

Sept 20, 2022

SPARO Industries, LLC dba Pacific Sea Farms

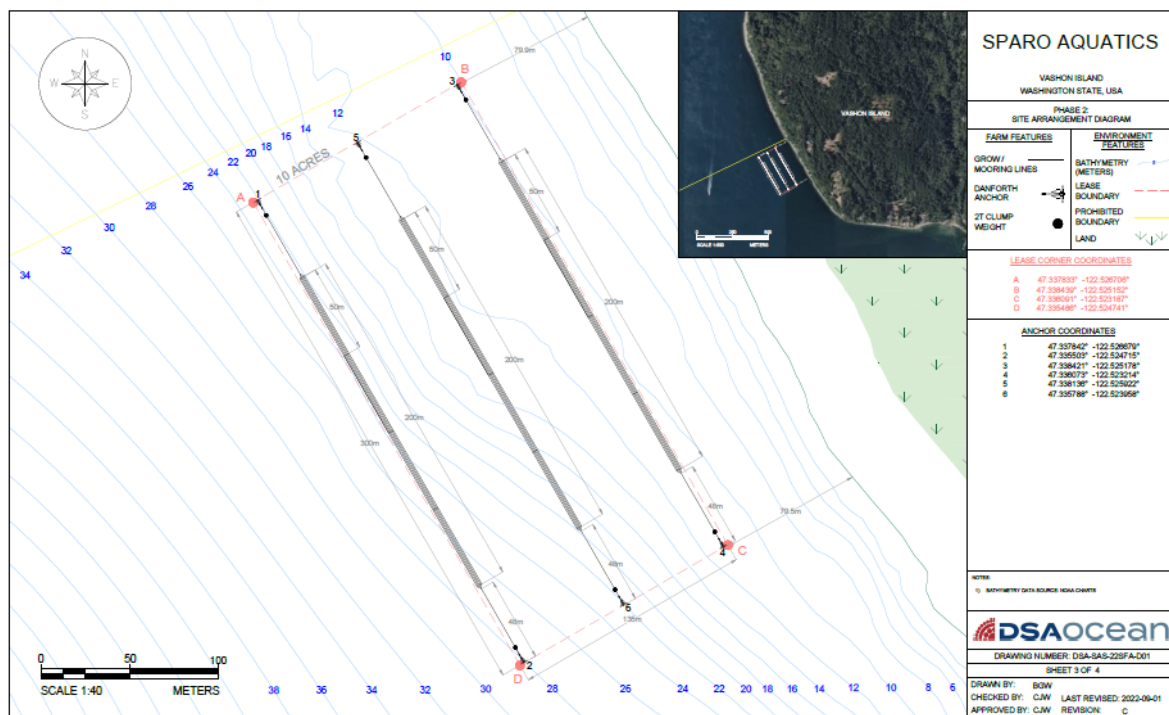
Seaweed/Shellfish farm map and substrate details

Prepared for the Department of Natural Resources (permit application - 20-103032 SPARO)

Overview : The DNR asked to see the location of the proposed seaweed/shellfish farm with pictures and plant species identified where the anchors will be located.

Details:

1. This shows the farm layout including the coordinates for the entire farm and the six (6) anchor locations. See the legend on the right for coordinates.
2. Depth is noted in blue (in meters)



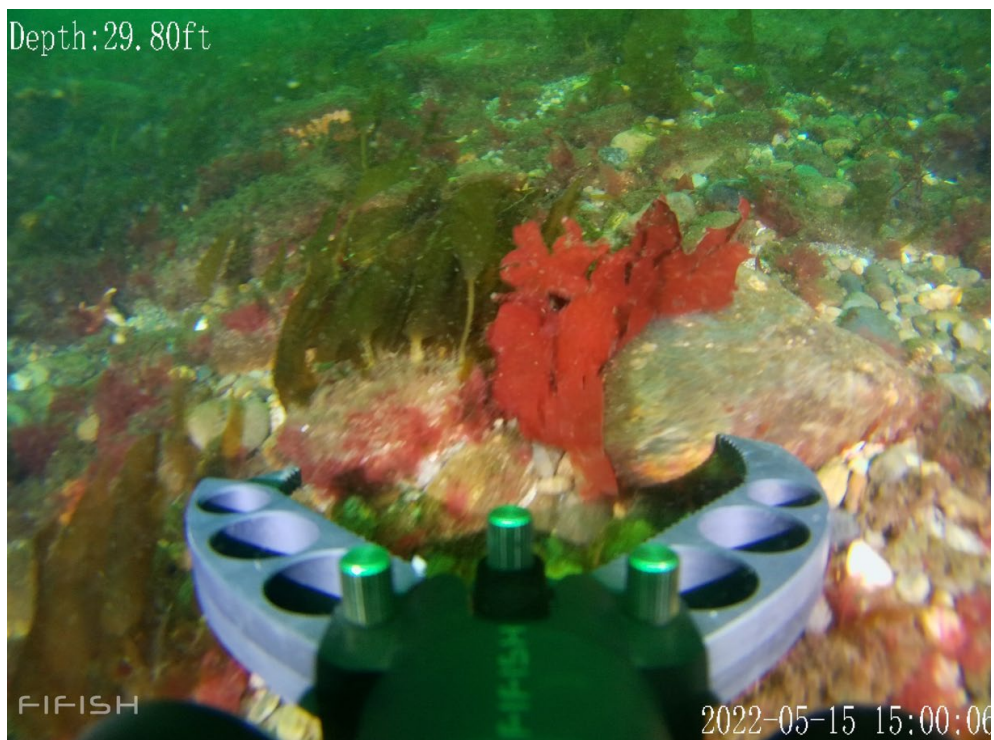
3. A survey was done using an underwater remote operated vehicle (ROV). Pictures were obtained at each of the 6 anchor locations. They are grouped together by depth:
 - a. Anchors 3 and 4 are in the shallowest area (30-40')

- b. Anchors 5 and 6 are mid depth (50-60')
 - c. Anchors 1 and 2 are in the deepest water (70-90')
- 4. The anchors will be placed using a barge/tug/crane as close to the GPS locations as possible. Weather, water, and equipment conditions may result in anchor positions being slightly off but they will be within 10-20' of detailed coordinates.
- 5. All photos were taking between May-Sept 2022.
- 6. Depth and date are embedded on the photo
- 7. In some photos you'll see a "claw" that was on the front of the ROV. In other photos the claw was not attached to the ROV.

As expected, and as detailed in other documents in my permitting packet (biological evaluation, eelgrass and macro algae survey), a variety of macro algae exists in the shallower waters. In deeper waters, due to the lack of sunlight at the substrate no macro algae exist beyond approximately 40-45'.

Various shellfish (clams, scallops) as well as sea stars, urchins and sea cucumbers were observed in all locations/depths.

Anchor sites 3-4 (30-40')



- Turkish Washcloth -*Mastocarpus papillatus*(red – mid center of photo)
- Sugar kelp – *Saccharina latissima* (greenish – left and mid center of photo)



- Sugar kelp (*Saccharina latissima*) – covered with bryozoan



- Sugar Kelp (*Saccharina latissima*)



- Sugar Kelp (*Saccharina latissima*)
- Turkish washcloth



- Sugar Kelp (*Saccharina latissima*)
- Sea Lettuce (*Ulva lactuca*) – Green bottom left

Depth: 33.79ft



FIFISH

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- Sugar kelp – *Saccharina latissima*
- Sea Lettuce (*Ulva lactuca*) – Green bottom left
- Turkish Washcloth -*Mastocarpus papillatus*

Depth: 26.80ft



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- Green urchins

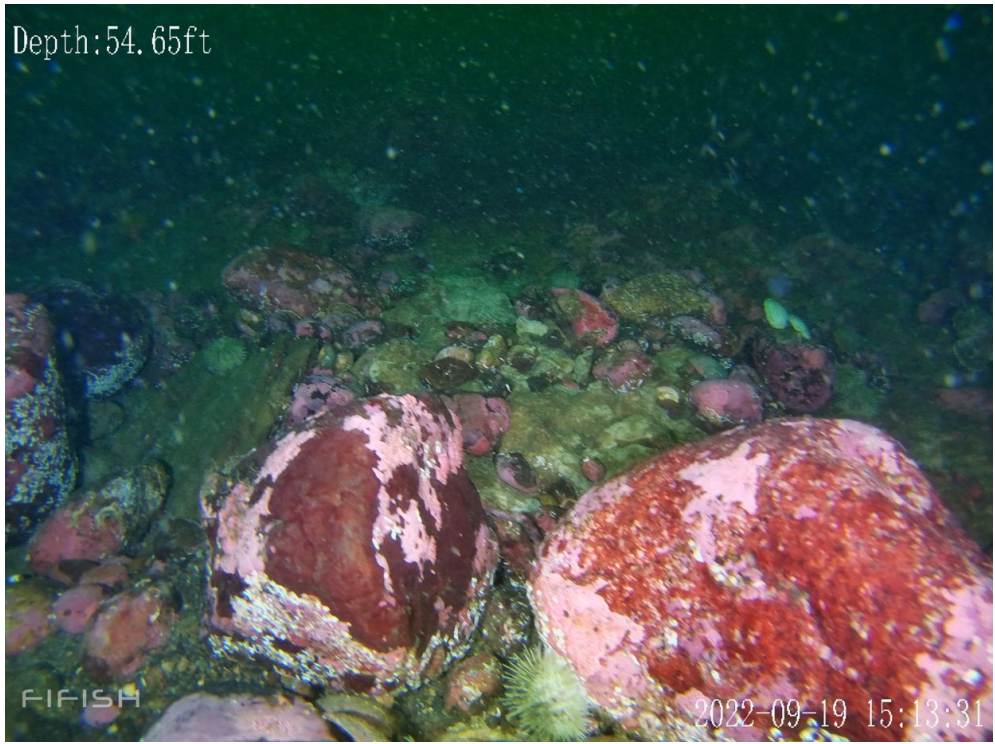


- Green urchins
- Sea star

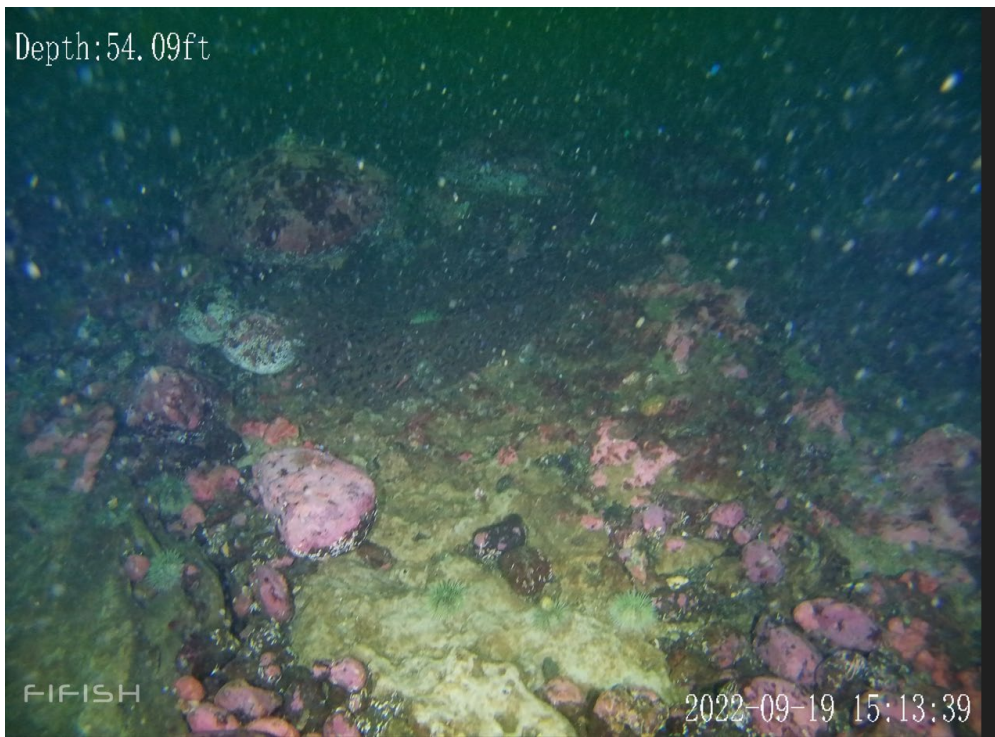
Anchor points 5-6 (50-60')



- No macro algae



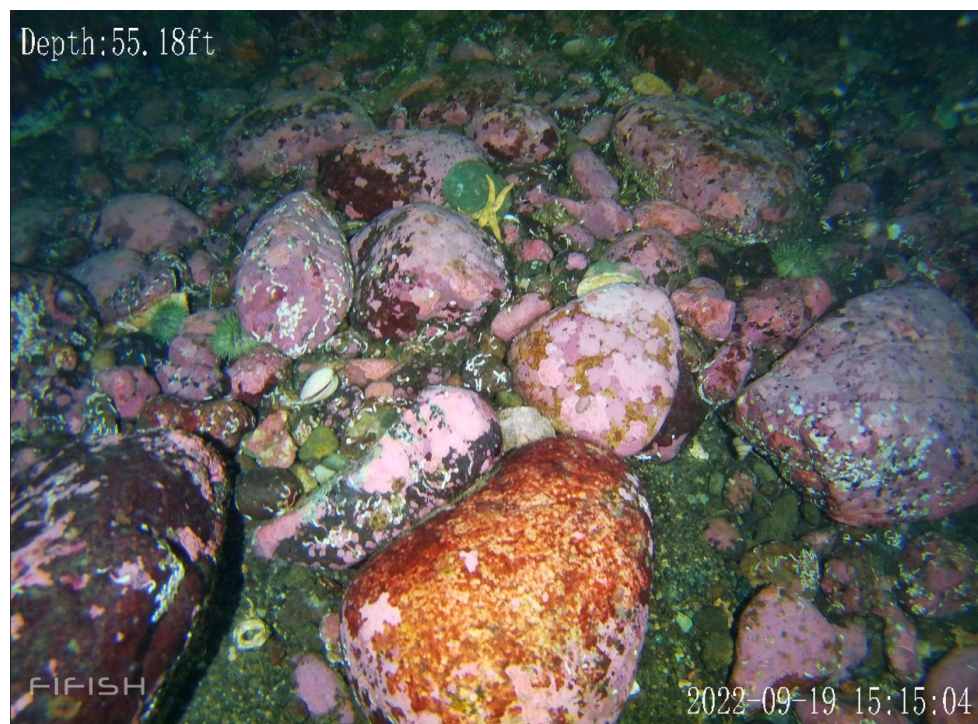
- No macro algae
- Green urchin



- No macro algae



- No macro algae
- Green urchin
- Orange sea cucumber -*Cucumaria miniata*



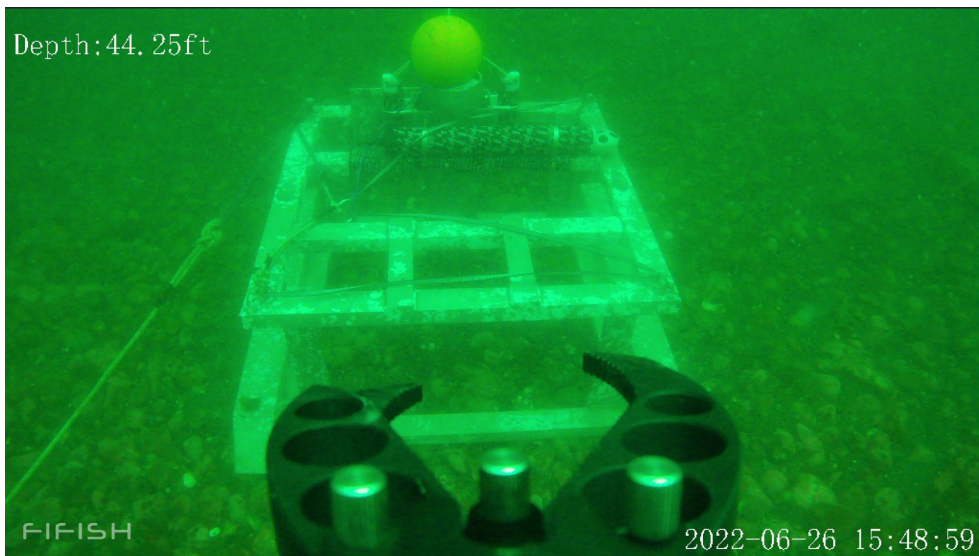
- No macro algae
- Sea star
- Green urchin
- clam



- No macro algae
- Photo taken without light to give wider/broader view



- No macro algae
- Photo taken without light to give wider/broader view



- No macro algae
- Photo taken without light to give wider/broader view
- This is a frame holding an ADCP (Acoustic Dopplar Current Profiler) which was used to get current speed/direction information on the site

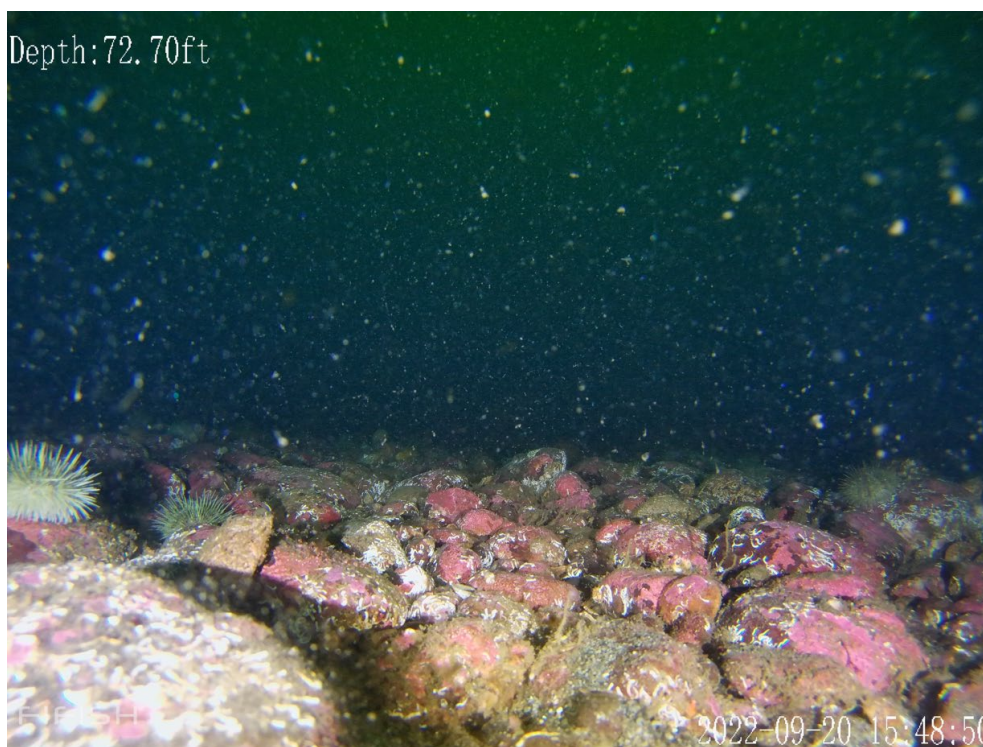


- No macro algae
- Sea star
- Green urchin

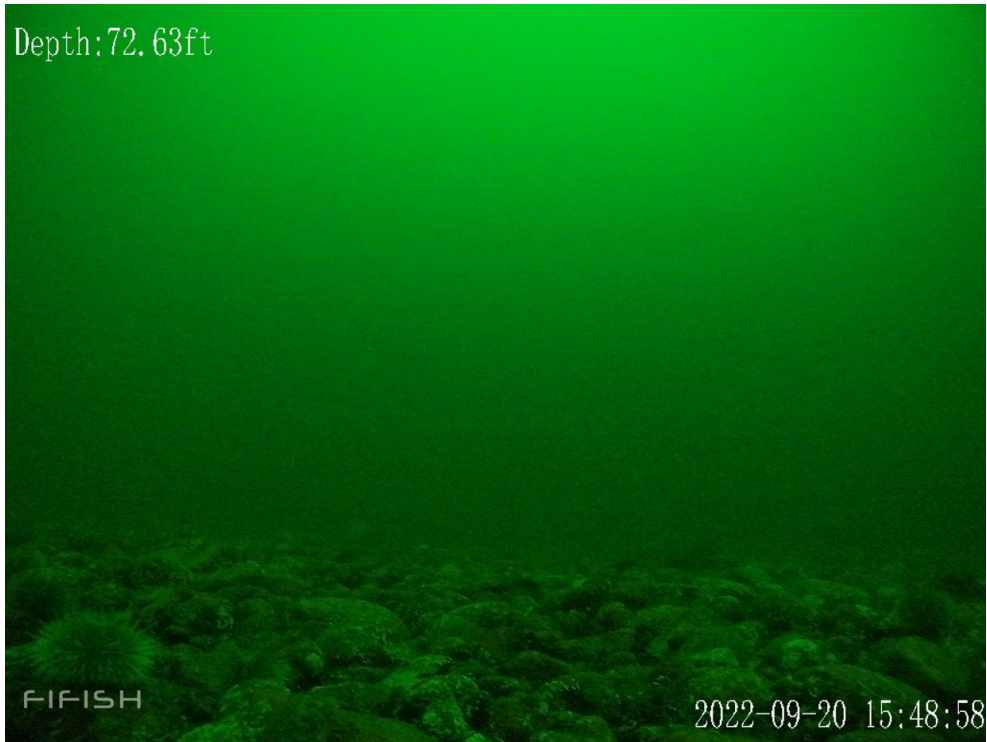
\Anchor points 1-2 (70'-90')



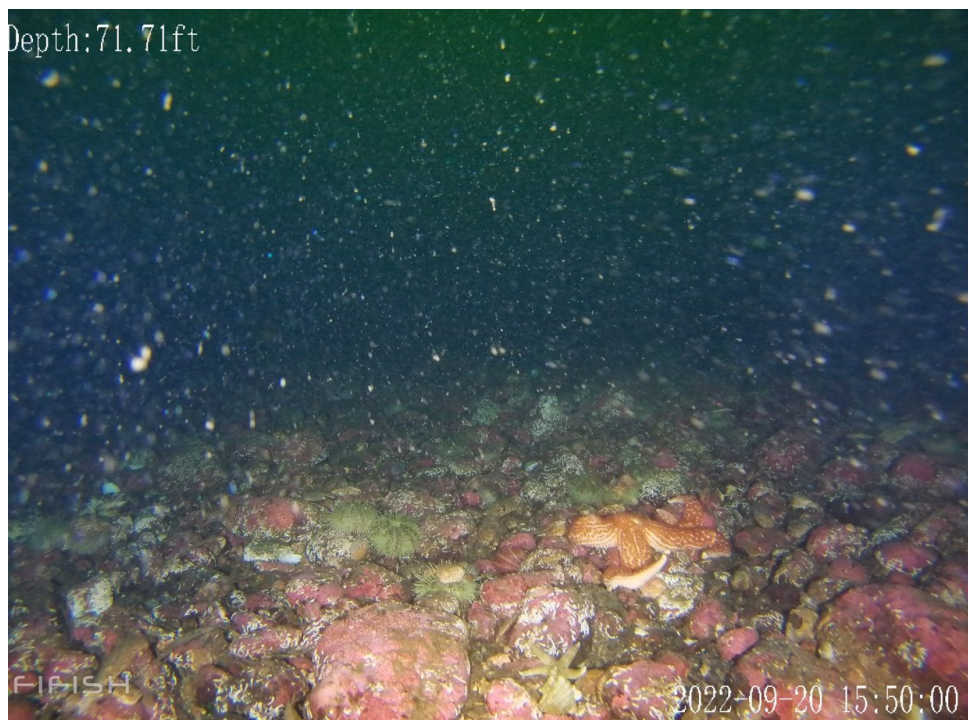
- No macro algae
- Green urchin
- Orange sea cucumber



- No macro algae
- Green urchin



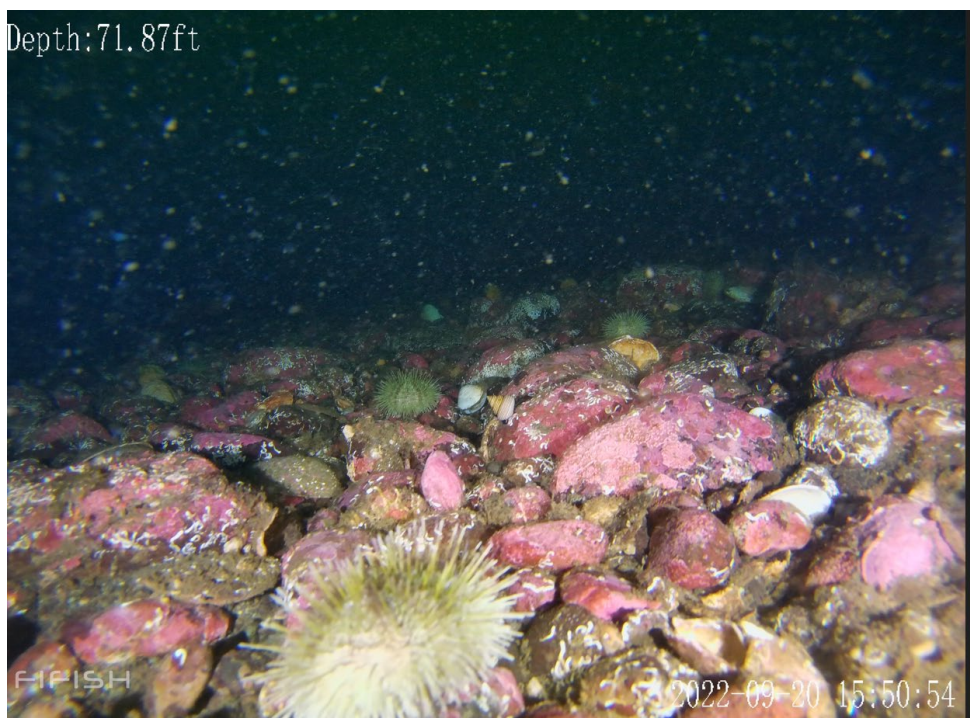
- No macro algae
- Photo taken without light to give wider/broader view



- No macro algae
- Sea star (various)
- Green urchin



- No macro algae
- Photo taken without light to give wider/broader view



- No macro algae
- Green urchin
- Clam

Depth:71.51ft



- No macro algae
- Clam
- Scallop