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Getting Started with Flukebook and Happywhale

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Getting Started with Flukebook & Happywhale

An Onboarding Guide for Cetacean Research Scientists

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1. Background

Flukebook and Happywhale are advanced artificial intelligence-powered internet applications that enable cetacean scientists to manage and analyze photographic identification data (photo-ID). However, for those new to these platforms getting started can be daunting. At IWC/SC69B, the creation of a user-friendly, introductory guide to the two platforms was proposed. Pursuant to that, this document presents a clear, practical, user-centered guide, aimed at researchers, field teams, and data managers who want to understand and use these platforms to expand their research tools.

This guide is provided to help experienced scientists and graduate students knowledgeable about photo-ID who are new to Flukebook or Happywhale. It is not intended for newcomers to photo-ID or advanced users of Flukebook or Happywhale. The guide will provide an overview of the two platforms, and guides for workflows of common use cases including: establishing login credentials, importing a photograph, organizing your catalogue, conducting internal matches, searching for matches with other catalogues, creating GIS maps, printing and exporting data. For advanced functions beyond these workflows, users should consult the help resources provided by the platforms.

This guide is based on Happywhale version 2025-09 and Flukebook version 10.9.2 2026. Check the platforms for updates.

2. Terms and Definitions

Catalogue: A collection of photo-identified individuals with associated metadata

Collection: A group of encounter records with associated images and metadata

Identified individual: A unique animal with accompanying

User: Someone who accesses and interacts with a computer platform.

Submitter/contributor: Someone who enters data into a platform.

Owner: Someone with property rights of the data.

Platform: A computer system that provides tools and an environment where users can run software, store data, and interact with digital content.

Username: the name used to log into an account on the platform.

3. Overview of Platforms

Flukebook and Happywhale are AI-powered, web-based platforms designed to identify and track individual whales and dolphins using computer vision. They enable researchers and citizen scientists to upload photos, automatically match fin or fluke patterns, and map population and movement data. Both are designed to improve the study of cetacean populations by automating the laborious process of manual photo-identification. These online platforms are not only powerful for their matching automation, but they also permit full integration of metadata, encounters, sightings, and even cruise data, so your photographic collections can be archived together in one relational database. However, the platforms are not interoperable, so it is important to understand their key similarities and differences.

Key Aspects Shared by Both Platforms:

- **Importing photo-ID data:** Tools to import photo-ID and typical photo-ID metadata into a database for storage. Both allow for multiple photos in one sighting record.
- **AI identification:** Automated analysis of images to match them against a database of images for a wide variety of cetacean species. *Match results are suggestions: both platforms require manual review and confirmation of suggested matches.*
- **Unique photo-ID names/numbers:** Features to allow users to assign their own photo-ID names and numbers to their photo-ID records.
- **Data management & mapping:** Tools for researchers to archive, manage, and visualize sighting data geographically and temporally, merge or delete duplicate records.
- **Export to multiple data formats:** Exports into multiple commonly used data formats.
- **Citizen science integration:** Features to allow public users to contribute photographs, helping to build global datasets.
- **Accounts and management:** Each system allows for individual user and organizational accounts, with different levels of permissions.

Key Distinctions of Each Platform:

Apart from their similarities, the platforms differ in structure, functionalities, and offerings. Below are some of the key differences of which photo-ID scientists should be aware.

- **Data management:** Flukebook is designed to allow individual users or organizations to input and manage their own data. Users are responsible for data accuracy and quality either prior to importing, or as a follow up step in the platform. Happywhale allows

advanced users to import data, trained Happywhale staff review all submissions to assure data accuracy and quality. Happywhale grants users progressive control of their data (i.e. editing rights) after training on the platform.

- **Data visibility and control of property rights:** The principle means by which Flukebook manages property rights is to limit visibility of user data from other users (in data silos) unless specific permission is granted. In Happywhale, by default, data submitted are visible to other users. Property rights are, by default, Creative Commons, but users may change this under settings. Copyright information appears photo image record; however, it is up to users to respect the copyright of other users. By request, users may have their data held behind a firewall, accessible only to selected users.
- **Database structure:** Flukebook hosts a database of individuals and encounters contributed and managed by individual users. Matches between catalogues (individuals that are found in the collection of multiple users) are identified by and manually linked by users (one-to-one relationships). In contrast, Happywhale hosts a central reference catalogue that is curated and administered by Happywhale using photo-ID contributed by users. Photographs must meet a minimum level of quality to be included in the central reference catalogue. Data that are not admitted to the central catalogue remain visible to the owner but are not involved in matching processes.

Bottom line: Flukebook is optimized for photo-ID researchers and scientists to analyze, manage, and archive their own data, and selectively collaborate with other scientists all from the platform. Happywhale is optimized to encourage photo-ID contributions from citizen scientists, providing high quality data for use by the scientific research community, and to quickly execute high volumes of matching for selected species.

The next sections outline the main features of each platform salient for scientists wishing to understand these platforms in greater detail. Understanding the features is the starting point for evaluating the suitability of each platform for your objectives.

Features of Each Platform

Flukebook

Flukebook (flukebook.org) is a non-profit, opensource cetacean data archiving and photo-ID tool developed under the Wildbook platform (wildme.org) that uses computer vision and machine learning to facilitate automated identification of individual animals. WildMe is a lab of Conservation X Labs. Key distinguishing features (for research scientists) of Flukebook:

- **Data protection:** Flukebook operates under the model of what they call “Silo Security,” that lets users decide with whom they share their data. Other users may access (view or edit) your data only with the owner’s permission through a collaboration (see below). Data are *discoverable* through searches but cannot be *viewed* without a collaboration agreement.
- **Platform access:** An account is required for access to the platform.
- **AI Support for Multiple Species:** Two algorithms identify multiple species of whales and dolphins with a high level of accuracy (i.e. 97-99% top 1% (Patton *et al.* 2023)) (Appendix B).
- **Importing data:** Flukebook supports single encounter (with one or more images) and bulk importing managed by the user.
- **Catalogue curation:** Flukebook enables catalogue curation (editing, deletion) and allows users to set up “projects” to group selected records (Advanced Functions).
- **Search functionality:** Flukebook offers a multifactor search that can search on most data elements in the database, at once. It also offers a simple query search.
- **Exporting data:** Flukebook supports exporting to multiple commonly used data formats and .pdf images.
- **Collaboration:** Flukebook enables collaboration between users to view data across catalogues. Collaboration requests are enabled and managed on the platform.
- **Support for multiple associated data types:** Data types supported include genetic samples, behaviors, relationships, tag data, toxicology, temperature and salinity, among others.
- **Matching speed:** The system’s matching speed depends on the number of processes being conducted across the system and can sometimes be lengthy.
- **Quality assurance:** Data quality relies upon users; users are expected to follow accepted best practices.
- **Identifying matches within catalogues (internal matching):** Matches found during the matching process can be linked to an identified individual. If no match is found, you can create a new unique identified individual. Bulk internal reconciliation can be done by establishing a “project.”
- **Linking matches across catalogues:** Matches found in another catalogue can be linked.
- **Tracking and feedback:** N/A
- **Citizen science approach:** Flukebook allows for citizen scientists to contribute data through the single encounter upload process.
- **Scope:** Contains 2M+ photos, 491,748 reported sightings, and 90,821 uniquely identified whales and dolphins across 24 cetacean species (Appendix B).

Happywhale

Happywhale, co-founded by Ted Cheeseman, originally developed to offer an accessible way to compile citizen scientist data collected opportunistically, and has since evolved to support expert researchers. Some of the features described here are available to only users that have completed training on the platform. Some features (such as exporting) are available only on request of the staff. Key distinguishing features (for research scientists) of Happywhale include:

- **Data protection:** Data is protected by default under the [creative commons](#) license model. Users may select different levels of license including copyright protection. Data privacy is invoked at the encounter image level. Data held behind a private firewall (by request) are accessible only to defined users.
- **Platform access:** All records are viewable by anyone who visits the site, unless the data are held behind a private firewall. To contribute data users must have an account.
- **AI Support for Multiple Species:** The matching algorithms are optimized for (1) humpback whale flukes, (2) sperm whale flukes, or (3) cetacean dorsal fins/lateral views. The platform accepts all marine mammals, including seals (Appendix B).
- **Importing data:** Happywhale supports individual and small batch importing for all users, and bulk importing for advanced users with large datasets.
- **Catalogue curation:** Happywhale grants trained users editing rights of their data.
- **Search functionality:** User can conduct a keyword search by individual name or username or organization; or, browse by species, date range, and location.
- **Exporting data:** Happywhale staff provide data exports in multiple commonly used data formats upon request.
- **Collaboration:** The Happywhale platform does not support direct user-to-user collaboration but will facilitate communication between users. Users who wish to collaborate on a catalogue or collection behind a firewall may do so by specific request.
- **Support for multiple associated data types:** Data types not supported by data fields/tables can be added to encounter records in a comment text field.
- **Matching speed:** The system is known for fast matching results.
- **Quality assurance:** All records submitted are manually reviewed by Happywhale to assure they meet a defined level of quality. Photos that do not meet quality criteria will not be approved for the central database but remain accessible to the owner.
- **Identifying matches within catalogues (internal reconciliation):** Internal reconciliation is supporting by the bulk importing process available to trained users.
- **Linking matches across catalogues:** Happywhale maintains a single, centralized reference database/catalogue. When you find a match in Happywhale's central catalogue, you create a link between the Happywhale unique ID and yours, to allow cross-referencing between catalogues. Happywhale supports multiple catalog IDs.

- **Tracking and feedback:** Users may choose to receive notifications regarding their individuals and encounters, such as a new match found.
- **Citizen science support:** Happywhale is optimized for citizen scientists to submit encounter photos and metadata. Submissions are processed by the Happywhale staff and affiliates to assure a minimum level of quality.
- **Scope:** At the time of this writing, Happywhale contains over 1,650,000 photos, 450,565 identified encounters, and 128,177 identified individuals across 21 marine mammal species including 19 cetacean species, and 2 pinnipeds including over 120,000 individually identified humpback whales as of March 2026. (Appendix B).

4. Decision Framework: Using Flukebook or Happywhale, or Both

Now that you have a basic overview of the platforms, your next step is to determine which platform will best suit your research objectives. As the platforms are not interoperable, the following offers a decision framework to assist photo ID experts in evaluating how well the features and functionality offered by the platforms supports the needs of the typical cetacean scientist using photo-identification. The criteria presented below are a suggested framework to inform your decision. The main criteria to consider are: 1) suitability for your target species, 2) data ownership and control, 3) catalogue management and property rights, 4) collaboration across catalogues, 5) Importance of citizen science data.

1. Species Suitability

Both platforms have advanced species recognition and recapture algorithms to enable matching for photo-ID at high level of accuracy for many species, so researchers and scientists can benefit from the latest advances in computer vision.

1. *Is the study species supported in the platform?*
 - a. *How effective is the platform in detecting matches for your study species?*
2. *Is there an existing collection of IDs for your species in the platform already? This is important if you would like to collaborate with other scientists but also have access to citizen science data.*
3. *Are there other researchers on the platform working with your study species with whom you wish to collaborate?*

Flukebook

- Flukebook offers two algorithms for every search and has just introduced MiewID 4.1, a multispecies algorithm trained on multiple marine mammal datasets but that can also be used for species on which it has not explicitly been trained (zero-shot recognition) (Otarashvili *et al.* 2024) (Appendix B).
- For more information on species supported, and species encounter records already in the platform, see Appendix B.

Happywhale

- Happywhale's algorithm, has been tested on humpback whale flukes, and is capable of achieving a 97-99% accuracy with "good quality" images (Patton *et al.* 2023). Separate algorithms support multi-species cetacean ID by dorsal fin/lateral view (Patton *et al.* 2023), and sperm whale flukes (Appendix B). The dorsal fin algorithm works well on many species, (Vanderzee *et al.* 2026).
- For more information on data encounter records already in the platform by species, see Appendix B.

Pro Tip: Use the search function to explore the species suitability in regions that are relevant to your research. In Flukebook, you will need a username and login; Happywhale allows for searches without a username.

2. Data Ownership and Property Rights

How important is data ownership and property right control? Do you wish to maintain property rights or is your dataset public?

Flukebook and Happywhale treat data ownership differently so you may want to understand this if this is an important criterion for you.

Flukebook

- Flukebook gives users control of whether and how their data can be viewed by other users or the public. Generally, search results limit visibility to Individual ID, Date, Location, Species, submitter, and submission date. Flukebook will not share the photo(s) unless permission is granted by the owner.
- Flukebook also protects users' data by requiring a login to access the platform. New user logins are controlled by Flukebook. Access to the platform does not give researchers access to all data.

Happywhale

- All users sign an agreement to respect property rights in Happywhale when they establish an account.
- By default Happywhale works under [creative commons license](#); however, data owners can assert full copyright protection. Property rights statements are displayed at the image level.
- Happywhale advises users communicate copyright terms under each encounter in “Encounter comments.”
- Non-account holders can view all non-private records in Happywhale.
- Upon request, Happywhale provides for a “private mode” wherein all data is held behind a firewall, accessible only to defined users.

3. Catalogue Control and Management

Researchers and organizations typically want to maintain edit and control of their datasets.

Flukebook and Happywhale both allow users to edit, delete, merge, and export data, however, the way these are handled by the systems differ.

Flukebook

- Flukebook gives the user full control of their data. The structure of Flukebook allows users to maintain all their photos together in a collection under the same username called “Silos.”
- “Projects” allow users to group encounters—a subset of their data—and manage them separately from other data (e.g. for a population census, a study of a new import of photos).
- Flukebook enables data export in multiple common data formats. A photo album can be exported in .pdf format.
 - Data formats: csv, .xls, .inp (MARK) and .rinp (rMARK), KML, and shapefiles, as well as PDF picture book, SOCPROG, and others
- Flukebook allows for merging of duplicates, and deletion of records.

Happywhale

- By default, regular Happywhale users do not have editing rights. However, Happywhale allows trained users to edit their own records upon arrangement with Happywhale.
- Advanced users with editing rights may link identified individuals with records of the same individual creating an electronic link between encounters.

- Data exports in commonly used data formats can be requested from the Happywhale admin.

4. Collaboration Across Catalogues

How important is collaboration with researchers external to your organization? How much control or restrictions do you wish to have of collaborations?

Collaboration between users or research organizations is possible on both platforms, but they solve for this differently.

Flukebook

- Flukebook allows users to set up collaboration agreements on the platform, on a user-to-user basis. Collaboration allows the user to view or edit, conduct comparisons, and analyze data for matches with another catalogue. View and edit rights can be changed at any time by either user.
- During searches and matching processes, data of other users is *discoverable*, but not *viewable* without a collaboration setup. This allows researchers to be aware of data that might be relevant to their research and to request collaboration directly from the platform.
- Matches between catalogues are established by creating a link between individual records. This requires having collaboration between users. The integrity of the individual ID is maintained for each catalog.
- Flukebook allows users to manually set their data to a publicly visible status, allowing all users to view your data.

Happywhale

- Collaboration with other users is not supported on the platform but usernames are visible. Comments can be posted and sent to users via notifications (if they are set to alert the user) and the Happywhale admin can facilitate direct communication by request.
- By arrangement, Happywhale can support collaboration between group of users who wish to collaborate on a defined dataset behind a firewall.
- Happywhale allows unrestricted matching with all other publicly available entries in the platform of the same species.
- Identified individuals can accommodate multiple different IDs such that matches within and between user datasets are electronically linked.

5. Importance of Citizen Science Data

How important is it for you to have access to citizen science data collected for your species by whale watchers and naturalists?

- Both platforms support citizen science imports and provide an easy user interface.
- Happywhale is optimized to facilitate citizen science contributions, is known to whale watching enterprises worldwide, and offers a level of quality assurance for citizen science data.

5. Conclusion

Flukebook and Happywhale both offer powerful matching algorithms and database features that could be attractive to cetacean scientists. As the platforms are not currently interoperable, it is important to carefully consider how well their features fit with the processes you would like the platform to support. Ultimately, the choice of platform for your project or organization depends on the relative importance of the platform functionality to your project, specific objectives, and study species. This paper provides a suggested framework for evaluating your needs vis-à-vis these two platforms. That said, AI technology is rapidly evolving. The platforms, too, are evolving and responsive to user needs, so what may be true now, may not be in the future.

In today's global research environment, it is also possible that both of these platforms offer data and features to which a researcher may wish to have access. For example, a global study of sperm whales may involve datasets from both platforms involving citizen science and multiple research organizations around the world. Such a case may involve working with both platforms to access/extract data, combine and reconcile them, to have the widest possible dataset. In that sense, choosing a platform for your research is a matter of which performs best for your project or organization's objectives, and is not an existential decision.

6. User Guides

See next page.

Getting Started with Flukebook

Understanding the Basics of Flukebook

When getting started with Flukebook, it's important to understand the basic data elements that make up the database.

- In Flukebook, an **encounter*** is the foundational element of the software. An encounter represents a photo (or series of photos) of an individual whale at a particular location and time (see Figure 1). It may include data such as time, location, species, etc. For example, a group of six sperm whales that were all photo-identified would generate six encounters.
- A **sighting*** is an observation of one or more individual animals together, encompassing one or more encounters. It may include data such as time, location, species, group composition, and photos suitable for identification (e.g., flukes or dorsal fins). Flukebook will generate a unique sighting number unless it is changed by the user manually. Generally, most users will not need to be too concerned about sighting records.
- A **marked individual*** is an identified individual with a user-assigned photo-ID number.

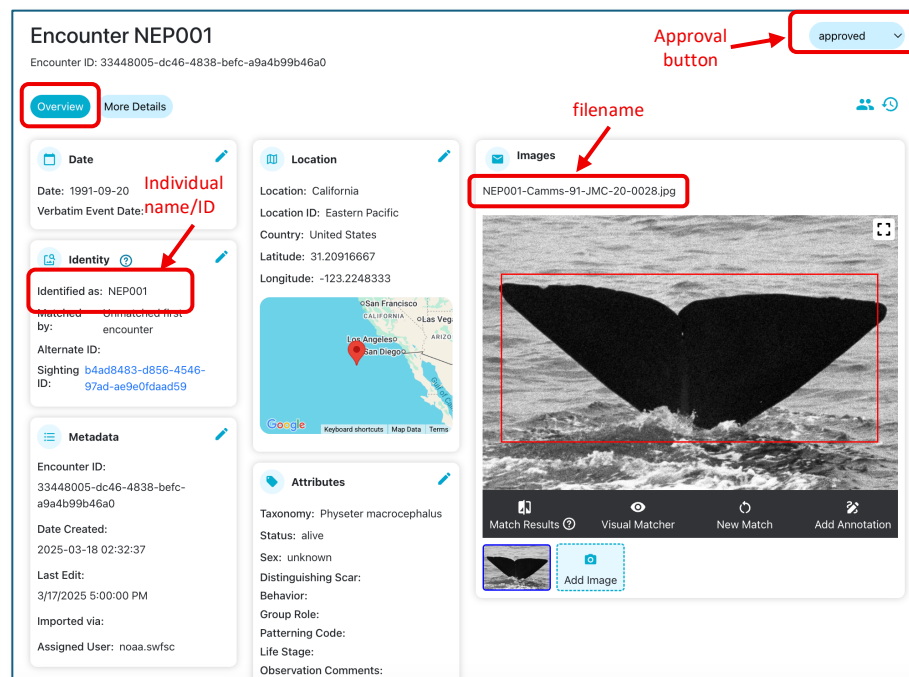


Figure 1 Encounter record showing metadata, associated data, and image(s) associated with the encounter. The approval button is on the upper right-hand corner of the screen.

The **Encounter** user interface shows basic data and one or more photos associated with this encounter. Flukebook has generated a unique **Encounter ID**, as well as a **Sighting ID**. The photo filename is visible above the photo frame. The red outline in the photo is the automated annotation used by the algorithm to circumscribe the identifying feature (in this case, the fluke).

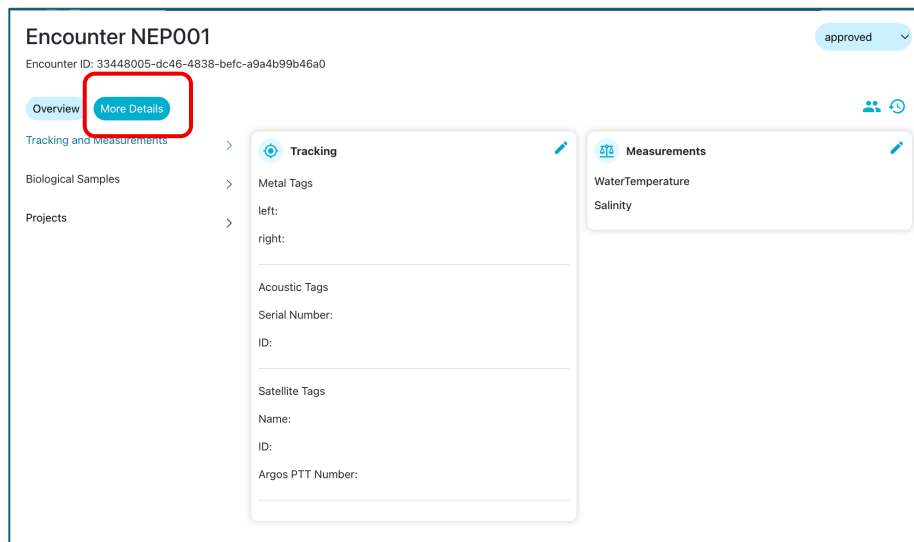


Figure 2 **More Details** of Encounter record showing Tracking and Measurements. Not shown, **Biological Samples** fields, and **Project** fields.

Account Setup and Management

There are two important account types to be aware of in Flukebook: **User** and **OrgAdmin**

- **User** is an account type that has the ability to log into Flukebook and conduct various actions as permitted by their role. Roles permit different levels of access to data—editing, viewing and exporting. The most commonly assigned role for the user is **Researcher** that can edit their own data, match individuals, manage collaborations, search, and export.
- **OrgAdmin**: Organizations are a way of grouping users who belong to the same organization. **OrgAdmins** are users that can add or remove users from their organization. If your organization already has an account in Flukebook, you can ask your **OrgAdmin** to either create a new account for you or add your username to the organization.

Account Setup

- To set up a Flukebook **account**, complete an account request from the [Contact Us](#) page. When applying for a username Flukebook asks about your organization, your role, and how Flukebook will be used in your work.
- If you would like to establish an **Organization**, contact services@wildme.org and let them know the organization name and which users to make the **OrgAdmin** so they can start adding users to their organization.

Good to know: Changes to an individual account can be administered on the [User Profile](#) page including passwords and email address. Some changes can only be administered by the Flukebook Admin. User-to-user collaborations are also managed on this page (see Collaboration below). The Organization Admin email can be changed to reflect changes in the organization.

Pro Tip:

Consider *who* within your organization needs access to your data on an ongoing basis. If multiple people in the organization will need access, your best option is to create an **Organization** and connect users to the Organization as needed.

Importing Encounters to Flukebook

Now that you have set up your account, you are ready to import your data to the platform.

There are two ways to import photo ID records in Flukebook, **individually**, and using **bulk import**. Submitting a photo ID record individually is a great way to become familiar with the platform and the process, and it is straight forward. **Bulk import** allows you to import about 200 records at once (more is not recommended) and requires preparation of the data in a spreadsheet file compatible with the program. Both methods are described below.

Single encounter import

1. From any Flukebook page Under the **Submit** menu in Wildbook, select **Report an Encounter** or **Report an Encounter (Classic)**. (Classic is a legacy form for those who have been using the app and are more comfortable with it.)

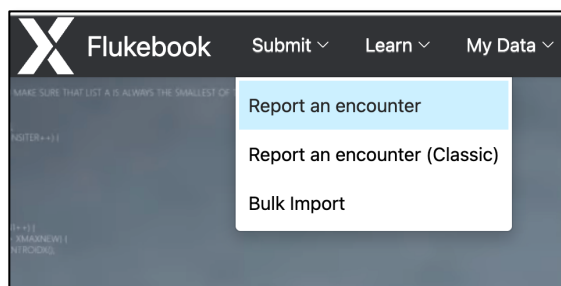


Figure 3 The Submit menu to start a data import.

2. The following fields are required:
 - **Date and Time**
 - **Location ID** region name from list (e.g. Eastern Pacific)
 - **Species name**

3. Click **Send Encounter Report**

*Note: when a new encounter or individual is added a Flukebook **Sighting ID** is automatically generated. This is relevant if you want to link multiple encounters to the same sighting.*

Voilà! Your Encounter is now available as an *unapproved* Encounter. You can now edit the encounter, upload more photos, or add more data, and *approve* or *delete* the encounter.

Optional fields available in the simple import function:

- **Photo or photos** (drag and drop) of same individual from same sighting. Formats supported: .jpg, .jpeg, .png, and bmp. Files cannot exceed 3 MB.
- **GPS coordinates:** decimal latitude and longitude, or select on map
- **Additional Comments:** a free text field.
- **Name and email** information for **submitter** and **photographer**, **additional emails**, separated by commas.

*Note: Wildbook assumes that all photos in an **encounter** contain only the same animal in one sighting, satisfying the definition of an Encounter being one animal at a location and point in time.*

Bulk Import

Bulk import is designed for users with a large number of records to import. A bulk import requires your data be ported to a spreadsheet formatted according to Flukebook's standards. Photos (media assets) are uploaded separately from the spreadsheet, but filenames must correspond exactly to the name in the spreadsheet to be associated with the correct encounter. The following are instructions for an encounter import, the most basic type of import.

Prepare your encounter data for an import

To prepare your data for bulk import you need:

- A folder for your photos (no videos)
- An Excel or CSV spreadsheet with the appropriate fields and metadata entered

Follow these steps:

1. Organize the photos you're importing into a single folder.
 - Prepare your photos. Adjust and crop your photos as you would for a print catalog. Better quality images will have more success with the matching algorithm.

- All file names must be unique from one another and exactly what appears in the Encounter.MediaAsset field in the spreadsheet (see below).
 - Filenames should only include letters from the English alphabet, numbers 0-9, period, and space.
2. Build your import file in excel or csv file using the field names provided OR download one of the templates below:

Minimum import	Contains minimum number of fields to import a set of encounters
Standard import	RECOMMENDED Contains a more robust set of fields with common usage such as, latitude and longitude, ID, sex, comments, other emails, etc.
Individual catalog	If you have already identified your encounters as marked individuals and have an ID.
Sighting import	Use if you would like to import the sighting data linked to your encounter.

3. Organize your metadata in the spreadsheet.
- Input your data in the correct format for each field.
 - Most commonly used data fields are listed **Error! Reference source not found.**
 - For a detailed list of all spreadsheet fields, explanations, and instructions for preparing data, refer to the Wildbook instructions here: [LINK](#).

Note: Your spreadsheet should have a maximum of 200 Encounters. If you have more records to import it is recommended to do this in batches.

Minimum import includes the following data fields:

Table 1. Field names available in the basic Encounter record.

Field name	Definition	Notes
Encounter.mediaAsset0	Exact Image filename / photo	Supported formats: .jpg, .jpeg, .png, .bmp. The <i>exact file name</i> of each image of the Encounter, including the file extension. Start numbering at "0" (e.g. <i>Encounter.mediaAsset0</i>), and for each additional image you add to the Encounter, increase by 1 (<i>Encounter.mediaAsset0</i> , <i>Encounter.mediaAsset1</i> , <i>Encounter.mediaAsset2</i> etc.).
Encounter.genus	Genus (Latin)	Case-sensitive. Must begin with a capital letter.
Encounter.specificEpithet	Species (Latin)	Case-sensitive. Must begin with a lowercase letter.
Encounter.year	Year of photo	Enter a 4-digit number.
Encounter.month	Month of photo	Enter a number 1-12.

Encounter.day	Day of photo	Enter a number 1-31.
Encounter.locationID	Location / region	Must match the location as shown in the Location ID drop-down menu of the Report an Encounter page
Encounter.submitterID	Username	Your Flukebook username. This is case-sensitive and must match how it appears in your account page exactly.

Source: Wildbook

Other important fields to know about:

Table 2. Additional field names available in the Encounter record.

Field	Definition	Notes
Encounter.decimalLatitude	Decimal latitude	Enter latitude coordinates using decimals instead of degrees, minutes, and seconds.
Encounter.decimalLongitude	Decimal longitude	Enter longitude coordinates using decimals instead of degrees, minutes, and seconds.
Encounter.state	The curation state of this Encounter. Values: approved unapproved unidentifiable	The default value if left blank or not included is “approved”. Un-curated data should be imported as “unapproved” but note that to push them to approved state you will have to do that in each individual encounter. This may be challenging if you have a large dataset. Encounters without photos should be imported as “unidentifiable”.
MarkedIndividual.individualID	The catalog ID of the marked individual	The default display name for the Individual.
MarkedIndividual.nickname	Verbatim name of individual	Free text field, does not have to be unique (e.g. “Mango”)
Encounter.sex	Individual’s sex if known	Values: “male”, “female”, and “unknown”. Any empty field will remain empty.
Encounter.researcherComments	Comments the researcher wants to include in the record.	Unrestricted field for general notes regarding the specific encounter. Leaves comments on the Encounter page under Metadata > Encounter history.
Encounter.sightingRemarks	Comments relating to the encounter, e.g. individual was seen with dolphins.	Leaves comments on the Encounter page under Attributes > Observation Comments. Use this field if you need the comments to persist on any cloned Encounters.

Source: Wildbook

For a complete list of data fields available in Flukebook go to:
<https://wildbook.docs.wildme.org/data/bulk-import-beta.html#fields-available>.

Multiple photos for one encounter.

If you wish to upload multiple images for one encounter, add additional columns with field codes: **Encounter.MediaAsset1**, **Encounter.MediaAsset2**, etc. including the photo filename as a value in that field.

Linking encounters to a sighting (advanced)

As described above, when a new encounter or individual is added a Flukebook **Sighting ID** is automatically generated. Advanced users who wish to link multiple encounters to a single sighting may use this ID to link to another encounter record by adding a column labeled **Encounter.sightingID**, or include their own sighting ID.

Before uploading, review your data. Flukebook provides the following advice for Bulk Imports to avoid common error messages.

- **Determine which columns you have data for** (see [Fields Available](#)). You can add, remove, and reorder columns as needed from the Fields Available list. You can create your own version of our spreadsheet as long as you do not change the field names. *Fields without data should be removed from your spreadsheet prior to import to prevent errors.*
- **Fill out one line for a single Encounter.**
- Verify the following fields *match exactly* with what exists in the system:
 - **Encounter.locationID** - Must match the location as shown in the Location ID drop-down menu of the Report an Encounter page.
 - **Encounter.submitterID** - Your Wildbook username to assign the encounter to you. This is case-sensitive and must match how it appears in your account page.
 - **Encounter.mediaAsset0** - This is the exact file name of each image of the Encounter, including the file extension.

Source: Wildbook

Import your data

1. From the **Submit** menu select **Bulk Import** from any page on the site.
2. **Browse** to select your images or drag and drop them into the box. If you don't have any photos to upload, click **Next**.
3. Click **Browse** to select your spreadsheet or drag and drop it into the box.
4. Review the data uploaded from your spreadsheet and correct any validation errors and missing data. Errors, missing data, or empty fields will be highlighted. Fields with a "+" beside them allow you change the value for all rows of that column.
5. When you're done reviewing your spreadsheet, click **Set Location**.

6. Select the location IDs you want to search for **match candidates**. Example, you have data from the Bering Sea, but you want to look for matches throughout the Eastern Pacific, select Eastern Pacific. Note that the wider the search, the longer it may take.
7. Click **Start Import**.
8. Click **See Details** to track your bulk import's progress or go back to the home page to view it later from the *My Data > My Bulk Imports* menu
9. Click **Start Import**.
10. You can then click **See Details** to track your bulk import's progress or go back to the home page to view it later from the *My Data > My Bulk Imports*

When your import is complete, the system will let you know that the upload is **completed**.

Note: Large imports may take minutes to hours to process depending on how much activity there is in the system. If you have a large import, it can be useful to plan for this, for example, overnight. Imports interrupted due to internet disruptions can be continued or restarted.

Pro Tip:

It's worth doing a trial run with just two or three records to become familiar with the process. You can delete these entries anytime.

Deleting a bulk import

There are times when you just want to start over again! No problem. You can delete a bulk import.

1. Go to *My Data > My Bulk Imports*.
2. Click on the bulk import you want to delete from the list.
3. Scroll down to the bottom of the bulk import table and click **Delete Import Task**.

Conducting a Search on Flukebook

Searching on Flukebook requires an account. Once you are signed in, Flukebook provides three options to conduct a search.

1. **Search My Data**
2. **Search global database**
3. Simple **Search** allows you to input any keyword to search the global database for *individual IDs, alternate IDs, and nicknames*.

Within **My Data** search you have five options to narrow your search on *your own data*.

- **Encounter Search** allows you to search through **Encounter data**

- **Encounter Search (Classic)** same as above but with the legacy user interface
- **Individual Search**, allows you to search through [Marked Individual data](#)
- **Sighting Search**, allows you to search through [Sighting data](#)
- **My Projects** searches within the encounters linked to your [Projects](#)

Within **Search** you have four options to narrow your search on the *global database*.

- **Encounter Search** allows you to search through [Encounter data](#)
- **Encounter Search (Classic)** same as above but with the legacy user interface
- **Individual Search**, allows you to search through [Marked Individual data](#)
- **Sighting Search**, allows you to search through [Sighting data](#)

You can access search on any page of the Flukebook site by selecting the corresponding menu item at the top of the page.

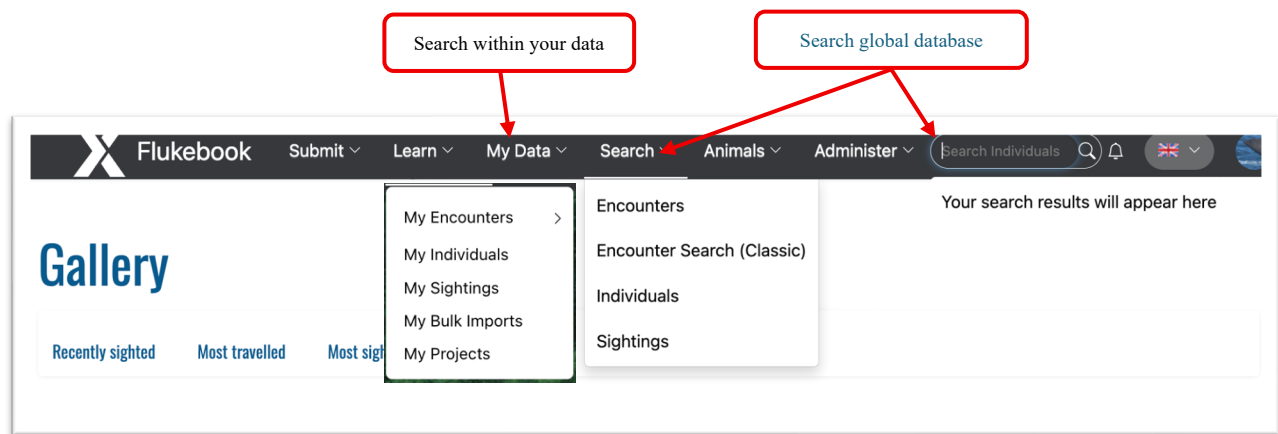


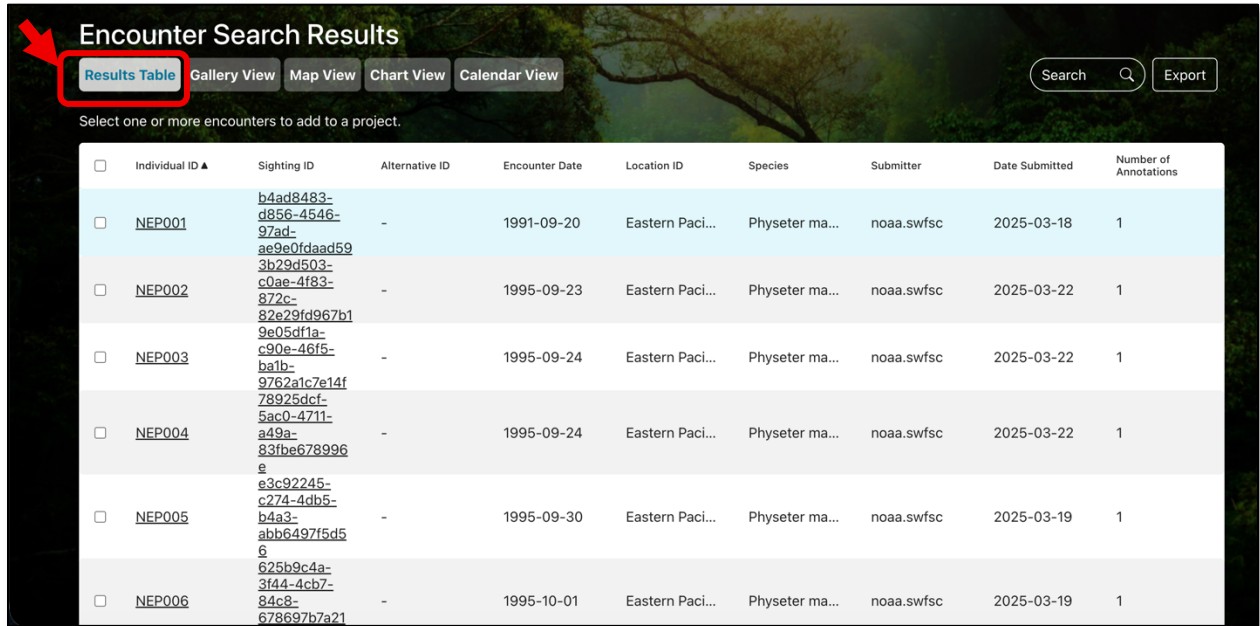
Figure 4. Three search options. *My Data* and *Search* have a menu of options. Simple search searches for keywords (e.g. name of user, photo-ID number, or nickname).

The extensive (slightly overwhelming) search forms allow you to filter your search by all fields contained in the records including species name, date range, location name (e.g. Eastern Pacific, California, etc.), map area (by drawing on a map), username, and any other data that have been stored (see box). For example, if you would like to search for how many total encounter records there are of sperm whales in the Eastern Pacific for all time, you would:

1. Select one of the **Encounters** searches from any page.
2. Go to **Location ID** and select *Eastern Pacific* (or draw a rectangle around the area on the map you are interested in).
3. Leave **Date** fields empty.
4. Go to **Genus and Species** and select *Physeter macrocephalus*
5. Scroll to the *bottom of the side bar* and select **Apply**.

Search results display

Search results can be **displayed** and **exported** in a variety of formats. Search results are dynamic and reflect the latest state of Flukebook, changing in real time as changes are saved in the system. Each search display format is represented by a tab.



Encounter Search Results

Results Table Gallery View Map View Chart View Calendar View

Select one or more encounters to add to a project.

☐	Individual ID ▲	Sighting ID	Alternative ID	Encounter Date	Location ID	Species	Submitter	Date Submitted	Number of Annotations
☐	NEP001	b4ad8483-d856-4546-97ad-ae9e0fdaad59	-	1991-09-20	Eastern Paci...	Physeter ma...	noaa.swfsc	2025-03-18	1
☐	NEP002	3b29d503-c0ae-4f83-872c-82e29fd967b1	-	1995-09-23	Eastern Paci...	Physeter ma...	noaa.swfsc	2025-03-22	1
☐	NEP003	9e05df1a-c90e-46f5-ba1b-9762a1c7e14f	-	1995-09-24	Eastern Paci...	Physeter ma...	noaa.swfsc	2025-03-22	1
☐	NEP004	78925dcf-5ac0-4711-a49a-83f8e678996e	-	1995-09-24	Eastern Paci...	Physeter ma...	noaa.swfsc	2025-03-22	1
☐	NEP005	e3c92245-c274-4db5-b4a3-abb6497f5d56	-	1995-09-30	Eastern Paci...	Physeter ma...	noaa.swfsc	2025-03-19	1
☐	NEP006	625b9c4a-3f44-4cb7-84c8-678697b7a21	-	1995-10-01	Eastern Paci...	Physeter ma...	noaa.swfsc	2025-03-19	1

Figure 5 Results table display

- **Results table** provides a filterable, table-based listing of search results. There is a lot you can do from the results table.
 - Use the **filter by text** field to enter text to filter the table by. Click **filter** to apply the filter. Click **clear** to remove the filter
 - Click any column heading once or twice to **sort the table** by that column in ascending order or descending order
 - Click any table row to **go to that data record** (Encounter, Marked Individual, or Sighting).
- **Gallery view** provides the images associated with the search results. Click on any image to see metadata and navigate to the record.

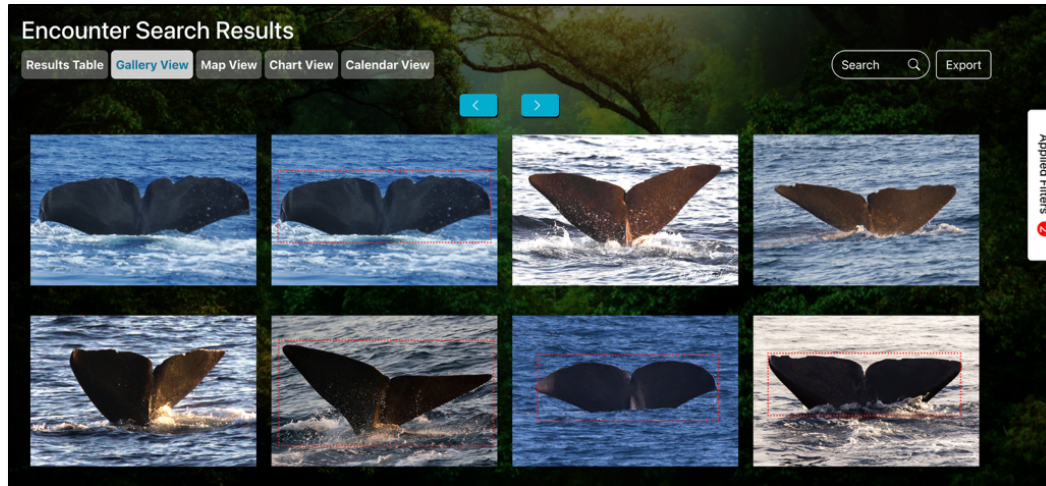


Figure 6. Gallery view showing photos associated with search results.

- **Map View** provides a map with all results displayed as clickable icons. Note that the map view features a legacy user interface.

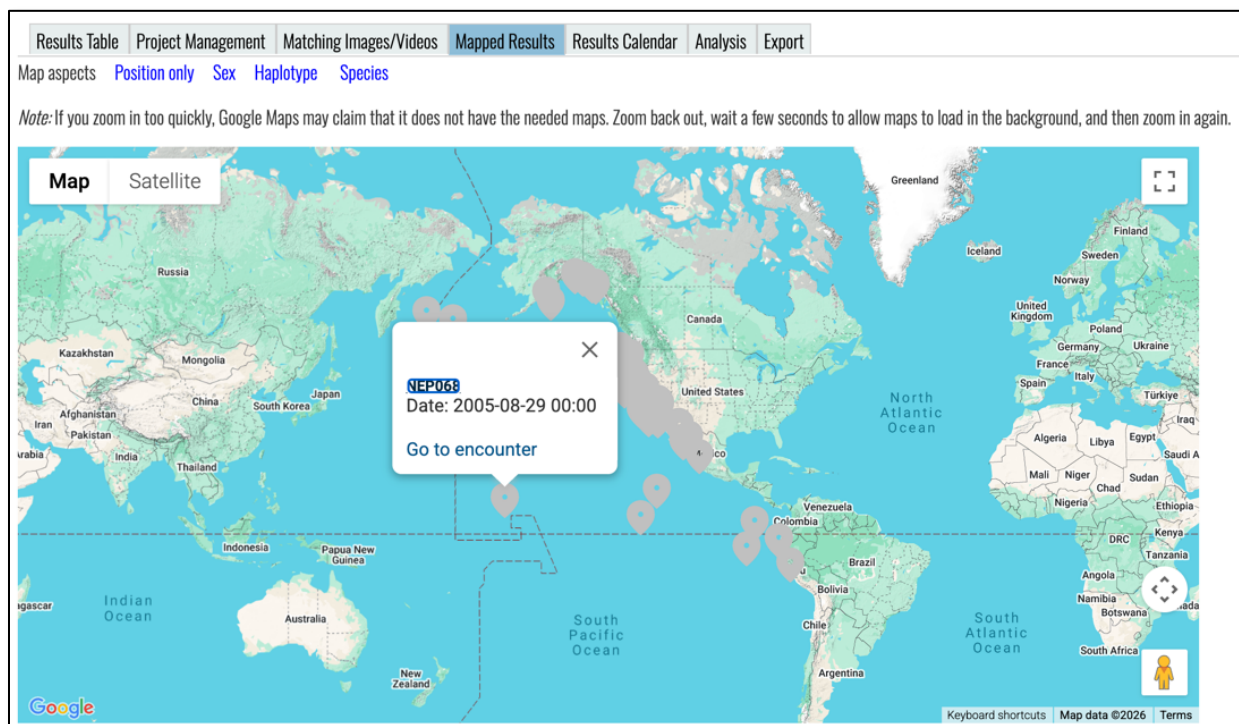


Figure 7. The map view shows your search results as GPS points on the map (grey drops).

- **Chart View** provides the data in various charts.
- **Calendar View** provides the results in a calendar format with the date of the encounter/sighting/individual capture.

Exporting Data

You may also export the results by clicking on **Export** tab in the search results menu. The export function provides a number of different options for exporting data. Choices differ depending on the type of search (Encounters, Individuals, Sightings). Export options include:

- **Encounters** search export options
 - **Standard Format Export** exports an .xlsx file of results formatted as the Bulk Import format of Flukebook.
 - **OBIS** format generates an .xlsx file in the Darwin Core format compatible with import into [OBIS.org](https://obis.org), [GBIF.org](https://gbif.org).
 - **Exported Google Earth KML file (with or without timeline)** exports a KML file of search results for use in Google Earth or GIS applications.
 - **Exported GIS shapefile** exports a zip of GIS shapefiles for import into GIS applications
 - **Simple Mark-Recapture History File Export** exports matching search data in a capture history format compatible with Program Mark, RMark, or other similar programs. See [LINK](#) for instructions for this advanced function.
- **Individuals** search export options
 - **Picture Book** - Generates a printable web page for offline manual identification. This page can be printed to PDF from your regular print function in your browser and should format with one animal per page.
 - **Other export formats supported:** CAPTURE, SOCPROG, **Kinalyzer CSV**, **MARK**, RMark, etc. For instructions on these please see [LINK](#).

Note: file generation can take time. Scroll all the way down to ensure that the images render before printing.

Pro Tip: Another way to produce a photo ID picture book is click on the **Matching Images/View** and use the print function of your browser to print to a PDF file. You will have 6 images and metadata per page (see below).

Individuals Search Results

Below are images 1 - 45

Results Table Matching Images/Videos Mapped Results Analysis Export

Below are images 1 - 45 that matched your search. Click any image to enlarge it. Clicking an image also displays all of the results on this page within a photo gallery. Within the gallery, the right and left arrow keys allow you to move between these images.

46 - 90 ▶



Location: Gulf CA
Location ID: Eastern Pacific
Date: 1995-10-19 00:00
Marked individual: NEP010
Taxonomy: *Physeter macrocephalus*
Encounter number: 10a6187b-c8bd-40f0-82fe-8dbb660479e1
Matching keywords:



Location: Alaska
Location ID: Eastern Pacific
Date: 2004-10-16 00:00
Marked individual: NEP058
Taxonomy: *Physeter macrocephalus*
Encounter number: 73217501-f381-48c9-803d-48a74bf2411d
Matching keywords:



Location: Alaska
Location ID: Eastern Pacific
Date: 2004-07-09 00:00
Marked individual: NEP054
Taxonomy: *Physeter macrocephalus*
Encounter number: dd42faa7-5764-429a-a194-2e4b8a787aff
Matching keywords:

Figure 8 Clicking on the tab “Matching Images / Videos” yields this page which can then be printed from your browser’s print function.

- **Sighting Search**
 - **Excel Metadata Summary** exports an .xlsx file of the results metadata

Automated Matching

You have completed your upload successfully! Now you get to the best part: *matching*. For a **single encounter import**, you will see a menu of choices under the photo.

- **Match Results** will show potential matches based on the locations you defined during the import.
- **Visual Matcher** will return all the images from the selected locations to allow you to conduct a visual (manual) match. This allows you to change the location.
- **New Match** allows you to select a new region for a match. Select **My Data** if you want to conduct an internal match query.
- **Add Annotation** will allow you to edit the annotation (i.e. the red box around the animal) if the system has not gotten it right.

Click on any of the choices to implement a matching process.

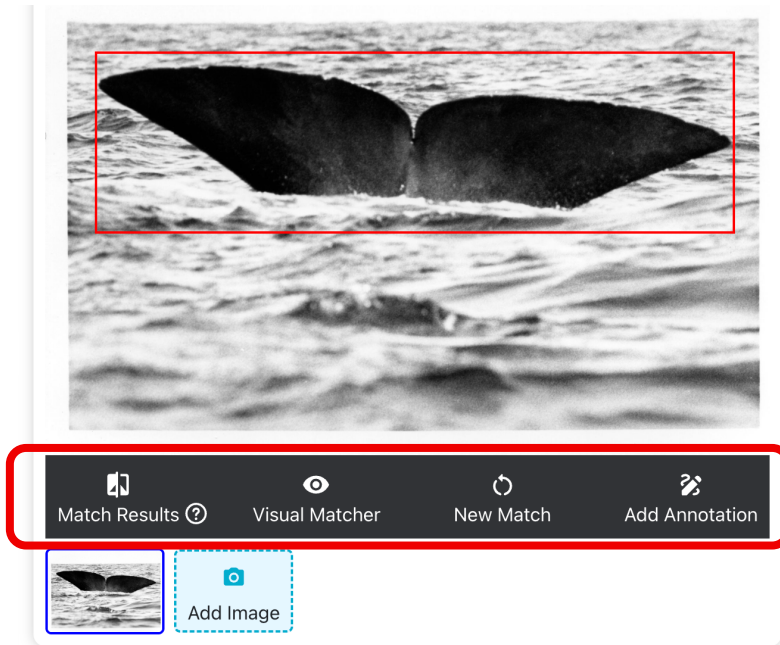


Figure 9. Matching window with one image.

Matches from a bulk import

Click on the **Class** column to view matches for each encounter. Processing time depends on activity on Wildbook and can be lengthy.

#	Encounter ID	Encounter Date	User	Sighting	Individual ID	Image Count	Class ?
1	0be4cf0e-5237-44ff-964e-98b289575114	1995-09-30 00:00	NOAA SWFSC	-	NEP005	1	whale_sperm+fluke : {completed=2}
2	e81c9cfe-fb3d-438c-8940-d4302ac7844e	1995-10-01 00:00	NOAA SWFSC	-	NEP006	1	whale_sperm+fluke : {completed=2}
3	460e3212-d3d1-4d03-a55d-6f06a9a2112f	1995-09-30 00:00	NOAA SWFSC	-	NEP007	1	whale_sperm+fluke : {completed=2}
4	7bd81cb6-523c-4ab8-90ba-	1995-10-19 00:00	NOAA SWFSC	-	NEP008	1	whale_sperm+fluke :

Figure 10. Results table: Click on **Class** to view matching results for this encounter.

Your search results should look like this (below), with your target image on the left, and potential matches presented on the right with the match score shown in bold, and the Individual Name highlighted in grey. The encounter date and filename are shown at the top of the image.

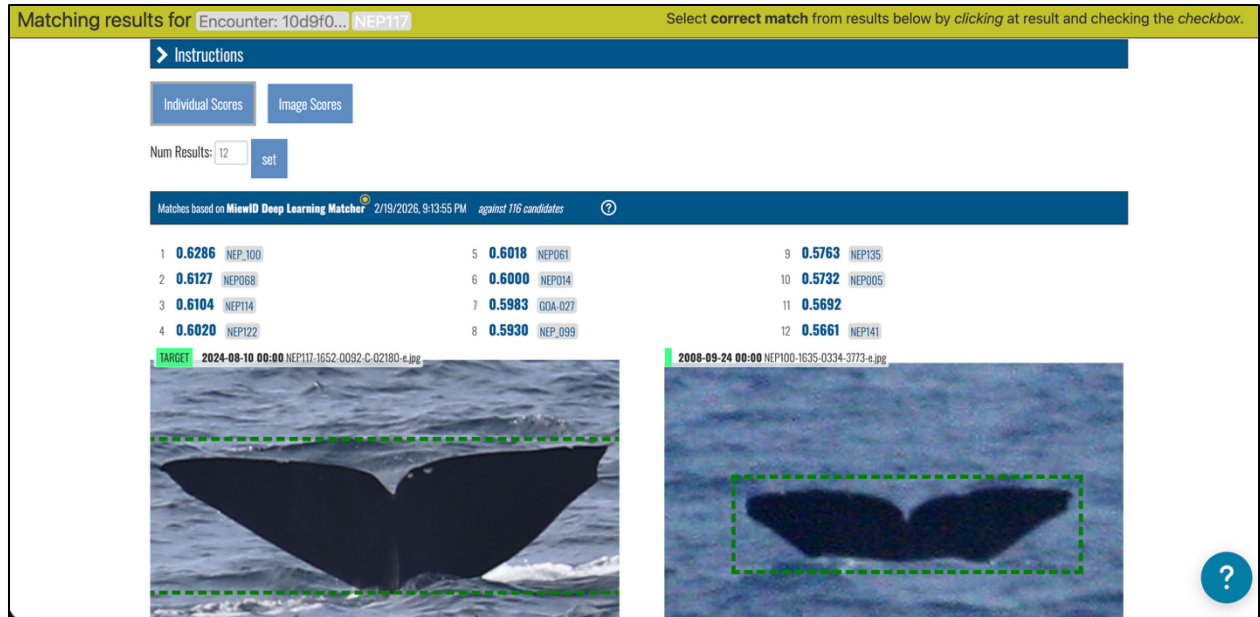


Figure 11. The algorithm matching results screen showing the target on the left and the proposed match to the right, and 12 targets with their matching scores.

Instructions to review and manage match results.

- Hover mouse over results below to **compare candidates** to target.
 - For a close inspection hover mouse over each line and click **inspect** button
- Links to **encounters** and **individuals** are next to each match score.
- If you find a match, select **correct match** by clicking on the correct result and checking the checkbox.

*Note: If the match occurs outside your catalog clicking on **correct match**, notate the match in your individual record as an **Alternate ID** (see Individual Management) to create a link between these individuals.*

Individual Management

Naming and managing individuals

You have uploaded an encounter and subsequently identified it as a unique individual and would like to add an individual ID to the record.

1. Navigate to the Encounter record
2. In the **Identity** section, click on the **pencil icon**
3. In the dialog box that opens, type in your ID into **Individual ID**.

4. If you have a nickname for the individual, add it in **Alternate ID**.
5. **Save** your changes.

Other edits can be made from this screen using the same logic.

Overview More Details

Date
Date: 2024-08-10 00:00
Verbatim Event Date:

Identity
Identified as: NEP117
Matched by:
Alternate ID:
Sighting ID: [ac526030-39a0-49ca-9c33-3d3104a4817c](#)
ID: [9c33-3d3104a4817c](#)

Location
Location: US West Coast
Location ID: Eastern Pacific
Country:
Latitude: 44.52533333
Longitude: -126.531

Images
NEP117-1652-0092-C-02180-e.jpg

Metadata
Encounter ID:
10d9f00f-3cfc-416a-b5d8-cb9bcd95245
Date Created:
2025-03-22 02:17:04
Last Edit:
4/3/2025 5:00:00 PM
Imported via:
[e9f49bcd-c989-4b19-a7db-b1062868785e](#)
Assigned User: noaa.swfsc

Attributes
Taxonomy: Physeter macrocephalus
Status:
Sex:
Distinguishing Scar: None
Behavior:
Group Role:
Patterning Code:
Life Stage:
Observation Comments:

Images
Match Results Visual Matcher New Match Add Annotation
Add Image

Figure 12. Name your individual by editing the **Identified as** field. Add any other IDs or nicknames can be added to the **Alternate ID** field.

Identity

Matched by
Select an option

Unassign Individual

Individual ID
NEP117

Alternate ID
Enter text

Remove from Sighting

Sighting ID
ac526030-39a0-49ca-...

Save **Cancel**

Figure 13. Individual ID and Alternate ID.

Setting approval status

Flukebook provides an approval status field for users who would like to use it to indicate whether their encounter has been through an internal review. Simple imports are by default “unapproved” and bulk uploads are automatically set to “approved” (assuming the data has been previously processed). Toggling between different approval statuses is easy.

1. Navigate to the **Encounter** record.
2. On the upper right corner, find the approved/unapproved field.
3. Click on desired status.

Flukebook Submit Learn My Data Search Animals Administer Search Individuals

Encounter NEP116
Encounter ID: a41ca9ab-cce6-4e6d-b1f0-c3bfea75e6f3

Overview More Details

unapproved
✓ approved
unidentifiable

Figure 14. Approval status allows for users to move through a review and approval process.

Deleting records

Records can be permanently deleted by navigating to the **Encounter** record and clicking on the **Delete** button at the bottom of every page.

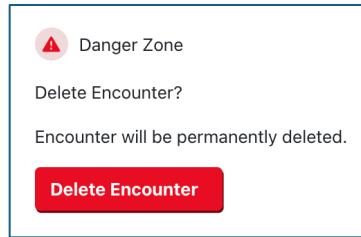


Figure 15. Delete encounter function is not reversible.

Collaboration and Data Sharing

Data sharing in Flukebook is by permission between users. There are two levels of collaboration rights, **View** and **Edit**. There are two ways to initiate sharing: 1) by clicking on the record of another user, and 2) by initiating a new collaboration request from the User Profile page.

From a record

1. When you click on a record owned by a user with whom you do not already have a collaboration, a dialog will pop up. Type in your message and submit.
2. The user can grant **view** or **edit** rights when they approve the request.

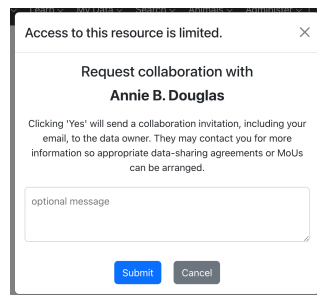


Figure 16 Collaboration request pop up dialog box

Pro Tip: The user is notified of your request by a system generated email. To make sure your request is seen, contact them outside the platform and ask them to look for your request.

From User Profile

1. Click on the icon on the upper right and select **User Profile** from the drop-down box.

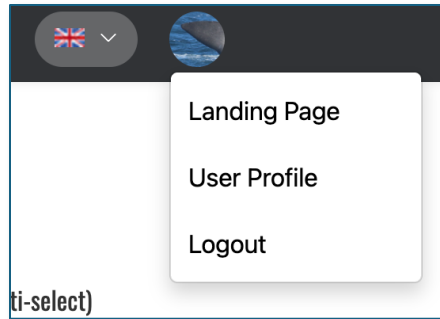


Figure 17. Click on your icon to reveal the dropdown menu. Then scroll to User Profile.

2. Scroll down to find **Queries by collaborators** form.
3. Search by username or name and submit request.

Queries by collaborators

See entire log of queries

Initiate New Collaboration

User Lookup

Add Note

Request Collaboration

Figure 18. To initiate a collaboration request, click on the Queries by collaborators form.

Managing collaborations

On the User Profile page, scroll down to see all your collaborations and their status. From this page you are able to edit and revoke permissions. It should look something like this:

Collaborations			
to kloomis from noaa.swfsc	can edit		Revoke Edit Permissions
to pmahoney from noaa.swfsc	invited		Revoke View Permissions
to CRC from noaa.swfsc	invited		Revoke View Permissions
to jwaite from noaa.swfsc	invited		Revoke View Permissions
to osaecology from noaa.swfsc	can view	Revoke View Permissions	Grant Edit Permissions

Figure 19. Collaboration screen showing various statuses of permissions.

For more help on collaborations: <https://wildbook.docs.wildme.org/security/my-account.html#collaborations>

Making your data viewable by all users.

If you should want to make your data visible to *all users* (such as citizen scientists), extend a *view-only collaboration* to the user 'public'. The public user account will automatically accept the collaboration.

Advanced Use Cases

Once you become comfortable with the basic functions, Flukebook offers many advanced functions scientists might find useful.

- **Multiple image recognition:** The system can [detect multiple individuals](#) in one image, annotate them for matching.
- **Projects:** A [project](#) groups a subset of encounters. Encounters are compared to other encounters in the project, and as they are recognized as individuals, they are assigned project IDs. Common use cases for a project are a census (population count of identified subset of platform data), a reconciliation of multiple catalogs (de-duplication between catalogs) or an internal reconciliation of a collection of encounters.
- **Relationship and Social Units:** Flukebook allow you to track relationships (e.g. mother-calf) and social units (e.g. Pod A)

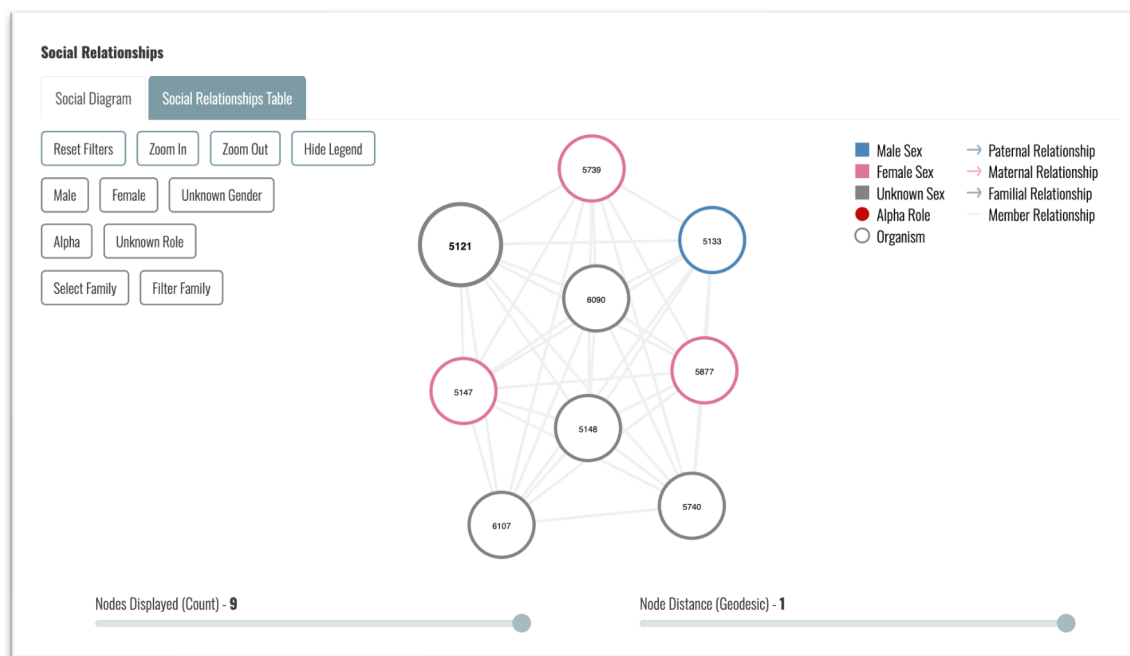


Figure 20 An example of social relationships graphic display showing individuals associated with this whale.

Resources and Further Help

- **Help pages:** For detailed instructions go Wild Me help pages at <https://wildbook.docs.wildme.org/getting-started-with-wildbook.html#getting-started>
- **Contact Us:** <https://www.wildme.org/contact-us.html>
- **Contact via Email:** For specific, urgent, or partnership-related support, you can email Wild Me directly at **services@wildme.org**.
- **Community and Support Channels:** For support, Wildbook offers a community support page where users can search threads for issues, post inquiries, and receive help from the site administrators. Users can sign up for the Community Support Channels by <https://community.wildme.org/> and clicking on **Sign Up**. You must have a Flukebook username to sign up.

Getting Started with Happywhale

Happywhale is user-friendly, with basic functions like submitting an encounter and search, and self-explanatory. Functions such as editing records, ID matching, bulk importing, are considered advanced and require a short training exercise. Data exports for further analysis can be requested of Happywhale staff. Scientists who wish to put their project behind a firewall can do so by arrangement with Happywhale.

Structure

Happywhale structures its data around individual marine mammal encounters using photographs and metadata to build a centralized, searchable identification catalogue. To use the Happywhale platform it's useful to understand the basic data elements, account types, user roles, and how they are linked in the database.

- **Encounters:** One instance of seeing an individual animal at a specific place and time. Includes photo or photos, video, DNA profiles, and associated metadata.
- **Individuals:** An individual is an animal that has been uniquely identified and assigned an individual ID. When images from more than one encounter match (through automated image recognition plus human confirmation), they are all assigned the same *individual ID*, in addition to the user's ID, in a one-to-many relationship.
- **Trips:** Trip (survey/cruise) data can be recorded when entering an encounter and can be linked to multiple encounters. Can include tracklines (e.g. .gpx) files.
- **Linkages:**
 - An **image** is linked to the **encounter**.
 - Each **encounter** is linked to the **user** (user/organization) who provided it.
 - Encounters link to an **individual animal** once identified or matched.
- **Reference catalog:** A library of all marked individuals. This library serves as the reference data in the matching process.

This structure allows Happywhale to connect *who* saw a whale (contributor/organization), *what* was seen (species, images), *when and where* the observation occurred, and *which individual* that animal corresponds to, creating a linked dataset.

Account Types

Happywhale supports two kinds of user accounts: individual user and organization admin. It is not necessary to have a username to browse the Happywhale database, however, it is necessary to submit and manage data. Happywhale also supports Organization entities (not strictly an account), such as research organizations, whale watch tour operators. All encounters are associated with the Organization through "trips"; each encounter can be recorded as part of one or more trips, and each trip is in the name of an organization.

- **Individual:** A username allows you to submit data. Each user account can be linked to one or multiple organizations. Each user account can be linked to one or multiple organizations.
 - **Organization Admin:** Research organization data managers who learn system management get access rights enabling efficient account maintenance.
-

Account Set Up

Register a new user

- On the [home page](#), click on the upper right corner, and select **Set up**. A dialog box will appear requesting your full name and email. Fill in and press submit. When your account is approved you receive a welcome email.

Register a new organization

There two ways to create an organization in Happywhale if your organization does not have an account.

1. At the bottom of any page, click on [Register an Organization](#), complete the form, and submit.
2. Contact the Happywhale Admin at info@happywhale.com to request an organization account. You may also request an Admin role.

Pro Tip:

To check whether your organization is in the system, conduct a search from the keyword search function (the magnifying glass) on your organization. The name of the organization may be spelled or abbreviated differently in the system. Try a few spellings.

Data Ownership and Protection

Each user should review their account settings (<https://happywhale.com/account>) to assure that media license settings for their submissions meet their preferences. Media license settings default to Creative Commons (i.e. Creative Commons-Public Domain) unless they set a different license in their account. This can be changed at any time. The copyright license information then appears at the bottom of every photo when enlarged (click on photo to enlarge).

Private mode

Data can be held behind a privacy firewall accessible to only defined users. Happywhale will ask to review a data use agreement and to provide details of your project. Users operating in this

mode may still access the central ID reference catalog; however, their data remain invisible to the public.

Set up license

- From any page, click on **Account** on the upper right-hand corner, and scroll down to **Media License**. Select a license level from the drop-down menu. Select “Copyright, no use without permission” if you wish your data to enjoy copyright protections.

Change Password Save

Last Login 2026-02-07 15:15:26 Last Check Login 2026-02-23 21:08:13 Creation Date 2024-12-03

Media License

Your images and other data submitted data will be kept under a [Creative Commons license](#). The default setting applied to your data is listed below.

- ☐ Public Domain
- ☐ Creative Commons Attribution 4.0
- ☐ Creative Commons Attribution-ShareAlike 4.0
- ☐ Creative Commons Attribution-NoDerivatives 4.0
- ☐ Creative Commons Attribution-NonCommercial 4.0
- ☐ Creative Commons Attribution-NonCommercial-ShareAlike 4.0
- ☐ Creative Commons Attribution-NonCommercial-NoDerivatives 4.0
- ☒ Copyright, no use without permission

Warning: Selecting this option will exclude your images from use in scientific studies. Are you sure you would not be satisfied with a [Creative Commons Attribution-NonCommercial-ShareAlike license](#), which allows scientific use but disallows commercial use?

Cancel Confirm

Figure 21 Media License default levels can be selected and changed from the Account page.

Management of Your Account

Changes to the account can be administered on the [Account](#) page including passwords, name, email address, and level of media license/copyright. The Organizations to which the account is linked are also displayed here and can be removed but not added.

Importing Data into Happywhale

There are three methods for importing your data: **Standard**, **Advanced** and **Batch Import**.

- **Standard:** The standard submission process is available to all users, and consists of a simple, two-step process that is designed to be self-explanatory. This process allows the user to import a single encounter or multiple encounters at once. The processing of the data is conducted by the Happywhale staff. This method is appropriate for smaller datasets and for infrequent users. Users receive notifications of data processing results, including match information, typically within 48-72 hours, longer in the case of complex ID work.
- **Advanced:** The advanced submission process offers the user more control over the data entered, allows the user to go through the matching data and determine if there is, or is not a match from the existing database. This method allows you to import multiple encounters at once. Expert users are required to take Happywhale's Advanced Submission training course consisting of three exercises with sample data to learn a more robust interface putting ID tools into the hands of the user.
- **Batch Import:** The batch import method should be considered for large datasets (i.e. >200). The batch method is supported by the Happywhale staff. Users who wish to take advantage of this process must first request to complete the Advanced Submission training.

Standard submission process

All basic functions in Happywhale are designed to be self-explanatory. In the standard submission process users import basic data, and Happywhale administrators process it.

1. Click on **Start Submission Process**
2. From this screen upload your photo or photos or drag and drop.
 - You may upload multiple images from multiple sightings; however, it is recommended you try a single submission at first.
3. Permitted files: .jpg, .png, .heic, .heif

Image Submission Guidelines for tips on getting the most out of your images and other media.' This is followed by 'Upload Instructions' and a bulleted list: '• Drag and drop files below or click \"Upload Files...\" below to begin', '• For uploads > 500 MB please [contact us](#) .', '• For video, please include screenshots of the best photo-ID frames.', and '• When you are done uploading images click Continue to progress to the next phase of the submission process.' Below the list is a checked checkbox and the text: 'By submitting content, I acknowledge I created or have explicit rights to share the media and information uploaded, and accept the [Data Use & Terms of use of Happywhale.com](#)'. A large light blue rounded rectangle contains an 'Upload Files' button and the text 'Drag files here or click the button to select files'. Below this, it says 'Accepted Types' followed by 'jpg, png, heic, heif'. At the bottom, a grey rounded rectangle labeled 'Uploaded' contains a thumbnail image of a whale's tail fluke and a red trash icon."/>

Figure 22 Standard submission process initial screen showing uploaded encounter image.

4. Fill in data fields:

- **Date, Organization** (if applicable), **Location** by GPS or by pinpointing on the map provided, and **Boat** (skip if not applicable). Data embedded in photo metadata will be auto filled.

5. Click **Continue**

The record will be sent to Happywhale who will then:

- Review the data for data integrity
- Assign a quality score (1-5) to any image
- Look for matches in the reference database
- If there is a match the encounter will be associated with that individual. If not, a new individual ID will be assigned, unless images are of insufficient quality to be added to the Happywhale central reference catalogue.

Should the staff have any questions or an error is detected, the Happywhale admin team will contact you by email. Once your submission is approved and added to the database, you will receive a confirmation email.

Advanced submission process

For the advanced process, Happywhale requires training exercises conducted on a training website (so there is no risk if you mess up!). The training is offered by a partner organization that specializes in training for citizen scientists, Polar Collective, and is overseen by Happywhale staff. The training helps advanced users become familiar with the importing process and practice before attempting with live data on the production website. **To obtain access to the training, email info@happywhale.com. Once you complete the training, you notify Happywhale and, after review, access to the advanced process will be made available on the site.**

The steps of the **advanced process** are described below (once trained and advanced status is applied to your account).

1. Importing data to Happywhale

- From any page, click on Submit Images, click on **Start New Submission**. Ensure that you are not on the Standard submission page.
- Import your images from this encounter by clicking on **Upload Files** or drag and drop.
 - Accepted media types: jpg, png, heic, heif
- Click **Continue**.
- On the next screen (shown below) input the requested information. Minimum data include **date**, **time zone**, and **species**.
- On the same page, crop and adjust the photo as *closely as possible* to improve matching results. If it's already cropped, select **Entire Image**. Use **Auto Detect** to have the image automatically cropped. **Manual** allows you to crop and rotate the photo. If the image is too low quality or not an ID photo but you still want to record the encounter, click on **No IDable Image**.
- Click **Continue**.

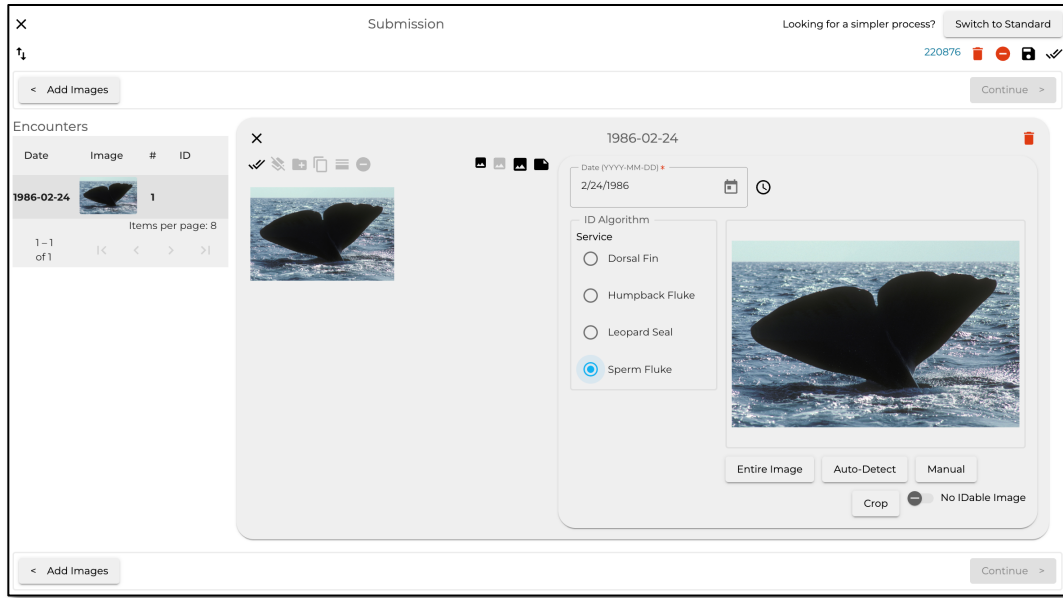


Figure 24 Screen two of the advanced submission process shows the metadata fields and photo cropping.

2. Check for matches

The system will process your image for matches in the existing database. The system searches the entire database; there is no need for, or option to, narrow the search. Up to 30 potential matches will appear on the next screen, arranged by the highest match score to lowest.

- Toggle through the matches on the right side of the screen using the arrows. *To find out more data on the potential match (date, location, etc.), click on the record below.*
- Select among the matching options:
 - **Correct Match** if you have confirmed a visual match. You can also choose **Maybe** or **No Match**.
- Click **Continue**.

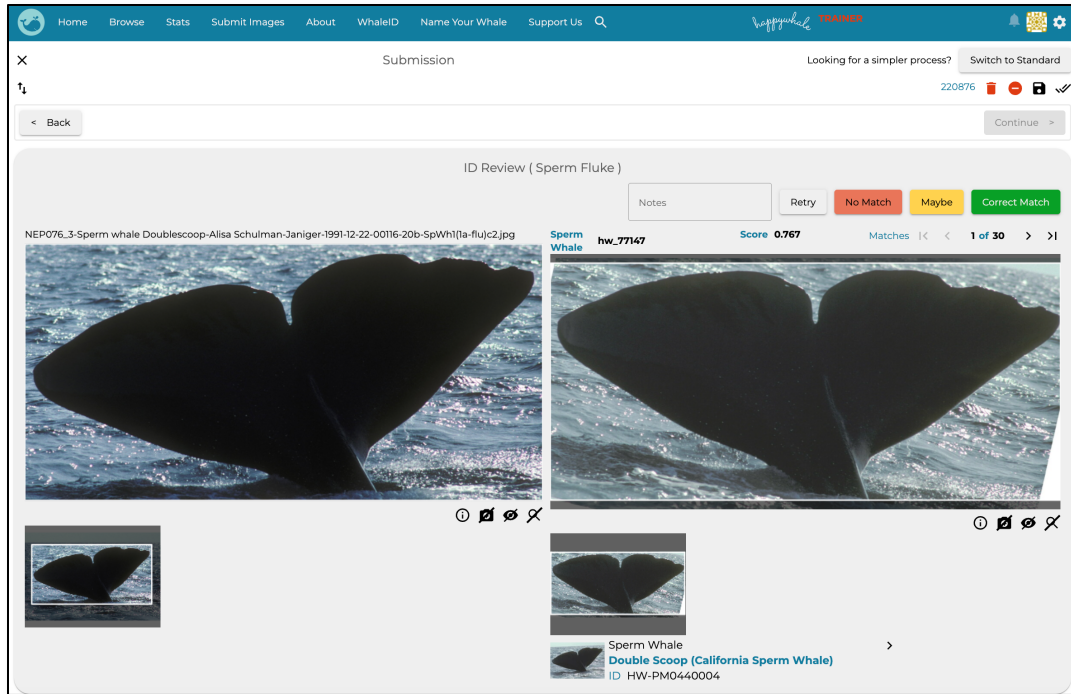


Figure 25 Match results showing the target image on the left and the suggested match on the right.

3. Provide trip information (optional)

- On the next screen you will be asked to provide survey information. You can choose:
 - **Not On A Trip**
 - **Search** for Trip (search by Organization name)
 - **Create New**
 - This screen will ask you for an **Organization** and **Boat Name**.
 - You also have the option to upload a .gpx file for the trip track, which auto-syncs with images (if metadata date/time are correct) to geolocate encounters.

The screenshot shows the 'Submission' window in the Happywhale system. At the top, there's a header with a close button, the title 'Submission', a link 'Looking for a simpler process?', and a 'Switch to Standard' button. Below the header, there's a navigation bar with a 'Back' button, a 'Continue' button, and a status bar showing '220876' and some icons. The main content area is divided into two sections. On the left, under 'Date Groups', there's a list with 'Date 1986-02-24', 'America/Los_Angeles', and 'Encounters 1'. On the right, there's a form for selecting a trip. It includes a date selector set to '1986-02-24', a 'Refine Search' button, and a 'Create New' button. Below this, there's a 'Not On A Trip' button and a 'Trip' field. The 'Trip' field is currently set to 'Pacific Whale Foundation, Research Program' with the date '1986-02-24'. Below the trip selection, there's a table of encounters. The table has columns for 'Date', 'Image', '#', and 'ID'. There is one row with the date '1986-02-24', an image of a whale, the number '2', and an ID icon. At the bottom of the table, it says 'Items per page: 8' and '1 - 1 of 1'.

Figure 26 Screen showing the Trip (survey) fields.

4. Provide Location Data and Finalize Submission

- Provide the verbatim location and decimal GPS coordinates or pick a location on the map.
- Fill in your **individual ID** for the animal.
- You can add public or private (seen only by user) comments.
- Review your data, make any corrections needed, and click **Complete**.

What happens now? The submission goes to the Happywhale admin for a QA review of the data and approval. The admin will get back to you with corrections and clarifications via email. *Once approved* your encounter will be available in the database/global reference catalog.

Note: The encounter enters the Happywhale global reference catalog only when it has been reviewed and approved by Happywhale. Only when it is approved does it become available for matching with new submissions.

Note: This approval process may take hours to days, depending on the volume of processing taking place. If you would like expedited processing, you should contact info@happywhale.com.

Figure 27 Adding ID / Name or nickname, location data and check your data before submitting.

Uploading Multiple Images at Once

The examples above illustrate the importation of a single image. However, images can be uploaded in batches with a limit of 500 mb. For larger dataset, submit in smaller batches or contact info@happywhale.com.

You may upload multiple images for one encounter, and not all images need to be photo-ID. For example, you may want to upload alternate images of the animal, the context (i.e. other animals in the sighting), or a video. You may also upload images for multiple encounters in small batches.

Note: Images with multiple individuals can be cropped in the upload process to separate individuals into one per encounter. It is often most efficient to prepare your data in advance so there is one photo-ID image per image file.

The screenshot shows the 'Submission' page of the Happywhale website. At the top, there's a header with a close button (X), the title 'Submission', a link 'Looking for a simpler process?', and a button 'Switch to Standard'. Below the header, there's a status bar with a sort icon (up/down arrow), the ID '220924', and icons for trash, minus, plus, and checkmark. A 'Continue >' button is on the right. The main content area starts with a note: 'Before you begin uploading please refer to our [Image Submission Guidelines](#) for tips on getting the most out of your images and other media.' This is followed by 'Upload Instructions' with a bulleted list:

- Drag and drop files below or click "Upload Files..." below to begin
- For uploads > 500 MB please [contact us](#).
- For video, please include screenshots of the best photo-ID frames.
- When you are done uploading images click Continue to progress to the next phase of the submission process.

 Below the instructions is a checkbox with a checkmark and the text: 'By submitting content, I acknowledge I created or have explicit rights to share the media and information uploaded, and accept the [Data Use & Terms of use of Happywhale.com](#)'. Underneath is a large rounded rectangle containing an 'Upload Files' button, the text 'Drag files here or click the button to select files', and 'Accepted Types' listed as 'jpg, png, heic, heif'. At the bottom, there's an 'Uploaded' section with a trash icon and a row of six whale tail images.

Figure 28 Uploading multiple files of multiple individuals

Batch Importing Large Data Sets

For expert users processing large datasets, Happywhale has a bulk upload process that entails preparing individual and encounter data in spreadsheets, alongside associated image files. Once learned, this enables thousands of encounters to be imported efficiently. To access this functionality, contact Happywhale.

The process works as follows:

1. Each import is uploaded as a set of images that are then crafted into encounters — with spreadsheet guidance as necessary.
2. Then ID is attempted with comparison with all known individuals.
3. Results of image name, all extractable metadata (i.e. date, time, lat/long, any attributes such as keyword metadata), plus encounter ID information is provided in a spreadsheet format that can be edited, with IDs added or linked with an external spreadsheet to merge in large external supporting data, then the upload is reviewed and completed.

Source: Happywhale

Searching, Filtering, and Exporting Data

Simple keyword search method

The search button (magnifying glass) is located at the top of the window. This function conducts a simple search for Usernames, Organizations, Individual IDs, and nicknames.

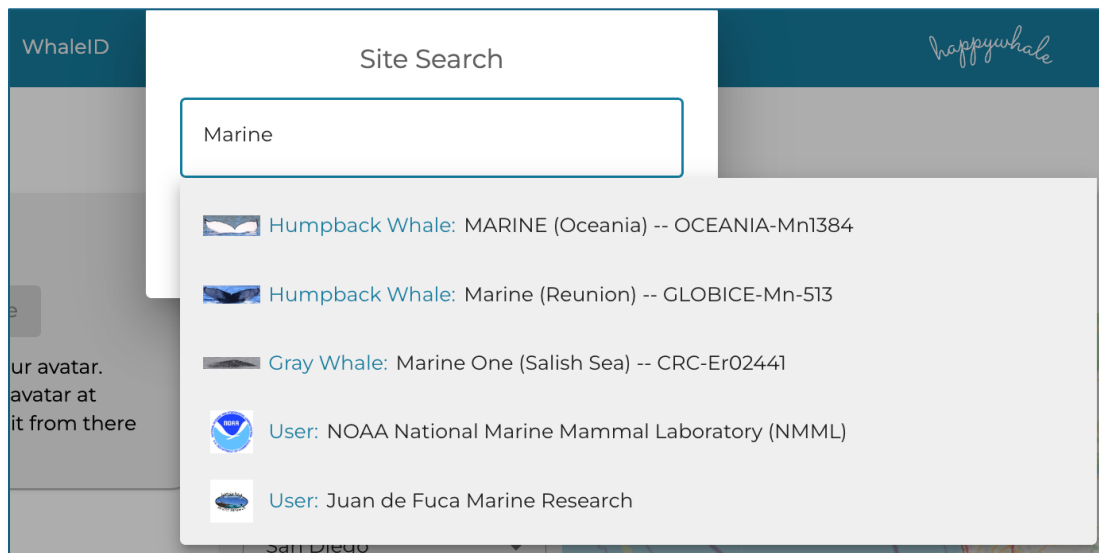


Figure 29 Search field will search for users, organization, and individual ID that match the query.

Browse method

From any page, click on [Browse](#). The screen below allows you to narrow your search by **species**, **date range**, and **geographic region**. The system will search the entire database and will show listings from all owners.

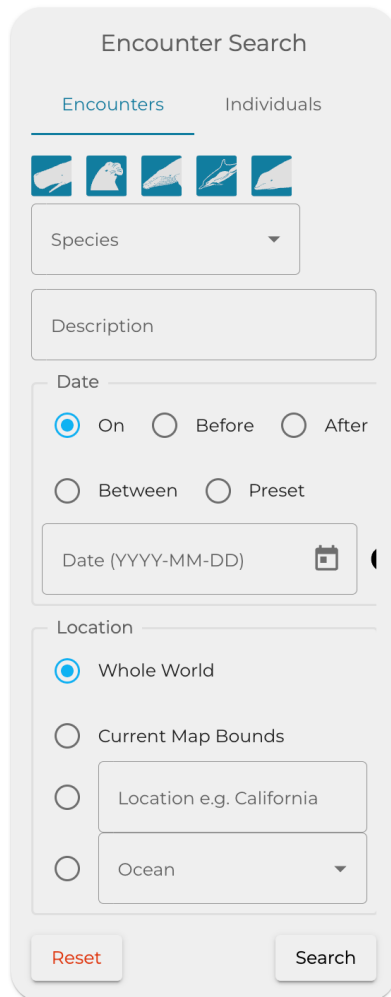
The image shows a mobile application interface for "Encounter Search". At the top, there are two tabs: "Encounters" (which is selected and underlined) and "Individuals". Below the tabs is a row of five icons representing different whale species. Underneath the icons is a "Species" dropdown menu. Below that is a "Description" text input field. The "Date" section includes four radio buttons: "On" (selected), "Before", "After", and "Between", followed by a "Preset" radio button. Below these is a date input field labeled "Date (YYYY-MM-DD)" with a calendar icon. The "Location" section has three radio buttons: "Whole World" (selected), "Current Map Bounds", and "Location e.g. California" (which has a text input field below it). There is also a radio button for "Ocean" with a dropdown menu below it. At the bottom, there are two buttons: "Reset" (in red text) and "Search".

Figure 30 Browse screen

On the results screen (below) you can filter each column A-Z or Z-A. **Individual** will show the nickname, your organization's identification number or the Happywhale generated identification number (e.g. HW12345678).

Note: If you would like a custom generated report, contact Happywhale at info@happywhale.com

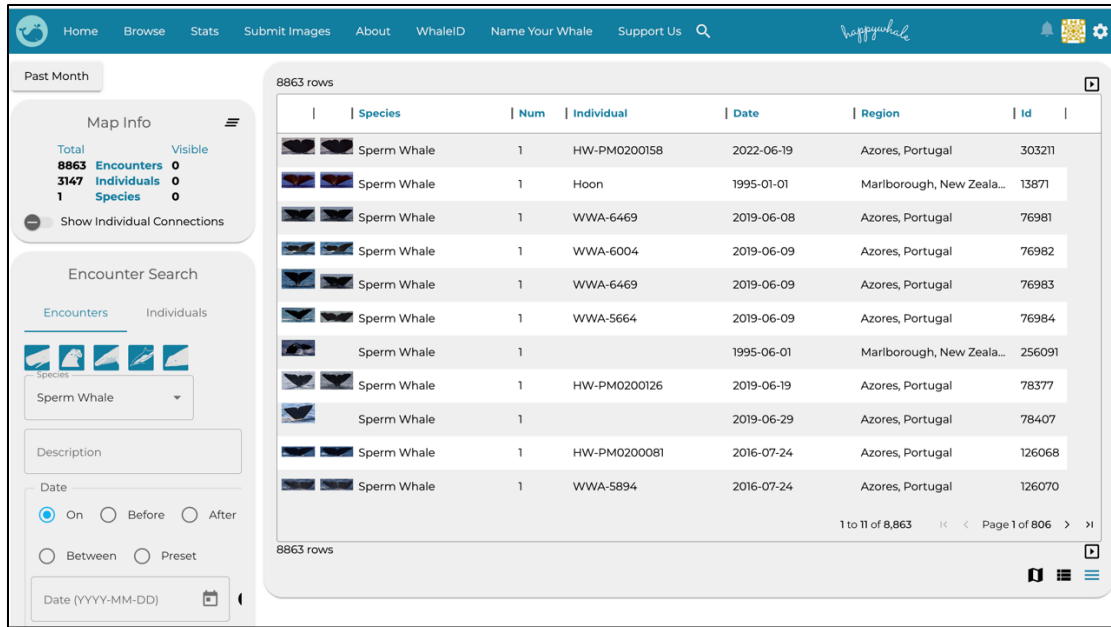


Figure 31 Browse result screen showing List view.

- To learn more about an encounter click on the row and scroll to the bottom of the page to see the encounter data.
- Click on the **ID** to see more encounters of this individual.
- Click on **Photos** to see all photos associated with this encounter. **Scientific** contains the history of this record.

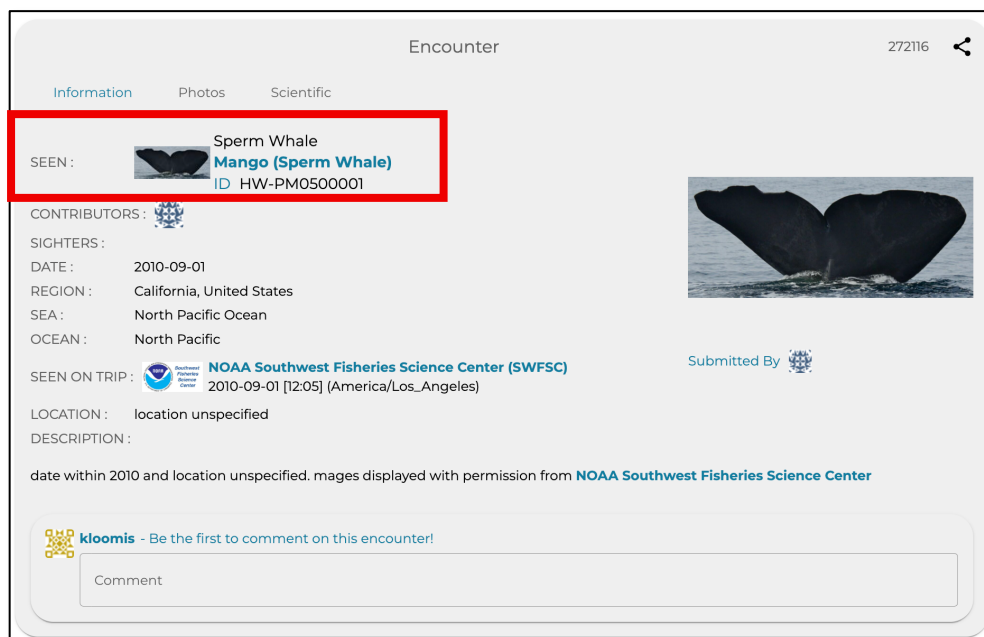


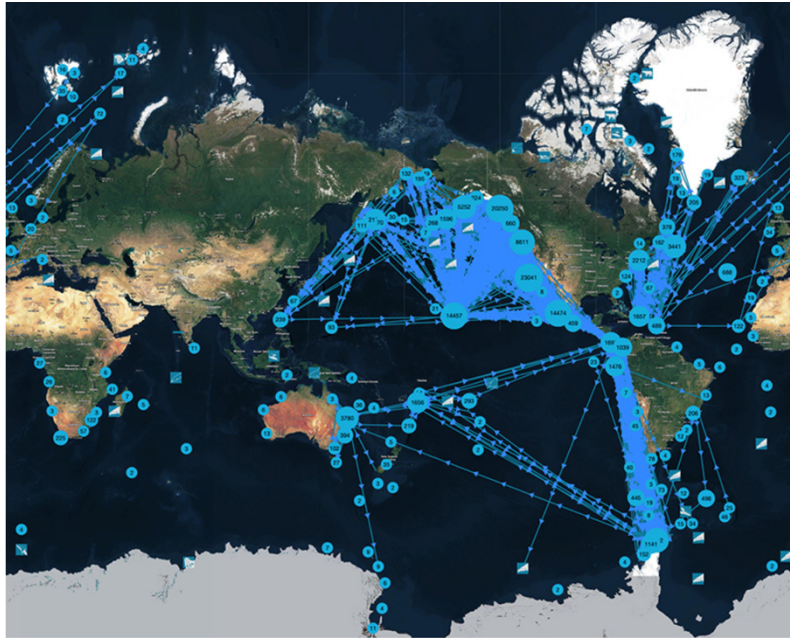
Figure 32. View of an encounter record with the user ID (Mango) and the Happywhale ID (HW-PM05000001)

Generating a Mark and Recapture Report

1. Using **Search** menu, input the ID of your individual by ID.

This will generate a map of all associated encounter of the individual, with connecting lines between sightings.

2. Using the **Browse** function, look for a species, and filter by dates and locations as desired.



*Global migratory patterns of whales from the Happywhale database
Figure 33 Mapped results of humpback whales in Happywhale*

The result screen will show you all the encounters resulting from your search. You can toggle between **Map**, **List**, and **Grid View**. In map view arrows connect encounters of the same marked individual.

Conducting an Internal Matching Study or a Multi-Catalog Comparison Study

For both the above, Happywhale has developed a system to enable many-to-many matching of any size dataset, or comparisons between datasets, in a stand-alone application: “WhaleID”. Datasets must be configured as follows:

- Every image is a separate individual (separate class)

- ID at the beginning of the filename with a consistent separator i.e. ID in front of the first “ ” or “-“
- IDs in a csv spreadsheet with filename references. Set up two columns:
a) *exact* filenames and b) ID
- One folder per individual. Folder name should be ID names/numbers.
IDs = folder names

Match efforts are then available for review via a spreadsheet output.

For access to this functionality, contact Happywhale at info@happywhale.com

Viewing Your Data

To see all the **encounters**, **individuals**, and **trips** associated with your **username**, click on the *account icon*, and select **My Home Page** from the drop-down menu.

To see all **encounters**, **individuals**, and **trips** associated with your **organization**, click on organization name from the drop-down menu.

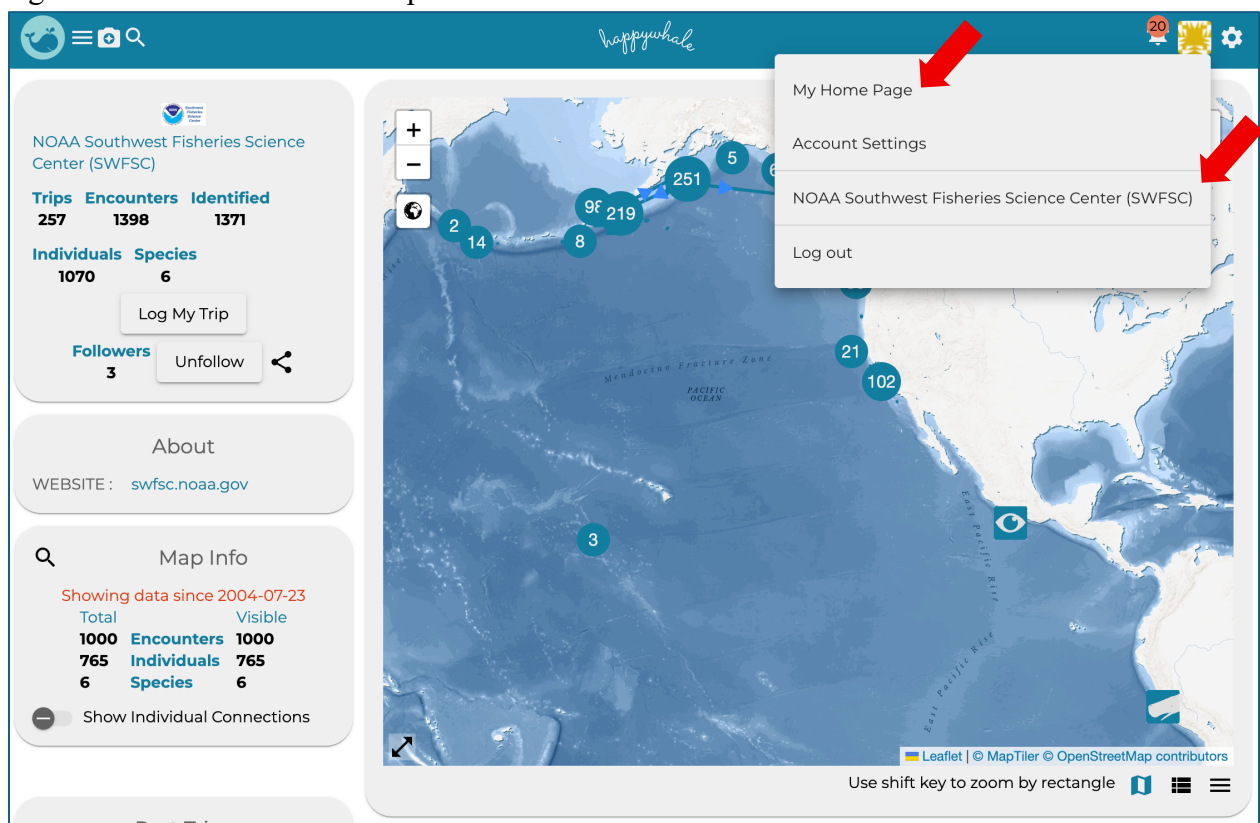


Figure 34 Showing map view of results page

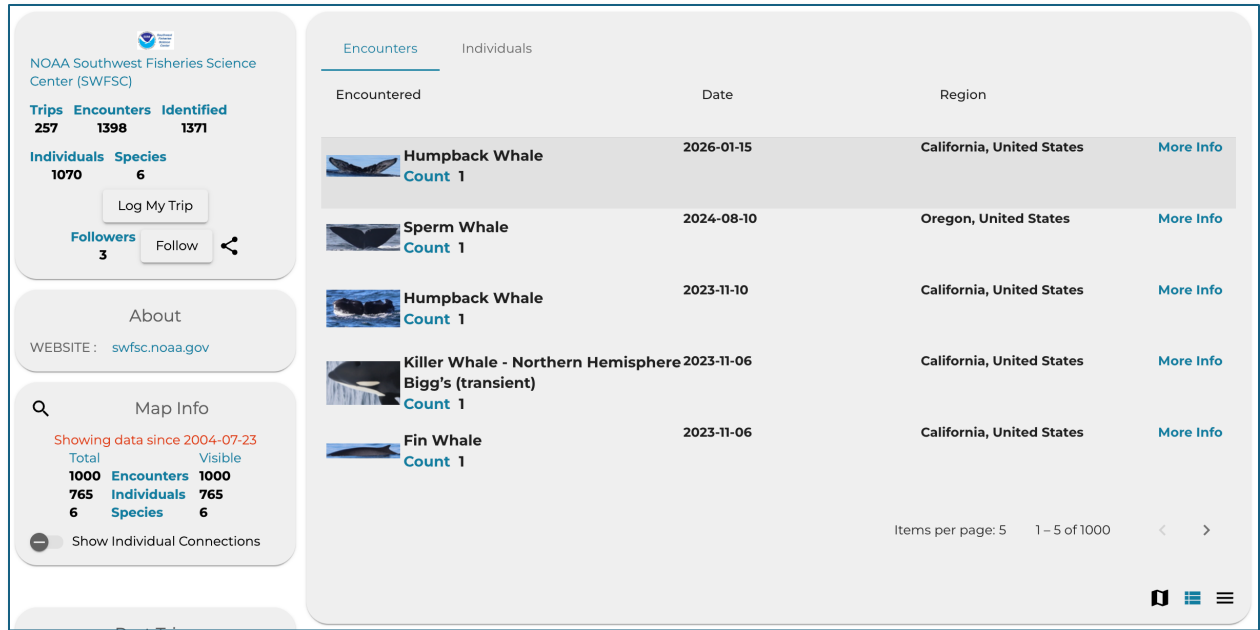


Figure 35 Showing list view of results page

Exporting Data

If you would like to export data from your search, or you would like to export from your organization, contact info@happywhale.com. Data inputs for mark-recapture analysis are available as a standardized spreadsheet export (.csv) which can be converted into input formats for further analysis.

Note: If the dataset you are seeking has data from outside your organization, data export may require addressing collaboration and use agreements, which is done in consultation with Happywhale admin. If the data is limited to public domain citizen science data, no permission process is necessary and export can be rapid, usually a 24-hour turn-around. Datasets involving multiple research collaborators will require you to address permission issues, for discussion with Happywhale.

Editing and Deleting a Record

Data managers for research organizations, with sufficient experience, are progressively given system data management access for editing and deleting data. Contact Happywhale.

Further Help

For all inquiries contact Happywhale at info@happywhale.com

Happywhale Data Attributes

The main fields available in Happywhale. Not all fields are accessible or editable by users.

Files have the following attributes:	Field Description
filename	Format: <encounter date>_user-name_mediaid.jpg. These will always be at the highest resolution we have received; we will never reduce image resolution.
mediaid	Media ID is a permanent unique sequential number for the image/media file
contributor_userid	User unique ID of the image submitter
contributor_fullname	Username of the image submitter
submitted_on	Date the image was submitted to Happywhale
enc_id	Encounter ID is a permanent unique sequential number for encounter in Happywhale
enc_date	Encounter date
enc_start_time	Encounter start time (local) – note encounter times are frequently unverified
enc_end_time	Encounter end time (local) – note encounter times are frequently unverified
enc_lat	Encounter latitude, decimal degrees
enc_long	Encounter longitude, decimal degrees
enc_region	Encounter region – based on a lat/long lookup using the closest political region (which should be noted may not make a lot of sense for marine locations outside political regions)
enc_loc_verbatim	Encounter location text field
enc_loc_accuracy	Encounter location accuracy, classified conservatively as <general> = within 100 miles, <approximate> = within 10 miles, <precise> = within 1 mile
enc_loc_precision	Encounter location precision, subcategories for precise locations, classified (in descending order of confidence) as <camera> = in/on camera GPS unit, <GPS> = lat/long from a separate GPS unit synced or copied onto photo from survey track, <manual> = manually copied from a GPS device, ship plotter or map.
enc_ocean	Ocean basin where encounter occurred, based on a lat/long lookup
enc_sea	Sea, based on where encounter occurred, based on a lat/long lookup
enc_comments	Comments about encounter

enc_public	Public/private viewability status of image. IF PRIVATE, ENCOUNTER DETAILS CANNOT BE DISPLAYED OR SHARED PUBLICLY WITHOUT CONTRIBUTOR PERMISSION
enc_admin_comments	Encounter comments recorded but only visible to data users, not visible on web interface front end
enc_orgs	Organization internal ID for images with association to an org, usually due to a privacy setting. To find out what org is associated, add the number to the URL: https://happywhale.com/org/
enc_created_by	Happywhale admin, data manager or advanced submitter who created encounter
enc_created_on	Encounter creation date
enc_url	URL for the encounter in Happywhale
min_count	Number of individuals in encounter – NOTE: for ID'd individual encounters, this will always be 1
max_count	Maximum number of individuals in encounter, if different from min_count.

Source: Happywhale

7. References

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Appendix A: Terminology Crosswalk

Common Photo-ID Terminology vs. These Platforms

These online platforms are not only powerful for matching automation, when used in a sophisticated manner, they are adept at multiple functions not available on manual systems. Online platforms' terminology may differ from traditional photo-ID terminology. Below is a crosswalk table mapping traditional cetacean photo-ID/catalogue terms to their closest equivalents in Flukebook and Happywhale, with notes highlighting important conceptual or practical differences that experienced scientists should be aware of.

Traditional Photo-ID Term	Flukebook Term	Happywhale Term	Notes for Expert Users
Catalogue	Can be a "Project"	Global species database / reference catalogue	Flukebook catalogues can be defined by project, or user; Happywhale catalogue is singular and global.
Individual / Animal	Individual	Individual	Same core concept.
Catalogue ID	Individual ID (system-generated or user label)	Whale ID, (system-generated or user label)	Platform IDs differ from legacy IDs; Alternate IDs help to track cross-references in other catalogues.
Sighting	Sighting	Group encounters	Flukebook sightings are an observation of one or more cetaceans in a single time period and place; Happywhale has "group encounters."
Encounter / Capture event	Encounter	Encounter	An observation of a single individual at a place and time.
Photo / Image	Media Asset	Photo / Image / Media	Flukebook calls photos and videos 'assets'.
Tracing / Marking	Annotation	Auto-detection (with manual review)	Flukebook uses annotation to outline the identifying feature;

			Happywhale uses cropping to highlight the identifying feature.
Match Candidate List	Match Results	Suggested Matches	Ranked by confidence score.
Expert Confirmation	Confirm Match	Confirm ID	Both rely on manual review and approval; AI output is advisory only.
Sighting History	Individual profile	Whale timeline	
Data Sharing Agreement	User level permissions structure	Photo/Encounter level permission structure	Happywhale uses Creative Commons controls, with choice of level and full copyright.
Legacy Catalog	External dataset	Imported sightings	

Appendix B. Algorithms and Species Supported

i. Flukebook: Algorithms and Species Supported

Flukebook offers two algorithms—MiewID v4 and PIEv2.

MiewID v4 came out in 2026 and is a multi-species AI model for visual mark-recapture across multiple marine and terrestrial species. According to Flukebook’s latest announcement: “MiewID v4 was trained on 40% more data and species (than MiewID v3) from public and private mark-recapture catalogs for approximately 90 species and 110 feature classes (heads, flanks, fins, flukes, faces, etc.)” including Southern right whales and Bowhead whales ([newsletter link](#)).

MiewID performs well with zero-shot learning (zero-shot learning is a machine learning approach where a model can recognize or classify something it has never been explicitly trained on, by leveraging general knowledge and relationships it has already learned) and those results can be further improved with additional training. This is important for species with smaller datasets. MiewID’s original architecture (v2) is documented in Otashvili *et al.* (2024). More information on the new model can be found, on the huggingface page on [MiewID v3](#) and the announcement regarding MiewID v4 ([newsletter link](#)).

PIEv2 is an older deep learning algorithm. It is configured for 24 species in Flukebook. PIEv2 is a secondary Fin ID algorithm.

Species supported by PIEv2:

Baleen Whales

1. *Balaenoptera acutorostrata* — Minke whale
2. *Balaenoptera borealis* — Sei whale
3. *Balaenoptera brydei* — Bryde's whale
4. *Balaenoptera physalus* — Fin whale
5. *Eschrichtius robustus* — Grey whale
6. *Megaptera novaeangliae* — Humpback whale

Toothed Whales

7. *Physeter macrocephalus* — Sperm whale
8. *Hyperoodon ampullatus* — Northern bottlenose whale
9. *Mesoplodon europaeus* — Gervais' beaked whale
10. *Ziphiidae spp* — Beaked whale (family-level)

Dolphins & Porpoises

11. *Tursiops truncatus* — Bottlenose dolphin
12. *Stenella longirostris* — Spinner dolphin
13. *Stenella clymene* — Clymene dolphin
14. *Stenella coeruleoalba* — Striped dolphin
15. *Lagenorhynchus obliquidens* — Pacific white-sided dolphin
16. *Lagenorhynchus obscurus* — Dusky dolphin
17. *Steno bredanensis* — Rough-toothed dolphin
18. *Lagenodelphis hosei* — Fraser's dolphin
19. *Globicephala macrorhynchus* — Short-finned pilot whale
20. *Globicephala melas* — Long-finned pilot whale
21. *Orcaella brevirostris* — Irrawaddy dolphin
22. *Sotalia guianensis* — Guiana dolphin
23. *Phocoena phocoena* — Harbor porpoise
24. *Phocoena sinus* — Vaquita

Flukebook: Breakdown of Individuals and Encounters by Species

GENUS	SPECIES	Number of Individuals	Number of Encounters
-------	---------	--------------------------	-------------------------

<i>Megaptera</i>	<i>novaeangliae</i>	28,658	57,058
<i>Tursiops</i>	<i>truncatus</i>	14,201	96,611
<i>Eschrichtius</i>	<i>robustus</i>	12,106	23,405
<i>Eubalaena</i>	<i>australis</i>	10,100	25,647
<i>Physeter</i>	<i>macrocephalus</i>	8,066	34,796
<i>Hyperoodon</i>	<i>ampullatus</i>	2,559	9,866
<i>Stenella</i>	<i>longirostris</i>	2,217	6,020
<i>Grampus</i>	<i>griseus</i>	1,630	3,581
<i>Globicephala</i>	<i>macrorhynchus</i>	1,571	6,558
<i>Delphinapterus</i>	<i>leucas</i>	1,551	13,733
<i>Orcinus</i>	<i>orca</i>	1,266	5,403
<i>Balaenoptera</i>	<i>physalus</i>	1,057	3,599
<i>Balaena</i>	<i>mysticetus</i>	1,024	4,855
<i>Eubalaena</i>	<i>glacialis</i>	939	8,848
<i>Phocoena</i>	<i>phocoena</i>	848	1,088
<i>Stenella</i>	<i>attenuata</i>	631	1,173
<i>Tursiops</i>	<i>aduncus</i>	518	1,506
<i>Lagenodelphis</i>	<i>hosei</i>	419	1,176
<i>Globicephala</i>	<i>melas</i>	394	568
<i>Stenella</i>	<i>frontalis</i>	382	1,152
<i>Peponocephala</i>	<i>electra</i>	345	1,848
<i>Cephalorhynchus</i>	<i>hectori</i>	153	262
<i>Tursiops</i>	<i>sp</i>	125	1,087
<i>Steno</i>	<i>bredanensis</i>	110	1,043
<i>Feresa</i>	<i>attenuata</i>	102	414
<i>Delphinus</i>	<i>delphis</i>	95	179
<i>Sotalia</i>	<i>guianensis</i>	92	682
<i>Pseudorca</i>	<i>crassidens</i>	89	450
<i>Stenella</i>	<i>coeruleoalba</i>	71	79
<i>Lagenorhynchus</i>	<i>obliquidens</i>	70	444
<i>Kogia</i>	<i>sima</i>	54	259
<i>Dugong</i>	<i>dugong</i>	19	19
<i>Stenella</i>	<i>clymene</i>	14	14
<i>Sousa</i>		12	12
<i>Balaenoptera</i>	<i>edeni</i>	11	18
<i>Balaenoptera</i>	<i>acutorostrata</i>	8	17
<i>Ziphius</i>	<i>cavirostris</i>	7	7
<i>Kogia</i>	<i>breviceps</i>	4	4
<i>Balaenoptera</i>	<i>sp</i>	3	3

<i>Unknown</i>	<i>whale</i>	3	3
<i>Indopacetus</i>	<i>pacificus</i>	2	2
<i>Balaenoptera</i>	<i>musculus</i>	1	1
<i>Delphinidae</i>	<i>sp</i>	1	1
<i>Sousa</i>	<i>chinensis</i>	1	1
<i>Balaenoptera</i>	<i>borealis</i>	1	2
<i>Ziphiidae</i>	<i>sp</i>	1	1

Source: Flukebook

ii. Happywhale: Algorithm and Species Supported

Happywhale uses an AI-powered, DenseNet-based convolutional neural network algorithm, that tested on humpback whale flukes, is capable of achieving a 97-99% accuracy with “good quality” images (Patton *et al.* 2023). Separate algorithms support multi-species cetacean ID by dorsal fin/lateral view (Patton *et al.* 2023), and sperm whale flukes. For the dorsal fin algorithm, accuracy is a non-linear function of image quality, individual distinctiveness, and change over time.

As reported by, Happywhale, the dorsal fin algorithm works well on many species, so long as the ID feature set is within the detection space of the algorithm — e.g. the dorsal fin shape, dorsal fin edge features, body pigmentation, and body scarring. Accuracy will vary by species and by dataset (Vanderzee *et al.* 2026).

Happywhale: Individual and Encounter Numbers by Species:

Common Name	Latin Name	Individuals	Encounters
Mysticeti — Baleen Whales			
Humpback whale	<i>Megaptera novaeangliae</i>	116,924	472,418
Blue whale	<i>Balaenoptera musculus</i>	369	589
Fin whale	<i>Balaenoptera physalus</i>	214	470
Sei whale	<i>Balaenoptera borealis</i>	91	97
Bryde's whale	<i>Balaenoptera edeni</i>	123	211
Grey whale	<i>Eschrichtius robustus</i>	416	1,313
Southern right whale	<i>Eubalaena australis</i>	36	38
Odontoceti — Toothed Whales & Dolphins			
Sperm whale	<i>Physeter macrocephalus</i>	3,148	6,815
Killer whale — N. Pacific Bigg's (transient)	<i>Orcinus orca</i>	370	1,830
Killer whale — N. Pacific resident	<i>Orcinus orca</i>	252	807
Killer whale — North Atlantic	<i>Orcinus orca</i>	187	241
Killer whale — Antarctic Type B	<i>Orcinus orca</i>	169	241
Killer whale — Antarctic Type A	<i>Orcinus orca</i>	57	88
Killer whale — Eastern tropical Pacific	<i>Orcinus orca</i>	54	149
Killer whale — Antarctic Type C	<i>Orcinus orca</i>	22	24

Common Name	Latin Name	Individuals	Encounters
Killer whale — Antarctic Type B large	<i>Orcinus orca</i>	17	24
Risso's dolphin	<i>Grampus griseus</i>	1,498	2,816
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	1,476	1,953
Long-finned pilot whale	<i>Globicephala melas</i>	16	25
Rough-toothed dolphin	<i>Steno bredanensis</i>	802	917
Bottlenose dolphin	<i>Tursiops truncatus</i>	301	1,990
Heaviside's dolphin	<i>Cephalorhynchus heavisidii</i>	349	807
Indian Ocean humpback dolphin	<i>Sousa plumbea</i>	250	1,233
False killer whale	<i>Pseudorca crassidens</i>	109	124
Baird's beaked whale	<i>Berardius bairdii</i>	33	34
Arnoux's beaked whale	<i>Berardius arnuxii</i>	11	12
Pinnipedia — Seals (non-cetacean)			
Leopard seal	<i>Hydrurga leptonyx</i>	825	1,447
Weddell seal	<i>Leptonychotes weddellii</i>	58	80
External Managed Datasets			
Humpback whale	<i>Megaptera novaeangliae</i>	~12,000	—
Fin whale	<i>Balaenoptera physalus</i>	1,465	—
Minke whale	<i>Balaenoptera acutorostrata</i>	~600	—
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	1,378	—
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	712	—
Risso's dolphin	<i>Grampus griseus</i>	361	—
Atlantic humpback dolphin	<i>Sousa teuszii</i>	347	—
Bottlenose dolphin	<i>Tursiops truncatus</i>	~350	—
Harbor porpoise	<i>Phocoena phocoena</i>	217	—
Pacific white-sided dolphin	<i>Aethalodelphis obliquidens</i>	82	—

Source: Happywhale

Appendix C. Additional Resources

- Blount D., G. Minton, C. Khan, J. Levenson, V. Dulau, S. Gero, J. Parham, and J. Holmberg. 2020. Flukebook Continuing growth and technical advancement for cetacean photo identification and data archiving, including automated fin, fluke, and body matching. SC/68B/PH/06.
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- Cheeseman, T., T. Johnson, K. Southerland, and N. Muldavin. 2017. Happywhale: Globalizing marine mammal photo identification via a citizen science web platform. SC/67A/PH/02.
- Olson, PA, D. Blount, T. Cheeseman, J. Holmberg, J, G. Minton. 2020. A Cross-reference of Flukebook and Happywhale Platforms, paper SC/68B/PH/01 presented to the IWC Scientific Committee.