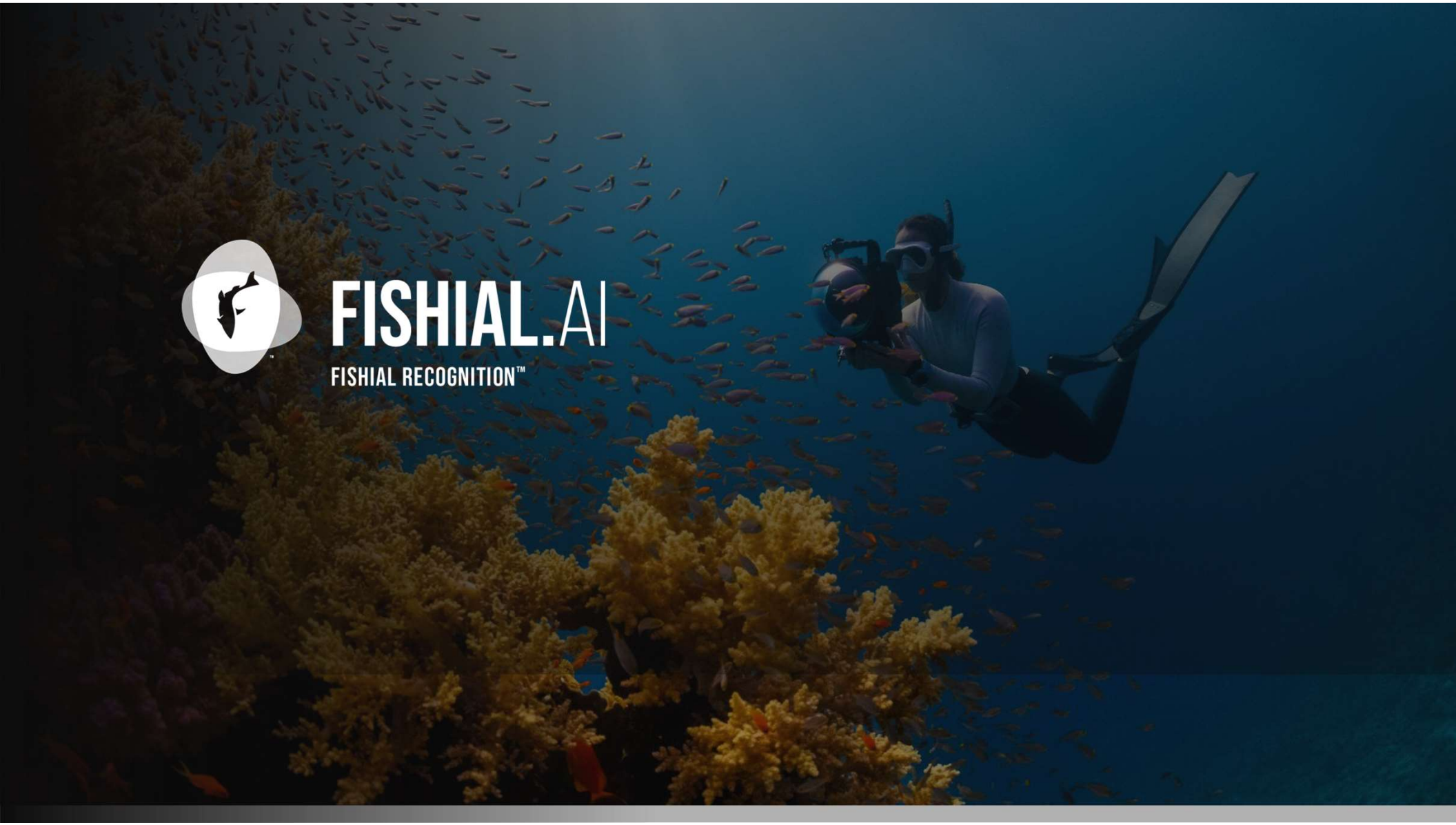
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Fishial.AI project - Background

- Wye Foundation, was established 2014 as a non-profit 501-c3 family foundation dedicated to local needs of Children, Veterans, Historical Preservation, Education, and Conservation affords .

- 2019 the Fishial.AI project was formed as a moonshot educational & conservation effort
- Initial work was performed within the FishAngler sports fishing mobile app
- Seed funding contributed by the Wye Foundation was $250,000 and since then has increased to over $1million!
- Staffing is approximately 10 Full time people mainly doing fish identification and labeling!
- Most of the code development for project is done out of Poland by the Codahead company (5 developers)

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OUR MISSION

The Fishial.AI project is seeking the development of a highly accurate open-source AI model that can identify fish species by scientific name worldwide.

OUR GOALS

- Create a highly accurate open-sourced AI model that can identify fish species worldwide
- Provide a Fishial developers API, empowering diverse projects to effortlessly offer fish identification to their communities
- Provide a FREE citizen science portal for image collection and labeling of fish species images
- Act as the central hub for the combination of various fish image datasets into a single open-source, ML ready, labeled fish image dataset
- Publish the world's largest labeled (by species scientific name) fish image database for machine learning that can be used for commercial and non-commercial purpose

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FORECASTED SIZE OF LABELING PROJECT

- ➔ Estimated number of fish species worldwide: 33,000
- ➔ Estimated number of photos needed for the ML per species: 1,000
- ➔ Estimated number of photos needed to complete the database: 33,000,000
- ➔ Estimated minutes to upload, label, do the polygon in each photo, each fish traits and metadata: 10
- ➔ Man hours needed to complete species labeling: 13,750,000 hours
- ➔ Working hours full time (Annually): 2080 hours
- ➔ 1 Person working 8 hours daily to meet the current goal: 6,610.5 years
- ➔ 100 people working 8 hours daily to meet the current goal: 66.1 years
- ➔ 1000 people working 8 hours daily to meet the current goal: 6.61 years

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HOW WE ARE ACCOMPLISHING OUR MISSION

Fishial Recognition offers a range of powerful features designed to streamline and enhance the process of fish species analysis, labeling and data management.

These features are tailored to meet the needs of researchers, conservationists, and enthusiasts who are passionate about aquatic life.

Explore the key components that make **Fishial Recognition** an indispensable tool in the field of fish species identification.

FISH IDENTIFICATION MODEL:

The Fishial Recognition project offers a pre-built fish identification and segmentation AI model that is published on GitHub

IMAGE MANAGEMENT PORTAL:

Created a web-based portal that allows user to upload, tag images with species names and polygons

FISHIAL DEVELOPER'S API:

The Fishial Project offers a Fish Identification RESTful API SAAS service for developers of mobile apps and websites

LABELED DATASETS FOR ML:

We are building a labeled fish image dataset that will be available as an open-source dataset for other projects to use

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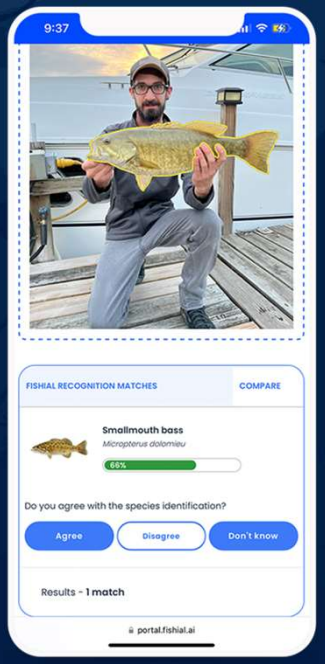
FISH IDENTIFICATION MODEL



- The Fishial Recognition project offers a prebuilt fish identification AI model that is published on GitHub. Includes:
    - Segmentation model - will identify all of the fish species within a photograph
    - Classification model - will identify the fish species by scientific name (289+ unique species)
    - Training scripts for machine learning
    - Github link: https://github.com/fishial/fish-identification
- Give it a try DEMO LINK! https://portal.fishial.ai/search/by-fishial-recognition

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IMAGE Management System (IMS)

Image Management System (IMS)

Free IMS portal to upload, label and process images

- Image collections:
- Individual user collections, Team collection
- Fishial collection (common dataset)
- Advanced image search by species and metadata
- Export image collections as COCO formatted files

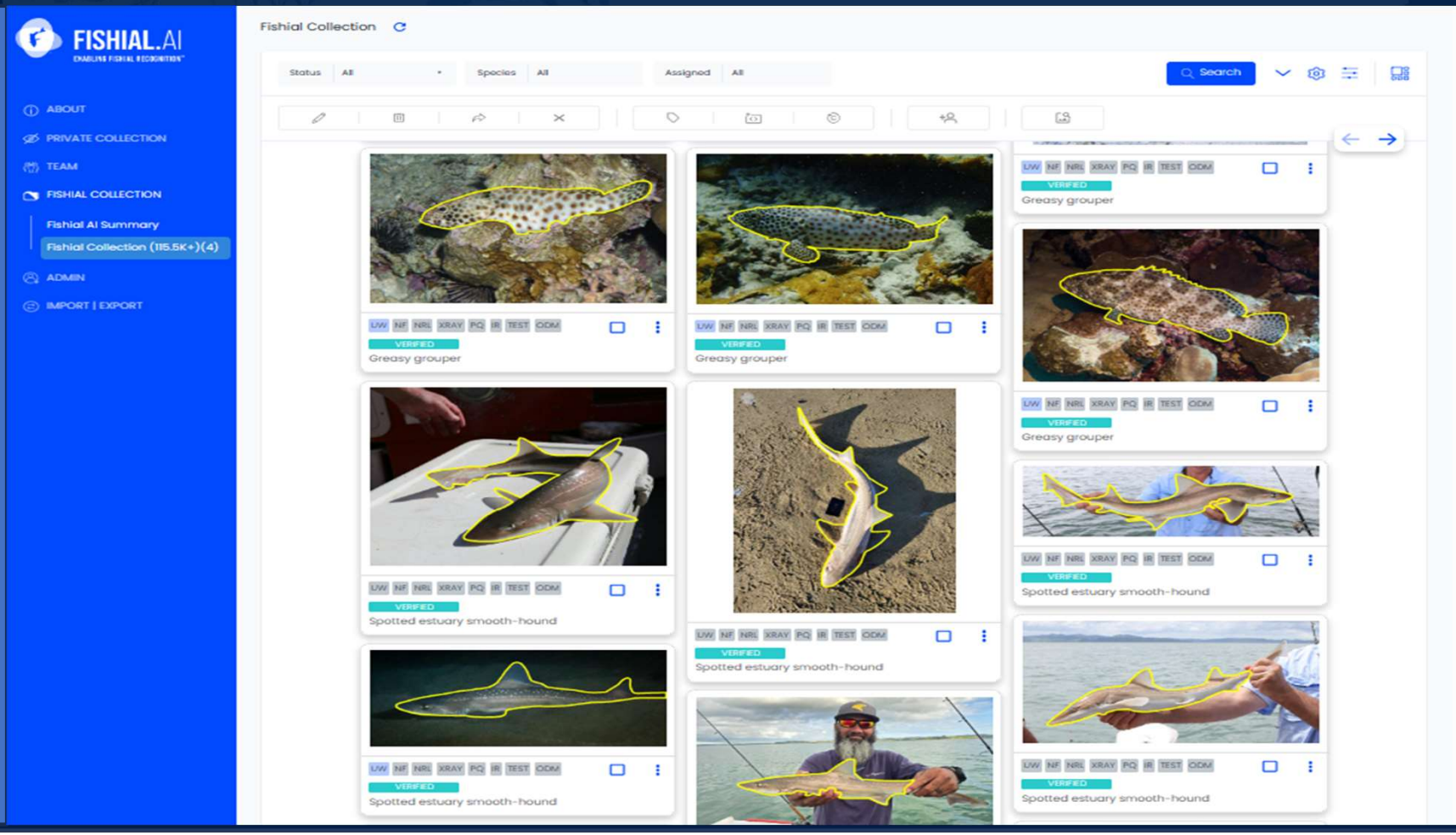

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IMAGE IMS – Image uploads & Metadata

Fish Image upload processing

- Upload images by drag & drop, batch CSV, and developers API
- Automatic AI fish detection (segmentation) and classification of fish within image
- Privacy human face blurring
- Copyrights on a per image basis
- https://portal.fishial.ai

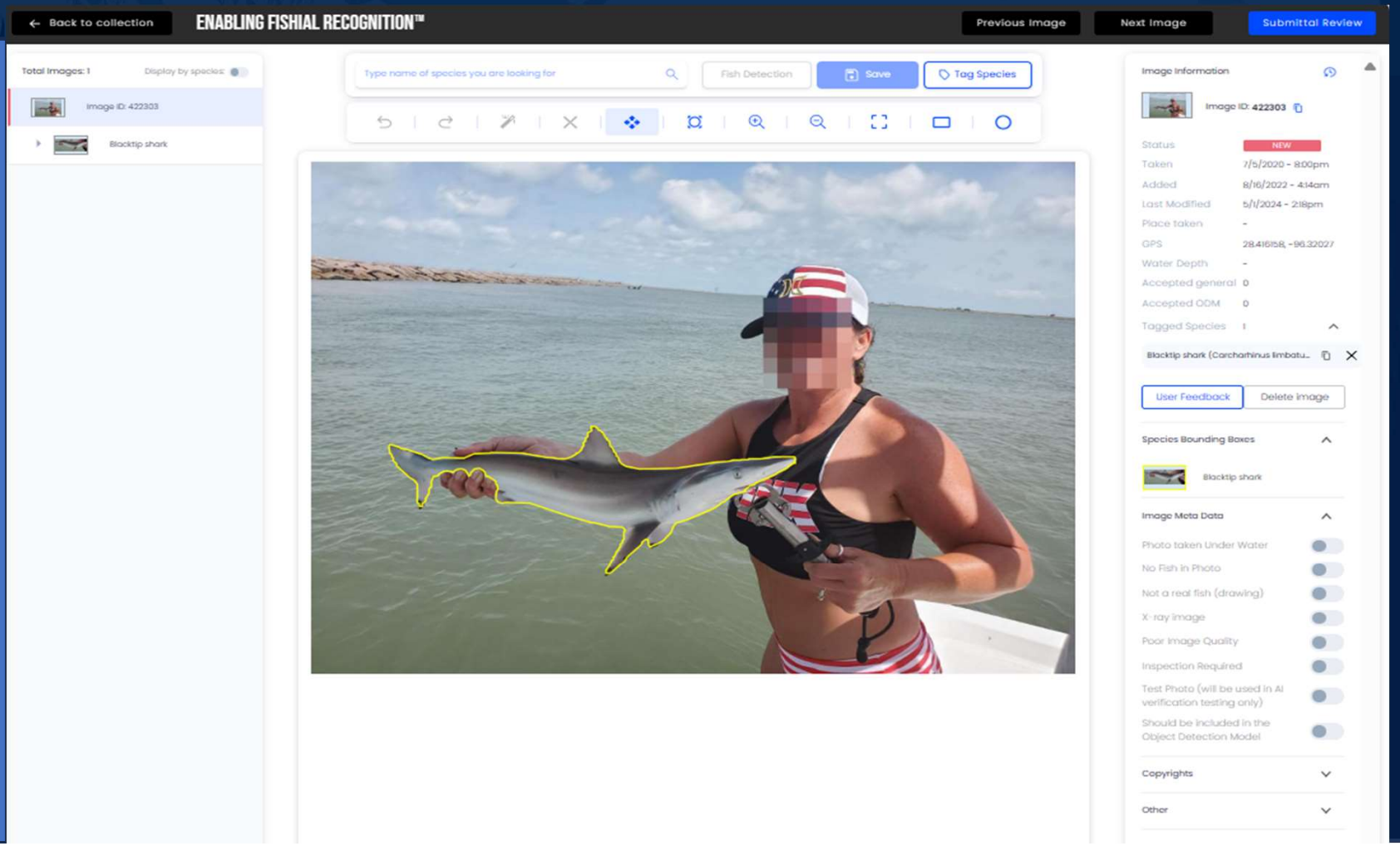

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IMAGE IMS – Fish Species Labeling

Fish species Labeling

- Built-in species scientific name database
- Fish Traits can be labeled such as eye's, head, tails etc.
- Metadata per fish species (age, gender, weight, length, girth, etc.)

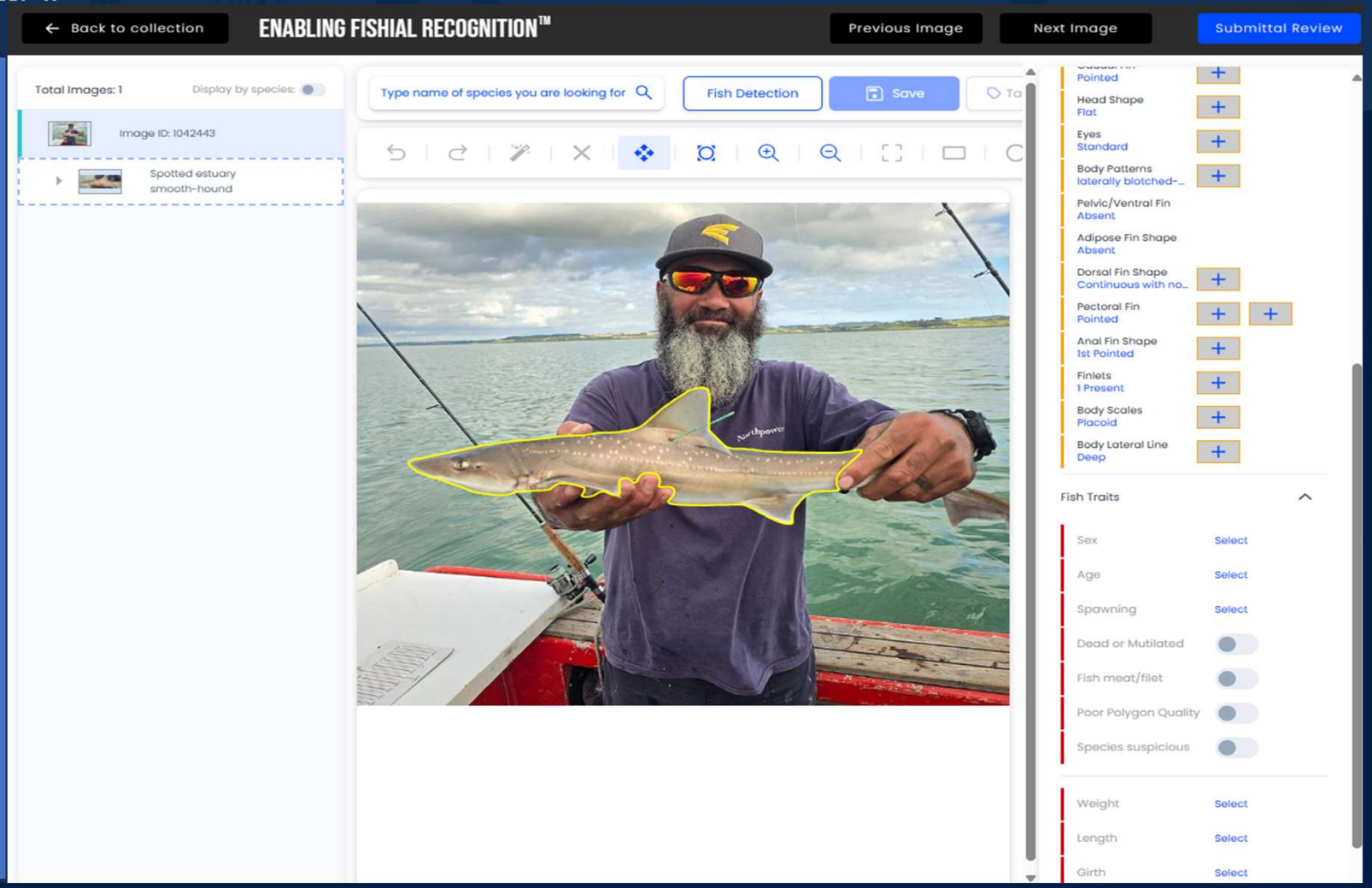

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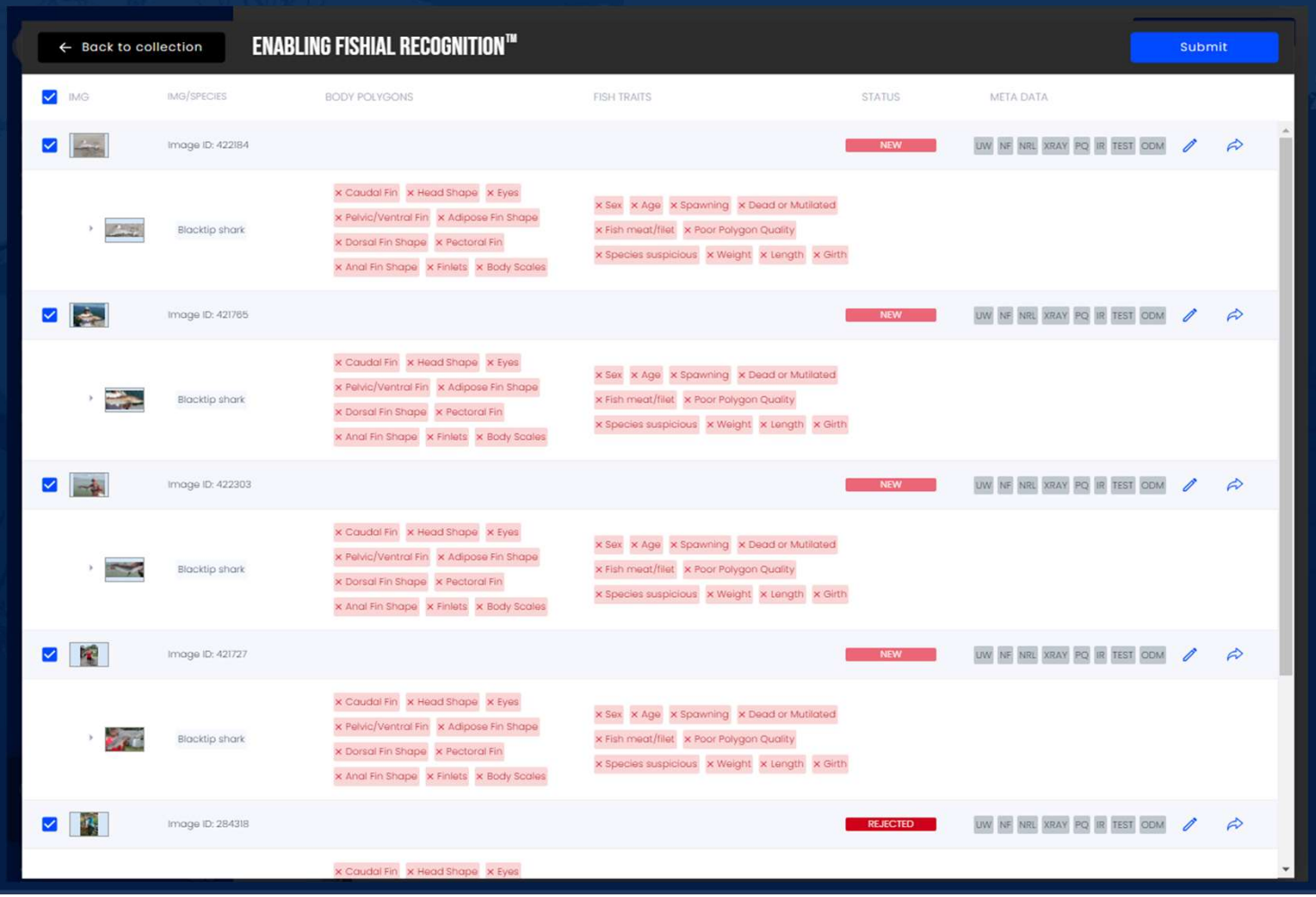
IMAGE IMS – Fish Species Submit to Fishial Collection

After labeling Image

- Next task is to submit images to the Fishial Collection for review!
- Image status will go from status “NEW” to “Pending Review”
- Once image is reviewed the status will be updated to “Verified” or Rejected to send back to submitter



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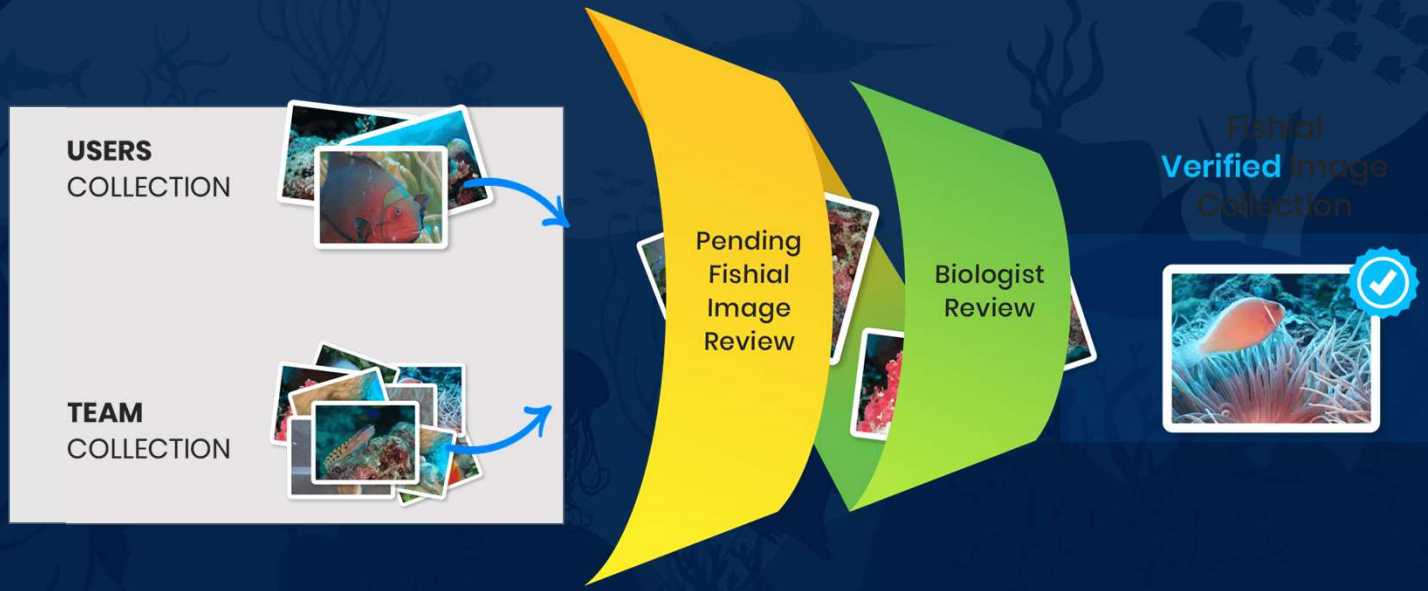
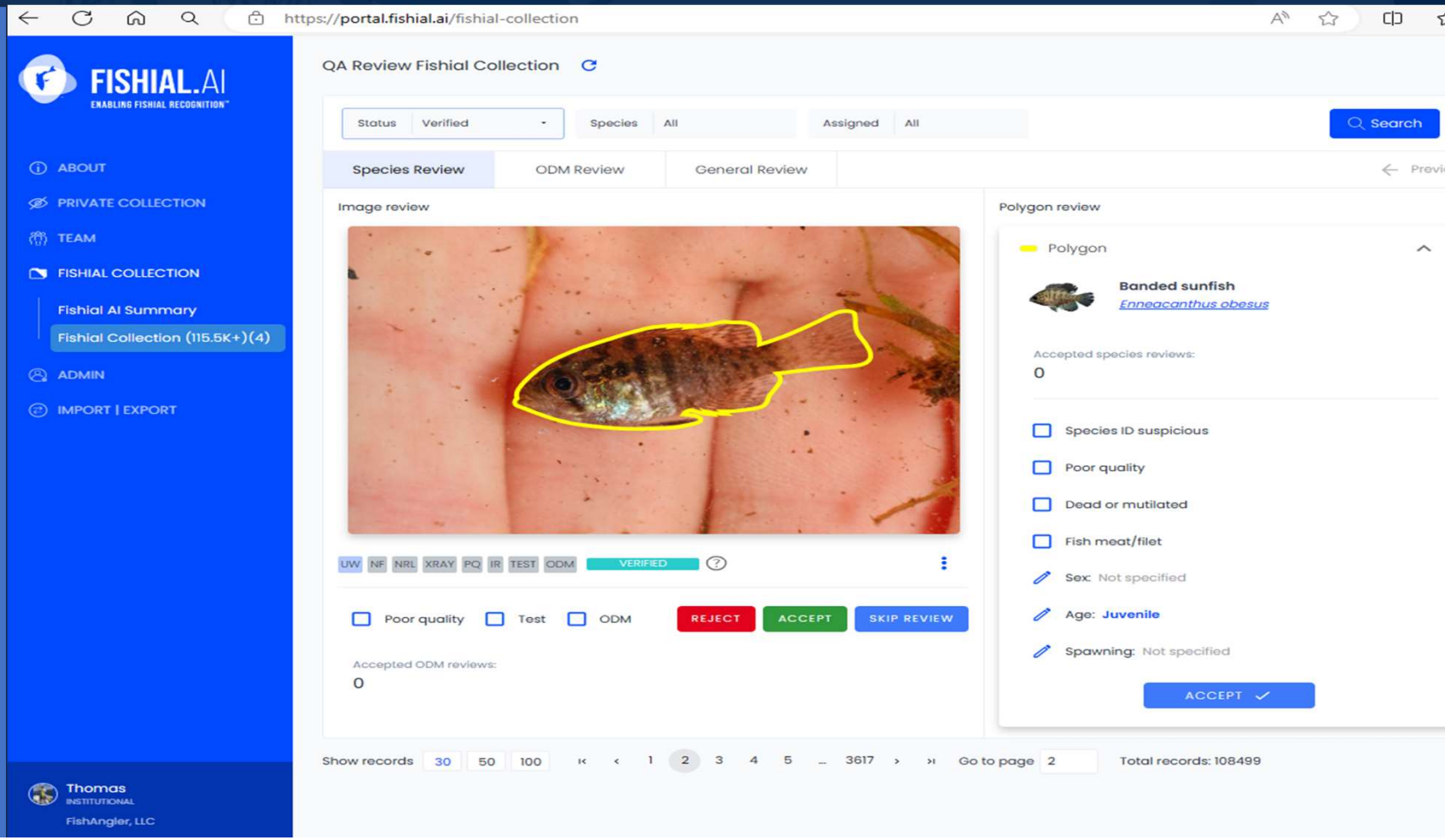
Fishial dataset - IMAGE Review Process



Fishial Collection – QA Review tools

Fishial Collection & QA Review

- Structured gallery QA review tools
- All photos submitted to the Fishial collection are reviewed for accuracy by a biologist
- All changes to images are tracked in an history log so errors can be back-traced to the source



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Fishial.AI – Developers API

FISHIAL
Fish Identification
API

- RESTful based API with authorization
- Image upload to user & team collections
- Fish Identification (289+ species)
- Returns detected species list with probability percentage of a match
- Over 5000+ Fish Species thumbnail images
- Feedback mechanism for third party API users to agree or disagree with the fish identification
- API Documentation: https://github.com/fishial/devapi/blob/main/tutor.adoc

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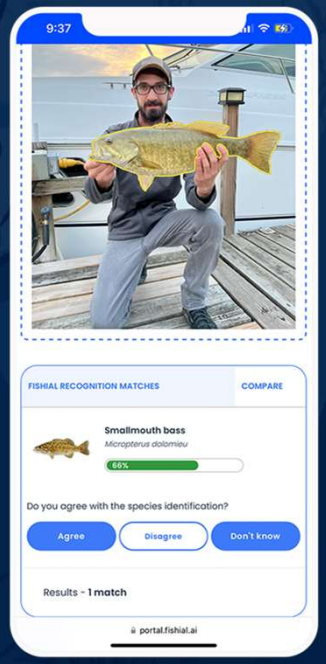
Fish Identification Website Widget



- **Coming Soon (July 2024)!**
- Allow anyone to embed a Fish Identification widget into their website for fish identification of species!
- Adding a few simple HTML statements to enable
- Fishial will target the 50 USA fish & Game sites
- Fish species identification educational sites
- www.Takemefishing.org

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Creating a benchmark dataset

- **Open-source benchmark dataset - Coming Soon (4Q-2024)!**
- Current internal benchmark dataset stats
- 100 unique species with > 50 images per species
- 300 unique species with < 50 images per species
- We seek to create a benchmark process that can be run on each new AI model built to compare accuracy of new model vs. old model
- We are looking for others to help build this out!

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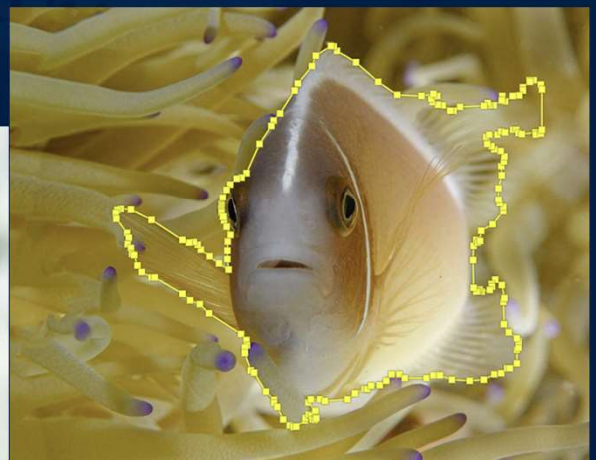
LABELED DATASETS

- **Labeled Image Datasets (Targeting 2025)**
  - Each image polygon and species is hand verified
  - “Non-commercial use only” labeled image dataset
  - “Commercial & Non-commercial” image dataset
  - “Testing/Benchmark” image dataset (In Q4-2024)



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PARTNERSHIPS

Guy Harvey Foundation

FishAngler™

Microsoft

Celebration of the Sea™ Foundation

WYE Foundation

Some Mobile APP & Web PROJECTS USING FISHIAL TECH:

TAG Louisiana

FishAngler™

RFRI Fish With A Purpose

catch — www.gocatch.fish

fishbuddy

Anglers Almanac™

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Future Fishial Plans

- Collaborating with projects worldwide to expand and enrich Fishial's datasets, fostering a global community dedicated to accurate fish species identification.
- Build out a Benchmark dataset and scripts to test various AI models
- Release multiple open source labeled fish species image datasets
- Create a FREE mobile app that serves as an educational tool for kids, educators, anglers, and fisheries management, harnessing AI for fish identification.

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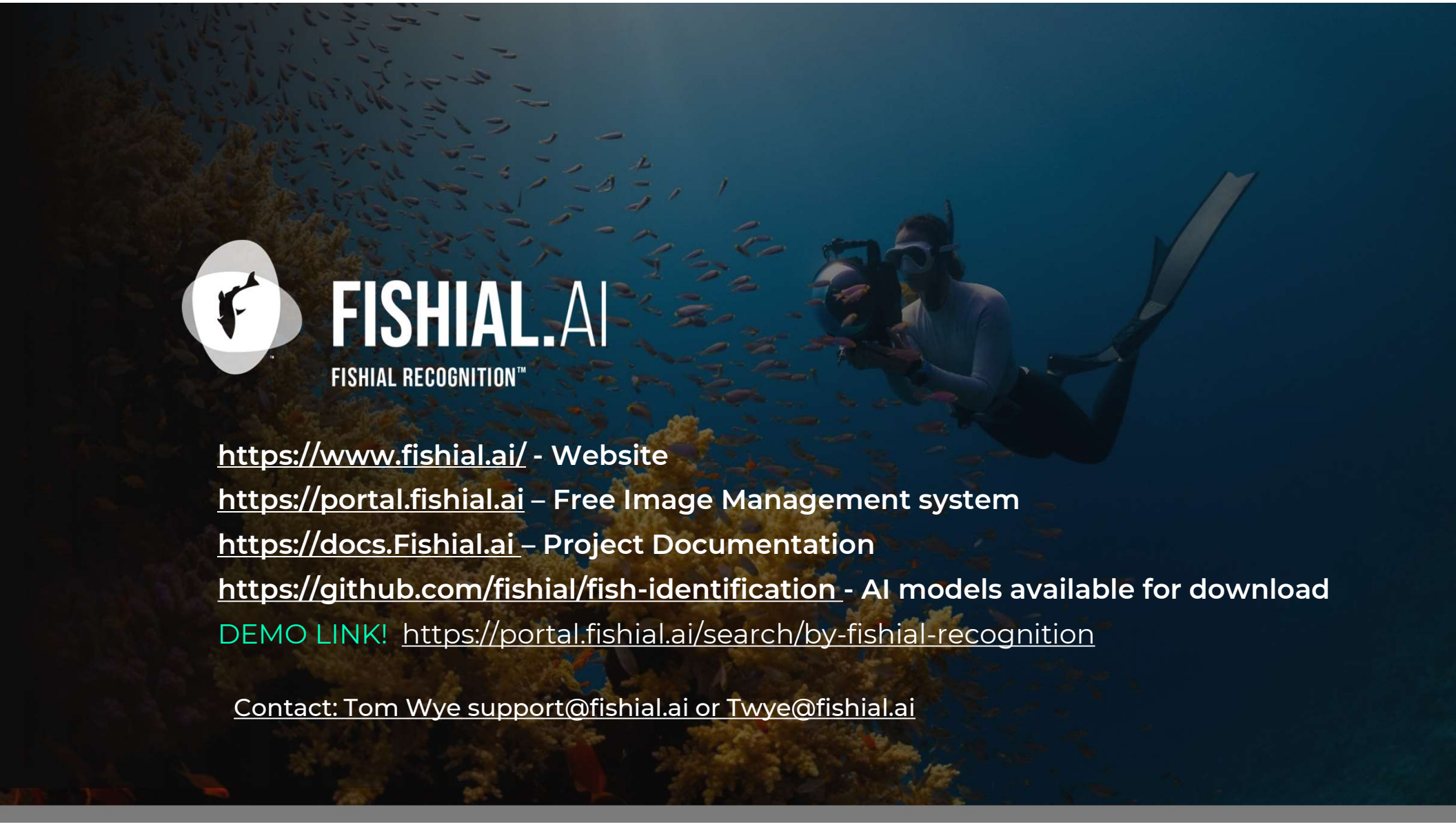
SUPPORT US!

We have a range of volunteer opportunities that contribute to our mission of advancing fish data collection and conservation efforts. We welcome volunteers for tasks such as:

- Image Labeling: Help label fish images to train our AI model accurately
- QA of datasets – Species identification verification
- Data Collection: Contribute by sharing fish images
- Community Engagement: Assist in spreading awareness, organizing events, and engaging with fellow enthusiasts
- Tech Support: Offer technical skills to enhance our platforms and tools.
- Research: Contribute by conducting research related to fish species and ecosystems.

Join our community of volunteers to make a meaningful impact, together we can change the way humanity sees fish.



https://www.fishial.ai/ - Website

https://portal.fishial.ai – Free Image Management system

https://docs.Fishial.ai – Project Documentation

https://github.com/fishial/fish-identification - AI models available for download

DEMO LINK! https://portal.fishial.ai/search/by-fishial-recognition

Contact: Tom Wye support@fishial.ai or Twye@fishial.ai