

Klamath Basin Fisheries Collaborative Data Import Guide

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Introduction

The Klamath Basin Fisheries Collaborative (KBFC) is a joint effort to enhance the utility of fisheries PIT tag data collected by various organizations within the Klamath Basin. By sharing tagging and detection data, participants can contribute to a comprehensive dataset that supports scientific research, conservation efforts, and resource management decisions.

This guide serves as a resource for participating organizations to familiarize themselves with the data sharing process and learn to manage data submissions independently. This document discusses the KBFC data types and database structure, data preparation and requirements, and import tools available for data entry and import.

Why Share Data with KBFC?

- **Enhanced Data Utility:** Combining data from multiple organizations increases the dataset's value, enabling more robust analyses and broader scientific insights.
- **Standardization:** A standardized database enhances data quality and facilitates consistent data interpretation across different studies, projects and organizations.
- **Collaboration Opportunities:** Sharing data fosters collaboration among organizations, leading to potential joint projects, funding opportunities, and shared resources.
- **Resource Management:** A comprehensive dataset aids in effective fisheries management, conservation planning, and policy-making in the Klamath Basin.

Preparing Your Data for Import

Data Validation and Quality Assurance

All data must undergo the same rigorous validation process before it is imported into the database. Data specifications required for data validation are described in the Data Exchange Standard (DES) and Controlled Vocabulary (CV) found on the KBFC website (<https://www.kbfishc.org/about/kbfc-database/>). The validation process includes:

- **Field Completeness:** Verify that all required fields are populated.
- **Data Formatting:** Ensure data conforms to specified formats (e.g., ISO date-time formats, numerical ranges). More information about data formatting can be found in the CV and DES document in the “Format” column.
 - Example: Verify that all date-time stamps are in the required format.
- **Standardized Values:** Use the KBFC standardized values for species, sex, event types, and other fields. More information about standardized values can be found in the CV and DES document in the “Standardized Values and Definitions” column.
 - Example: For species, use “CHIN” for Chinook Salmon, “COHO” for Coho Salmon, or “SNS” for Shortnose Sucker.

- **Quality Control:** Perform data integrity checks.
 - Example: Sucker standard length must be between 40mm and 1000mm; antenna length must be less than 80ft.
- **Remove Extra Columns:** Identify any additional columns in your internal data files that are not included in the data agreed to be exchanged with the KBFC. Users must decide whether to exclude these data from the KBFC database or include them in a “Comments” field.

Understanding the KBFC Data Types

KBFC has developed a standardized database structure to facilitate the sharing of PIT tag data. The database comprises several interconnected components consisting of slowly and actively changing data of different data types.

Slowly changing data are primarily static metadata but may change as equipment is updated or staff change. This information is manually submitted once unless an update occurs, and a history of these changes is maintained.

Actively changing data often consists of large datasets, such as mark, recapture and recovery (MRR) data. This information is submitted via digital files that meet the data and file validation requirements described in the CV and DES.

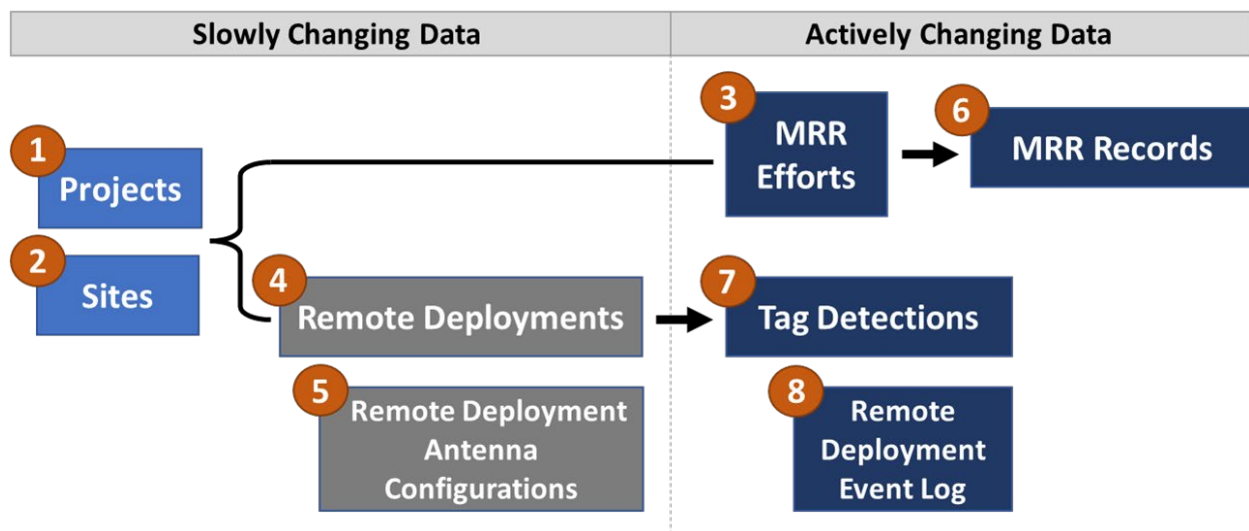


Figure 1. The KBFC database consists of slowly and actively changing data. The numbers displayed on each data type indicate the order in which each data type is imported into the KBFC database as described in *The Data Import Process* section.

The Data Import Process

Data type determines the order in which data are imported into the KBFC database (Figure 1). The numbers in Figure 1 correspond with the following order of operations.

Order of Operations by Data Type

A. Identify and Define Standardized Projects and Sites

All MRR and detection data are associated with a project(s) and site(s), therefore projects and sites must be defined prior to importing data.

1 Projects

- i) **Description:** Defines the overarching initiative or study under which data are collected.
 - **Example Fields:** Project ID, Title, Purpose, Collaborators, Start and End Dates of the project.
- ii) Data imported into the KBFC database can be under one project or separated into different projects. This is up to user discretion.
- iii) Each project is defined by a unique project ID, determined by the user, within the KBFC database. A duplicate project ID must be altered or it will be rejected when imported to the KBFC database.

2 Sites

- i) **Description:** Represent the physical location where MRR or detection activities occur.
 - **Example Fields:** Site ID, Official Name, Latitude and Longitude of the site, Site Type.
- ii) Each site is defined by a unique site ID, determined by the user, within the KBFC database. A duplicate site ID must be altered or it will be rejected when imported to the KBFC database.
- iii) It is recommended that organizations match their internal site names to the KBFC site ID to ensure consistency.

B. Set Up Mark, Recapture and Recovery (MRR) Efforts and Remote Deployments

All MRR and detection data are associated with a MRR effort or remote deployment system respectively; therefore MRR effort periods and remote deployment setups must be defined prior to importing these data.

3 MRR Efforts

- i) **Description:** Describe where and how fish are marked, recaptured, or recovered within a specific time period.
 - **Example Fields:** Effort ID, Project ID, Site ID, Start and End DateTimes of the effort period, Capture Method.

4 Remote Deployments

- i) **Description:** Describes where and when a remote detection site is available to detect PIT tags.

- **Example Fields:** Deployment ID, Site ID, Reader ID and Type, Installation and Removal DateTime of the remote detection equipment.

5 Remote Deployment Antenna Configurations

- i) **Description:** Details specific antenna configurations for a deployed remote detection system.
 - **Example Fields:** Site Configuration ID, Deployment ID, Antenna IDs, Antenna Type, Installation and Removal date of the antenna

C. Import MRR and Detection Data

6 MRR Records

- i) **Description:** Lists individual MRR records associated with a MRR effort period.
 - **Example Fields:** Capture DateTime, PIT Tag Code, Species, Length, Weight.

7 Tag Detections

- i) **Description:** Lists individual detection records of PIT tagged fish associated with a remote detection system.
 - **Example Fields:** Detection DateTime of the tagged fish, PIT Tag Code, Antenna ID

D. Import Remote Deployment Event Logs

8 Remote Deployment Event Log

- i) **Description:** Lists events affecting data collection at a remote detection site, such as equipment failures or environmental conditions impacting detection capability.
 - **Example Fields:** SiteID, DeploymentID, Event Type, Event DateTime, Comments.

Tools for Data Import

There are three methods—online data exchange portal forms, Microsoft Excel spreadsheet templates, or API integration—to import data into the KBFC database. Regardless of the import method, data are imported into the KBFC database following the order of operations described above in *The Data Import Process* section.

A. Online Data Exchange Portal Forms

- **When to Use:** Suitable for organizations with a small number of Sites or Projects. This is not advised for MRR and Detection records.
- **How:** Enter data directly through the online KBFC data exchange portal. [Step by step instructions are available in Appendix I.](#)

The screenshot shows the 'Add Site' form in the KBFishC Klamath PIT Tag Database. The form includes a sidebar with navigation options: Tag History, File, Site (selected), Site Map, Project, Deployment, Detection, and Effort. The main form fields are: ID, RKM, Site type (dropdown), Watershed (dropdown), Official Name, Latitude, Common name, Longitude, Site location, and Operation period. Each field has a corresponding input box or dropdown menu.

B. Microsoft Excel Spreadsheet Templates

- **When to Use:** Ideal for importing large datasets, such as thousands of MRR or Detection records.
- **How:** Populate KBFC-provided Microsoft Excel spreadsheet templates which are then imported via the KBFC data exchange portal.
- Templates are available for the different data types (e.g., Sites, MRR Efforts, MRR Records, etc.).
 - The templates and more information on how to crosswalk your data using the CV and DES, are available on the KBFC website, under KBFC Database section: <https://www.kbfishc.org/about/kbfc-database/>
 - The KBFC is providing hands-on training on template use on request. Organizations are encouraged to submit their completed templates to KBFC staff for review. KBFC staff will work with organizations to verify that their data align with the DES and CV, address any data issues or discrepancies, and ultimately import the data into the database.

The screenshot shows two Microsoft Excel spreadsheet templates. The top template is titled 'KBFC Project - Excel' and contains columns for OrganizationID, DatabaseContactID, BiologicalContactID, Site, Comments, Collaborator, StartDate, EndDate, and ProjectStatus. The bottom template is titled 'KBFC Effort - Excel' and contains columns for ProjectID, SiteID, StartDate, EndDate, StartTime, EndTime, CaptureMethod, and Comments. Both templates have a 'Project' tab and an 'Instructions' tab.

C. API Integration

- **When to Use:** Suitable for organizations with technical programming resources capable of facilitating and maintaining system-to-system connections.
 - API integration streamlines the data submission process by reducing manual effort, allows for real-time or scheduled data updates, and handles large volumes of data seamlessly.
- **How:** Utilize the KBFC API to automate data transfer directly from an organization's internal system to the KBFC database.



Common Challenges and Solutions

Inconsistent Site Names

- **Challenge:** Same MRR or remote detection site is listed under different names or spellings.
- **Solution:** Consolidate site names and align them to a single KBFC site ID.

Missing Historical Records

- **Challenge:** Lack of historical MRR effort periods or remote detection equipment deployments.
- **Solution:** Create new MRR effort and remote detection equipment deployment records based on the data collection periods and methods.

Invalid Data Format

- **Challenge:** An organization's internal data uses different standardized values or formats than the KBFC.
- **Solution:** Convert internal values and data formats to KBFC's standardized values using the KBFC CV and DES.

Extra Data Columns

- **Challenge:** An organization's internal data contains fields not included in the data agreed to be exchanged with the KBFC.
- **Solution:** Exclude unnecessary columns from the import templates or include relevant information in the comments field.

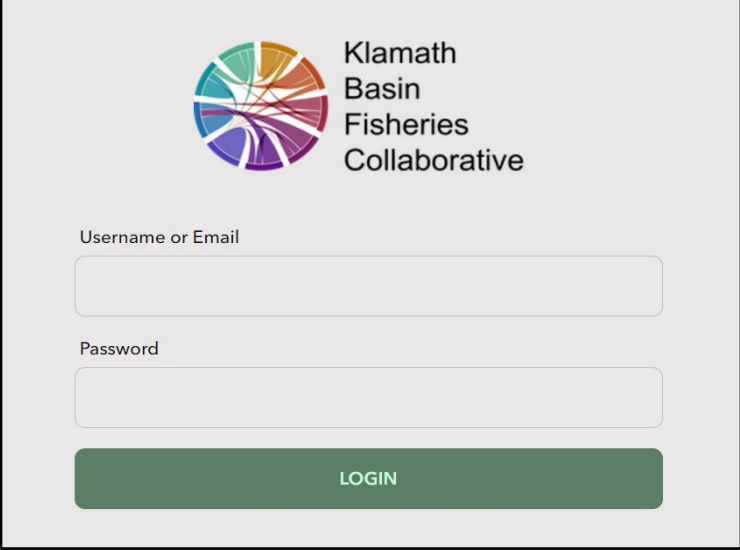
Support and Resources

- **KBFC Staff Assistance:** Please contact project@kbfishc.org for assistance with data preparation, template completion, and addressing challenges and questions about the KBFC data import process. Staff are also available to provide hands-on training in data preparation and import procedures.
- **Documentation:** Spreadsheet templates, the CV and DES, and the KBFC Data Sharing Agreement are available on the KBFC website (<https://www.kbfishc.org/about/kbfc-database/>).

Appendix I

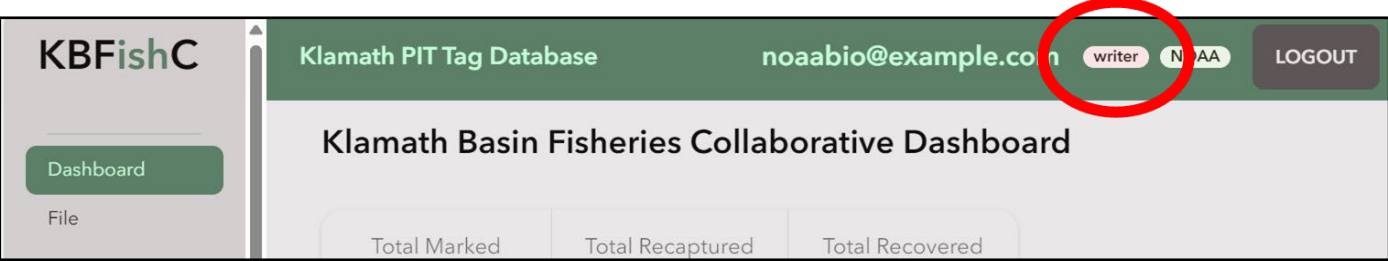
Step by step instructions for filling out Data Exchange Portal forms

- I. Login to the KBFC Data Exchange Portal
 - a. Email project@kbfishc.org to set up a username and password.
 - b. Login to the KBFC Data Exchange Portal with your username and password at <https://data.kbfishc.org/>.



The login form for the Klamath Basin Fisheries Collaborative. It features the organization's logo, which is a circular emblem with colorful, overlapping fish-like shapes. Below the logo, the text "Klamath Basin Fisheries Collaborative" is displayed. The form includes two input fields: "Username or Email" and "Password". A green "LOGIN" button is positioned at the bottom of the form.

1. Users designated as a “writer” can manually import data. Users designated as a “reader” can only view existing data within the KBFC database.
2. A user’s “reader” or “writer” designation can be found at the top right corner of the Data Exchange Portal.



A screenshot of the Klamath Basin Fisheries Collaborative Dashboard. The top navigation bar is green and contains the text "Klamath PIT Tag Database", the user's email "noaabio@example.com", a red circle highlighting the user's role "writer", and a "LOGOUT" button. The main content area is titled "Klamath Basin Fisheries Collaborative Dashboard". On the left, there is a sidebar with a "Dashboard" button and a "File" link. Below the title, there are three columns labeled "Total Marked", "Total Recaptured", and "Total Recovered".

II. Identify and Define Standardized Projects and Sites

a. Add a Project

1. Add a Project by clicking the “Projects” tab on the menu bar located on the left-hand side of the screen.
2. Once on the Project page, click “ADD”.

KBFishC Klamath PIT Tag Database

Projects (Your projects and collaborative projects. A project defines the overarching initiative or study u

ADD Search [icon] [icon]

Filter ORG ▾

ID	TITLE	ORG	START DATE ▾	END DATE	ACTIVE
USGSW_IG_24	Iron Gate Releases	USGSW	2024-05-01	2024-05-31	✓
NOAA_pre2024		NOAA	2000-01-01	2023-12-31	✓
KARUK_pre2024		KARUK	2000-01-01	2023-12-31	✓

3. After clicking the “ADD” button, the “Add Project” form will appear. Fill-out the form and click “Save”. All fields marked with a red border are required.

KBFishC Klamath PIT Tag Database

Add Project

ID [red border] Data steward [red border]

Title [red border] Biologist [red border]

Collaborators
☐ HSU
☐ KARUK
☐ KLAMT
☐ MKWC
☐ NOAA
☐ NPS

Start date [red border]

End date [red border]

Project status [red border]

Comments [red border]

Required Fields: Fields marked with a red border ([red border]) are required

CANCEL **SAVE**

b. Add a Site

1. Add a Site by clicking the “Sites” tab on the menu bar located on the left-hand side of the screen.
2. Once on the Site page, click “ADD”.

KBFishC **Klamath PIT Tag Database**

Sites (All sites are visible to all KBFC members. A site is a physical location where MRR or remote detection activities)

1 2 3 4 5

Filter TYPE Filter WATER Filter ORG Filter STAT

ID	OFFICIAL NAME	COMMON NAME	ORG	TYPE
100C	LSaltCrkMidU	SaltCrkMidU	YUOK	MRR
101C	LSaltCrkLBvrPondH	SaltCrkLowBeaverPond	YUOK	MRR
102C	LSaltMarshMidH	SaltMarshMidH	YUOK	MRR
104C	LJuniorCrkTrapD	JuniorCrkTrapD	YUOK	MRR
105C	LMcGarveyCrkLowerH	McGarveyCrkLowerH	YUOK	MRR
10C	UUKLOffshoreCinderSpringsH	Offshore Cinder Flats	USGS	MRR

3. After clicking the “ADD” button, the “Add Site” form will appear. Fill-out the form and click “Save”. All fields marked with a red border are required.

KBFishC **Klamath PIT Tag Database**

Add Site

ID RKM Site type Watershed

Official Name Latitude

Common name Longitude

Site location Operation period

Site status Established by Org

Comments

Required Fields: Fields marked with a red border () are required.

CANCEL SAVE

III. Set Up Mark, Recapture and Recovery (MRR) Efforts and Remote Deployments

a. Add a MRR Effort

1. Add a MRR Effort by clicking the “MRR Efforts” tab on the menu bar located on the left-hand side of the screen.
2. Once on the MRR Efforts page, click “ADD”.

KBFishC Klamath PIT Tag Database

MRR Efforts (Your MRR effort periods. An effort is where and how fish are marked, recaptured, or recovered.)

2 **ADD** Search [icon] [icon] 1 2 3

Filter SITE Filter ORG Filter PROJ Filter METHC Dates:

1,850

EFFORT	DATE	ID	SITE	ORG	CAP
MAY-31-24-9D0	NOV-15-24	IG240531	IG001 Iron Gate Dam	USGSW	HATC
MAY-30-24-091	NOV-15-24	IG240530	IG001 Iron Gate Dam	USGSW	HATC
MAY-21-24-7AD	NOV-15-24	IG240521	IG001 Iron Gate Dam	USGSW	HATC
MAY-20-24-81D	NOV-15-24	IG240520	IG001 Iron Gate Dam	USGSW	HATC
MAY-15-24-A69	NOV-15-24	IG240515	IG001 Iron Gate Dam	USGSW	HATC
MAY-14-24-75C	NOV-15-24	IG240514	IG001 Iron Gate Dam	USGSW	HATC

3. After clicking the “ADD” button, the “Add Effort” form will appear. Fill-out the form and click “Save”. All fields marked with a red border are required.

KBFishC Klamath PIT Tag Database

Add Effort

Project [dropdown] Start date time [text]

Site [dropdown] End date time [text]

Capture method [dropdown]

Comments [text area]

Required Fields: Fields marked with a red border () are required.

3 **SAVE** **CANCEL**

4. On the Remote Deployment Antenna Configuration page, click “ADD”.

KBFishC Klamath PIT Tag Database

Remote Deployment Antenna Configuration

ORG	Site	Reader	Installation	Removal
KARUK	LKlamathBulkPlant (40R)	IS1001_MUX	2015-12-31	2016-12-31

4 CLOSE ADD

5

ANTENNA ID	ANT LENGTH	ANT LATITUDE	ANT LONGITUDE
01			
04			

5. The “Add Remote Deployment Antenna Configuration” form will appear. Fill-out the form and click “Save”. All fields marked with a red border are required.

KBFishC Klamath PIT Tag Database

Add Remote Deployment Antenna Configuration

ORG	Site	Reader	Installation	Removal
KARUK	LKlamathBulkPlant (40R)	IS1001_MUX	2015-12-31	2016-12-31

Antenna ID:

Antenna group:

Antenna length:

Antenna orientation:

Antenna latitude:

Antenna type:

Antenna longitude:

Installation date:

Removal date:

Comments:

Required Fields: Fields marked with a red border () are required.

5 CANCEL SAVE

IV. Import MRR and Detection Data

a. Import MRR Records

1. Add MRR data by clicking the “MRR Records” tab on the menu bar located on the left-hand side of the screen.
2. Once on the MRR Records page, click “ADD”.

KBFishC Klamath PIT Tag Database

MRR Records (Your individual MRR records associated with a MRR effort period.)

2 **ADD** Search

Filter SITE Filter ORG Filter PROJE Filter TYPE Filter SPECIE

46,431 33,299

PROCESSED	DATE	PITTAG	SITE	ORG	P
2024-05-31 00:00	NOV-15-24	3DD.0078DAEFE6	IG001 Iron Gate Dam	USGSW	U
2024-05-31 00:00	NOV-15-24	3DD.0078DAE410	IG001 Iron Gate Dam	USGSW	U
2024-05-31 00:00	NOV-15-24	3DD.0078DAEF90	IG001 Iron Gate Dam	USGSW	U
2024-05-31 00:00	NOV-15-24	3DD.0078DAEDE3	IG001 Iron Gate Dam	USGSW	U
2024-05-31 00:00	NOV-15-24	3DD.0078DAEDAF	IG001 Iron Gate Dam	USGSW	U
2024-05-31 00:00	NOV-15-24	3DD.0078DAE7FA	IG001 Iron Gate Dam	USGSW	U

3. After clicking the “ADD” button, the “Add MRR Record” form will appear. Fill-out the form and click “Save”. All fields marked with a red border are required.

KBFishC Klamath PIT Tag Database

Add MRR Record

Effort

MRR event type Length fork Fish source Floy t

Process date time Weight Fish origin Physi

Pittag primary Length total Pittag secondary Life h

Tag type Length standard Tag comments Run m

Tag frequency Release date time Acoustic tag Tissue

Species Release site Radio tag Scale

Sex Spawning condition Coded wire Other

Relea

Comments

Required Fields: Fields with a red border () are requ

3 **SAVE**

b. Import Tag Detection Data

1. PIT tag detection data are not accepted through manual import. These data must be imported via the Microsoft Excel spreadsheet templates, raw remote detection text file or through an API.

V. Import Remote Deployment Event Logs

a. Import Remote Deployment Event Log Data

1. Add a Remote Deployment Event by clicking the “Remote Deployments” tab on the menu bar located on the left-hand side of the screen.
2. Use the different filters and search bar to locate the Remote Deployment record to update with an event. Select the desired Remote Deployment record to open the “Edit Remote Deployment” page.

The screenshot displays the KBFishC Klamath PIT Tag Database interface. On the left, a sidebar menu lists various options, with 'Remote Deployments' highlighted and circled in red, labeled with a red '1'. The main content area shows the 'Remote Deployments' list, which is circled in red and labeled with a red '2'. This list includes columns for DEPLOYMENT, DATE, ID, SITE, ORG, READER TYPE, and PROJECT. Below the list, the 'Edit Remote Deployment' form is visible, containing fields for ImportID, Project, Site, Detector type, and Installation/Removal date time. The 'EVENT LOG (0)' button at the bottom right is circled in red and labeled with a red '3'.

DEPLOYMENT	DATE	ID	SITE	ORG	READER TYPE	PROJECT
OCT-2008-258	DEC-11-23	D7RB3	40R LKlamathBulkPlant	KARUK	IS1001_MUX	KARUK_pre2024
OCT-2008-259	DEC-11-23	224AD	41R LKlamathSandybar	KARUK	IS1001_MUX	KARUK_pre2024
DEC-2008-260	DEC-11-23	825BE	40R LKlamathBulkPlant	KARUK	IS1001_MUX	KARUK_pre2024
DEC-2008-261	DEC-11-23	7EFNW	41R LKlamathSandybar	KARUK	IS1001_MUX	KARUK_pre2024
DEC-2009-262	DEC-11-23	BYJ6L	40R LKlamathBulkPlant	KARUK	IS1001_MUX	KARUK_pre2024
DEC-2009-263	DEC-11-23					

Edit Remote Deployment

ImportID: ZEH0G

Project: KARUK_pre2024

Reader type: IS1001_MUX | Biomark IS1001-MU

Site: 40R | LKlamathBulkPlant

Installation date time: 2016-01-01 00:00

Detector type:

Removal date time: 2016-12-31 23:59

Comments:

Required Fields: Fields marked with a red border () are required.

EVENT LOG (0)

3. On the Edit Remote Deployment page, click on the “EVENT LOG” button to open the “Deployment Event Log” page.

4. On the Deployment Event Log page, click “ADD”.

The screenshot shows the 'Klamath PIT Tag Database' interface. On the left is a sidebar with navigation links: Files, Sites, Site Map, Projects, Remote Deployments (highlighted in green), Tag Detections, MRR Efforts, and MRR Records. The main content area is titled 'Deployment Event Log'. It contains a table with the following data:

ORG	Site	Reader	Installation	Removal
KARUK	LKlamathBulkPlant (40R)	IS1001_MUX	2015-12-31	2016-12-31

Below the table are two buttons: 'CLOSE' and 'ADD'. The 'ADD' button is circled in red, and a red circle with the number '4' is placed over it. Below the buttons is a summary row showing '0' records and a message 'No records.' with an information icon.

5. The “Add Event” form will appear. Fill-out the form and click “Save”. All fields marked with a red border are required.

The screenshot shows the 'Add Event' form in the 'Klamath PIT Tag Database' interface. The sidebar is the same as in the previous screenshot. The main content area is titled 'Add Event'. It contains a table with the following data:

ORG	Site	Reader	Installation	Removal
KARUK	LKlamathBulkPlant (40R)	IS1001_MUX	2015-12-31	2016-12-31

Below the table are three input fields: 'Antenna down' (a dropdown menu), 'Event type' (a dropdown menu), and 'Event date time' (a text input field). All three fields have a red border. Below these fields is a 'Comments' section with a large text area. At the bottom of the form, there are two buttons: 'CANCEL' and 'SAVE'. The 'SAVE' button is circled in red, and a red circle with the number '5' is placed over it. A note at the bottom of the form states: 'Required Fields: Fields marked with a red border () are required.'