is confirmed, the ISP will use criteria outlined in Appendix A to determine whether to take action. The ISP will then brief the CDFG Director on the incident and recommend whether or not a response is warranted.

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

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

Overview of Rapid Response Effort

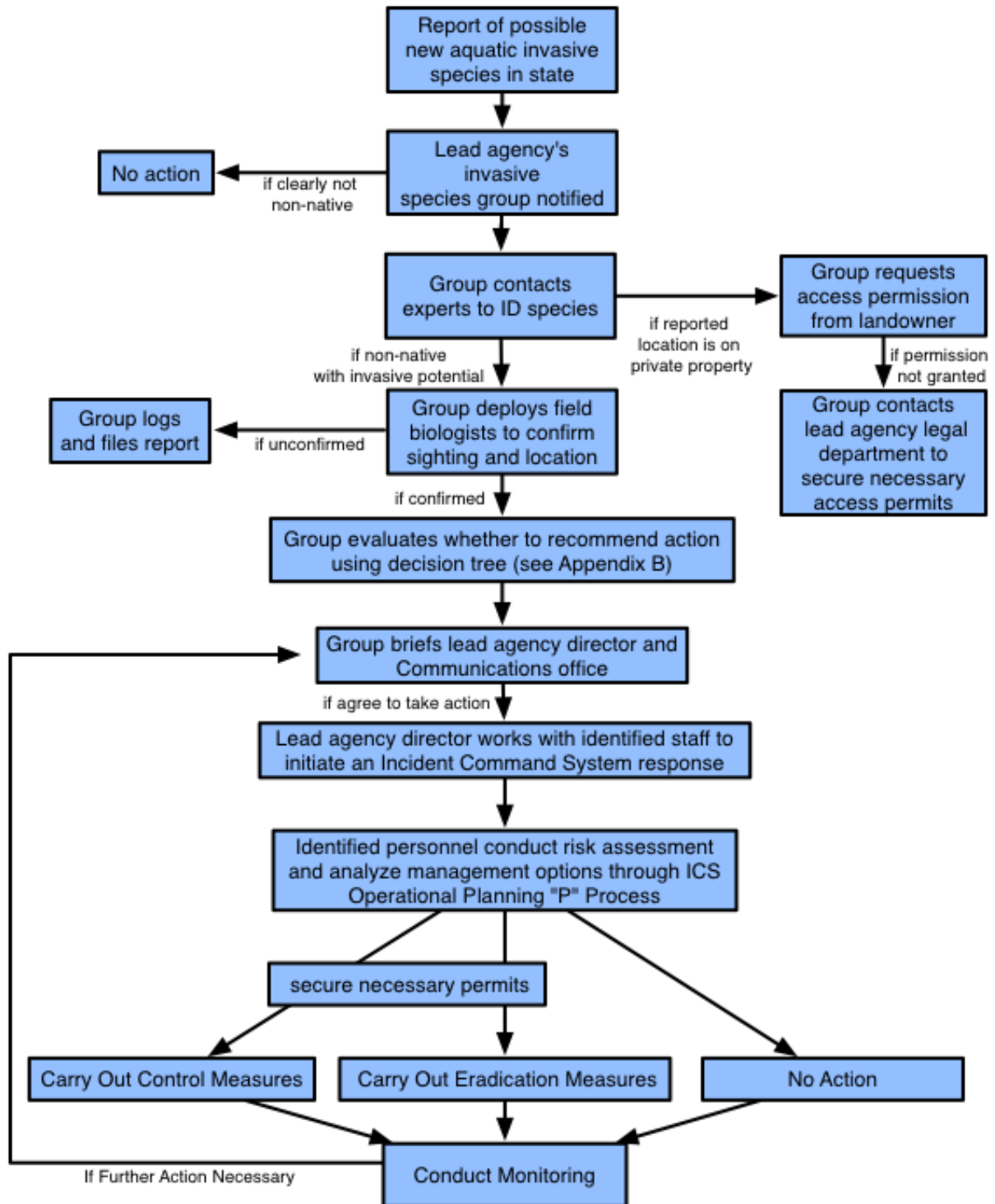


Figure 1

ICS Planning “P” Process

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

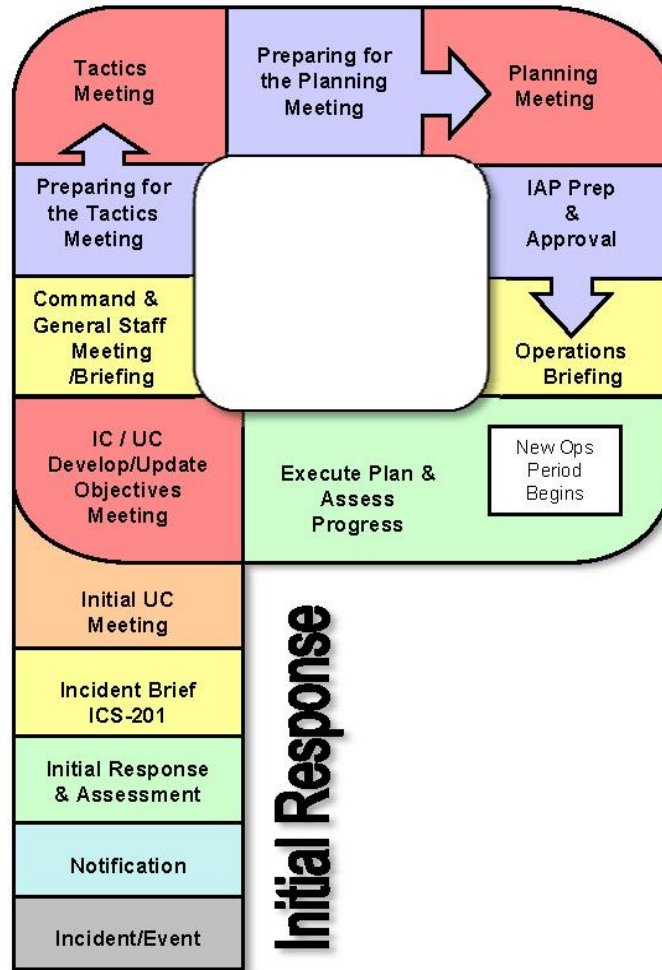
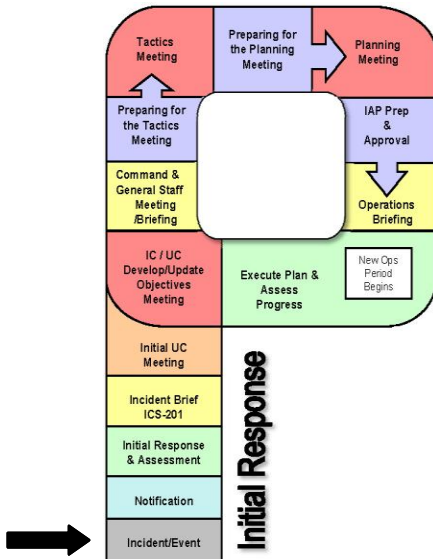


Figure 2

Incident

The discovery of a possible quagga/zebra mussel in California initiates the Operational Planning “P” process.

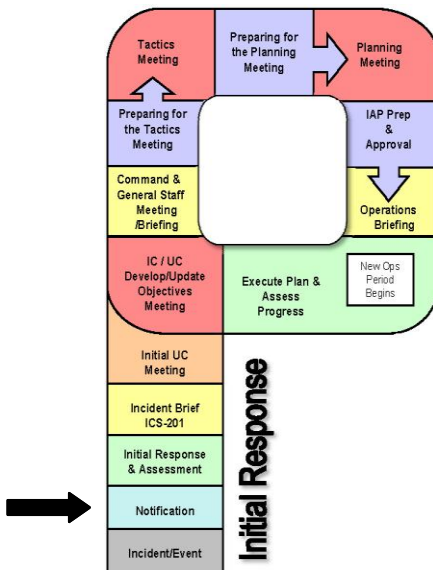


Notification

Who: Anyone who sights a potential quagga/zebra mussel in California (likely possibilities include boat captains, fishermen, field biologists, waterfront property owners, resource managers, government agency workers, recreational users, etc.).

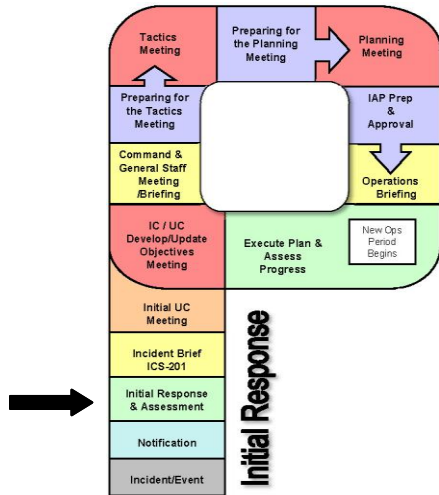
What: Contacts local authorities, state or federal agencies to report possible sighting quagga/zebra mussel.

How: Notification regarding a potential quagga/zebra mussel in California may happen by a variety of ways. The preferred method is contacting CDFG on the Quagga/Zebra Mussel Hotline at (866) 440-9530 or email to: invasives@DFG.ca.gov. Alternatively, complete the USGS online Sighting Report Form (<http://nas.er.usgs.gov/SightingReport.asp>) or by calling the notification hotline at 1-877-STOPANS.



If other state and federal entities are the first to receive notification, they will collect information from the source as outlined on the Sighting Report form (see Appendix G) and send completed forms to the CDFG ISP by email to invasives@DFG.ca.gov. The Sighting Report form is available on the CDFG website at: <http://www.DFG.ca.gov/invasives/quaggamussel>.

Initial Response and Assessment



Response

Who: CDFG ISP.

What: Receives report of potential quagga/zebra mussel in California and contacts appropriate expert(s) to positively identify the suspect AIS specimen.

How: Specimen and/or photographs are sent to experts and/or laboratories (CDFA laboratory in Sacramento and Bodega laboratory are two that have been used in the past) by mail, courier, or e-mail. Note: Specimen should be handled in compliance with state/federal regulations regarding the transport of live prohibited/injurious species as outlined in Appendix E.

Assessment

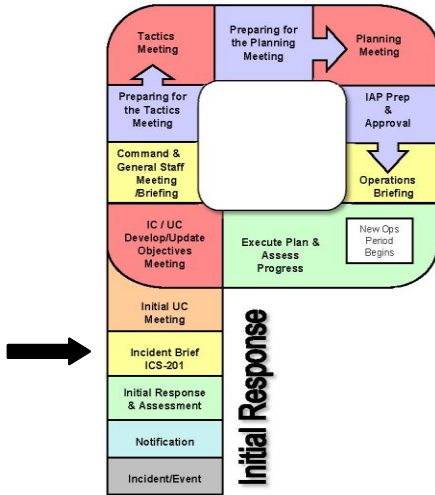
Who: CDFG ISP and field biologists.

What: Confirm quagga/zebra mussel sighting, location, extent of occurrence, and assess whether action is warranted.

How:

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

Incident Brief



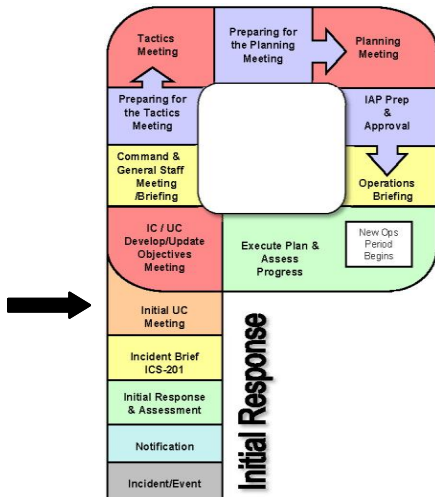
Who: CDFG ISP.

What: Notifies CDFG Director, Communications Deputy Director, Office of the General Counsel Deputy Director, and Officer of quagga/zebra mussel and likely next steps.

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

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

Initial Unified Command Meeting



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

What: Begin to establish course of action.

How:

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

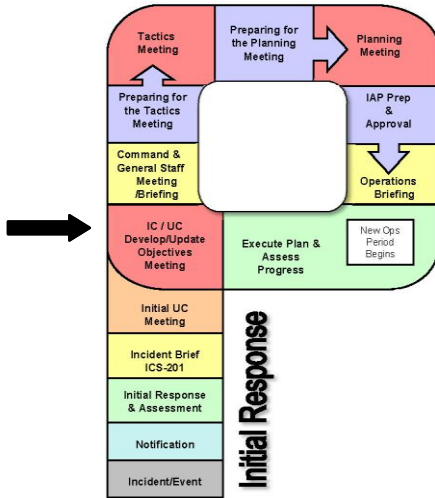
Continued on next page...

Continued from previous page...

How:

- Determine the incident response objectives. Objectives should be achievable, measurable, and flexible. Objectives may include:
 - Determine the extent of infestation (i.e., local and regional range, sources of inputs, drainage, public access, pathways for potential spread).
 - Determine source of invasion.
 - Determine if a law enforcement investigation is needed.
 - Determine risk to environment, human health, economy, etc.
 - Determine control and/or eradication methods to minimize potential environmental, health, and commercial impacts.
 - Determine appropriate use and costs of control/eradication methods.
 - Contain or eradicate in known areas of infestation.
 - Dispense timely information and a coordinated message to stakeholders, colleagues, local, state and federal agencies affected by infestation.
 - Conduct monitoring.
- Agree on basic organizational structure (see Figure 1 in Appendix B).
- Agree on best-qualified and acceptable individuals to fill General Staff positions (i.e., Operations Section Chief, Planning Section Chief, Logistics Section Chief, Finance/Administration Section Chief – see ICS job descriptions in Appendix B).
- Agree on who fills Command Staff positions (i.e., Legal Advisor, Science Advisor, Public Information Officer, Liaison Officer, Safety Officer – see ICS job descriptions in Appendix B).
- Identify funding mechanisms and agree on action to secure funding.
- Agree on resource-ordering procedures.

Objectives Meeting



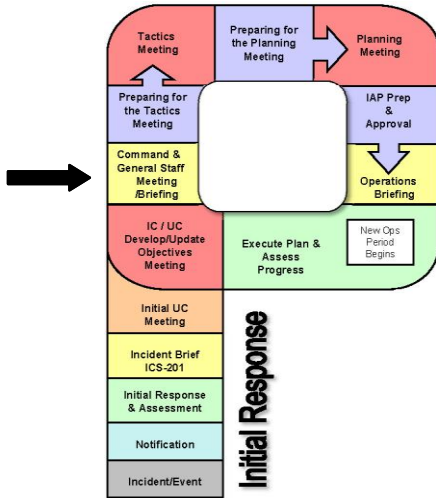
Who: Incident/Unified Command.

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

How:

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

Command and General Staff Meeting



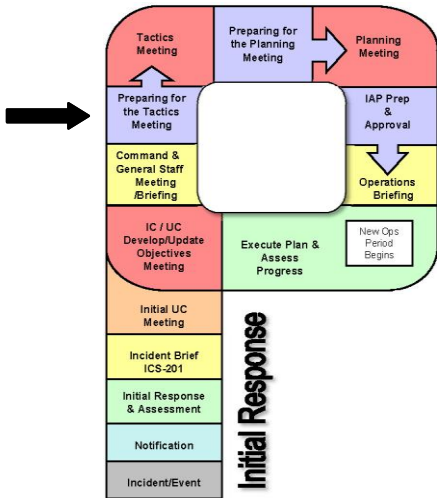
Who: Members of the IC/UC, Command and General Staff.

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

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

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

Preparing for the Tactics Meeting



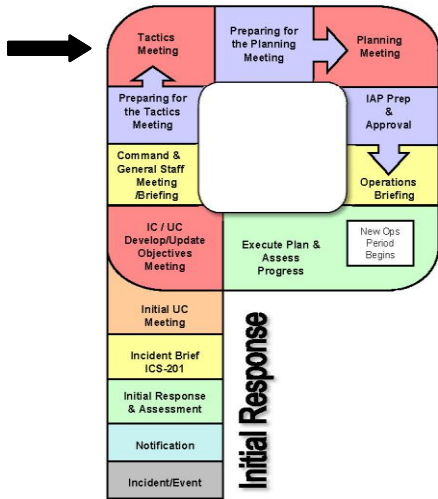
Who: Operations Section Chief, Planning Section Chief, Legal Advisor, Science Advisor.

What: Prepare for the upcoming Tactics Meeting.

How:

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

Tactics Meeting



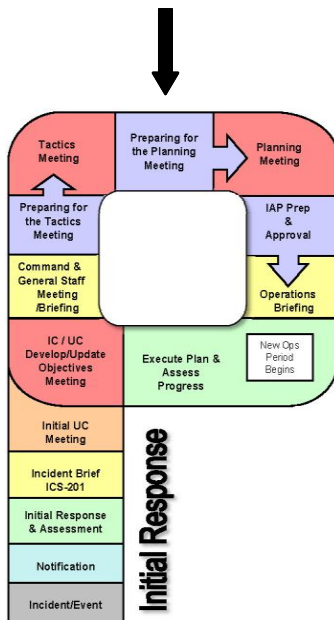
Who: Planning Section Chief, Operations Section Chief, Logistics Section Chief, Legal Advisor, Science Advisor, Safety Officer.

What: Organize how the operation will be conducted.

How:

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

Preparing for the Planning Meeting



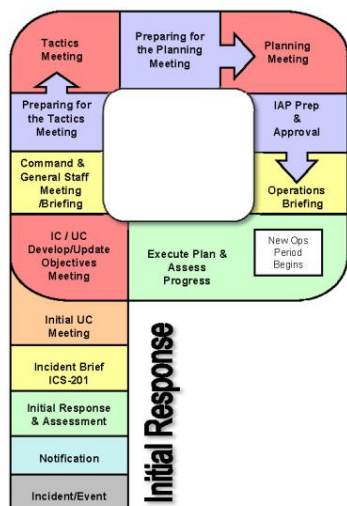
Who: IC/UC, Command and General Staff, technical specialists as required.

What: Prepare for the Planning Meeting.

How:

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

Planning Meeting

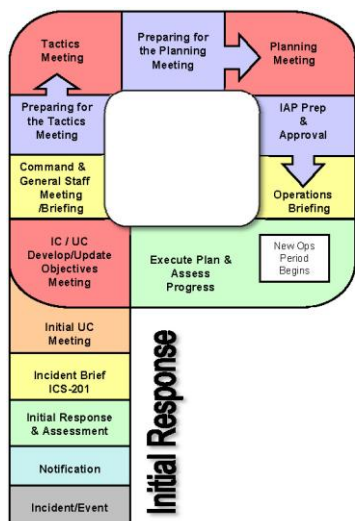


Who: Members of IC/UC, Command and General Staff, technical specialists as required.

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

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

Incident Action Plan Preparation and Approval



Who: Planning Section Chief, Operations Section Chief.

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

How: Complete the following forms:

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

Forms can be found at:

http://training.fema.gov/EMIWeb/IS/ICSResource/ICSResCntr_Forms.htm

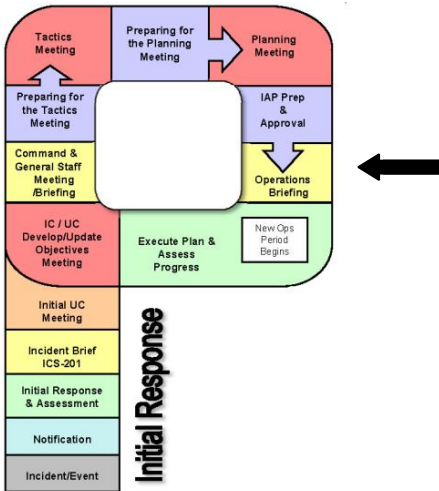
Operations Briefing

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

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

How: Cover the following areas:

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



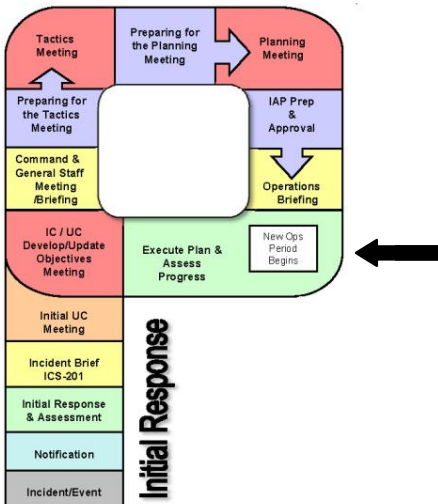
Execute Plan and Assess Progress

Who: Entire ICS team.

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

How:

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



Bay Delta Rapid Response Plan for Dreissenid Mussels

The timeline for quagga/zebra mussel aquatic control and eradication efforts will vary widely according to a number of factors including: Extent of infestation, location, weather conditions, etc. At the end of each operational period, the CDFG ISP should assess progress and determine if further action is needed (refer to Figure 1, pg. 8). If additional action is needed, the ICS planning process should begin again. At the conclusion of the rapid response, a final report and press release detailing actions and outcomes should be prepared and delivered. (See Appendix C for examples of press releases.)

Literature Cited

- California Department of Fish and Game, Habitat Conservation Branch, Invasive Species Program. 2007. Rapid Response Plan for Aquatic Invasive Species in California.
- California Department of Fish and Game. 2008. California Aquatic Nuisance Species Management Plan. <http://www.DFG.ca.gov/invasives/plan/AISMgmtPlan.pdf>
- Columbia River Basin, 100th Meridian Initiative. 2008. Columbia River Basin Interagency Invasive Species Response Plan: Zebra Mussels and Other *Dreissenid* Species.
- Deal, Tim, Michael de Bettencourt, Vickie Huyck, Gary Merrick, and Chuck Mills. 2006. Beyond Initial Response: Using the National Incident Management System's Incident Command System. Author House, Bloomington, Indiana.
- Environmental Protection Agency. 2005. Overview of EPA Authorities for Natural Resource Managers Developing Aquatic Invasive Species Rapid Response and Management Plans. Washington, D.C.
- Environmental Protection Agency. 2007. National Environmental Policy Act. www.epa.gov/oecaerth/basics/nepa.html
- Mid-Atlantic Panel on Aquatic Nuisance Species (MAP). 2009. Rapid Response Planning for Aquatic Invasive Species: A Maryland Example RR Plan. <http://www.midatlanticpanel.org/resources/documents/MarylandPlanFinal.pdf>
- National Invasive Species Council. 2008. 2008-2012 National Invasive Species Management Plan.
- U.S. Fish and Wildlife Service. 2007. Injurious Wildlife. A Summary of the Injurious Provisions of the Lacey Act (18 U.S.C. 42; 50 CFR 16).
- Veldhuizen, T. 2004. Zebra Mussel Rapid Response Plan for California. Prepared for the California Bay-Delta Authority (CBDA Project No. 99-F07) and the U.S. Fish and Wildlife Service. Sacramento, CA. June 30, 2004.

Appendix A

Decision Tree for When to Take Action on Quagga/Zebra Mussels in the Delta

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

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

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

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

If yes, go to Step 3. If no, record incident in USGS database (<http://nas.er.usgs.gov/>) but recommend “No action” as an incident. Note: In this case, the situation is an **issue** rather than an **incident** (see introduction for distinction). The determination of “**no action**” does not preclude action as an “**issue**,” but the conceptual framework for such evaluation is beyond the scope of this plan.

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

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

Criteria considered for **Action**:

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

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

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

Appendix B

Incident Command System Job Descriptions

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

Figure 1 below illustrates the upper level of personnel organization for the Incident Command System. The Incident Commander oversees the entire response effort. Until the Incident Commander delegates a management function (Operations, Planning, Logistics or Finance/Administration) to another person, he/she must perform the required functions for each position.

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

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

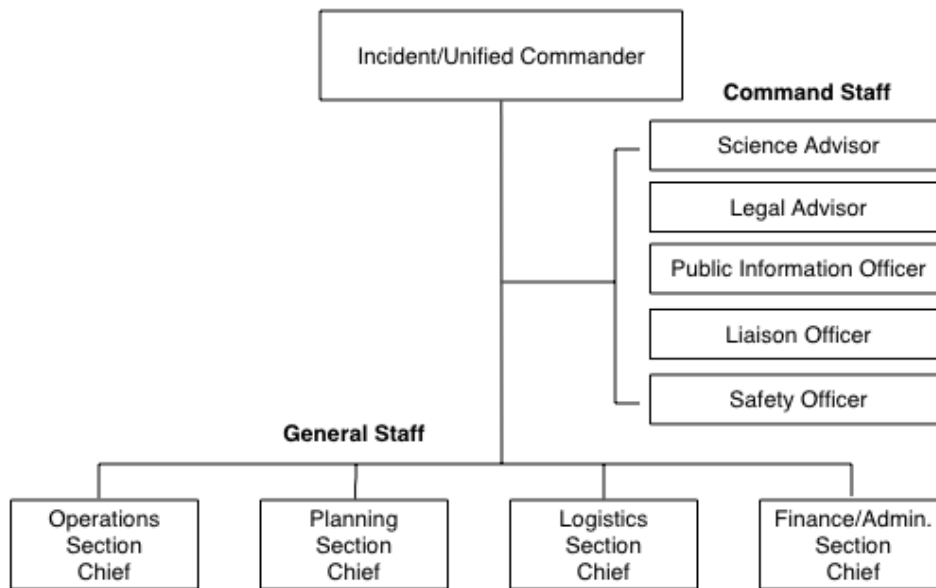


Figure 1. Personnel organization for the Incident Command System.

Bay Delta Rapid Response Plan for Dreissenid Mussels

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

Incident Commander

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

Primary Responsibilities:

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

Unified Command

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

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

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

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

Operations Section Chief

Desired Attributes: Leader, gives clear direction, conscientious.

Primary Responsibilities:

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

Planning Section Chief

Desired Attributes: Strong facilitator and communicator.

Primary Responsibilities:

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

Logistics Section Chief

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

Primary Responsibilities:

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

Finance/Administration Section Chief

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

Primary Responsibilities:

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

Science Advisor

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

Primary Responsibilities:

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

Legal Advisor

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

Primary Responsibilities:

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

Liaison Officer

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

Primary Responsibilities:

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

Public Information Officer

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

Primary Responsibilities:

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

Safety Officer

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

Primary responsibilities:

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

Bay Delta Rapid Response Plan for Dreissenid Mussels

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

Appendix C
**Examples of Press Releases for
Hypothetical Quagga/Zebra Mussel Incident in the California Delta**

Initial Identification

Biologist Identifies Invasive Mussel Found in **WATERBODY** as a Zebra Mussel

CITY, STATE (DATE) – **LEAD AGENCY** received notification today that the bivalve found in **WATERBODY** was positively identified as an invasive zebra mussel by **NAME**, a biologist with **AFFILIATION**.

The mussel was found by a local angler Monday night. Worried that the recreational boaters would introduce the mussel to other reservoirs in the state, officials have closed **WATERBODY** to all boating activity. **LEAD AGENCY** is aiming to contain the species in this **WATERBODY**.

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

Source Identification

LEAD AGENCY Officials Identify Source of Zebra Mussel

CITY, STATE (DATE) – **LEAD AGENCY** officials today announced how the invasive mussel likely introduced. An unnamed individual launched a contaminated vessel into the **WATERBODY NAME** sometime in 20XX.

“This situation again points out the responsibility water recreationists share to ensure all water craft is cleaned, drained, and dried before entering a waterbody to prevent accidental introductions of non-native bait, plants or other species when we go fishing, boating, or otherwise venture into the natural environment,” said **REPRESENTATIVE FROM LEAD AGENCY**.

LEAD AGENCY officials discovered the presence of the species in May, after an angler found the unusual shellfish and provided a photo for identification. Since that time, the presence of additional zebra mussels in the lake has been confirmed. Because zebra mussels can displace native species and pose an economic threat to California’s infrastructure and recreation industries by clogging water intakes, and fish screens; impede distribution of municipal water supplies, agricultural irrigation, and power plant operation, the zebra mussel poses a potential risk of significantly disrupting the local aquatic ecosystem.

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

Team Assembled

Zebra Mussel **Incident Command System Team** Assembled, First Meeting Planned

CITY, STATE (DATE) – LEAD AGENCY SECRETARY announced the formation of a team to respond to the incidence of zebra mussels in **WATERBODY**. Because of the ecological and economical costs and invasive nature of this shellfish, the zebra mussel poses a potential risk of significantly disrupting the local aquatic ecosystem.

The team has been assembled to evaluate the risk and recommend management responses to the presence of the invasive zebra mussel, which was identified in **WATERBODY** in May.

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

“We appreciate the commitment these team members have made to address the risks posed by the zebra mussel in a timely and coordinated manner,” **LEAD AGENCY SECRETARY** said.

The committee members are:

Incident Commander: **NAME**

Science Advisor: **NAME**

Legal Advisor: **NAME**

Public Information Officer: **NAME**

Liaison Officer: **NAME**

Safety Officer: **NAME**

Operations Section Chief: **NAME**

Planning Section Chief: **NAME**

Logistics Section Chief: **NAME**

Finance/Administration Section Chief: **NAME**

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

Recommended Action

Zebra Mussel Incident Command System Team Recommends Draining Reservoir To Eradicate Zebra Mussel **WATERBODY**

CITY, STATE (DATE) - LEAD AGENCY SECRETARY or INCIDENT COMMANDER today received and released the findings of the Zebra Mussel Incident Command System Team, which recommends draining the infested water to eradicate the shellfish in the **WATERBODY**.

“I would like to thank the team for their thoughtful and prompt evaluation of the threat of this invasive mussel and their assessment of the options available for control and eradication in the reservoir zebra mussels have become established,” **INCIDENT COMMANDER** said.

Bay Delta Rapid Response Plan for Dreissenid Mussels

After consulting scientific experts and considering a wide range of options, the team recommended draining the infested water to eradicate zebra mussels. The drawdown technique of a reservoir to control invasive mussels is commonly used causing oxygen deprivation, thermal treatment, exposure and desiccation to the invasive mussels.

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

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

Course of Action

INCIDENT COMMANDER Announces Course of Action for Zebra Mussel

CITY, STATE (DATE) – INCIDENT COMMANDER announced today that **LEAD AGENCY** will move forward with recommendations of the Incident Command System team to eradicate the zebra mussel from a **WATERBODY** by dewatering the reservoir.

“We are ready to act in eradicating the zebra mussel from this reservoir,” **INCIDENT COMMANDER** said. “I want to thank the team once again for providing their time and expertise to efficiently make these recommendations. I feel confident that this is the most effective and efficient course of action.”

When the process begins, **LEAD AGENCY** staff will notify all affected water districts affected by the dewatering of the **WATERBODY** to eliminate invasive mussel populations.

Approximately one to two weeks after the dewatering of the reservoir, the **LEAD AGENCY** staff will remove dead and decaying fish and other life forms on a daily basis by the dewater actions, however, unpleasant odors from decaying organic material are expected.

LEAD AGENCY will continually monitor the site.

Water quality levels at the **WATERBODY** are expected to return to normal within weeks of refilling the reservoir.

The zebra mussel was discovered in the reservoir in May. Subsequent mussels were found and positively identified as zebra mussels.

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

Results

LEAD AGENCY Completes reservoir dewatering.

CITY, STATE (DATE) - LEAD AGENCY officials have not found any live mussels this morning to the four-acre **WATERBODY** and the adjacent smaller lakes and reservoirs.

Biologists will continue to monitor over the course of the year for indications of new mussel populations.

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

Follow Up

STATE AGENCY to prohibit recreational boating at the **WATERBODY**

CITY, STATE (DATE) – STATE AGENCY biologists today will conduct early detection surveys at the **WATERBODY** to ensure all invasive mussels were eradicated.

More than 100 surveys have been conducted over the past year since zebra mussels were first detected in **WATERBODY**. The **WATERBODY** will be listed as suspect but it is likely the action was successful and has killed all the invasive mussels in the reservoir.

For more information about the zebra mussel and its close relative the quagga mussel, click on <http://www.DFG.ca.gov/invasives/quaggamussel>

**Example of Actual Press Releases for
San Justo Reservoir Quagga/Zebra Mussel Incident in Northern California**

Zebra Mussels Found in California Reservoir

Jan. 16, 2008

Zebra mussels have been found in the San Justo Reservoir in San Benito County, the Department of Fish and Game (CDFG) confirmed today. This is the first population of this destructive invasive species to be found in California waters.

"The discovery of Zebra mussels in a central California waterway has us very concerned," said Secretary for Resources Mike Chrisman. "Like its relative the Quagga mussel, this species can cause significant environmental, recreational and economic impacts once established in a body of water. It is important that boaters do everything they can to help stop their spread." An angler fishing in the San Justo Reservoir last week reported landing a clump of what appeared to be mussels. These mussels and a sample collected by CDFG biologists were then verified to be Zebra mussels by the California Department of Food and Agriculture (CDFA) laboratory. Similarly, Quagga mussels were first detected in the Colorado River system in January 2007 and were later found in San Diego and Riverside counties by state and local water agencies.

A multi-agency taskforce that includes CDFG, Department of Water Resources (DWR), the Department of Boating and Waterways and California State Parks has responded with surface and underwater inspectors to determine the extent of the threat to California waters from Zebra and Quagga mussels.

No mussels have been detected on artificial substrates in the San Luis Reservoir, which flows into the San Justo Reservoir, or in the O'Neill Forebay. So far, mussels have not been found anywhere in California's State Water Project (SWP), which draws its water from Northern California watersheds. DWR regularly monitors for Zebra and Quagga mussels throughout the SWP, one of the largest water and power systems in the United States. Both species of mussel are non-native aquatic mollusks that wreak havoc with the environment by disrupting the natural food chain and releasing toxins that affect other aquatic species. Although they range in size from microscopic to the size of a fingernail, they are prolific and attach themselves to hard and soft surfaces. Boats are the primary transporters of Zebra and Quagga mussels. The Zebra mussels inhabit water depths from 4 to 180 feet, with Quagga reaching depths more than 400 feet, and can attach to and damage boat trailers, cooling systems, boat hulls and steering equipment. Mussels attached to watercraft or trailers can be transported and spread to other water bodies. Water in boat engines, bilges, live wells and buckets can carry mussel larvae (veligers) to other water bodies as well. A mussel infestation can potentially lead to the closure of boating in affected waterways. San Benito County Public Works closed San Justo Reservoir to all boating activity.

The main risk of mussel introduction into the SWP is from trailered boats. It is important to follow the steps listed below and to cooperate with vessel inspections that are being conducted at

Bay Delta Rapid Response Plan for Dreissenid Mussels

a number of CDFA border inspection stations around the state to help prevent the spread of Zebra or Quagga mussels to any water system. All boaters and anyone who accesses freshwater aquatic environments should take the following steps to inhibit the spread of mussels when leaving the water:

- Inspect all exposed surfaces - small mussels feel like sandpaper to the touch
- Wash the hull of each watercraft thoroughly, preferably with high pressure/hot water
- Remove all plants and animal material
- Drain all water and dry all areas
- Drain and dry the lower outboard unit
- Clean and dry all live-wells
- Empty and dry any buckets
- Dispose of all bait in the trash
- Wait five days and keep watercraft dry between launches into different fresh waters

A toll-free phone line, 1-866-440-9530, has also been established for anyone involved with activities on lakes and rivers seeking information about Zebra or Quagga mussels. This public line is staffed Monday through Friday, 8 a.m. to 5 p.m.

CDFG is also conducting trainings around the state about how to inspect boats for Zebra and Quagga mussels. The trainings are open to water managers, marina operators and other local, county and state officials. The next trainings are scheduled in Sacramento on Jan. 23, and Fresno on Jan. 24. To register for either class, officials should call (916) 928-8330 as soon as possible to ensure a seat. There is no charge for attending the class.

For more information on Zebra and Quagga mussels, visit the CDFG Web site at www.DFG.ca.gov/invasives/quaggamussel.

Appendix D
Selected Aquatic Invasive Species Resources

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

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

U.S. Army Corps of Engineers
Invasive Species Management Program
<http://www.saj.usace.army.mil/Divisions/Operations/Branches/InvSpecies/index.htm>

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

U.S. Geological Survey
Invasive Species Database
<http://nas.er.usgs.gov/>

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

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

Western Regional Panel
<http://www.fws.gov/answest/>

100th Meridian Initiative
<http://www.100thmeridian.org/>

Appendix E

Federal and State Legal Authorities for Rapid Response in California

Federal:

- The National Invasive Species Act (NISA 1996) (16 U.S.C. § 4701. et seq.) reauthorized and amended the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. NISA established the Aquatic Nuisance Species Task Force (ANSTF) to assess whether aquatic nuisance species threaten the ecological characteristics and economic uses of U.S. waters. The ANSTF is also directed to evaluate approaches for reducing risk of adverse consequences associated with unintentional introduction of aquatic species. The NISA also authorized funding for state and regional management of aquatic non-indigenous species plans, research on aquatic nuisance species prevention and control in major aquatic systems.
- Executive Order 13112 enacted February 13, 1999, by the President of the United States, directs all federal government agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause (Federal Register Vol. 64, No. 25 /Monday, February 8, 1999 / Presidential Documents).
- The Lacey Act authorizes the Secretary of the Interior to regulate importation and interstate transport of animal species determined to be injurious. Injurious wildlife are mammals, birds, amphibians, reptiles, fish, crustaceans, mollusks and their offspring or gametes that are injurious to the interests of human beings, agriculture, horticulture, forestry, wildlife or wildlife resources of the United States. Regulation of transport or use within a State is the responsibility of each State. Possession of a species, within State boundaries, is also the responsibility of each State and is not regulated by an injurious wildlife listing. (<http://www.fws.gov/le/pdf/files/Lacey.pdf>)
- The National Environmental Policy Act (NEPA) requires federal agencies to consider the environmental impacts of their proposed actions and reasonable alternatives to those actions. Rapid response efforts for aquatic invasive species may require completion of the NEPA process. The process consists of an evaluation of the environmental effects of a federal undertaking including its alternatives. There are three levels of analysis depending on whether or not an undertaking could significantly affect the environment. These three levels include: categorical exclusion determination; preparation of an Environmental Assessment/Finding of No Significant Impact (EA/FONSI); and preparation of an Environmental Impact Statement (EIS) (EPA 2007).
- The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is the principal law that authorizes the Environmental Protection Agency to regulate the manufacture, distribution, sale, and use of pesticides in the United States. FIFRA Section 18 authorizes EPA to allow states to use a pesticide for an unregistered use for a limited time if EPA determines that emergency conditions exist. (For more information about FIFRA Section 18 emergency exemptions, see www.epa.gov/opprd001/section18. For the text of Federal regulations regarding emergency exemptions, see 40 CFR Part 166 www.access.gpo.gov/nara/cfr/waisidx_04/40cfr166_04.html. See

Bay Delta Rapid Response Plan for Dreissenid Mussels

http://www.epa.gov/owow/invasive_species/invasives_management/fifra18.html for more information on the FIFRA Section 18 exemption.

- FIFRA Section 24(c) authorizes states to register an additional use of a federally-registered pesticide product or a new end-use product to meet a special local need, such as a rapid response or control action. (EPA 2005 p. 20). (For EPA guidance on FIFRA Section 24(c) registrations, see www.epa.gov/opprd001/24c)
- Clean Water Act Section 402 establishes the National Pollution Discharge Elimination System (NPDES) permit program to regulate point source discharges of pollutants into waters of the United States. The EPA has authorized the Mid-Atlantic states (save District of Columbia) to assume many of the permitting, administrative, and enforcement responsibilities of the NPDES permit program. A statement issued by EPA in January 2005 states that the application of a pesticide to waters of the United States consistent with all relevant requirements under the FIFRA does not require a Federal NPDES permit in the following two circumstances: 1. the application of pesticides directly to waters of the United States to control pests or 2. the application of pesticides to control pests that are present over waters of the United States, including near such waters; that results in a portion of the pesticides being deposited to those waters (EPA 2005 p. 8).
- Clean Water Act Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Responsibility for administering and enforcing Section 404 is shared by the US. Army Corps of Engineers (USACE) and EPA. It is possible that some mechanical/physical AIS rapid response control methods, such as the mechanized clearing of riparian areas to remove AIS, or dumping of fill material to smother AIS, might require Federal or state Section 404 permits (only New Jersey and Michigan have state 404 permits). EPA and USACE regard the use of mechanized earth-moving equipment to conduct activities in waters of the United States (e.g., land clearing, ditching, channelization, and in-stream mining) as regulated discharge of dredged or fill material under Section 404 unless project-specific evidence shows otherwise. Natural resource managers should consult the appropriate USACE District office when planning AIS rapid response or control action to determine if these actions require a Federal Section 404 permit (EPA 2005 p.10).
- Federal Noxious Weed Act (7 U.S.C. §§ 2801-2814) defines a noxious weed as any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind which is of foreign origin, is new to or not widely prevalent in the U.S., and can directly or indirectly injure crops, other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health (United States Congress 1974). Under the Act, the Secretary of Agriculture has the authority to prohibit the importation and interstate transportation and sale of species that the Secretary has deemed noxious through actions such as inspection and quarantine. The Secretary is allowed to seize, treat, destroy and dispose of items that have been contaminated with a noxious weed (University of Connecticut 2004).

State:

In California, many state agencies have authority over and regulatory roles for managing natural resources. While diverse agencies have some authority to regulate AIS, there has been no centralized authority or management structure to coordinate AIS activities before this plan. The legal frameworks that apply to control of aquatic invasive species introductions are broad and varied. This section describes the existing authorities that various state agencies and entities have for managing AIS in California.

CALIFORNIA AUTHORITIES

**California Environmental Quality Act (CEQA)
(CA Public Resources Code §§ 21000 et seq.)**

<http://ceres.ca.gov/ceqa/>

The California Environmental Quality Act (CEQA) requires public disclosure of all significant environmental effects of proposed discretionary projects. If a project would cause significant effects, final documents in the CEQA process show: 1) what mitigation measures will be required to reduce particular effects to a less significant level; and 2) provide justifications for the approval of the project with particular significant effects left unmitigated (i.e. a finding of overriding consideration). CEQA also contains lists of project types exempt from this process. A “significant” impact is a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, [and] fauna . . .”. The documented adverse impacts associated with invasive species can fit this broad definition.

**California Porter-Cologne Water Quality Control Act
(CA Water Code §§ 1300 et seq.)**

http://www.swrcb.ca.gov/laws_regulations/docs/portercologne.pdf

Under California’s Porter-Cologne Water Quality Control Act, “any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state” must file a report of the discharge with the appropriate Regional Water Quality Control Board (RWQCB). Pursuant to the act, the RWQCB then prescribes “waste discharge requirements” related to control of the discharge. The act defines “waste” broadly, and the term has been applied to a diverse array of materials. The San Francisco Bay RWQCB, for example, has determined that “ballast water and hull fouling discharges cause pollution as defined under the Porter-Cologne Water Quality Control Act.”

The act, (California Water Code, Division 7), lists a number of types of pollutants that are subject to regulation by the State Water Resources Control Board (SWRCB). Section 13050, for example, specifically includes the regulation of "biological" pollutants by defining them as relevant characteristics of water quality subject to regulation by the Board: AIS are an example of this kind of pollutant if they are discharged to receiving waters. The SWRCB also regards the application of pesticides to control AIS in waters of the state as a discharge of a pollutant requiring an NPDES permit. Several of the Regional Boards have taken legal policy and

enforcement actions related to AIS (see also CWA in Appendix B and SWRCB in California Agencies).

Fish and Game Code and Title 14 of the California Code of Regulations

<http://www.leginfo.ca.gov/calaw.html>

The Fish and Game Code consists of the laws passed by the state legislature that pertain to fish and wildlife resources. Under statutes in the Fish and Game Code, the California Fish and Game Commission has the responsibility for the adoption of regulations that provide details on how certain Fish and Game laws are to be implemented. These regulations are published in Title 14 of the California Code of Regulations. A summary is provided below of Fish and Game Code Sections that address invasive species issues or may relate to control actions.

F& G Code §§ 2080 – 2089 CDFG regulates the take of species listed under the California Endangered Species Act. In addition to the instructions in the Fish and Game Code, guidelines for this process are located in Title 14, Division 1, Subdivision 3, Chapter 6, Article 1 of the California Code of Regulations. These statutes and regulations should be consulted if AIS control measures have the potential to impact State-listed species.

F & G Code §§ 2118, 2270-2300: CDFG is responsible for enforcement of importation, transportation and sheltering of restricted live wild animals; places importation restrictions on aquatic plants and animals; and prohibits nine species of *Caulerpa*.

F & G Code §§6400-6403: It is unlawful to place live fish, fresh or saltwater animals or aquatic plants in any waters of this state without a permit from CDFG.

F & G Code §§15000 et seq.: CDFG is responsible for regulations pertaining to the aquaculture industry, including disease issues.

Harbors & Navigation Code

The Harbors & Navigation Code, Article 2, Section 64, authorizes the Department of Boating and Waterways to manage aquatic weeds affecting the navigation and use of the state's waterways.

Ballast Management for Control of Nonindigenous Species Act (AB 703) of 1999

This act charged the California State Lands Commission (SLC) with oversight of the state's first program to prevent nonindigenous species (NIS) introductions through the discharge of ballast water from commercial vessels of over 300 gross registered tons (GRT). The 1999 act required that vessels originating from outside the United States Economic Exclusive Zone (U.S. EEZ) carry out mid-ocean exchange or use an approved ballast water treatment method, before discharging in California state waters. The SLC was tasked with: receiving and processing ballast management reports from all such vessels, monitoring ballast management and discharge activities of vessels through submitted reports, inspecting vessels for compliance and assessing vessel reporting rates and compliance. The activities and analyses of the first few years of the

program are detailed in the 2003 biennial report of the California Ballast Water Management Program. Upon the sunset of the act, the Marine Invasive Species Act (AB 433) was passed in 2003, revising and widening the scope of the program to more effectively address the invasion threat (see below).

Marine Invasive Species Act (AB 433) of 2003 (Public Resources Code, Sections 71200-71271; Title 2, California Code of Regulations, Section 2271)

The Marine Invasive Species Act, passed in 2003, revises and recasts the state's law pertaining to control of nonindigenous species and ballast water management (AB 703). It imposes additional requirements upon vessel masters, owners, operators and persons in charge of vessels to prevent the introduction of nonindigenous species into waters of the state or waters that may impact the waters of the state. The bill deletes exemptions for specified vessels from compliance with the act and revises the qualifications for the vessels subject to the act.

Ballast water management is required of all vessels greater than 300 gross registered tons (GRT) that intend to discharge ballast water in California waters, though the regulations differ depending on voyage origin. All qualifying vessels coming from ports within the Pacific Coast region must conduct near-coast exchange (in waters at least 50 nautical miles offshore and 200 meters deep) or retain all ballast water and associated sediments. There are exceptions that address safety concerns and for vessels that transit wholly within defined shared waters (San Francisco/-Stockton/Sacramento Delta, and Los Angeles/Long Beach/El Segundo Complex).

All vessels must complete and submit a ballast water report form upon departure from each port of call in California. They must also comply with the good housekeeping practices, ranging from avoiding discharge near marine sanctuaries to rinsing anchors and removing fouling organisms from the hull. They must maintain a ballast water management plan prepared specifically for the vessel; keep a ballast water log outlining ballast water management activities for each ballast water tank on board the vessel, and make the separate ballast water log available for inspection; conduct training of vessel master, person in charge, and crew regarding the application of ballast water and sediment management and treatment procedures; and pay a fee for each qualifying voyage at their first port of call in California.

In addition to requirements imposed upon vessels operating in state waters, the SLC was charged with the development of several legislative reports offering policymaking guidance on commercial vessel AIS issues including: A Report on Commercial Vessel Fouling in California, Analysis, Evaluation and Recommendations to Reduce Nonindigenous Species Release from the Non-Ballast Water Vector; a Report on Performance Standards for Ballast Water Discharges in California Waters; and a Report on the California Marine Invasive Species Program. These efforts have resulted in the development of regulations to stem transport of AIS in the ballast water of vessels operating with the Pacific Coast Region; and legislation directing SLC to adopt regulations on performance standards for ballast water discharges.

Finally, the legislation also requires CDFG to conduct a series of biological surveys to monitor new introductions to coastal and estuarine waters of the state and to assess the effectiveness of the management provision of the Act. AB 703, passed in 1999, required a baseline survey of the

state's ports, harbors and bays. AB 433 expanded the baseline to include outer coast sites and required continued monitoring of all sites to determine if the ballast control measures have been successful in reducing the number of new introductions.

Coastal Ecosystems Protection Act of 2006 (Public Resources Code, Sections 71204.7 – 72423) (Revenue and Taxation Code, Section 44008)

The Coastal Ecosystems Protection Act, passed in 2006, adds to the state's law pertaining to the discharge of ballast water (AB 433). It requires the SLC to adopt regulations that require an owner or operators of a vessel carrying, or capable of carrying, ballast water that operates in the waters of the state to implement certain interim and final performance standards for the discharge of ballast water.

California Ocean Protection Council Strategic Plan

http://www.opc.ca.gov/webmaster/ftp/pdf/docs/OPC_Strategic_Plan_2006.pdf

<http://resources.ca.gov/copc>

The California Ocean Protection Council, formed to coordinate the activities of ocean-related state agencies and improve state efforts to protect ocean resources, among other mandates (see California State Agencies), adopted a five-year strategic plan in 2006. The strategic plan supports the completion and implementation of both the state rapid response plan and this California Aquatic Invasive Species Management Plan, as well as the California Noxious and Invasive Weed Action Plan.

Delta Protection Act

www.delta.ca.gov

California's 1992 Delta Protection Act recognizes the natural resource significance of the 738,000 acre-Sacramento-San Joaquin Delta. The act seeks to preserve and protect Delta resources for the use and enjoyment of current and future generations and recognizes the threat posed by urban encroachment to the Delta's agriculture, wildlife habitat and recreation uses. Pursuant to the Act, a Land Use and Resource Management Plan for the Primary Zone (Management Plan) was completed and adopted by the Commission in 1995. The Management Plan sets out findings, policies and recommendations resulting from background studies in the areas of environment, utilities and infrastructure, land use, agriculture, water, recreation and access, levees and marine patrol boater education/safety programs. As mandated by the act, the policies of the Management Plan are incorporated in the General Plans of local entities having jurisdiction within the Primary Zone. Some of the plan sections relevant to AIS management include: Environment, Finding 8 and Recommendations 3 & 4; Water, Policy 2; and Marine Patrol, Boater Education & Safety, Policy 6.

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

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

Bay Delta Rapid Response Plan for Dreissenid Mussels

- United States Fish and Wildlife Service (USFWS) (Federal)
- Western Regional Panel on Aquatic Invasive Species (Interagency)
- Environmental Protection Agency (EPA) (Federal)
- National Oceanic and Atmospheric Administration (NOAA) (Federal)
- US Army Corps of Engineers (Federal)

Appendix F

**Aquatic Invasive Species Sighting Report Form Links
(CDFG Report Form Template on following page)**

Notification regarding potential AIS in California may happen by a variety of ways. The preferred method is if a plant or insect is suspect to be a new invasive species, contact the county agricultural commissioner's office. A contact list can be found at:
www.cdfa.ca.gov/exec/county/county_contacts.html.

For questions about sightings of an animal (non-insect) or marine plant that may be an invasive species, telephone the Invasive Species Program at (866) 440-9530 or send an e-mail to invasives@DFG.ca.gov.

As another option, the United States Geological Survey's online Sighting Report Form (<http://nas.er.usgs.gov/SightingReport.asp>) can be used or calling the notification hotline at 1-877-STOPANS. Upon receiving the report, USGS officials will notify the CDFG ISP.

If other state and federal entities are the first to receive notification, they should gather information from the reporter as outlined on the AIS Sighting Report form (following page). Send completed forms to the CDFG ISP by email to invasives@DFG.ca.gov.

Links to reporting forms can be found on the CDFG ISP website:
http://www.DFG.ca.gov/invasives/inv_reporting/sightingReport.html .

Suspect Invasive Species Sighting Report

You may not be able to provide all of the information requested below, but please fill in as much as you can.

General type of organism (plant, shellfish, snake, etc) and its name if known

Date of Sighting

Description of organism (size, color, shape and other distinguishing characteristics)

The county in California where the sighting took place

Directions to the location of the sighting

If any photographs were taken, please include them when you submit this form.

Landowner or Land Manager (if known)

First and Last name of person who sighted the suspect invasive species

Best phone number to reach this person (include area code): _____

Best time to reach this person:

Day: 8am-noon

Noon-5pm

Eve: 5pm – 9pm

E-Mail address: _____

Mailing Address: _____

When completed, please mail this form and any pictures and/or samples to:

**Invasive Species Program
Habitat Conservation Branch
Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814**