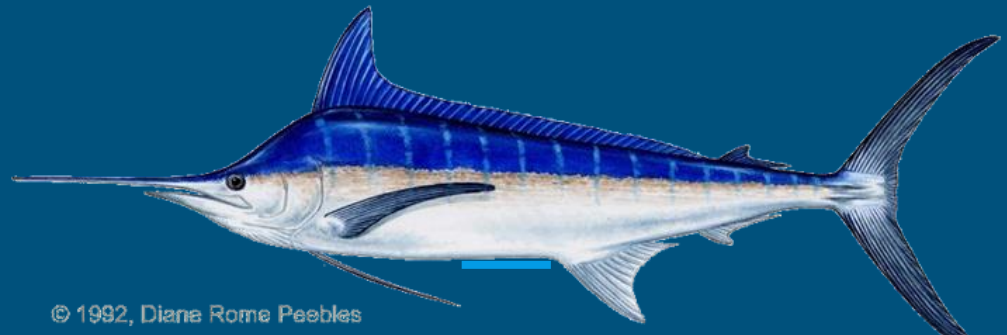
# Great Catch!




## Fishing Socially
## Species Identification

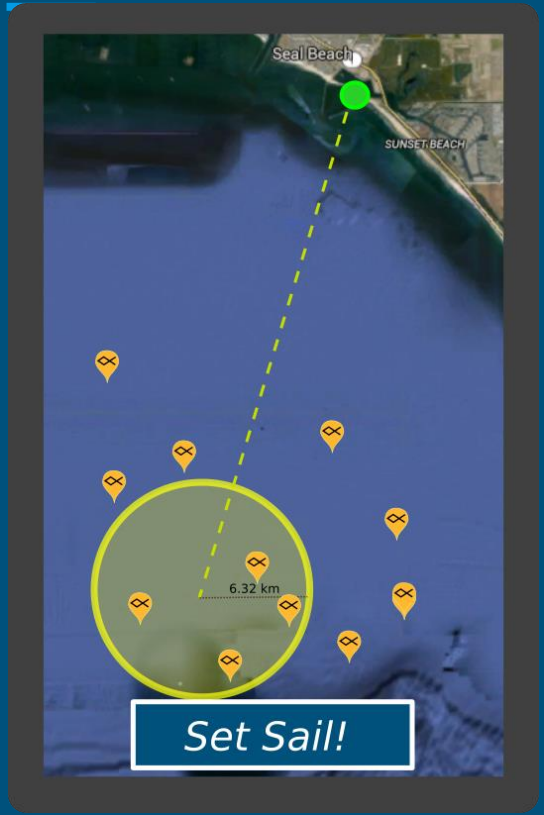
# Billfish Problem Set

- Create a tool that can streamline the fisheries data collection process, and enable fishermen to play a role in data collection.
- Create a tool that can enable non-experts to carry out fisheries data collection from measurement to statistic without human intervention and internet access.
- Useful Data:
    - Different types of Fish Species Caught
    - Number of each fish species caught
    - Length of individual fish within a species

# Our Solution

- Our solution extends on the last year’s solution (Fish-a-tron), by providing a species identification algorithm and adds social appeal to improve collaboration between scientists and fishermen.

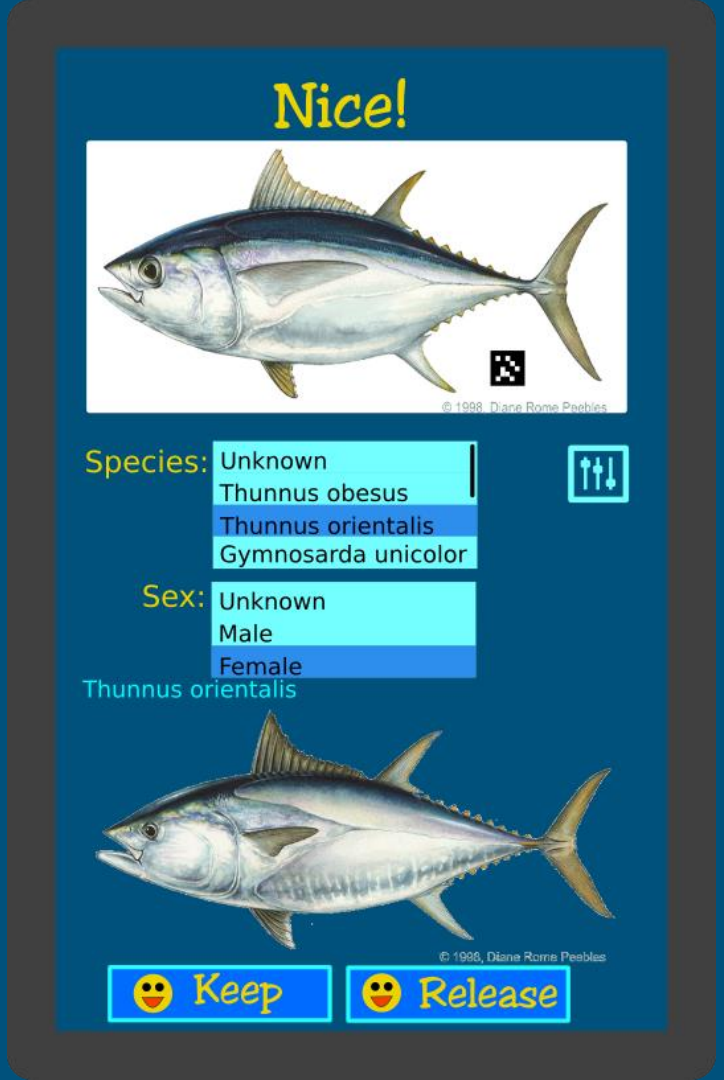
# Our Vision of Social Appeal




- Before heading out the user will look at the map for useful information such as weather and information publically submitted by other users.
- After they choose a range for their destination while online the app will automatically download relevant information regarding fish known to be in that area.
- **REMINDER:** Don’t forget your gear! (including the fiduciary!)

# Identifying The Catch

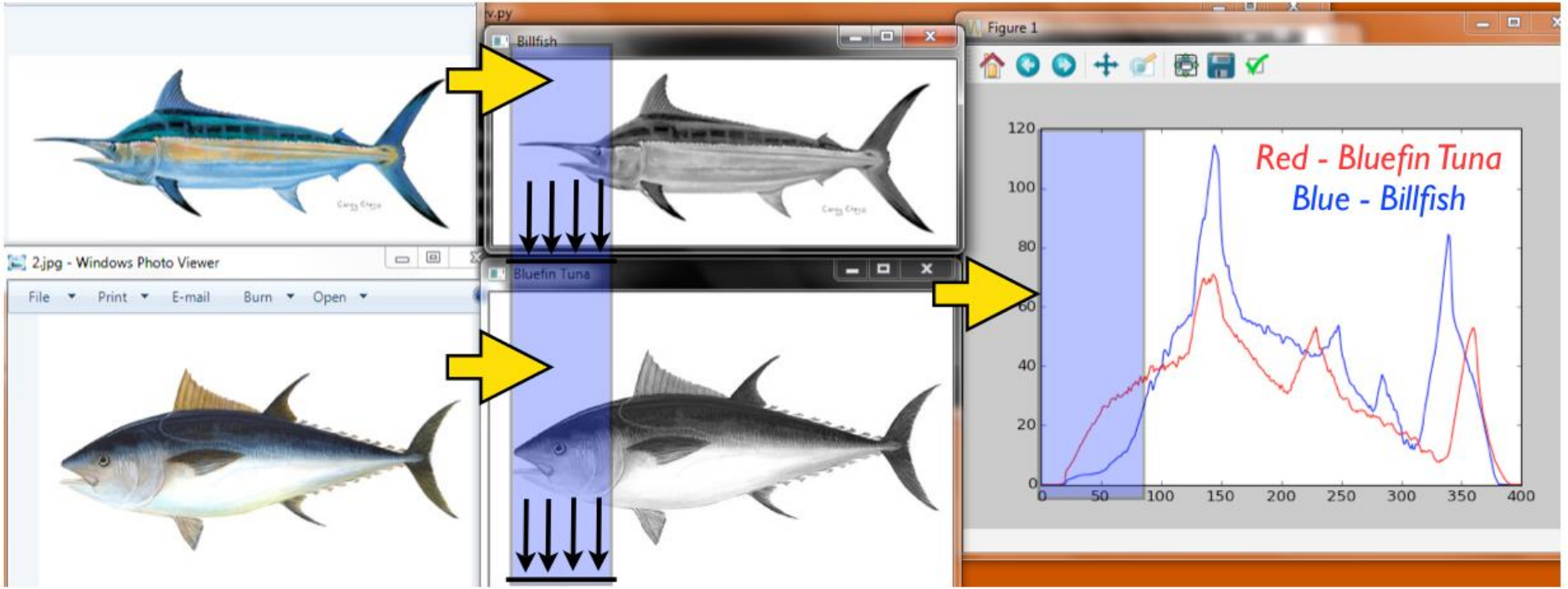
- App algorithm lists best matches from preloaded location data.
- Sorting options help the user navigate the list.
- Instant gratification for their submission with Gamification features on the app.
- Sharing location on the website will optional, but scientists will still get complete geotagged and timestamped information for study.



# Segmented Image

# Gray scaled

# Intensity Projection



```
#------------------------------
# Function to process image
#------------------------------
def process_fish_image(fn):

  # Load Image
  img = cv2.imread(fn)

  # Convert to Gray Image
  gray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)

  # Calculate Mean Area of fish in 1-D
  n = gray.shape
  a = []
  for i in range(0,n[1]):
    a.append(255-np.mean(gray[:,i]))

  # Find head of fish
  i = 0;
  while (a[i] < 1):
    i = i + 1

  # Determine which fish based on head surface area
  if(a[i+20] > 10):
```

# Red Right Returning!

- When User is within range of a signal, the app will sync their new submissions to the server.
- Other users can flag questionable species ID’s of the fish. Machine learning algorithms on the server can further flag questionable ID’s. Scientists can moderate and verify.
- Comments, Tips/Advice, and Eco-News can be viewed/shared on the website after a hard day at sea.
- Events and Achievements can be organized by scientists to encourage and study the effects of eco-friendly social fishing.