

# The Past, Present and Future of the Passage Assessment Database, a Tool for Stream Habitat Connectivity Restoration via the Publicly Available CalFish Website

## Overview:

The Passage Assessment Database (PAD) is an ongoing map-based inventory of fish passage assessments related to anadromous fish passage in California, compiled and maintained through a cooperative interagency agreement. It is an important tool for determining and tracking the outcomes of passage improvement projects.

The PAD compiles and standardizes data from more than two hundred agencies, organizations, landowners and individuals.

## History of the PAD:

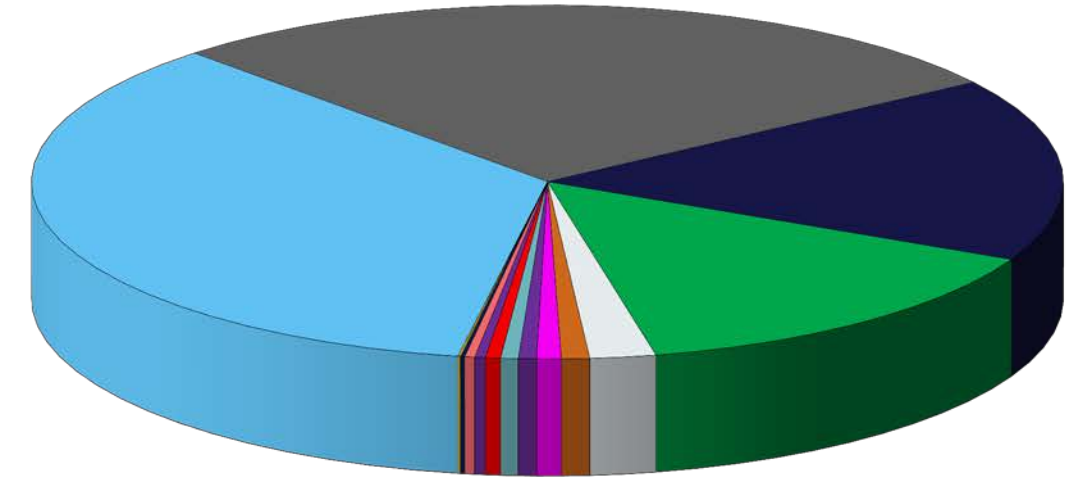
The PAD was developed in 2002 with guidance from the Fish Passage Forum. It was initially funded by the Coastal Conservancy and has subsequently been funded by the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service and NOAA Fisheries.

At the end of the Coastal Conservancy funding in March 2003, there were 3,328 known barriers. As of today there are 6,036 known barriers and 549 barrier remediations in the PAD. The PAD has the same structure and fields since its inception, however new fields and tables have been added to capture upstream miles, miles to the next man-made barrier, number of man-made barriers on a stream, species and life stage, road information, and water rights.

## Information Captured in the PAD:

14 Types of Barriers including

- Road crossing (6772)
- Dam (3225)
- Log jam (396)
- Other (147)
- Unknown (105)
- Fish passage facility (63)
- Flow measurement weir (24)
- Fish trap (8)
- Unscreened water diversion (5286)
- Natural barrier (2767)
- Grade control (169)
- Flood control channel (109)
- Tidegate (91)
- Utility crossing (60)
- Gravel/borrow pits (10)



Before and after photos of a 2011 remediated barrier on Conner Creek, tributary to Trinity River, in Trinity County.

## Additional Information:

- Removed barriers and screened diversions
- Structures where status of the barrier to fish passage is not known
- Sites known not to be a barrier to fish passage
- Limits to anadromy

## Current Status of PAD:

Fish Passage Status	Number of Records
Total Barrier	1,959
Partial Barrier	1,469
Temporal Barrier	1,089
Temporal and Partial Barrier	120
Temporal and Total Barrier	32
Unknown Passage Status	4,403
Unassessed	1,832
Unscreened Diversion	4,992
Screened Diversion	356
Natural Total Barrier	1,312
Natural Partial Barrier	232
Not a Barrier	1376
Remediated, Fish Response	416
Unconfirmed	
<b>Total</b>	<b>19,588</b>

## Accomplishments over the past year:

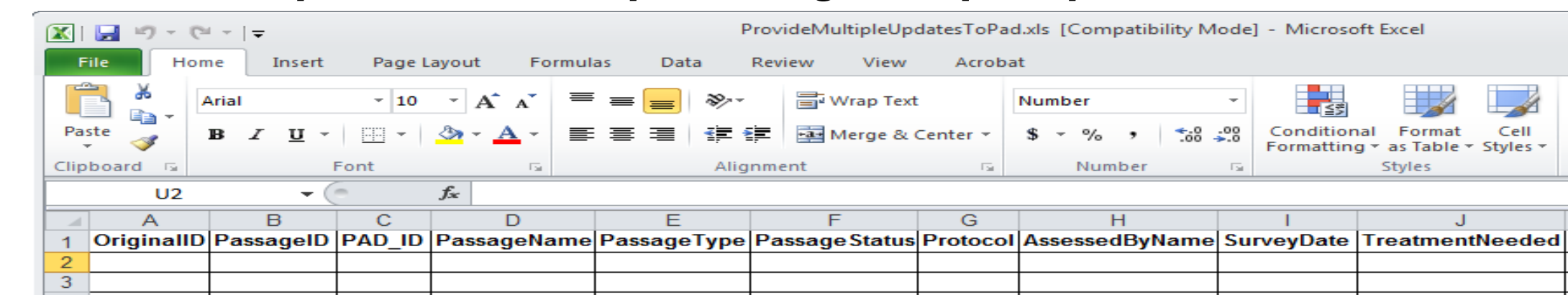
- 322 new PAD records
- 3,777 updated PAD records (most of these include corrected locations)

## What's New to PAD?

➤ **New form for providing updates:**

<http://www.calfish.org/portals/0/Programs/FishPassage/ProvideUpdatesToPad.pdf>

➤ **New excel spreadsheet for providing multiple updates** at once to the PAD:



➤ **New PAD standards** making the data more robust. The new standards define Quality Assurance and Quality Control procedures for reducing duplicate records and barriers incorrectly located, and define who passage status is determined by.

The new standards affect:

1. Removed barriers
2. New PAD records
3. Locations of barriers
4. Barrier status designations

Therefore, we would like:

1. Fish presence evidence (i.e., photos, fish counts) after barrier removal. In absence of fish presence evidence after barrier removal, passage status is listed as 'Remediated, fish response unconfirmed'.
2. Site visits of barriers to determine that they still exist prior to entering them into the database.
3. Description of location if latitude or longitude isn't accurate. The description would include distance (in feet and direction) to the coordinates including nearby landmarks.
4. Barrier status from a fish passage professional. Partial and total barriers will be recorded in the PAD if they were received by a fish passage professional. Otherwise, these barriers will be recorded as unknown passage status until a fish passage professional is sought for expertise.

In the near future, the new standards will be implemented for all existing records. A user will be able to search for records using the new PAD standards.

➤ **New fields added to the PAD Data Portal** including X and Y coordinates.

**What's Coming to the PAD?** New fields for capturing passage status prior to removal, party responsible for removing the barrier, species benefited from barrier removal, California Department of Transportation districts, CDFW regions, and barriers status to other anadromous species (e.g., Lamprey).

## We still need more information including

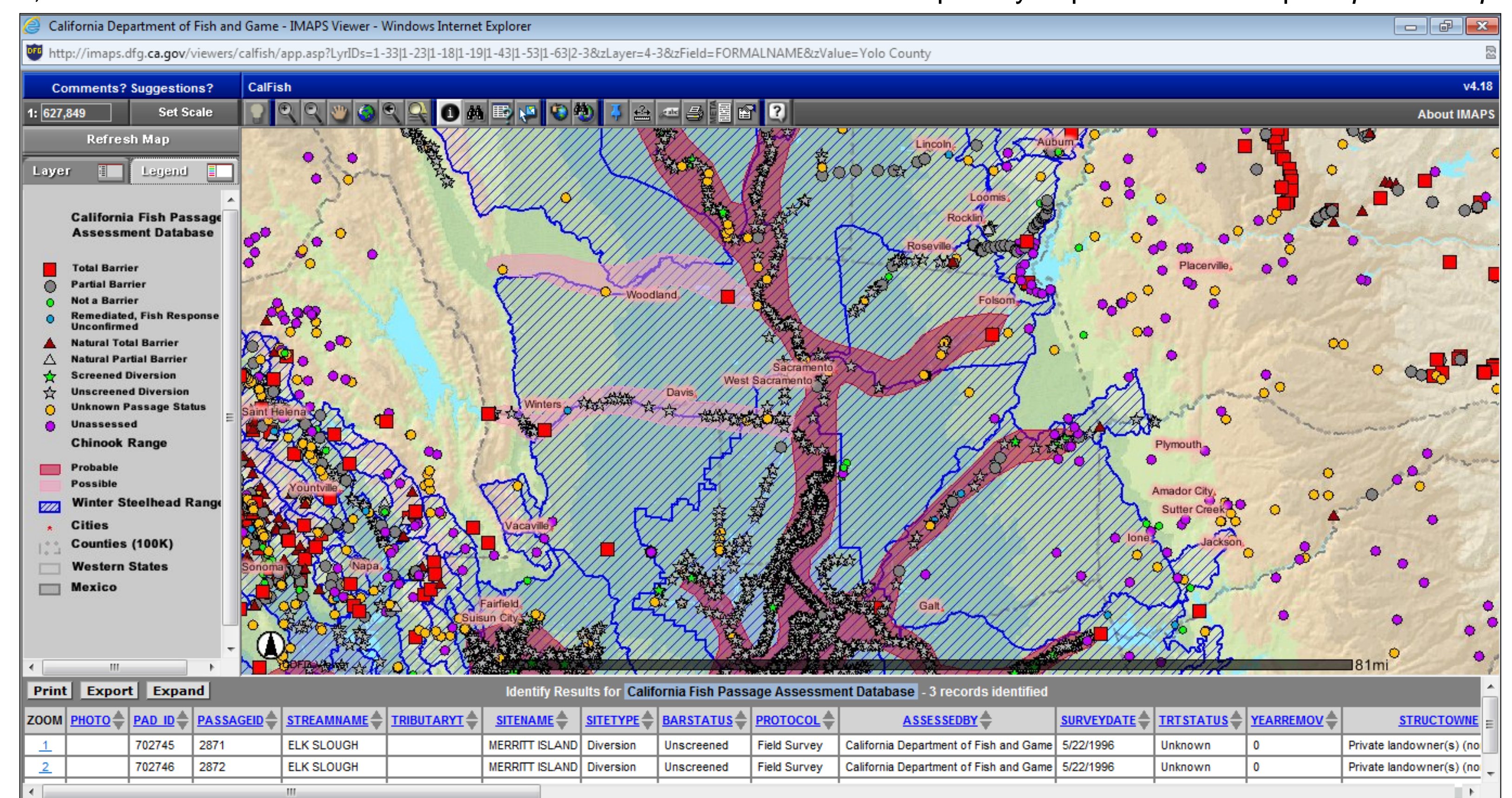
- temperature barriers;
- more limits to anadromy;
- more barrier removal projects;
- more barrier assessments;
- monitoring data;
- more information about species and life stages blocked by each barrier;
- more photographs (roughly 2,000 out of 19,588 records have photographs cataloged);
- and review of unknown passage status and unassessed sites. There are currently 30% of these sites in the PAD originating from several sources including GIS data sources without passage information.

## Accessibility:

PAD can be accessed through [www.calfish.org](http://www.calfish.org)

The **PAD Program Page** includes a description of the PAD; how to access, review and submit data to the PAD; when the PAD was last updated and the frequency of updates; and contact information for more information. This page includes links to passage barrier documents and related sites, and new PAD tools (i.e., barrier removal reports).

The **CalFish Map Viewer**, a web-based mapping application, can be used to display passage barrier sites, and query and export specific details about individual fish barrier sites. The map viewer allows analysis of fish passage sites in relation to each other and other available aquatic datasets, in the context of the whole watershed. The interface includes the capability to print custom maps. *Update frequency: quarterly*



The PAD shapefile can be downloaded from CalFish's **Data Downloads** page. The PAD download is near the top of the Habitat/Physical tab of the Data Downloads page. *Update frequency: quarterly*

The **PAD Data Review & New Barrier Mapping Application** allows editing and review of existing information for use in planning or project development efforts to improve fish passage. Once a user adds a barrier through this application, it's added to a list of other new barriers. The PAD Administrator reviews this list, verifies that it's a new barrier and adds it to the PAD. In many cases more information is needed to determine if the record is a new barrier. In this case, the data submitter is contacted prior to adding or updating information in the PAD. Once a barrier is updated or added, a PAD ID (an unique identifier) is sent to the submitter of barrier information. *Update frequency: quarterly*

The **PAD Data Portal** is a tabular data tool used to query and export details about PAD barriers (e.g., coordinates). The tool links to reference documents and a map view of individual barriers. The data portal is hosted by the California Department of Fish and Wildlife on their webpage and can be accessed through CalFish. *Update frequency: daily*

## Contact Information:

Feedback regarding the accuracy and updates of the PAD data are welcome. For inquiries into how to understand and accurately analyze the data in PAD, or for other PAD related questions and comments please contact

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## Thank You!

Special thanks to CDFW's Fisheries Restoration Grants Program (FRGP) and the U.S. Fish and Wildlife Service (USFWS) for current and past funding of the PAD program. Thanks also to all previous funders and contributors to the PAD. The PAD would not be possible without the support of the CDFW's FRGP and USFWS, and agency and public input.



**Form for providing updates to the Passage Assessment Database (PAD), February 2013**  
Send to: Anne Elston, PAD Administrator, [Anne.Elston@wildlife.ca.gov](mailto:Anne.Elston@wildlife.ca.gov)

**I. Contact Information**

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_ Phone: \_\_\_\_\_  
Agency: \_\_\_\_\_ Email: \_\_\_\_\_

**II. Type of Information**

New barrier  Update

**III. Location**

Stream name: \_\_\_\_\_ Tributary to: \_\_\_\_\_  
Longitude: \_\_\_\_\_ Datum: \_\_\_\_\_  
Latitude: \_\_\_\_\_  
Are the coordinates accurate (i.e., taken at the barrier)?  Yes  No  
If the coordinates aren't accurate, please explain where the barrier is located (i.e., distance in feet) downstream and side of the bank looking downstream:  
Road route name: \_\_\_\_\_ Milepost: \_\_\_\_\_  
Photos?  Yes  No  
Photo Description (e.g., looking upstream or downstream, before and after removal, photo of fish species upstream after removal): \_\_\_\_\_

Land owner: \_\_\_\_\_ Structure owner: \_\_\_\_\_

**IV. Structure**

PAD ID (if known): \_\_\_\_\_ Date Constructed: \_\_\_\_\_ Structure Name: \_\_\_\_\_

Structure type:  Diversion  Dam  Food crossing  Utility crossing  Flood control channel  
 Screen present?  Bridge  Log jam  Culvert  Weir  Tidegate  
 Natural  Fish trap  Gravel/borrow pits  Grade control  Other \_\_\_\_\_  
What sort of natural feature? \_\_\_\_\_

Passage status:  Total  Partial  Temporal  Temporal and partial  
 Unassessed  Unknown  Not a barrier

Description: \_\_\_\_\_

Is there a fish way present?  Yes  No  
Status of fish way (e.g., functioning, needs work, etc.): \_\_\_\_\_

**V. Survey Information**

Was there a survey conducted for this site?  Yes  No  
Survey date: \_\_\_\_\_ Protocol used: \_\_\_\_\_  
Assessed by: \_\_\_\_\_  
Fish observed downstream?  Yes  No  
Species: \_\_\_\_\_ Life stage: \_\_\_\_\_  
Fish observed upstream?  Yes  No  
Species: \_\_\_\_\_ Life stage: \_\_\_\_\_  
Species blocked: \_\_\_\_\_  
Lifestage: \_\_\_\_\_ Direction: \_\_\_\_\_ Passage status: \_\_\_\_\_

Was permission granted by the landowner for site access?  Yes  No  Unknown  
Do you have a hard copy of landowner permission? (if yes, please provide as attachment)  Yes  No

**VI. Treatment Status and Recommendation**

Site treated?  Yes  No  
Treatment: \_\_\_\_\_ Monitoring completed?  Yes  No  
Needs treatment?  Yes  No  
Undergoing monitoring?  Yes  No  
Needs monitoring?  Yes  No  
Barrier removed by (name of organization): \_\_\_\_\_ Date treated: \_\_\_\_\_ Date removed: \_\_\_\_\_  
Treatment recommendation: \_\_\_\_\_  
Operations and maintenance plan?  Yes  No  
Title of operations and maintenance plan: \_\_\_\_\_ Date: \_\_\_\_\_ Operator: \_\_\_\_\_

**VII. References and Attachments**

Reference Title: \_\_\_\_\_ Date: \_\_\_\_\_ Author: \_\_\_\_\_  
Attachments:  Photos  Survey Note/Report  Restoration/Treatment Report  Operations & Maintenance Plan

