Deep-sea Octopuses (*Muusoctopus leioderma*) Consume Local Infauna in the Shallow Waters of Burrows Bay, WA, USA

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There are three octopus species that are found in the Pacific Northwest of North America

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Giant Pacific Octopus

Ruby or Red Octopus

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Smooth-Skinned Octopus

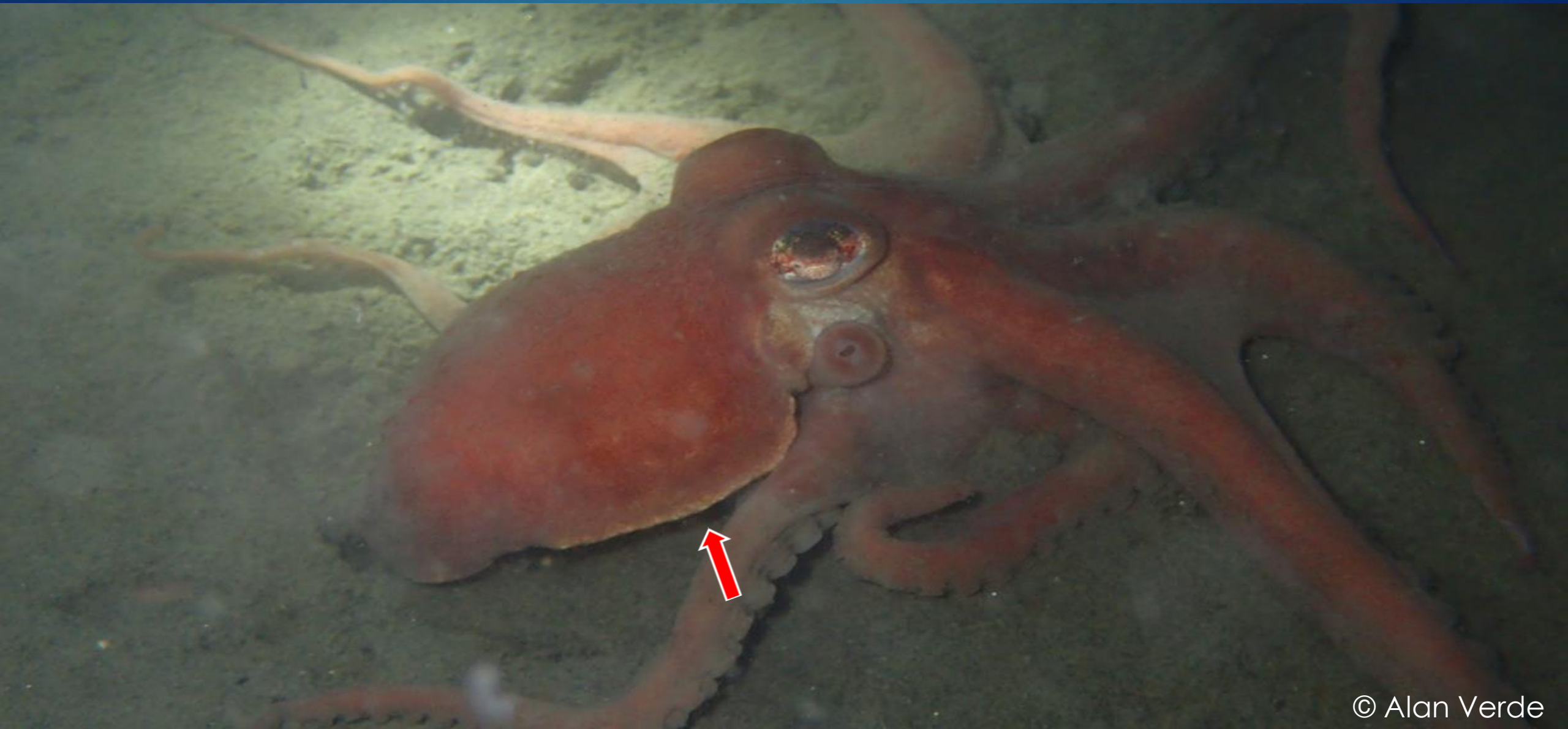
Muusoctopus leioderma has skin that is not textured hence the name Smooth-Skinned Octopus.

Muusoctopus are small in size and have relatively weak arms (very "spindly" in terms of diameter and length)

Muusoctopus have enlarged eyes relative to body size (adaptation to deep depths and nocturnal lifestyle)

Muusoctopus do not have an ink sac (no ability to generate a smoke screen when fleeing)

Muusoctopus have a unique mantle "flange" (for helping in burrowing behavior?)

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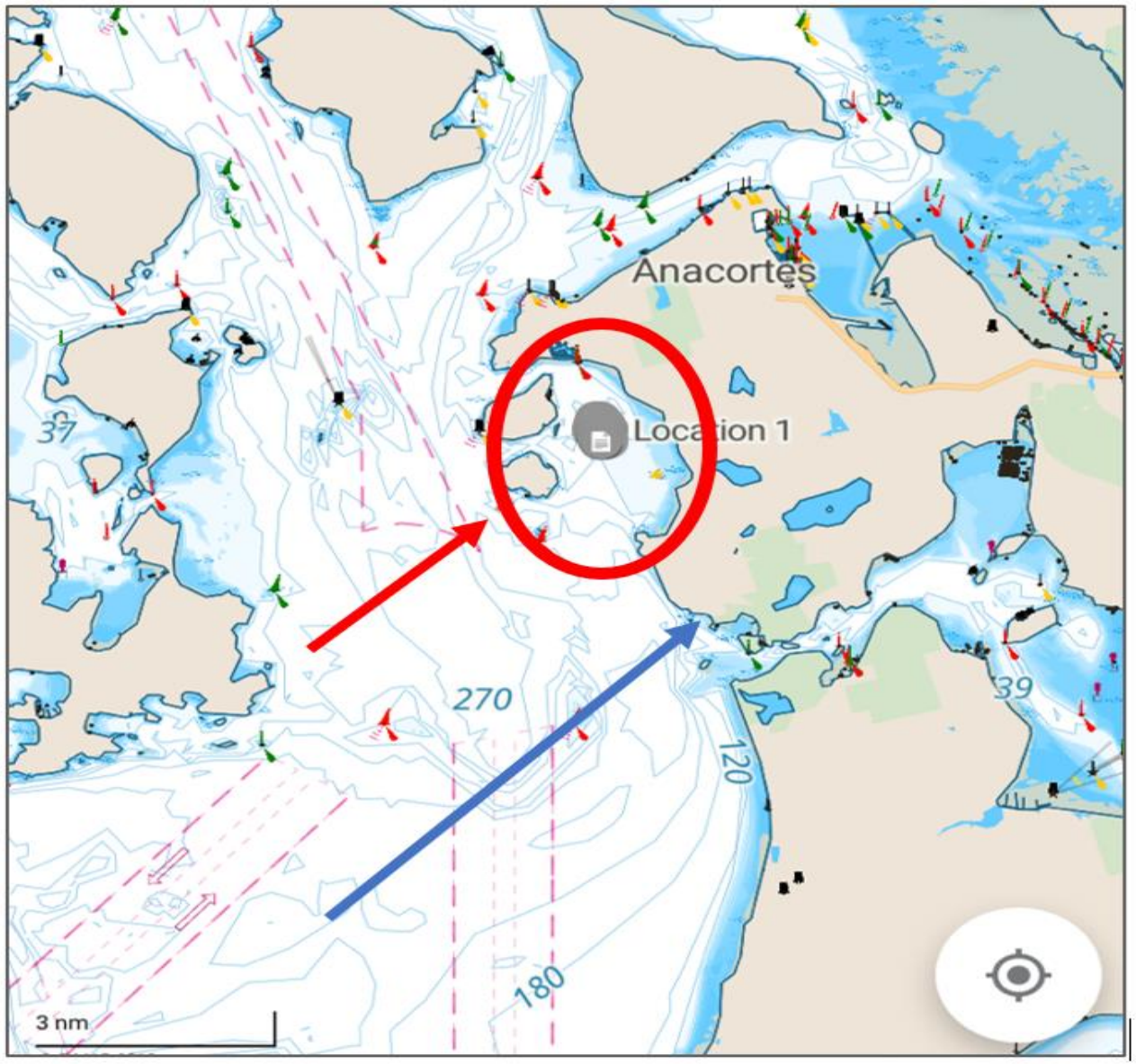
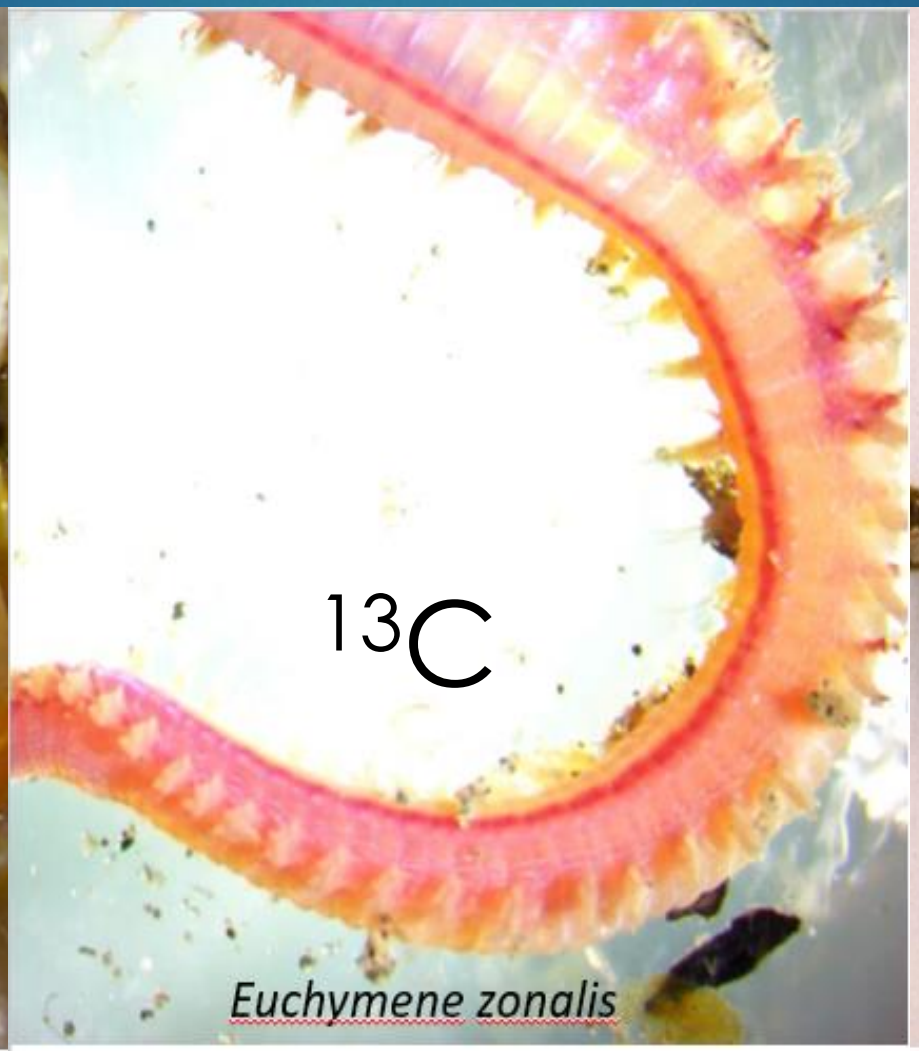
Is the migration of *Muusoctopus* to shallower depths driven by predator- prey interactions?

Location of Burrows Bay and the Rosario Beach Marine Laboratory, Anacortes, WA.

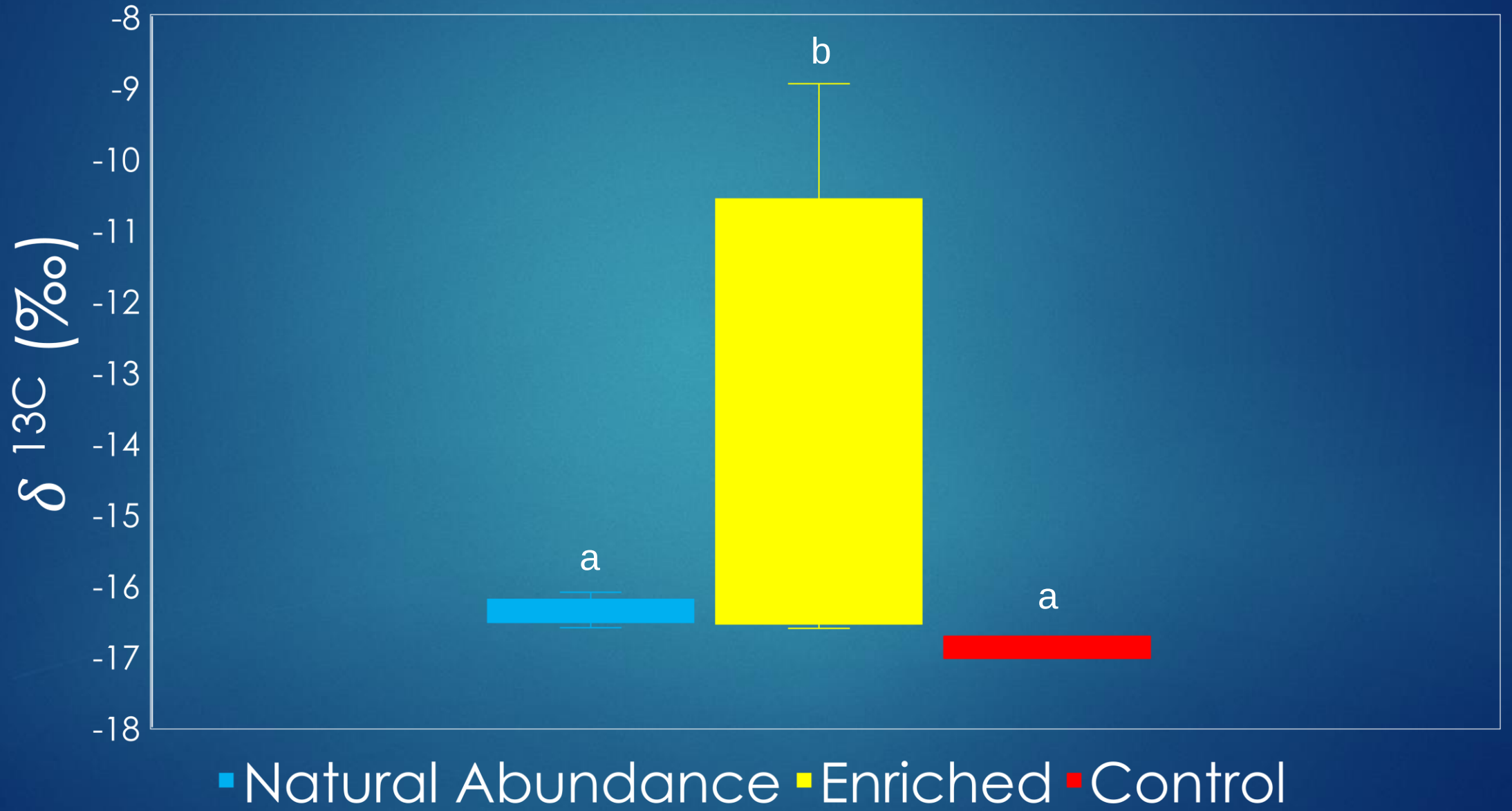


Octopuses were housed in tanks with sieved sediment to replicate their environment in Burrows Bay.

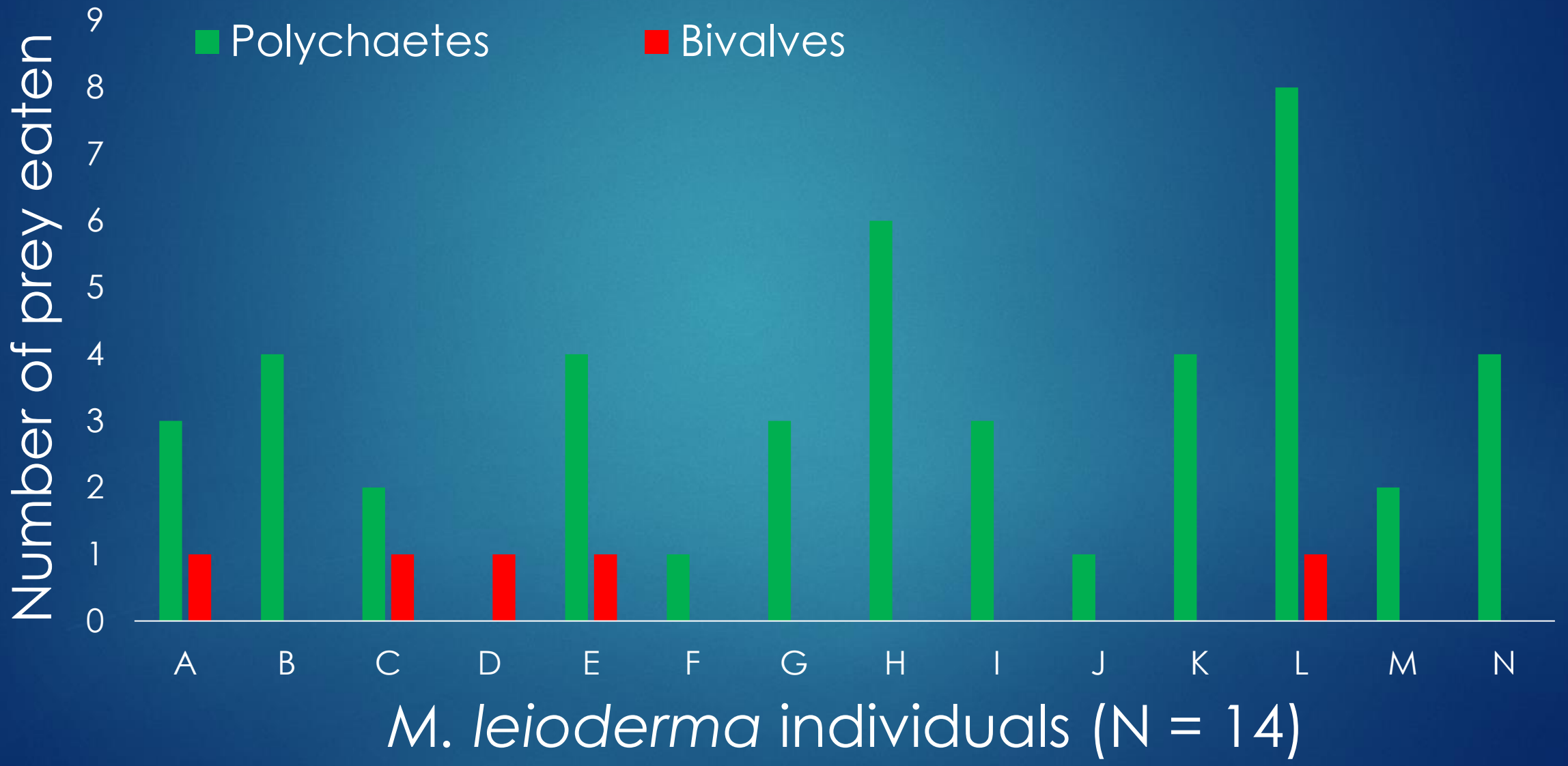
Stable isotopes (^{2}H, ^{13}C, ^{15}N) were used to label potential prey items: bivalves, polychaetes, and crustaceans

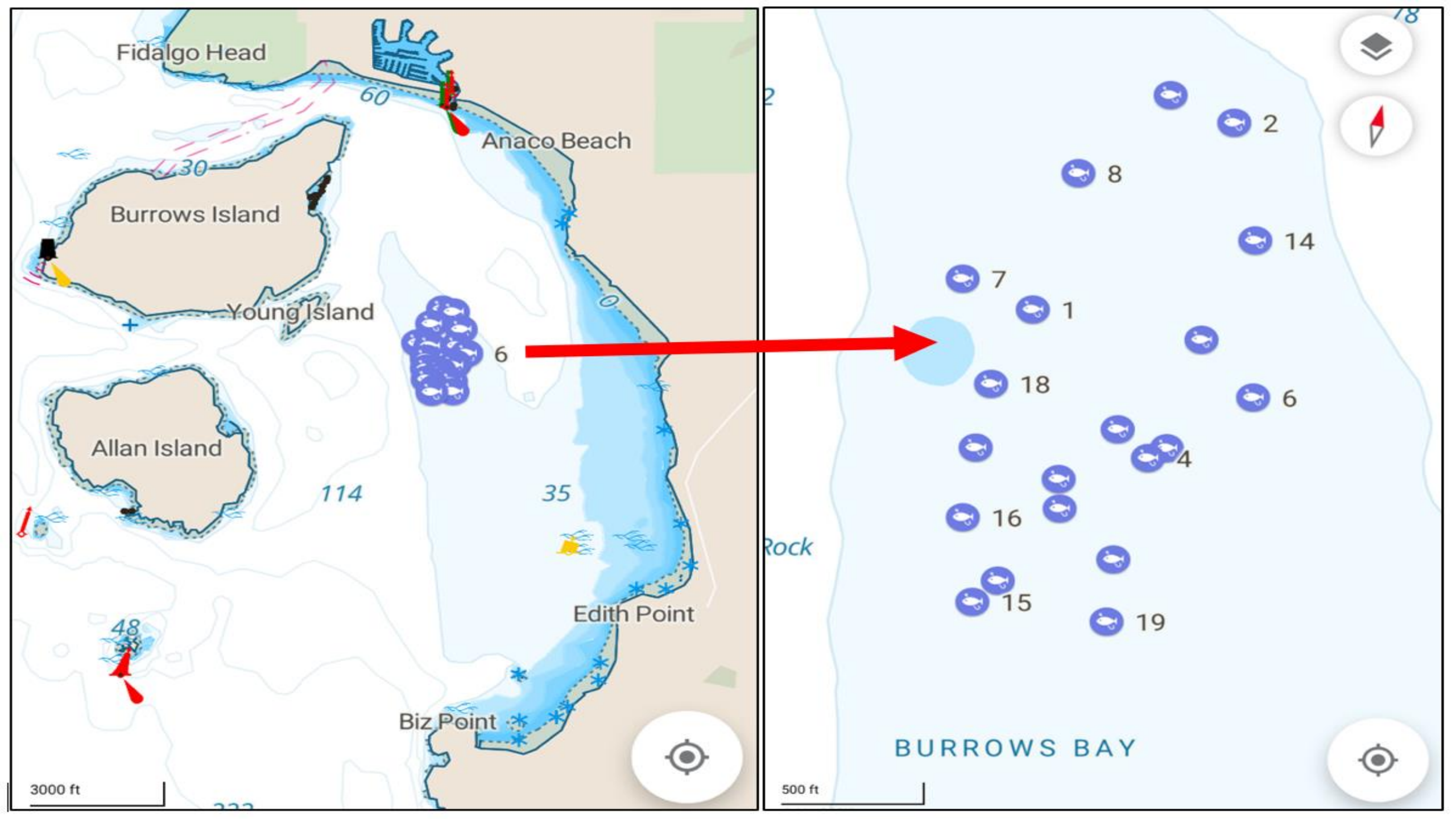


Stable isotope analysis for ^{13}C confirms that *M. leioderma* consumes polychaetes

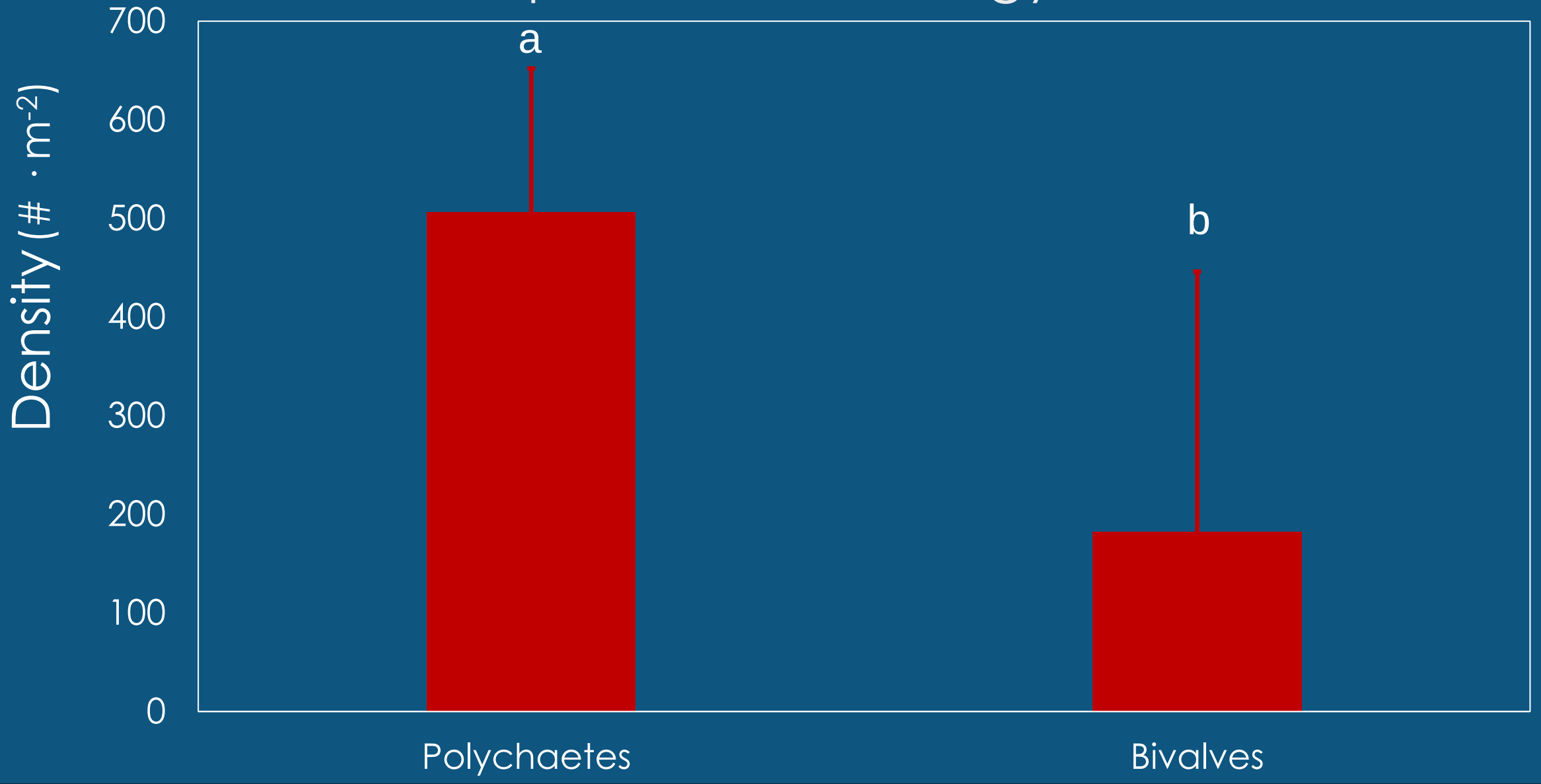


Observation trials suggest that *M. leioderma* has a greater preference for polychaetes than bivalves

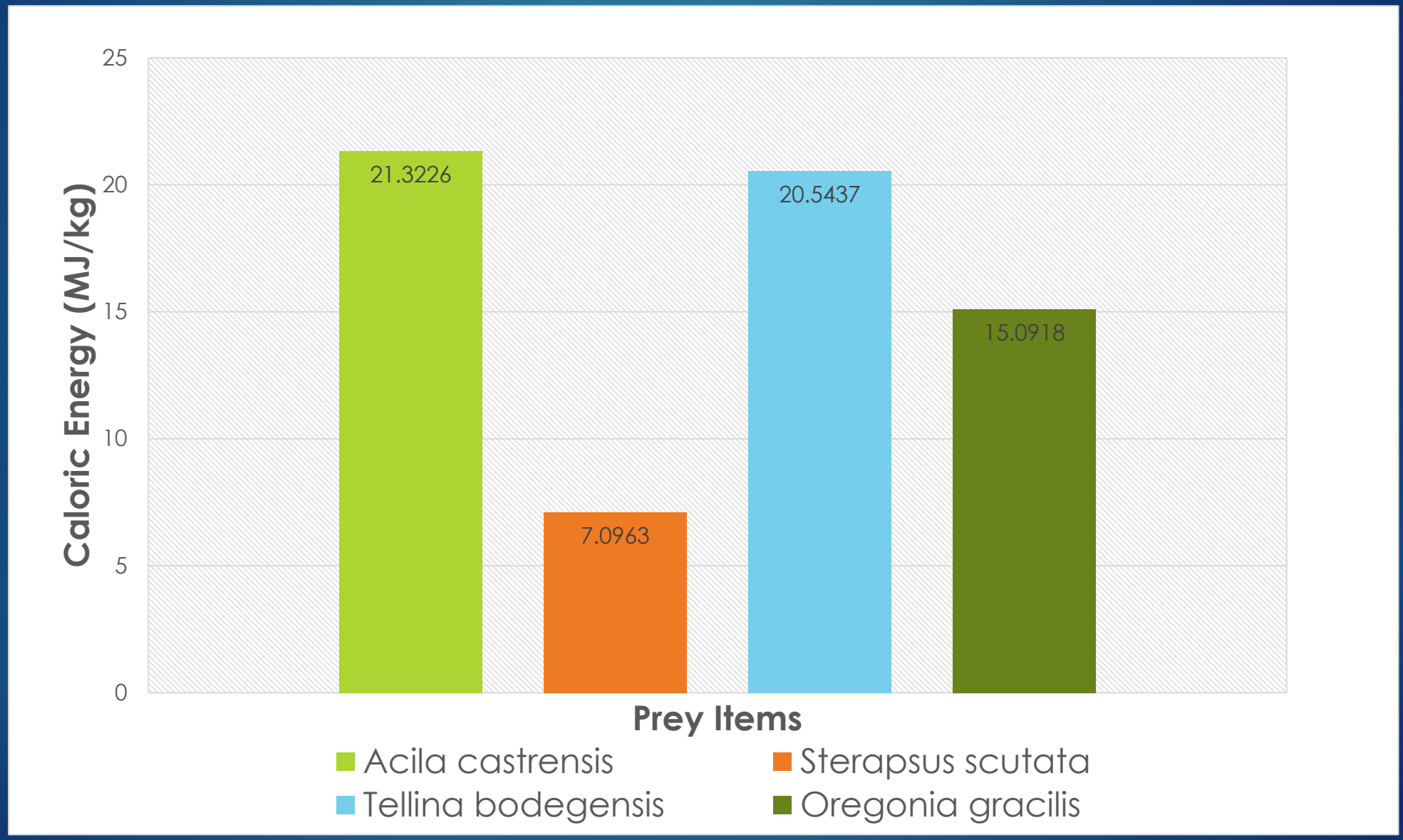



Fidalgo Head
60
Anaco Beach
30
Burrows Island
Young Island
6
Allan Island
114
35
48
Edith Point
Biz Point
3000 ft
2
8
14
7
1
18
6
4
16
15
19
BURROWS BAY
500 ft

Polychaetes are found in high density in Burrows Bay and do not require a lot of energy to consume



Energy content of *M. leioderma* prey species: Bivalves > Crabs > Polychaetes.



M. leioderma choosing to primarily consume polychaetes over bivalves follows the Optimal Foraging Theory (OFT).

Migration may be due to more abundant prey options in shallower waters of Burrows Bay (Hayden 2017; Pekar 2019).

Collaborators

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Beneath the Sea

WORLD OCTOPUS DAY

ALL SPECIES ARE VENOMOUS, BUT THE BLUE-RINGED OCTOPUS IS THE ONLY ONE DANGEROUS TO HUMANS, RESPONSIBLE FOR **AT LEAST TWO DEATHS.**

one hundred thousand

IS THE MAXIMUM NUMBER OF EGGS THAT A FEMALE OCTOPUS CAN LAY, BUT THE AVERAGE LITTER SIZE IS ONLY 80.

OCTOPUSES VS. OCTOPI

THE PLURAL IN ENGLISH IS "OCTOPUSES," BUT THE GREEK PLURAL FORM "OCTOPODES" IS SOMETIMES USED. "OCTOPI," WHILE COMMONLY USED, IS CONSIDERED INCORRECT.

AN OCTOPUS HAS 3 HEARTS

THE GIANT PACIFIC OCTOPUS CAN WEIGH MORE THAN 600 POUNDS

OCTOPUSES ARE ABOUT **90%** MUSCLE

THE GIANT PACIFIC OCTOPUS CAN INHABIT DEPTHS OF UP TO 5,000 FEET

A mature female octopus can have up to 280 suckers on each arm! Each sucker contains thousands of chemical receptors, with sensitivities to both touch and taste.

OCTOPUSES CAN QUICKLY CHANGE THE COLOR AND TEXTURE OF THEIR SKIN

Octopuses inject their prey with venom using a beak similar to a bird's made from the same tough material as a lobster shell.

BECAUSE THEY DON'T HAVE BONES, EVEN LARGE OCTOPUSES CAN FIT THROUGH AN OPENING THE SIZE OF A QUARTER

300 RECOGNIZED SPECIES OF OCTOPUS

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