

# Managing Pathway Risks HACCP Planning

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[www.HACCP-NRM.org](http://www.HACCP-NRM.org)



## Field Experience

Bozeman, MT

Pittsford, VT

Cohutta, GA

Erwin, TN

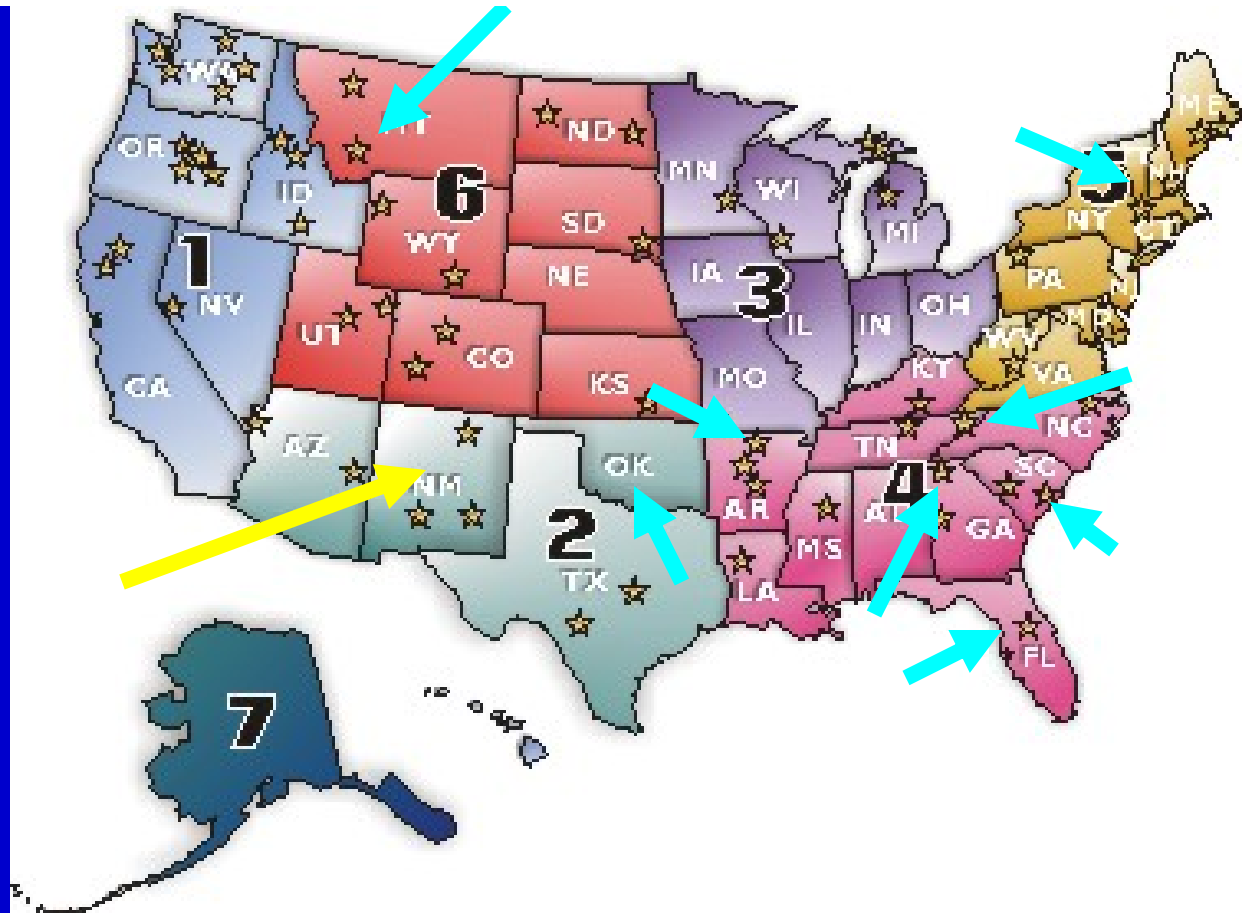
Mammoth Spring, AK

Welaka, FL

Orangeburg/Bears

Bluff, SC

Tishomingo, OK





## Aquatic surveys

**Pathways to spread  
non-target species**

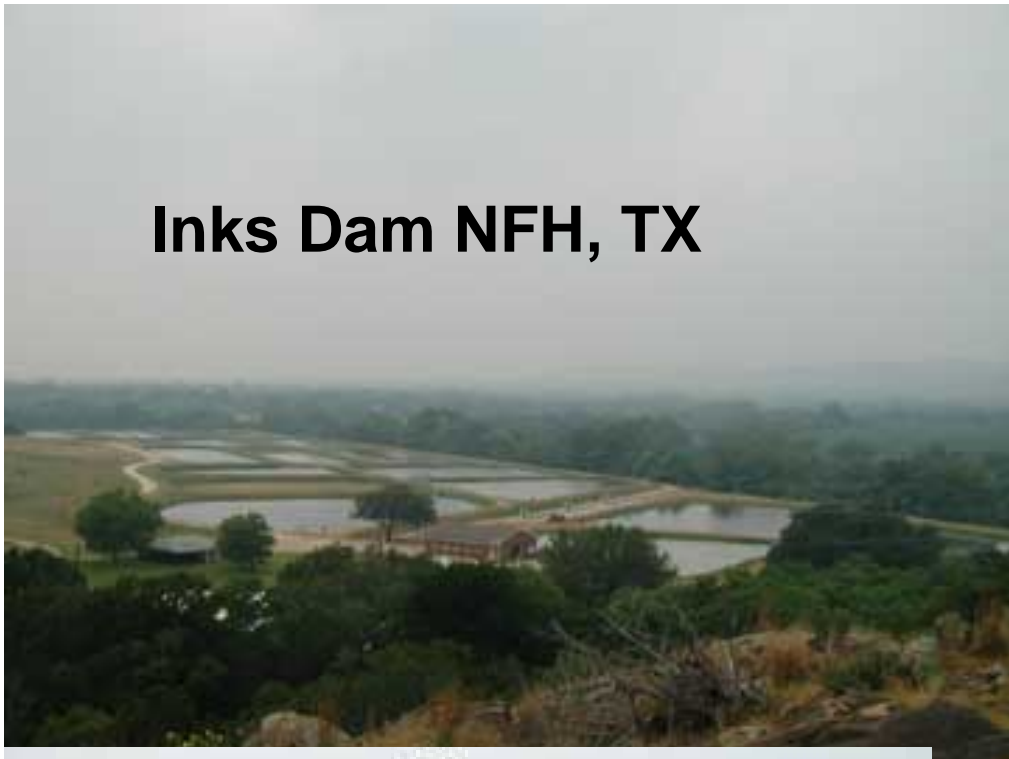


**Three different hatcheries**

**Three different states & FWS Regions**



**Inks Dam NFH, TX**



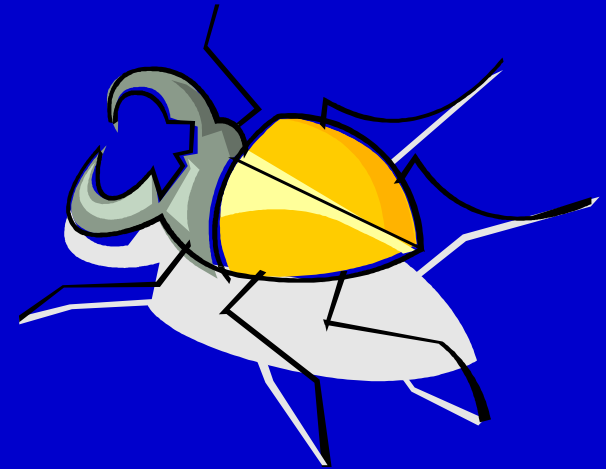
**Five different hatcheries**  
**Five different states**



**1 acre  
production  
pond**



**Needed a consistent method to prevent & remove non-target contaminants**





**Stocking & relocating species are pathways to spread non-target species.**

**How about the work you do?**



HACCP Planning to manage  
distinct pathway risks is  
straightforward



# Hazard Analysis & Critical Control Points (HACCP) Planning

- Developed by Pillsbury food to remove contamination
  - Non-target species contaminate pathways
- FWS adapted HACCP as a planning tool to manage pathway risks

# the 5-step HACCP

- **Stp 1..Describe the activity or pathway**
- **Stp 2..Identify the Hazards**
- **Stp 3..Create a flow diagram**
- **Stp 4..Analyse the Hazards**
- **Stp 5..complete the HACCP Plan**

**HACCP Step 1 – Activity Description**

Facility:  
Project C  
Site Man  
Address:  
Phone:

**HACCP Step 2 – Identify Potential Hazards**

(to be transferred to column 2 of HACCP Step 4 – Hazard Analysis Worksheet)

**Hazards:**

Vertebrates:

Invertebrates:

Plants:

Other Biologics (e.g. di...)

Others (e.g. construction)

Task 1  
Task 2  
Task 3  
Task 4  
Task 5  
Task 6  
Task 7  
Task 8  
Task 9  
Task 10

**HACCP Step 3 – Flow Diagram**

Flow Diagram Outlining Sequential Tasks to Complete Activity/Project Described in HACCP Step 1 – Activity Description

(to be transferred to column 1 of the HACCP Step 4 – Hazard Analysis Worksheet)

1 Tasks (from HACCP Step 3 – Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant? (yes/no)	4 Justify evaluation for column 3	5 What control measures can be applied to prevent undesirable results?	6 Is this task a critical control point? (yes/no)
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Task 1	Task 2

**HACCP Step 5 – HACCP Plan Form**

**HACCP Plan Form**  
(all CCP's or "yes's" from column 6 of HACCP Step 4 – Hazard Analysis Worksheet)

Monitoring								
Critical Control Point (CCP)	Significant Hazard(s)	Limits for each Control Measure	What	How	Frequency	Who	Evaluation & Corrective Action(s) (If needed)	Supporting Documentation (if any)

Facility: \_\_\_\_\_ Activity: \_\_\_\_\_  
Address: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
HACCP Plan was followed.

We all work with protocols & procedures to do our work but not all protocols are equal.

Some protocols or;  
Best Management Practices (BMPs)  
are more effective.



## **Some questions to consider;**

- **How were the protocols (BMPs) developed?**
- **Was the development process documented?**
- **Can the BMPs be compared with protocols others use for similar work?**
  - **A common language is needed for comparison**
- **Can the BMPs be peer reviewed?**

- **Are follow-up procedures identified if any part of the protocol fails?**
- **Is there a documentation trail to show that specified protocols were followed?**

**HACCP planning is probably the best protocol developing engine available.**



# HACCP planning...

- **provides readily comparable BMP's for similar management actions**
- **documents the process for easy review**
- **has the important "sign here" line that the procedures were followed**
- **The HACCP tool strategically guides planners to ask the right questions and formulate comprehensive preventative actions.**

**Good support is essential to encourage HACCP planning on a large scale.**



## Planning is Everything!

Managing Natural Resource Pathways

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### Managing Natural Resource Pathways Planning is Everything!

In natural resource work, equipment and organisms are often moved from one location to another. The specific equipment or organism being moved is called the target. Targets could include animals for relocation or stocking for recreation, equipment such as bulldozers and backhoes, sampling gear such as nets or traps, and even people. Transporting targets provides a potential vector for the spread of non-target species that could potentially invade new habitat. Non-target species are the plants, animals, diseases, pathogens and parasites that are not intended to be moved. As Natural Resource Managers, it is essential that we do our best to remove these hazards from pathways.

Resource management work often creates open pathways that could spread invasive species to unique and critical habitats for already endangered species. Next to habitat loss, invasive species are resource management's biggest challenge. Executive Order 13112, 1998, directs agencies to prevent the spread of invasive species in their work but few management tools exist to implement this Directive. Hazard Analysis and Critical Control Points (HACCP) planning has been modified from the food industry for natural resource work. Around the world industry uses the HACCP planning tool to remove product contamination. In natural resource pathways, hitchhiking species are considered contaminants. HACCP's comprehensive planning identifies these species and the risk of contamination while documenting the best management practices used to prevent and remove hitchhikers.

HACCP planning focuses attention on critical control points where non-target species can be removed. Documenting risks and methods used to remove non target species gives managers a strategic method to make consistent decisions based on identified risks. Planning builds a logical framework of information to weigh risks for species spread against management benefits.

Why? A few errors can have long-lasting affects on agency mission! Additional planning support is available on this website where a planning manual, supporting documents, forms and a database of completed HACCP plans are available in several formats. Please share your best management practices and return completed plans for the database.

#### For more information contact...

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[Help us add to our database!](#)  
[Click here to submit a HACCP plan.](#)

Appropriate planning for species collection, relocation, equipment transfers and other natural resource work prevents spread of hitchhiking species through these pathways.



Pallid Sturgeon Release on the Yellowstone River in North Dakota. Photo Credit: U.S. Fish & Wildlife Service



Fish Stocking Trucks at Jones Hole NPH, Utah. Photo by: Prof. Robert Fishner, Biologist, U.S. Fish & Wildlife Service



FWS Employee Releasing Turkey Vulture. Photo Credit: Hollingsworth, John and Karen, U.S. Fish & Wildlife Service



Prescribed Burn, Lower Jamath NWR, California. Photo Credit: Hollingsworth, John and Karen, U.S. Fish & Wildlife Service

All images above are from  
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# Web-based planning support [www.HACCP-NRM.org](http://www.HACCP-NRM.org)

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**Number of HACCP Plans Available**

STATE	# of HACCP PLANS
<a href="#">AK</a>	3
<a href="#">AR</a>	2
<a href="#">AZ</a>	8
<a href="#">CA</a>	1
<a href="#">GA</a>	9
<a href="#">ID</a>	1
<a href="#">ND</a>	3
<a href="#">NM</a>	14
<a href="#">NY</a>	3
<a href="#">OK</a>	5
<a href="#">TX</a>	19
<a href="#">UT</a>	1
<a href="#">VT</a>	1
<a href="#">WA</a>	5
<a href="#">WI</a>	4
<a href="#">WY</a>	3

**Building a reference library of BMPs to remove non-targets from pathways to easily share BMPs**

# HACCP planning benefits both ends of the pathway

- **At the beginning of the pathway:**
  - **Plans proactively help to prevent the unintended spread of species.**
  - **Agencies and offices document efforts to prevent spread of species**
  - **BMP improvements are tracked through time to maximize effectiveness.**

# Pathway receivers can:

- Evaluate risks and effectiveness of prevention BMP's BEFORE delivery & release.
- High risk pathways can be blocked.

# Resource Allocation

- HACCP planning is an excellent prioritization tool.
- Funding decisions are based on documented facts and analysis.

# Background – why we got involved

- a Fish & Wildlife hatchery stocked multiple “non-target” species from central U.S. into a western river basin.
- HACCP planning was initiated to prevent future spread of non-target species.





**Across the continental divide**



**Asian longhorned beetle**



**emerald ash borer**

**Forest invaders from China now killing U.S. trees!**

**How did they get to the U.S.?**

**How will they spread?**

**Where will they spread?**





**A little planning  
could help  
prevent spread!**

**Invasive species are often “non-targets” moved along with the pallets and products being shipped around the world!**



**Planning Is Everything!**