Subtidal biodiversity on the central coast of British Columbia

Matthew Lemay[1*], Gillian Sadlier-Brown[1], Kyle Hall[1], and Matthew Whalen[1,2]

1. Hakai Institute, Victoria BC, Canada
2. University of British Columbia, Vancouver BC, Canada

* Contact: matt.lemay@hakai.org

Hakai
Science on the Coastal Margin

BACKGROUND

- Biodiversity is declining at an accelerated rate, yet our ability to track these declines is hindered by incomplete data on the distribution and abundance of many species.
- To improve our ability to monitor changes in biodiversity, we are building a comprehensive genetic database of species on the central coast of British Columbia.
- Our previous work has shown that the number of unrecorded species dramatically increases in subtidal habitats, which have received less scientific attention than the intertidal zone.

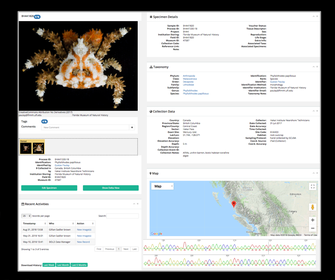
WORKFLOW

[1] Samples are **collected** by SCUBA and ROV

[2] Specimens are **identified** by taxonomists

DNA Barcoding

Museum Voucher



[3] Collection info, photo, and DNA sequence are **accessioned** in a public database (BOLD)

FLORIDA MUSEUM
ROYAL BC MUSEUM
BEATY BIODIVERSITY MUSEUM

[4] Specimens are **vouchered** at the Florida Museum of Natural History

METHODS

- We conducted an intensive survey to catalogue deep-water biodiversity on the central coast of British Columbia.
- Specimens were collected to a depth of 40m by SCUBA, and a remotely operated vehicle (ROV) was used to target specimens down to 275m.

RESULTS

- In 5 days our team sampled 944 individuals from 17 phyla
- Many are new records for the central coast, lack sequence data, or are previously undescribed.
- Below we present a visual snapshot of these beautiful yet understudied taxa.

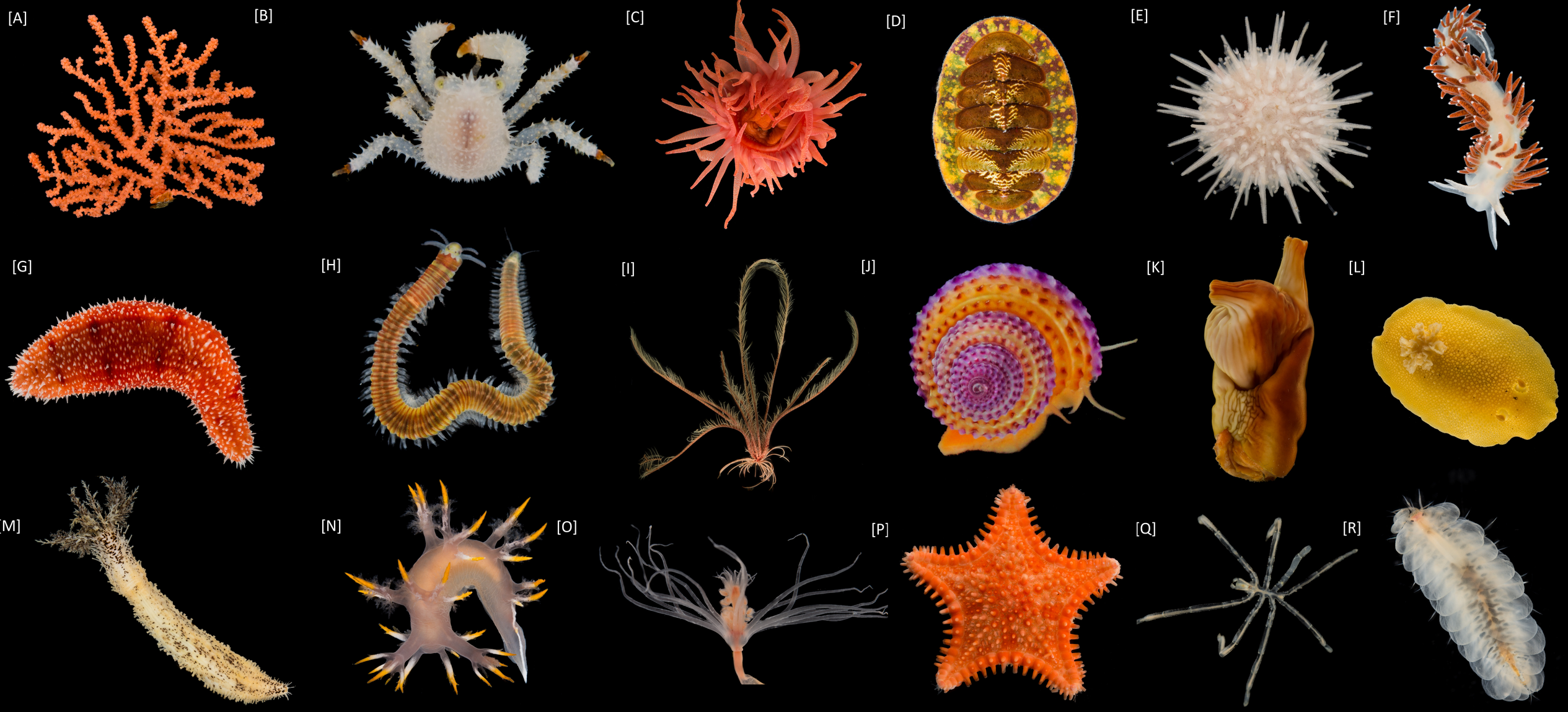


Photo Credits: Matt Whalen, Josh Silberg, and Kyle Hall: [A] *Calcigorgia sp.*; [B] *Phyllolithodes papillosus*; [C] unknown Actiniidae; [D] *Tonicella insignis*; [E] *Strongylocentrotus sp.*; [F] *Flabellina sp.*; [G] *Apostichopus leukothele*; [H] unknown Dorvilleidae; [I] unknown Crinoidea; [J] *Calliostoma annulatum*; [K] *Halocynthia aurantium*; [L] *Peltodoris nobilis*; [M] *Cucumaria piperata*; [N] *Dendronotus albus*; [O] unknown Tubulariidae; [P] *Hippasteria phrygiana*; [Q] Unknown pycnogonida; [R] unknown Polynoidae