An underwater photograph of a seamount. The seamount's surface is covered in dark, textured ferromanganese crusts. A prominent, bright red anemone is visible in the lower-left quadrant. The lighting is dim, highlighting the rugged topography of the seamount.

MEGAFAUNA BASELINES OF COBALT-
RICH FERROMANGANESE CRUSTS IN
WEST PART OF PACAFIC OCEAN
(Magellan seamounts)

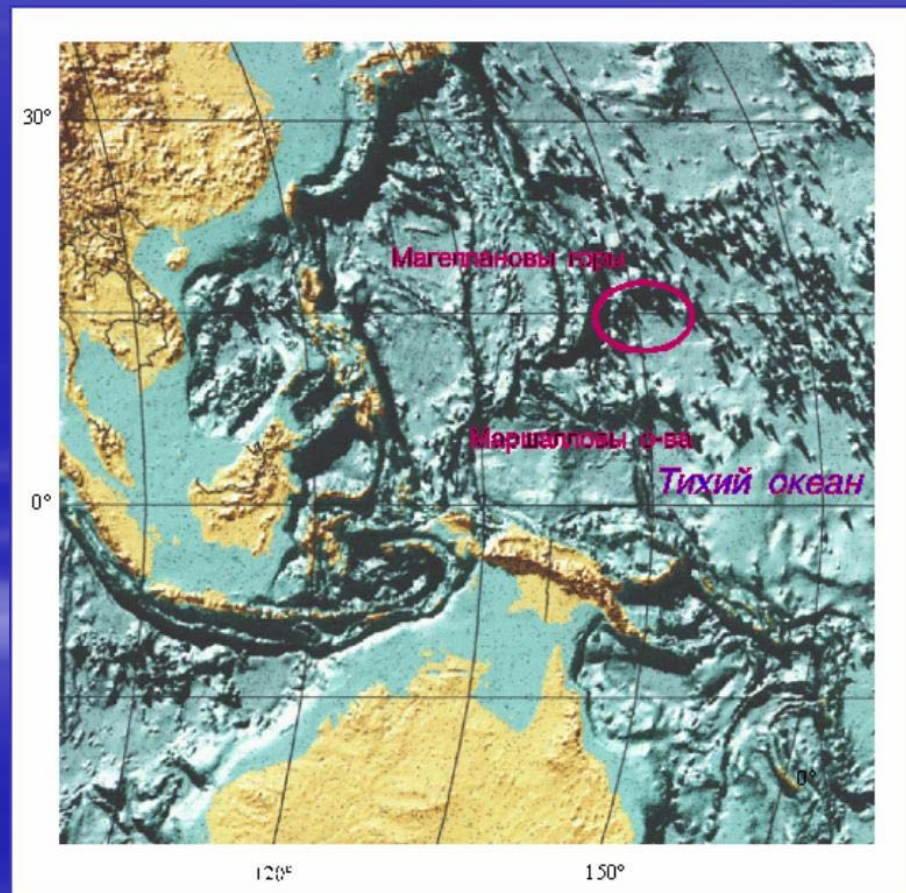
Yuzhmorgeologia

Megafauna investigation technique

- The Megafauna is one of the size classes of seamount benthos (usually more than 2 cm).
- To describe these large benthic animals of Magellan seamount it was used the photoprofiles data.
- Modern investigation technique of deep-sea ocean floor allows to make a qualify high resolution color photos in digital format.

Taxonomic content of Megafauna

- On deep-sea photos were found the following benthic animals taxons:
- Porifera
- Actiniaria
- Anthozoa
- Crustacea
- Ophiuroidea
- Echinoidea
- Holothuroidea
- Asteroidea
- Crinoidea



Seamount bottom environment

- Existing ecology conditions on seamount regions can be divided on two, very different categories:
- 1. Solid cobalt-rich crusts with manganese oxide layer, which can cover all the bottom square or part of it.
- 2. Clear sandy sediment, sometimes with small mixing of manganese crust bits.
- 3. Between these two conditions there are some combinations of sediment-solid substrate proportions.

Taxonomical distribution and abundance of benthic organisms have a strong dependence from these conditions.

On the areas with clear sediment exist mainly sea urchins, actinia, ophiuroids and some sea stars.

On the areas with solid crusts grow spongies, corals, sea stars and sea flowers.

Sea cucumbers can be found on both areas.

Porifera

It is very easy to recognize the Sponges on on the background of black solid substrate. These animals grow only on crusts and can reach 50-60 cm height.



- Some sponges have a vase form on long thin stalk.



Actinia

Actinia on bottom photos were not abundant.
They grow mostly on crusts and sometimes on clear sediment.

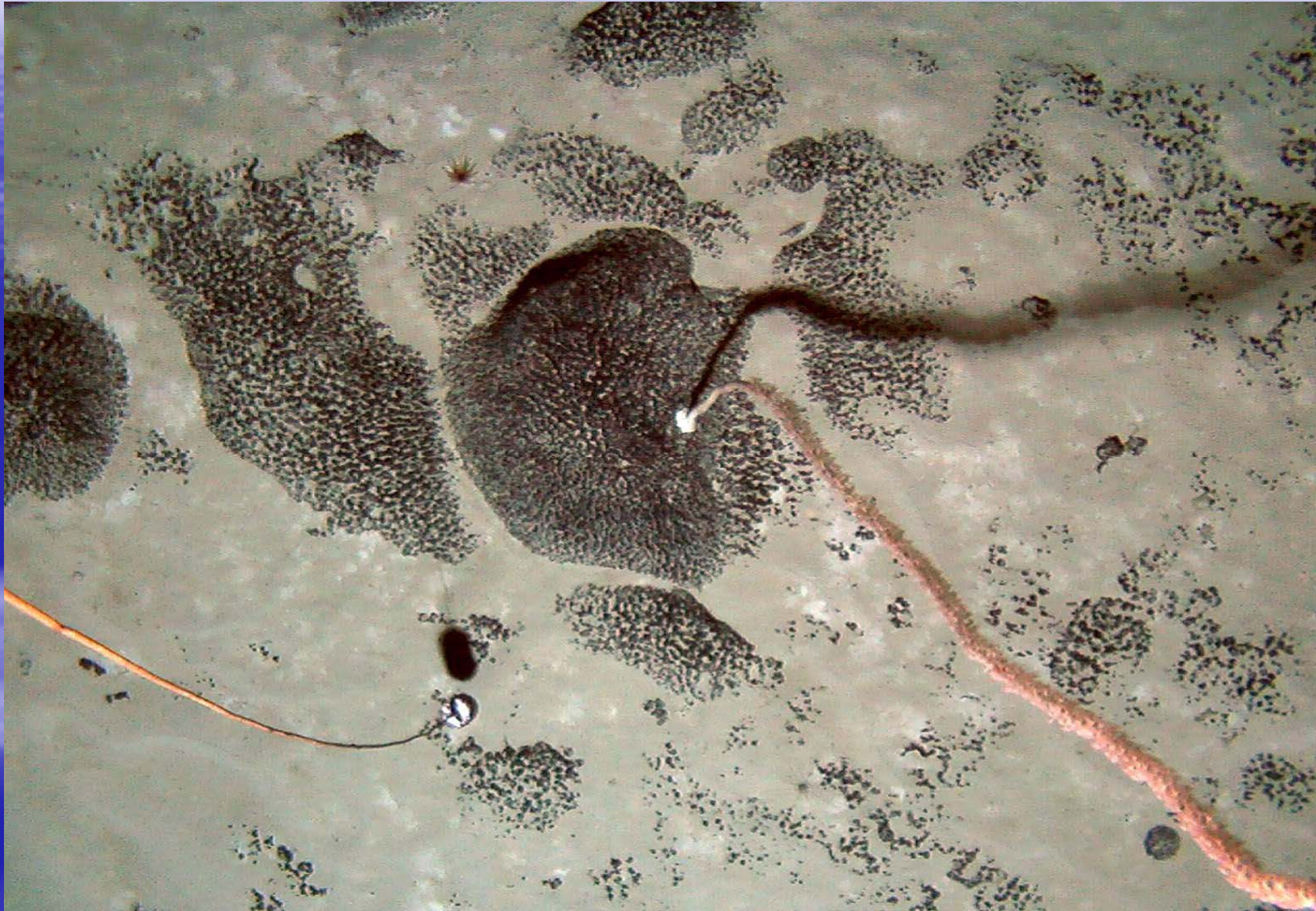


Corals

All corals found on photos were attached to hard substrate.
Some of them looks like a pink branched trees



- Another corals have body form like a long thick rope.



- Third coral group – sea pens. This is very special animals growing on crusts. Long central stalk (about 35 cm) bears 25 pairs of branches.



Crustacea

Shrimp-like crustaceans are occasionally seen swimming just above the sea floor



Sea stars

Representatives of Echinodermata – sea stars were not abundant but had large amount of species.

More often it can be found the five rays sea stars.



But there are sea stars with more than five rays.
Number of rays varied from 6 to 14.



Sea flowers

Crinoids were the most common animals on the seamount floor. They inhabited only hard substrate



Quantity of Megafauna

Density of megafauna taxons is one of the important characteristics of benthic community.

Large animal activity in deep-sea environment has a big influence on distribution and life span of another size group organisms. In table you can see the densities of main megafauna taxons.

In table you can see the densities of main megafauna taxons on Magellan seamounts

Taxon	ind./ha
■ <i>Echinoidea</i>	165
■ <i>Actiniaria</i>	24
■ <i>Ophiuroidea</i>	3
■ <i>Holothuroidea</i>	9
■ <i>Porifera</i>	23
■ <i>Anthozoa</i>	50
■ <i>Crustacea</i>	24
■ <i>Asteroidea</i>	77
■ <i>Crinoidea</i>	178

Feeding activities

In manganese nodule province most part of animals are deposit feeders. This type of feeding make them able to active moving.

In cobalt-rich crusts regions most part of animals are filter feeders. These animals live mostly attached to hard substrate.

Environment investigation

We suppose that in recent time environment investigation should include:

1. Baseline study, mostly quantity and species richness of different size classes of seamount benthos
2. On the base of getting data create an environmental impact assessment

- Thank you