YOUNG-OF-YEAR ROCKFISH PROGRAM

How to Survey for YOY Rockfish

So you want to survey for rockfish

Smart Move!

- Fill data gaps on listed species
- Take part in restoring Puget Sound
- Learn about scientific data collection
- Impress friends with your fish knowledge
- Explore new dive sites
- Improve search ability (i.e. you will look at sites in a new way)

How do I start?

- Connect with survey leader (e.g. Harbor WildWatch, Emerald Dive Club)
- Review survey information found on NOAA webpage (https://www.fisheries.noaa.gov/species/yelloweye-rockfish#science)

You can help save endangered rockfish!

NOAA is trying to learn about long-term trends in juvenile rockfish and needs the help of citizen divers to collect data.

You can help in one of two ways:

- Report any sightings of bocaccio, yelloweye or canary rockfish to **rockfishID@noaa.gov** and include picture, location and date information.
- Participate in the broader monitoring program outlined in this pamphlet and collect data during your regular dive trips in Puget Sound.

SAFETY FIRST! Participation is purely voluntary and not affiliated with the NOAA dive program.

SAMPLING METHOD:

Surveys are completed using a timed roving dive survey: Divers swim through a single habitat type and record young-of-year (YOY) rockfish by two morphological traits (body shape and dorsal spot presence/absence), basic habitat information and the survey duration.

A more detailed methods document and datasheets are available on the NOAA website at **westcoast.fisheries.noaa.gov/protected_species/rockfish/citizen_science_yoy_rockfish_photo.html**, or scan the QR code on the back.

SURVEY ZONE:
One habitat type and depth bin.

SURVEY PATH:
One meter on each side of swimming path and one meter off the substrate.

Share your results at rockfishID@noaa.gov

TIP

For surveys in kelp habitats that reach the surface, a survey should be run through the canopy (<2m from surface) for every survey along the bottom.

If kelp doesn't reach the surface, do a second survey at that depth.

How does the survey work?

Divers conduct a timed “roving” survey through discrete habitat and depth zones

Please slow down, I don’t understand all those terms!

Roving survey means swimming around and counting all the young-of-year rockfish yo

Discrete habitat and depth zones mean each survey is conducted in a specific habitat type (e.g. kelp, rocky or artificial reef, eelgrass) and depth bin (< 21 feet, 21-60 feet and > 60 feet)

Note the time you start and finish searching in a new habitat type and depth bin. You can do it on your dive computer!

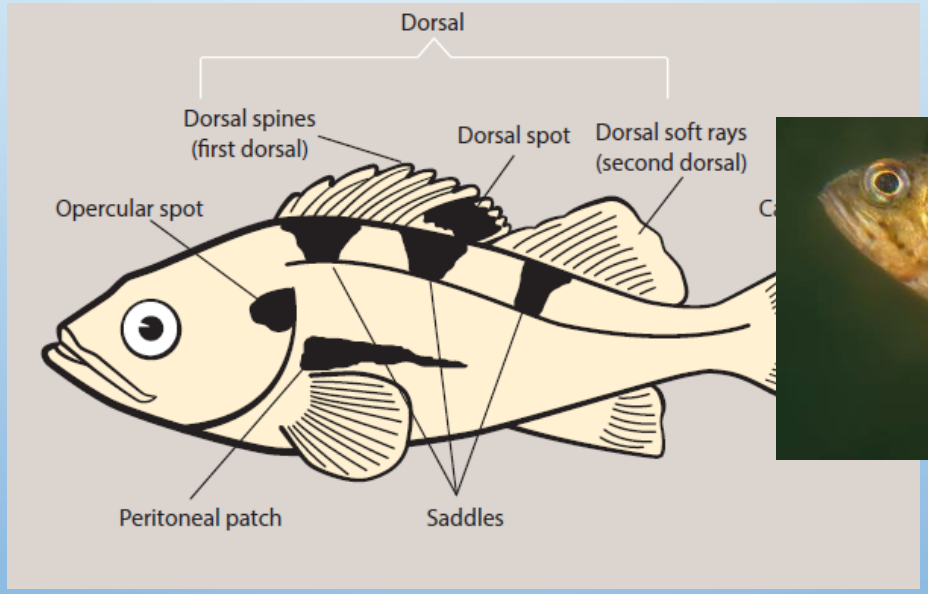
By timing surveys and breaking them into habitat and depth bins, we can learn a lot about rockfish abundance and habitat associations!!!

What is a Young-of-Year Rockfish?

Young of year rockfish are those that have recruited to the site in the last year.

Because we can't age fish perfectly by sight, we count anything less than 10 cm as a Y

For reference, 10 cm is a little less than the size of a soda can or a smart phone



Aren't little rockfish hard to ID?

Yep!

But fortunately you don't need to identify to species level for this work!

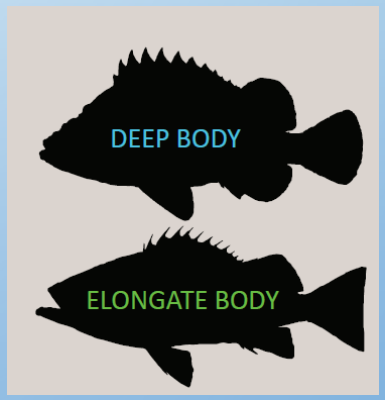
Step 1 – Is it a rockfish?

It may be helpful to learn some other species that are not rockfish that may be easily confused (e.g. shiner surfperch, sculpin)

Step 2 – Does it have an elongate or deep body?

Step 3 – Does it have a black spot on dorsal fin?

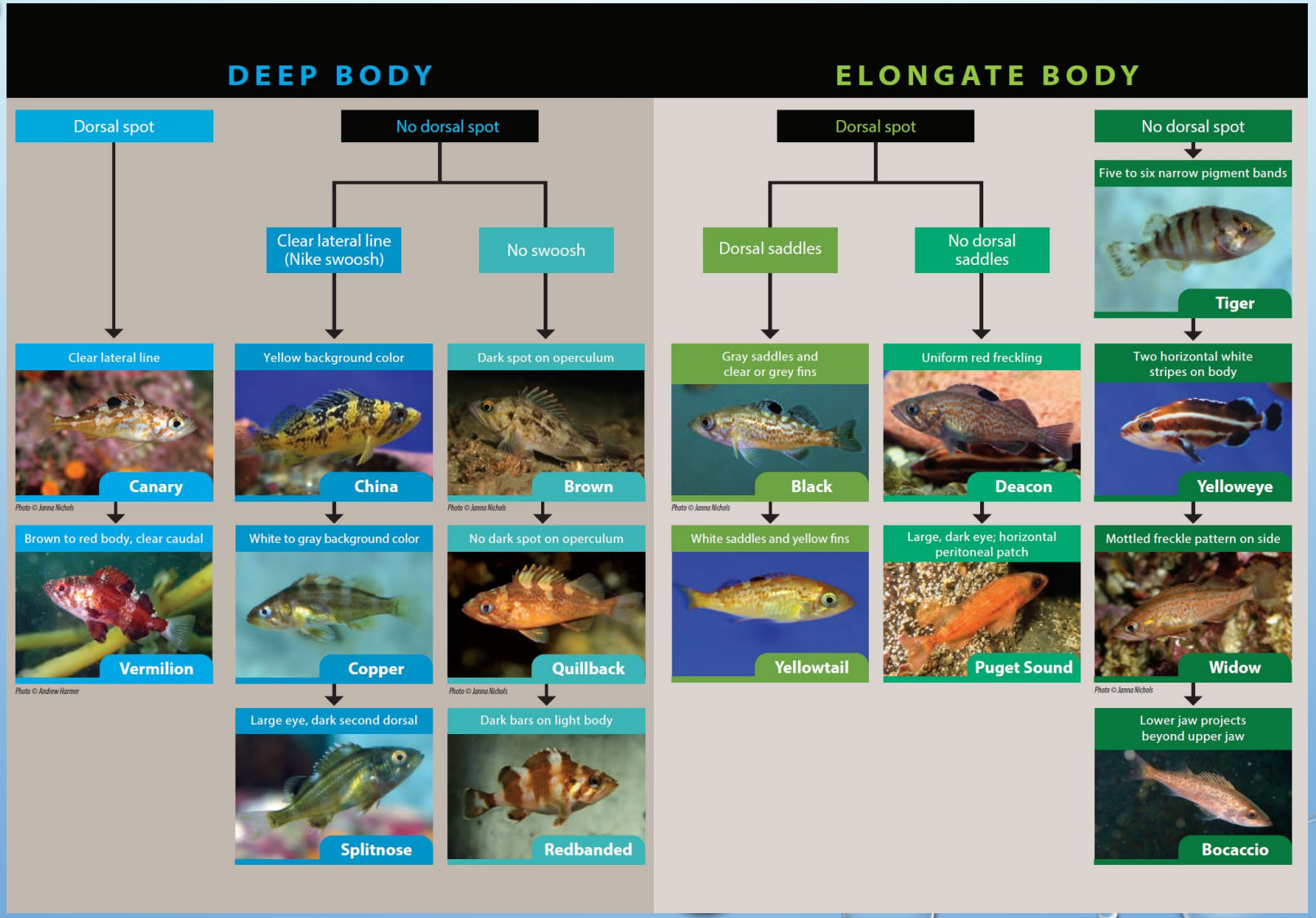
Presence/Absence of Dorsal Spot



Body Type

Can I learn more?

Sure – check out the survey guide on the NOAA page!



Do you also want information on habitat?

Yes! But don't panic, it's super basic

There are a few questions on whatever habitat type for you to provide qualitative responses

ROCKY REEF SURVEY ZONE

Record the following data:

Relief:
- >3 feet, 1–3 feet, or <1 foot

Presence of bottom-growing kelp:
- Common, sparse or rare to non-existent

SOFT BOTTOM SURVEY ZONE

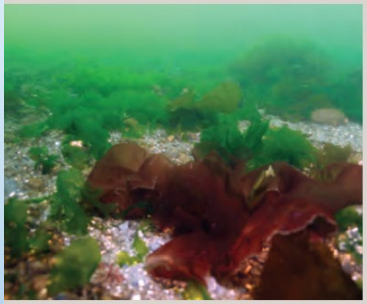


Photo © Janna Nichols

Record the following data:

Sediment type:
- Sand, silt or shell gravel

EELGRASS SURVEY ZONE

Record the following data:

Density:
- High (greater than 10 shoots/square foot)
- Medium (1–9 shoots/square foot)
- Low (< 1 shoots/ square foot)

Approximate length of eelgrass in feet

KELP FOREST SURVEY ZONE

Record the following data:

Density per five–minute survey:
- High (> 100 stipes)
- Medium (20–100 stipes
- Low (<20 stipes)

Canopy height in feet

More Questions

Where do I submit data?

- You can email NOAA project leads directly (RockfishID@noaa.gov, Adam@pauamarineresearch.com or James.Selleck@noaa.gov) or
- your survey leader can provide you with datasheets to fill out that they can subm
- we can provide you with link to Google Sheet to input data directly

Should I submit data if I don't find any YOY rockfish?

Yes!!! Zeroes are just as important as any other count

Do I have to survey at specific sites?

Not at all, you can do a survey anywhere. If you want to go to a popular dive site, great. If you want to try a new site, also great!

Slate Setup

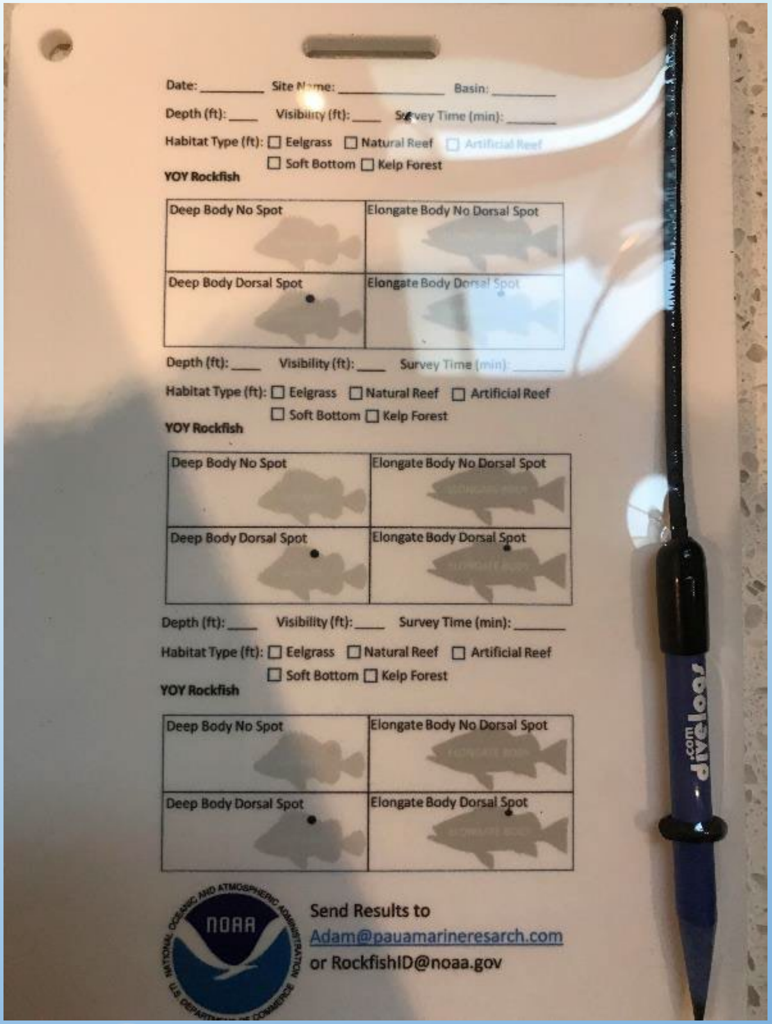
Site/Survey Information

Habitat Information

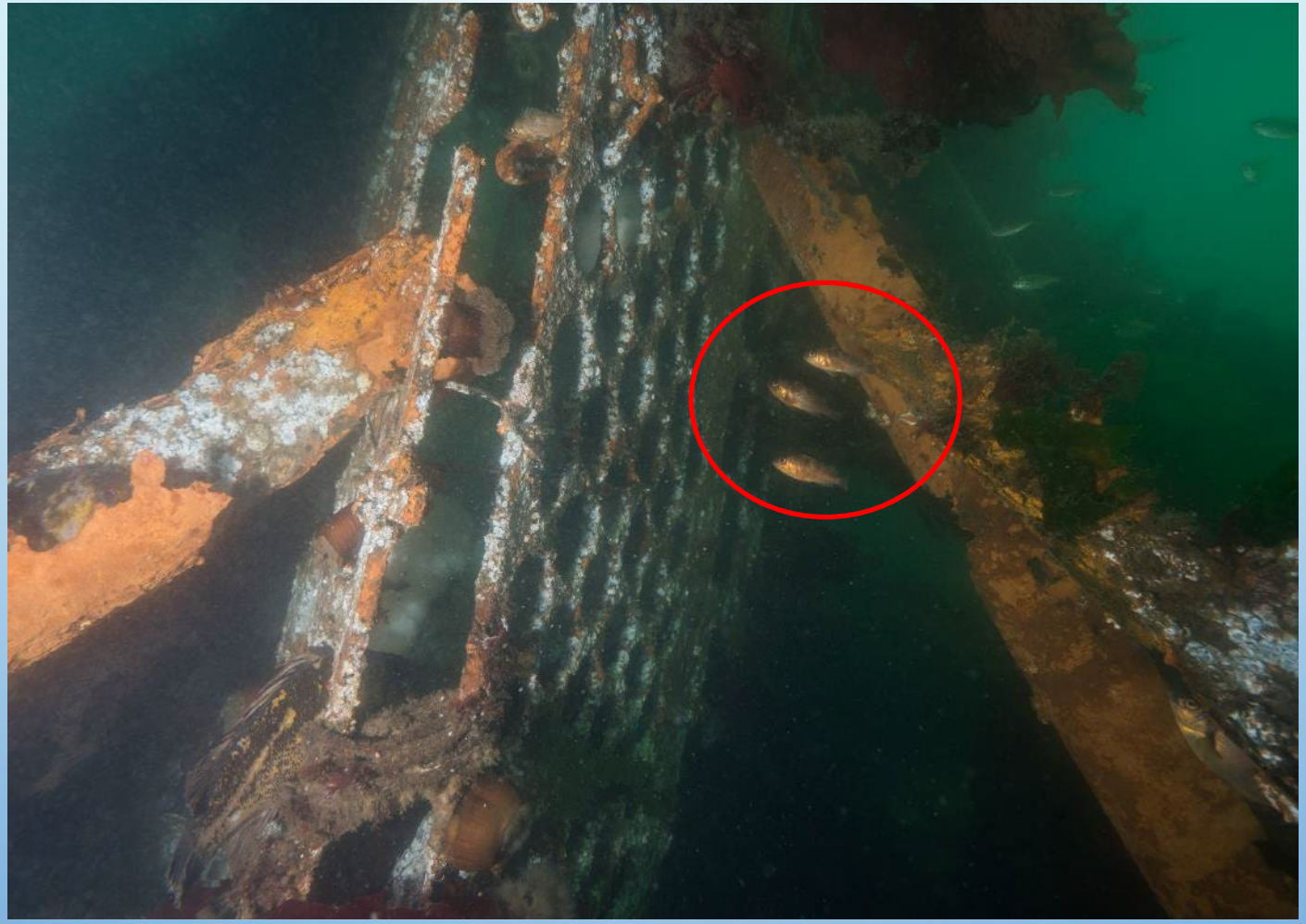
YOY Tallies

Survey 2

Survey 3



Search Images

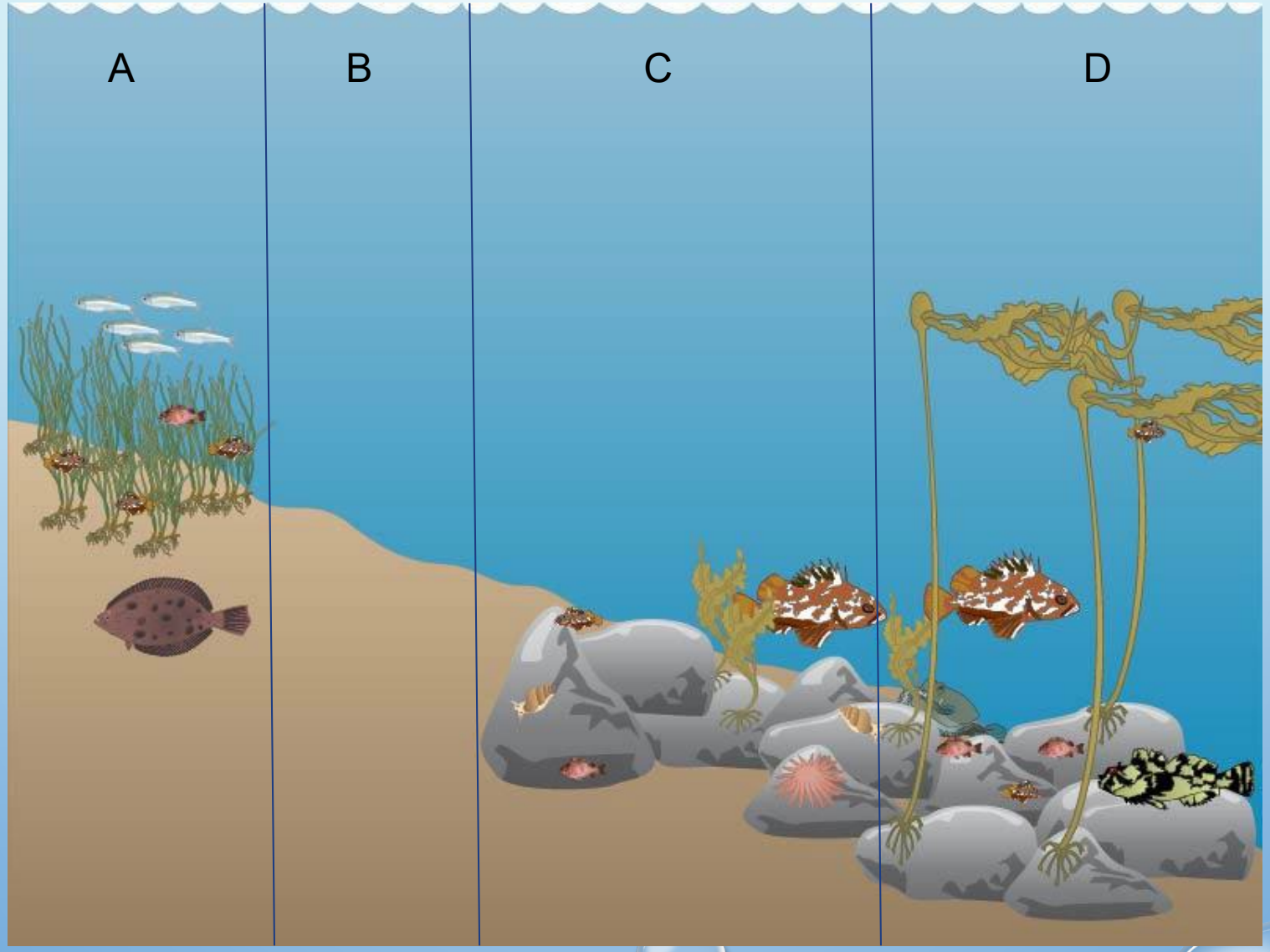


Search Images

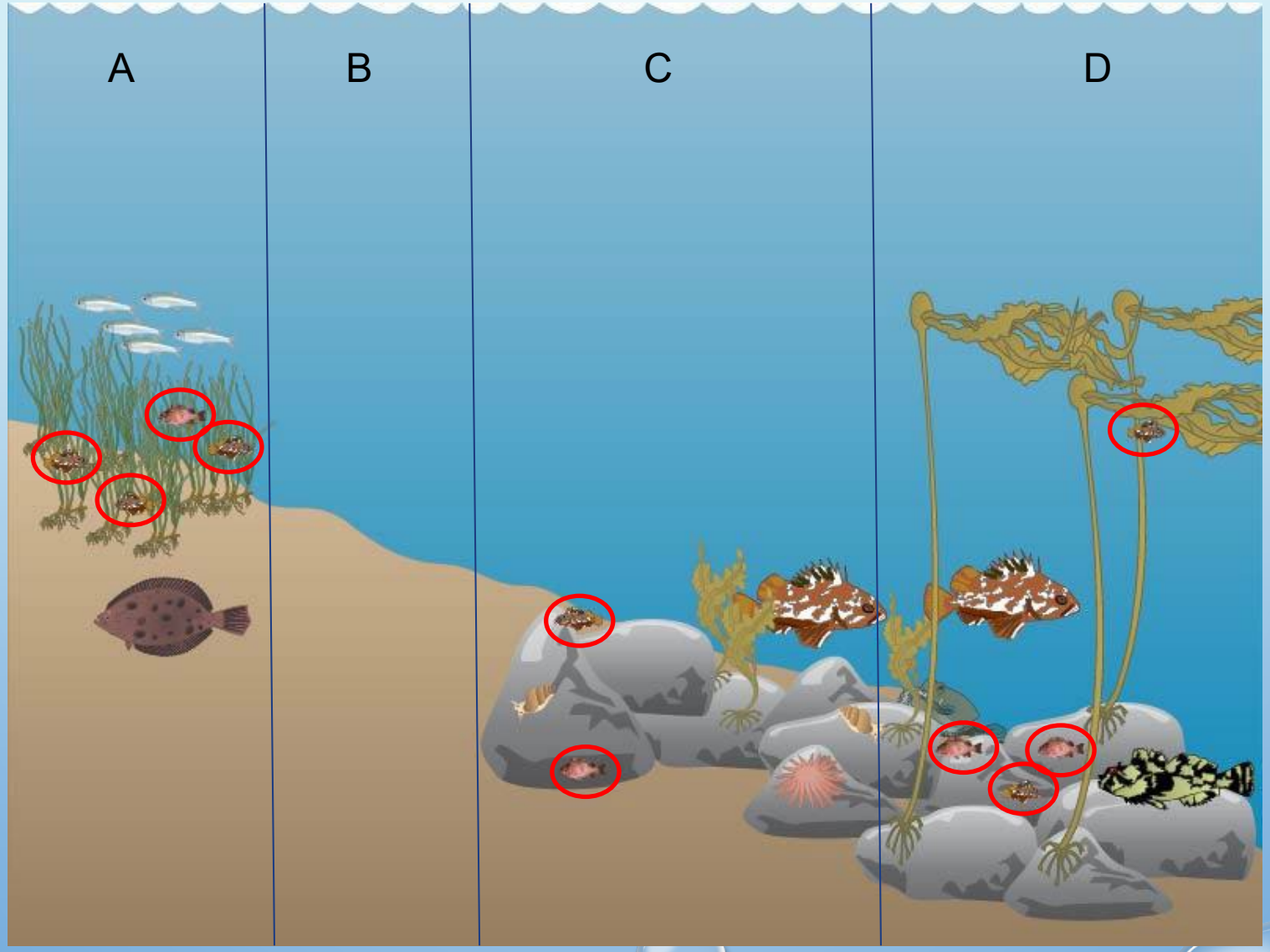
Search Images

Practice Survey

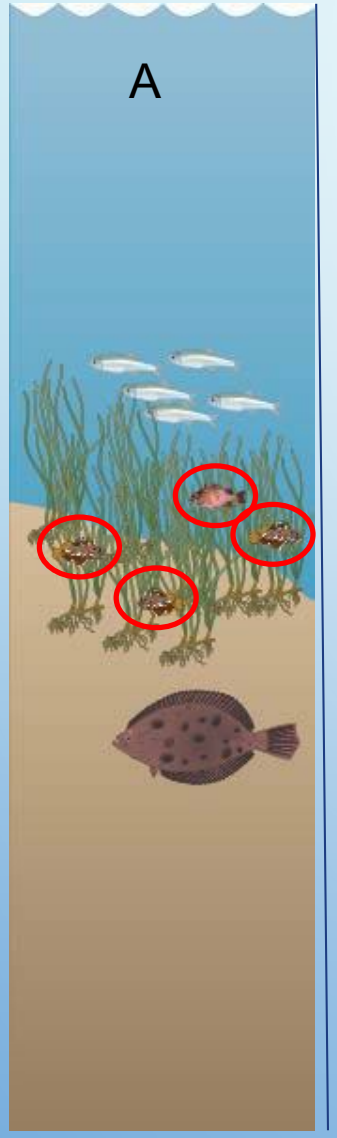
Practice Survey



Practice Survey



Practice Survey



Data to report for A

- Number of minutes to complete survey
- 4 Deep body no dorsal spot YOY
- Habitat Type (eelgrass) with basic characteristics
  - Density
  - Blade height
- Depth bin (likely shallow)

Practice Survey

Data to report for B

- Number of minutes to complete survey
- 0 YOY
- Habitat Type (soft bottom) with basic characteristic
  - Sediment type
  - Macroalgae abundance
- Depth bin

Practice Survey

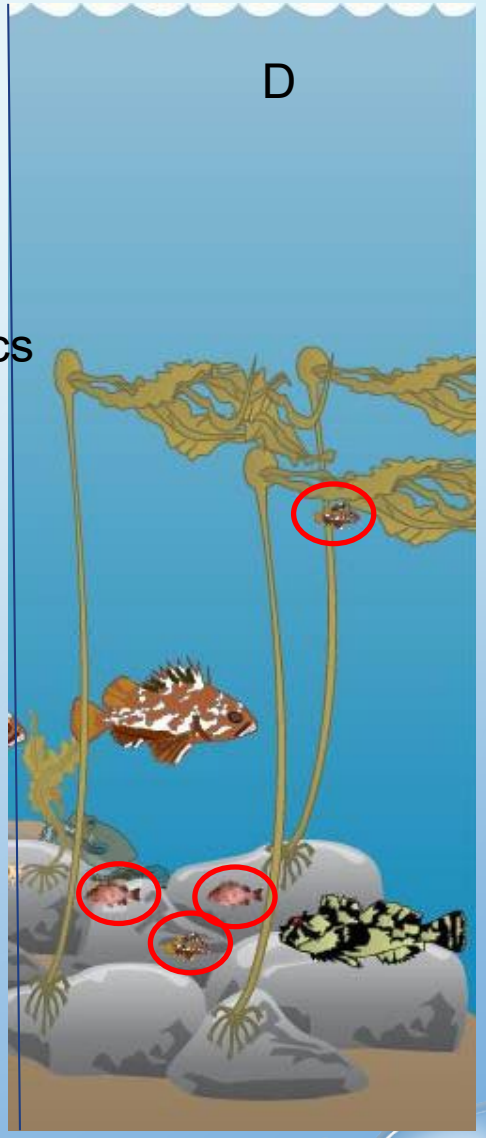
Data to report for C

- Number of minutes to complete survey
- 2 Deep body no dorsal spot YOY
- Habitat Type (natural reef) with basic characteristi
  - Relief
  - Abundance of macroalgae
- Depth bin

Practice Survey

Data to report for D

- Number of minutes to complete survey
- Four Deep body no dorsal spot YOY
- Habitat Type (kelp forest) with basic characteristics
  - Kelp density
  - Canopy height
- Depth bin

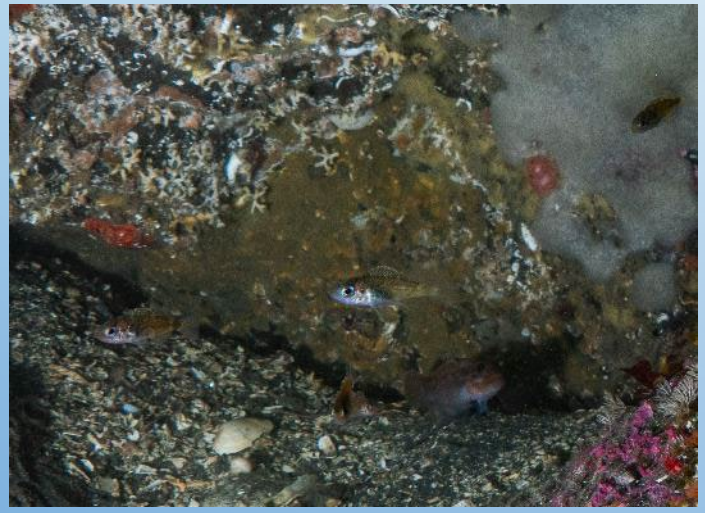


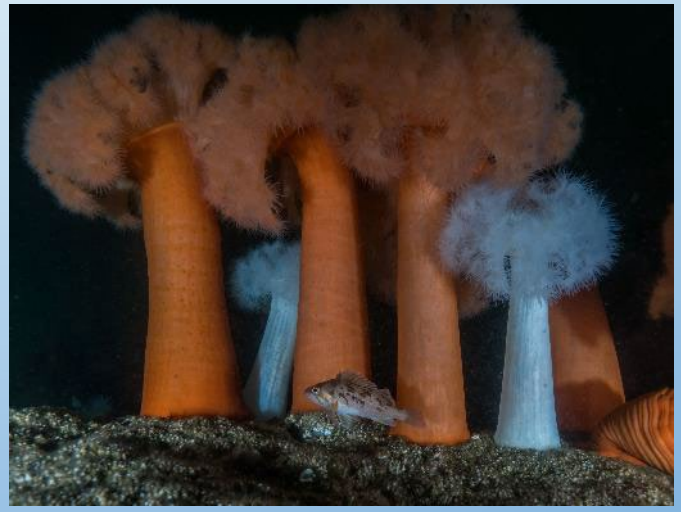
Practice Survey

Send in results to project lead, or:

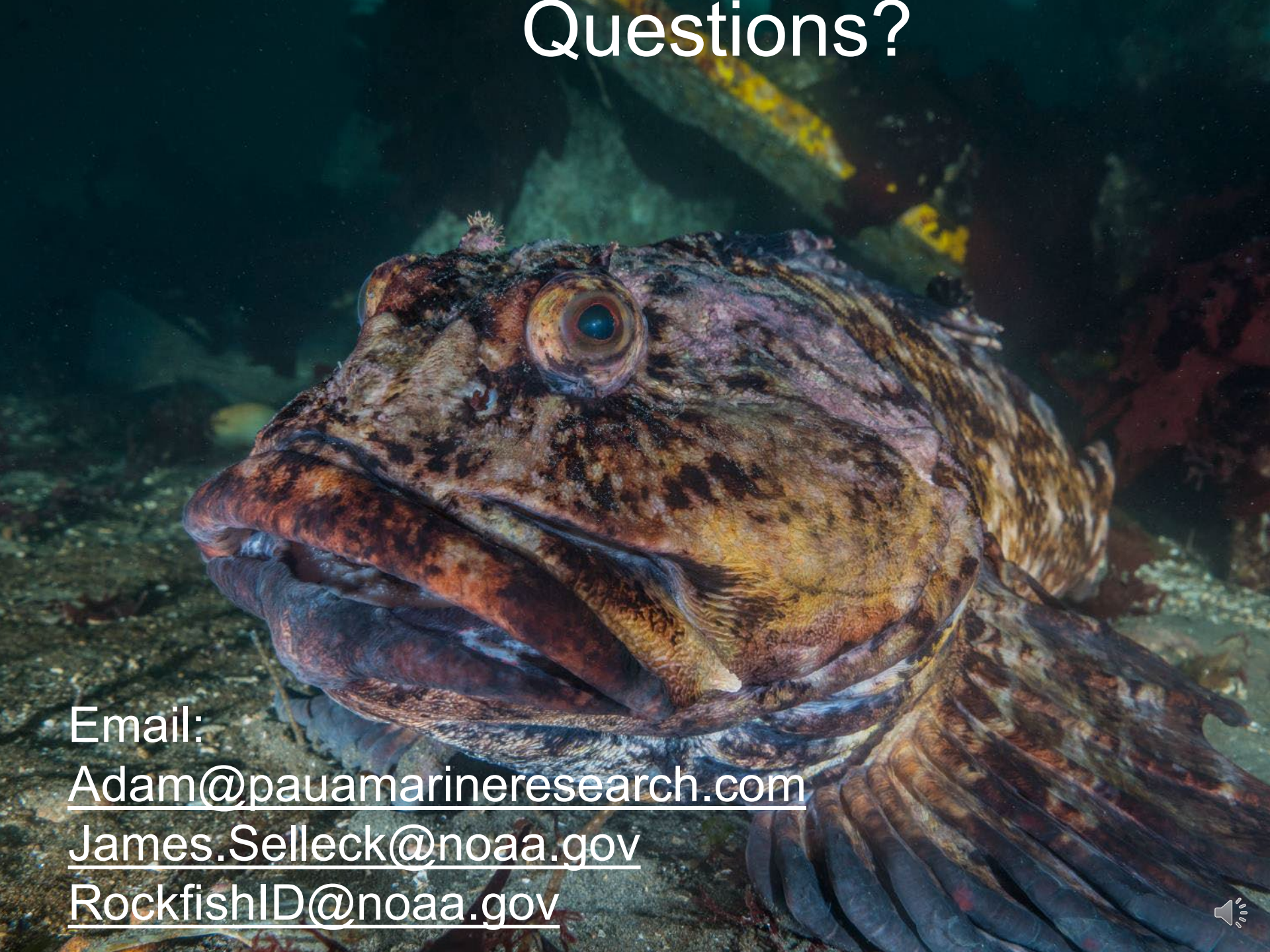
- Adam@pauamarineresearch.com
- James.Selleck@noaa.gov
- RockfishID@noaa.gov

We also love pictures!!!





Questions?



Email:
Adam@pauamarineresearch.com
James.Selleck@noaa.gov
RockfishID@noaa.gov