THE EFFECT OF HUMAN INTERFERENCE ON THE GROWTH OF MICROBIAL COMMUNITIES AT THE BIG SPRING, HOT SPRINGS STATE PARK, THERMOPOLIS, WY

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INBRE

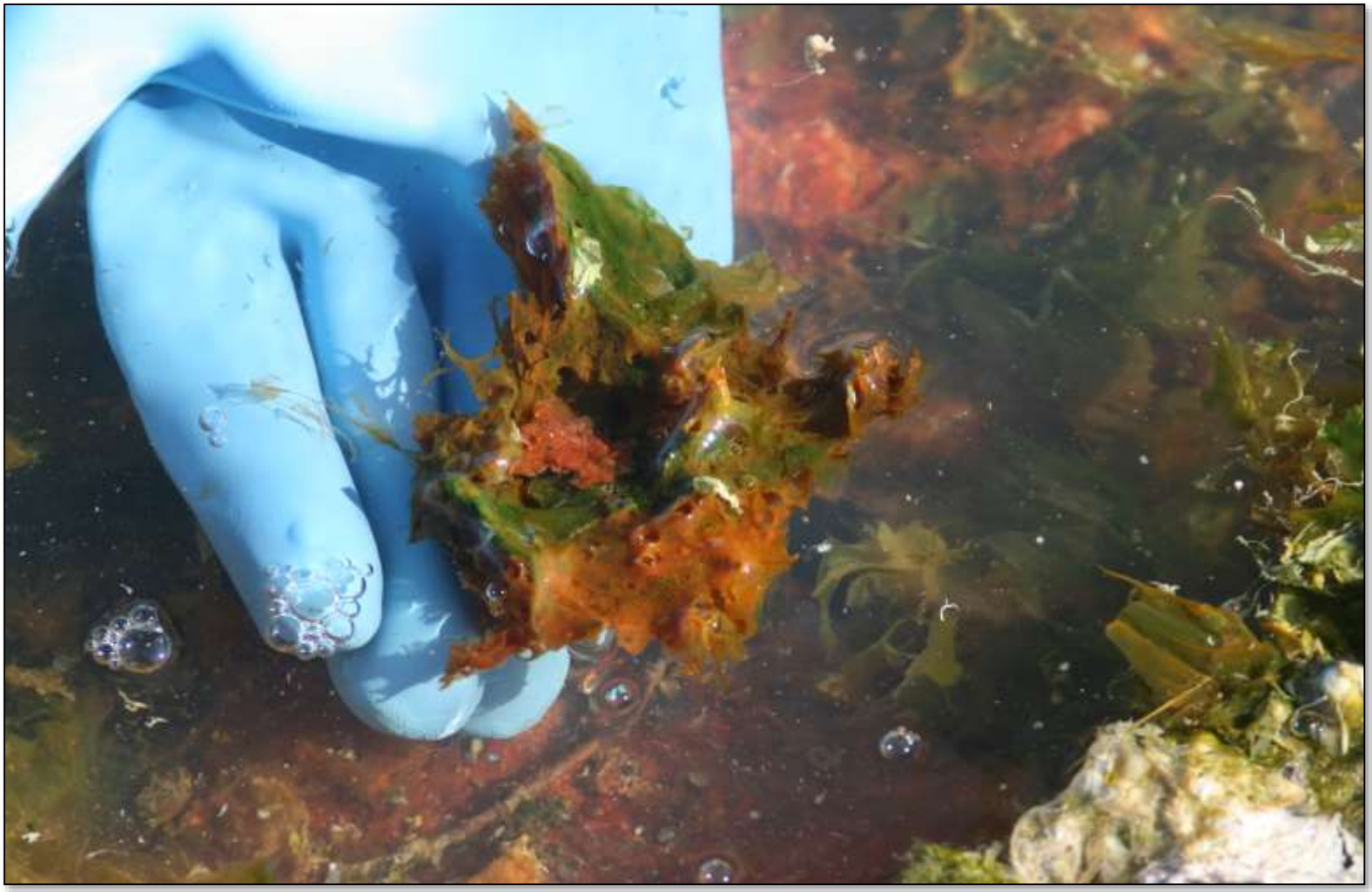
Central Wyoming College

Hot Springs State Park

The Big Spring

The Channel

Mat Formation



Temperature/Microbial Zones of Hot Springs

- **High Temperature Zone (>73°C)**
- **Synechococcus-Chloroflexus Zone (73-60°C)**
- **Phormidium zone (60-30°C) (Thermopolis)**

morphologies include:

o Active streams: longitudinal bacterial streamers

o Flat rubbery bacterial sheets: complex bacterial community, including *Mastigocladus laminosus*, which can tolerate freezing and dessication

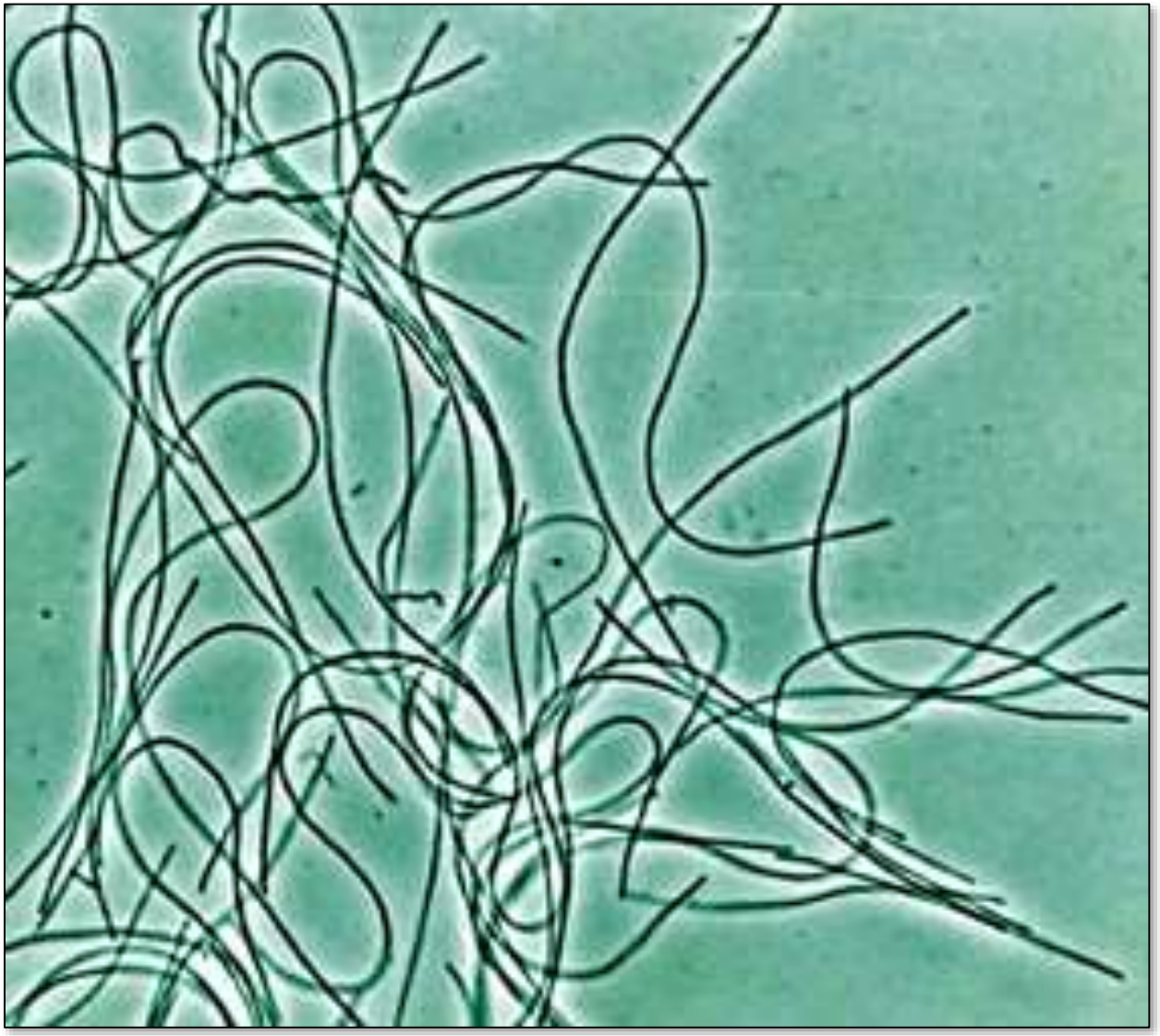
o Terrace pools: smalls subaqueous conical stromatolites and flat-topped stromatolites, both are varieties of *Phormidium*

o Terrace fronts: thick rubbery mats

Synechococcus and chloroflexus are present in this zone

- **Calothrix zone (<30°C)**

Adam M Phillippy



Chloroflexus aurantiacus. From the Sylvia Herter, Doe Joint Genome Institute

Long Filamentous Growth

July 15th 2010

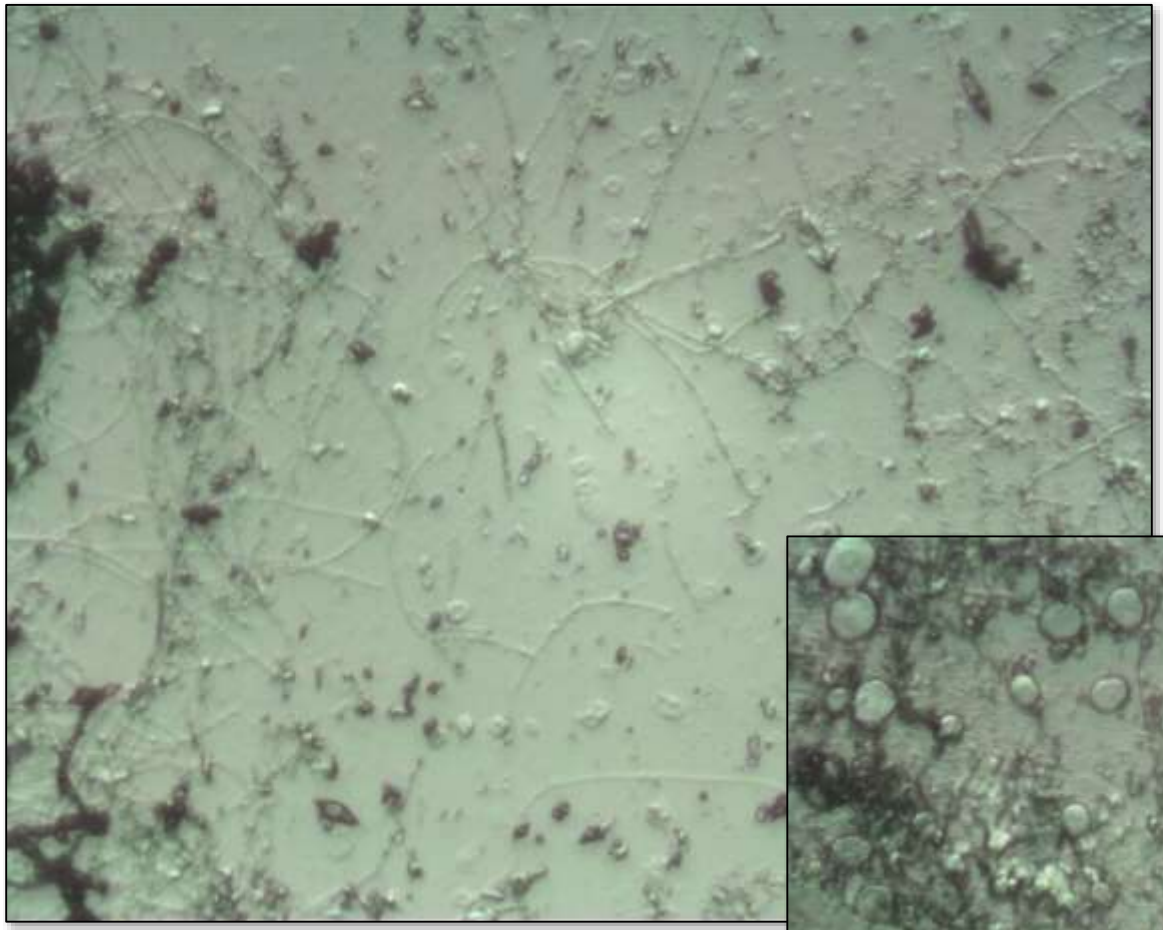
Before

After

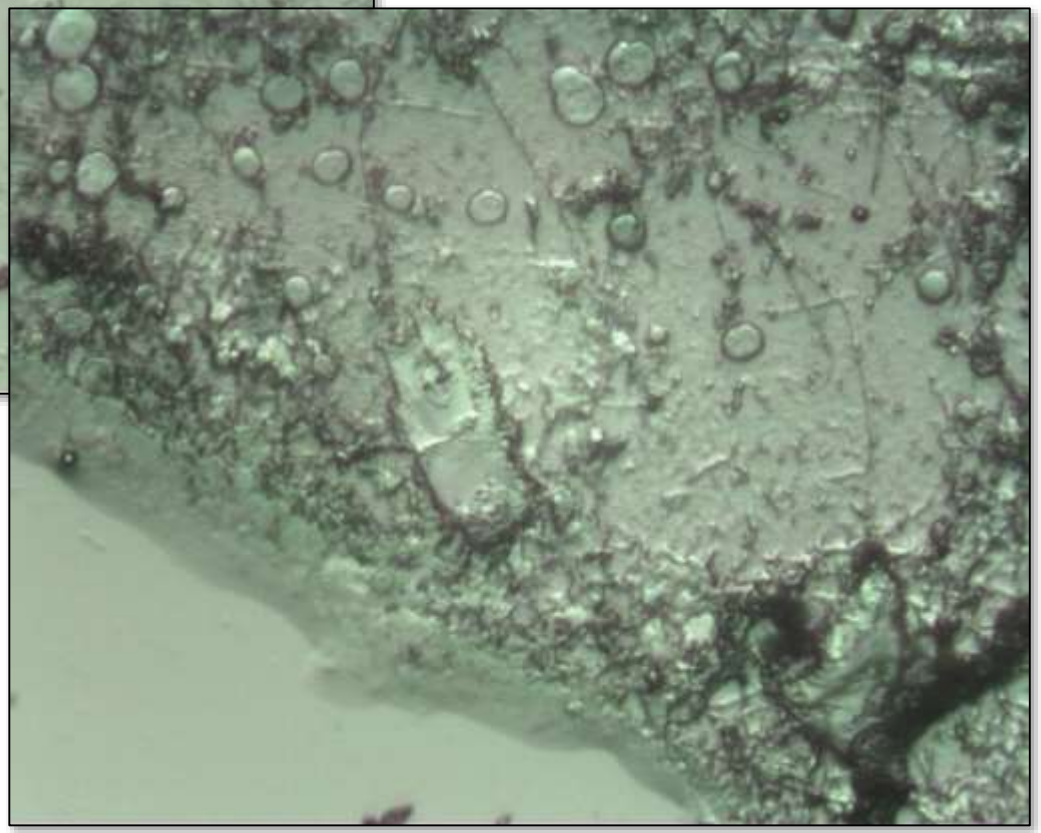
July 30th 2010

First collection

Sampling

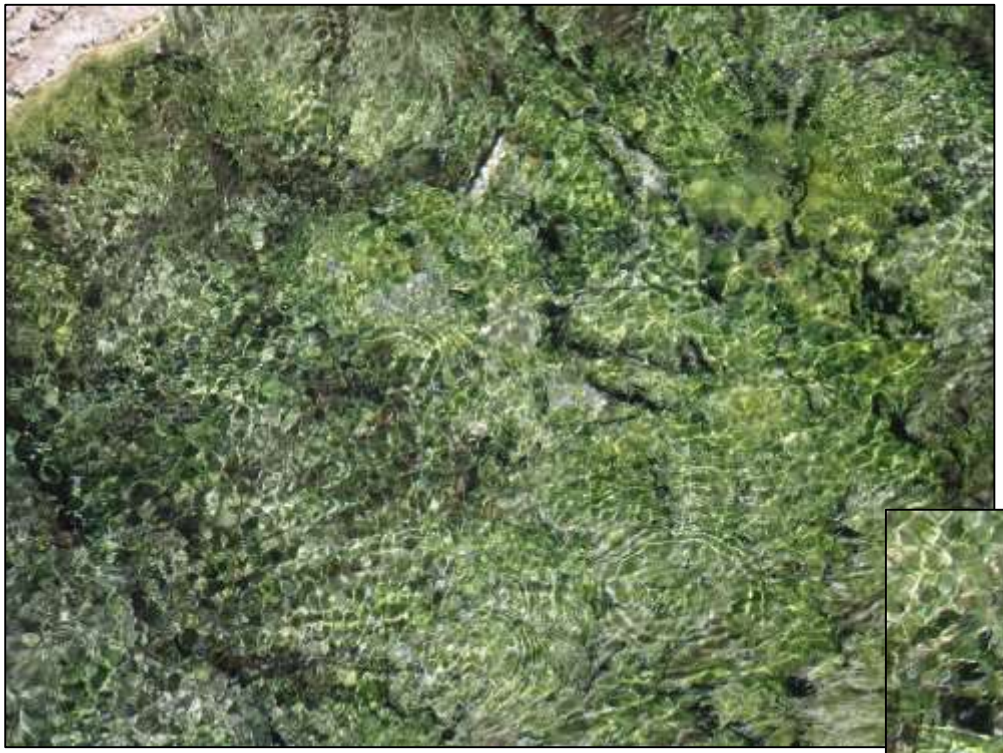


100X magnification

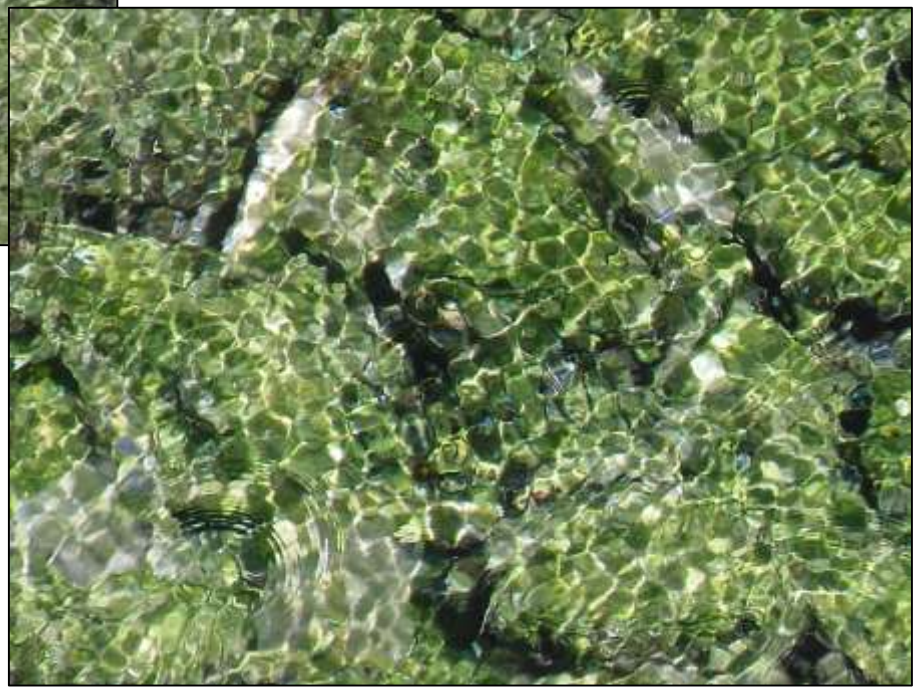


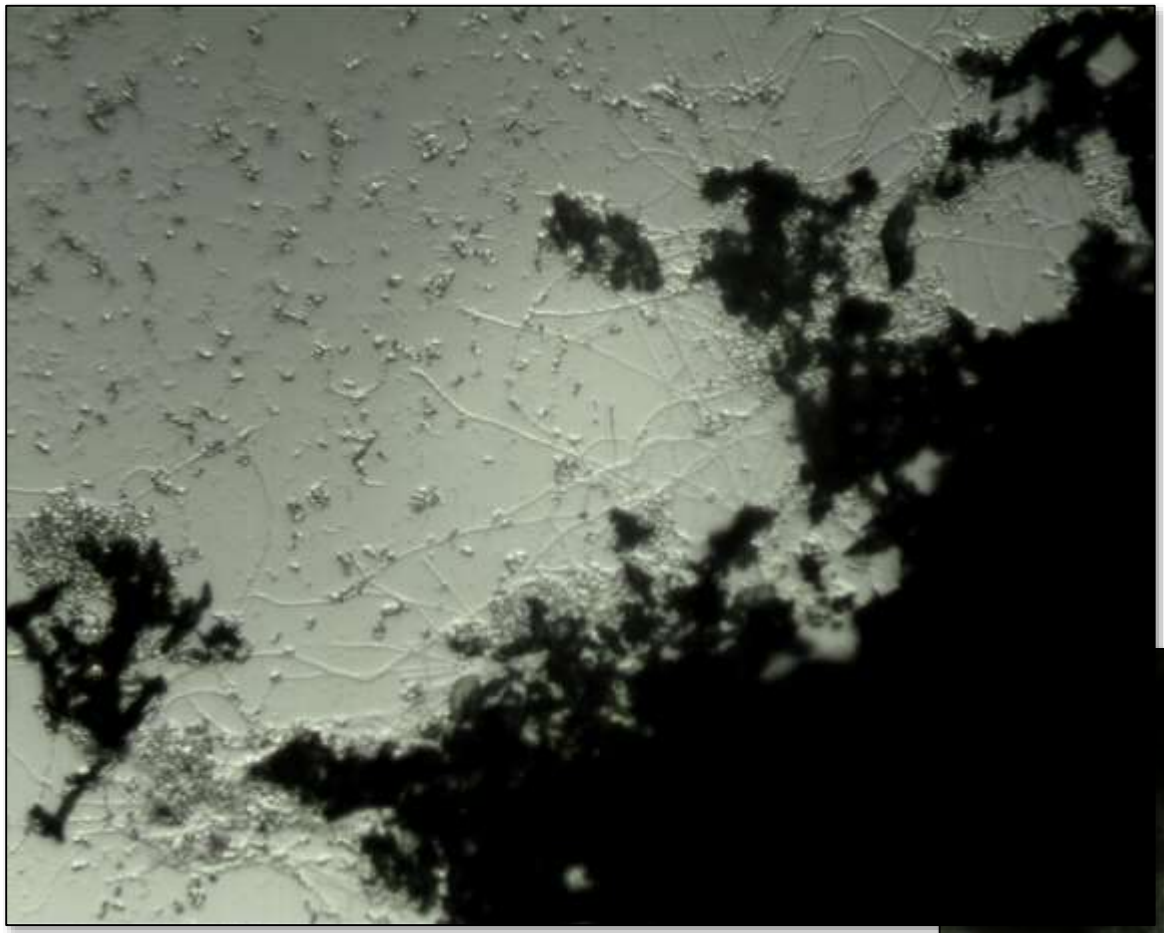
400X magnification

August 18th 2010



Second Collection





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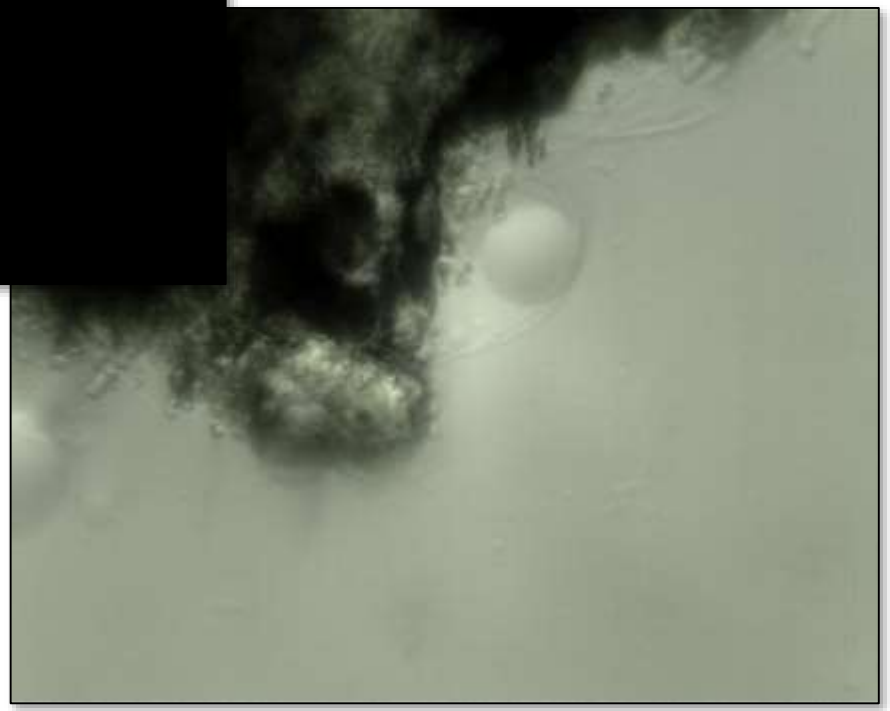
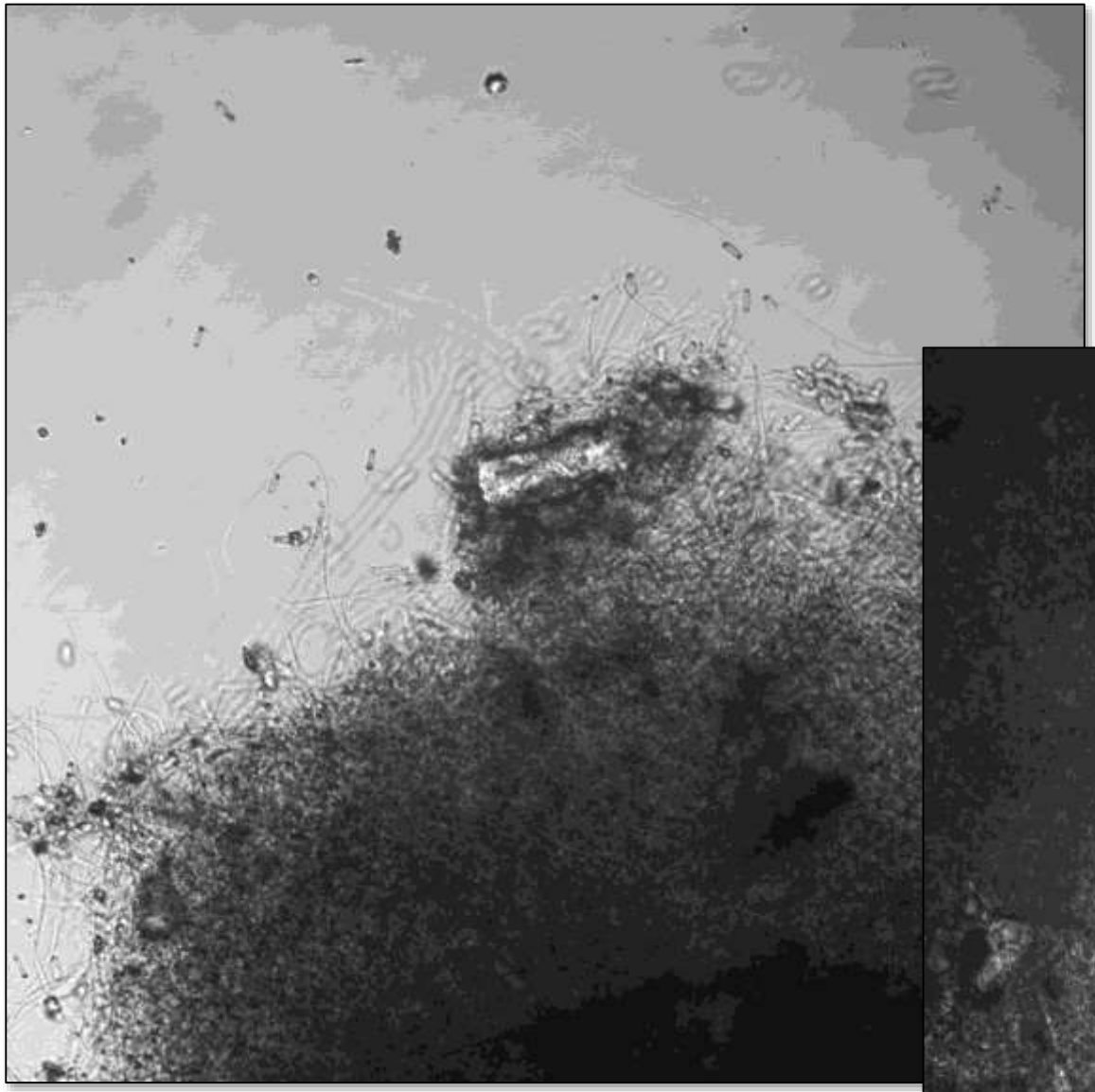


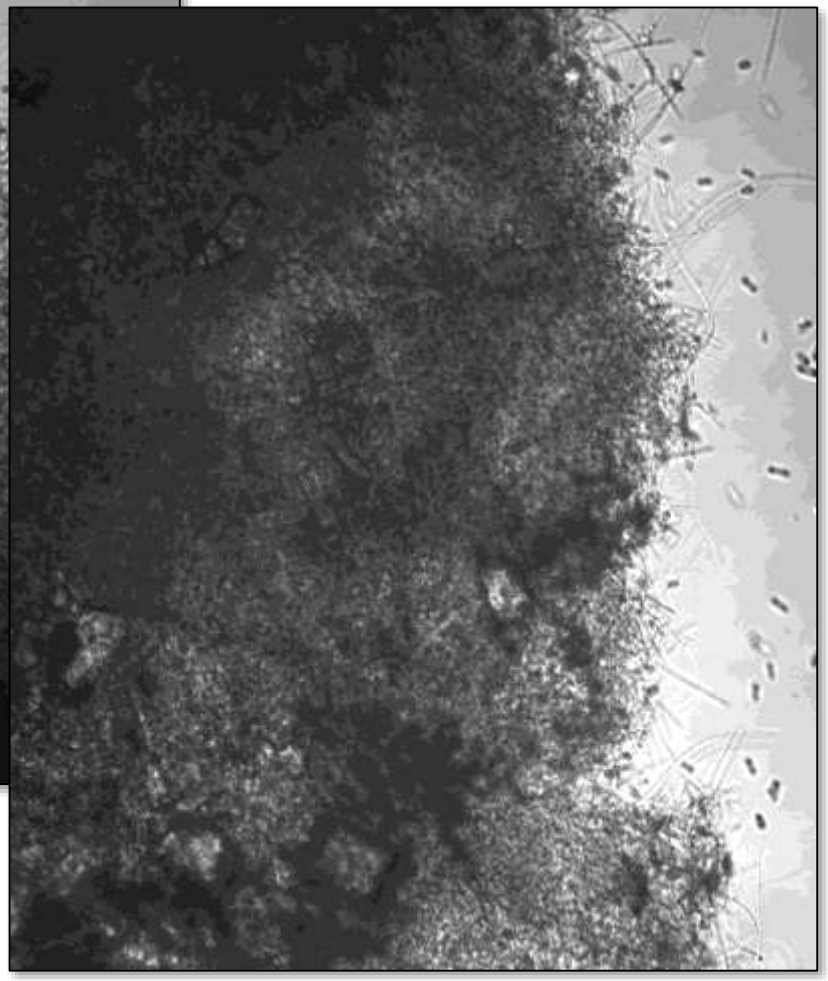
400X magnification

September 6th 2010

Third Collection

400X magnification





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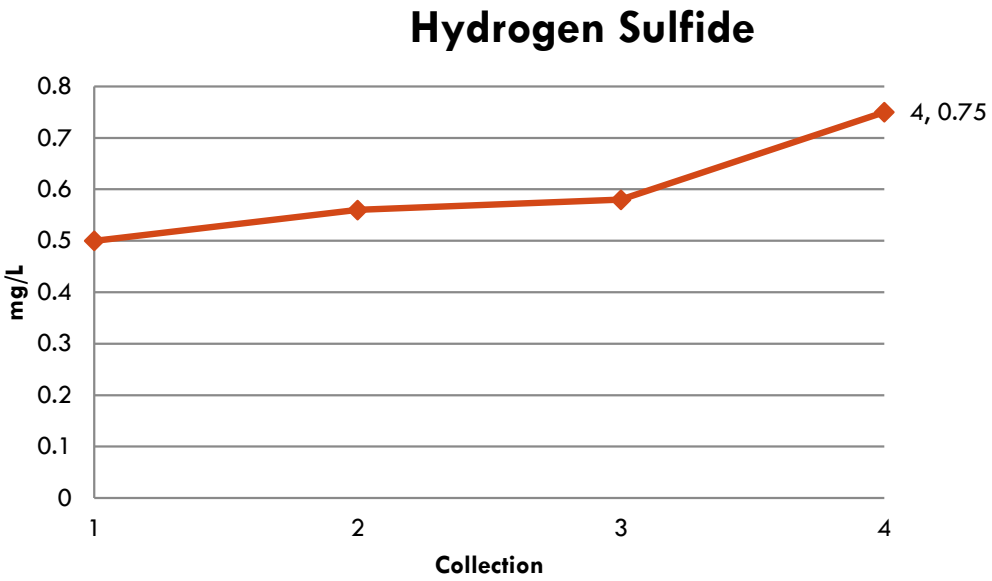
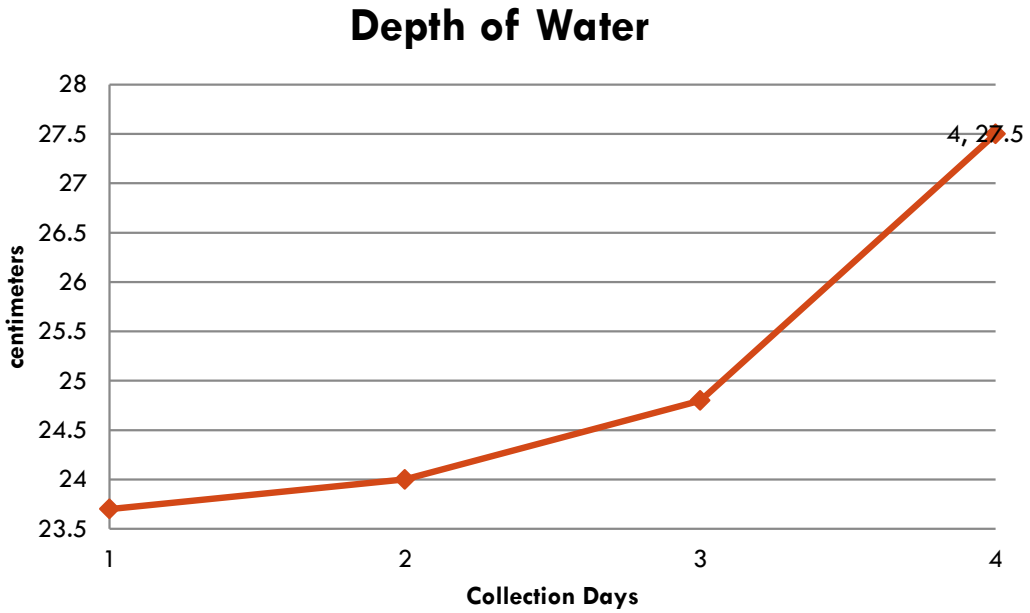
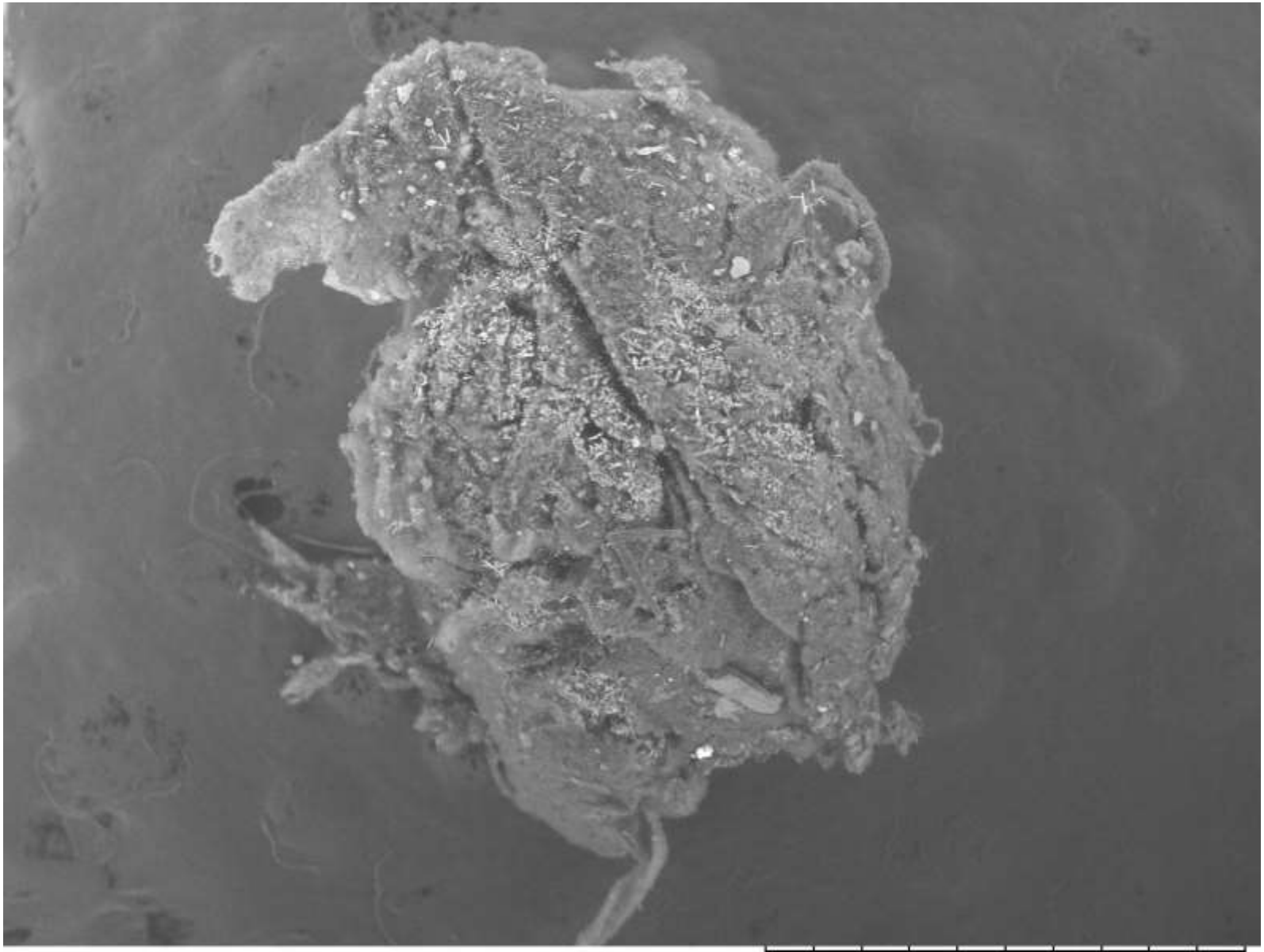
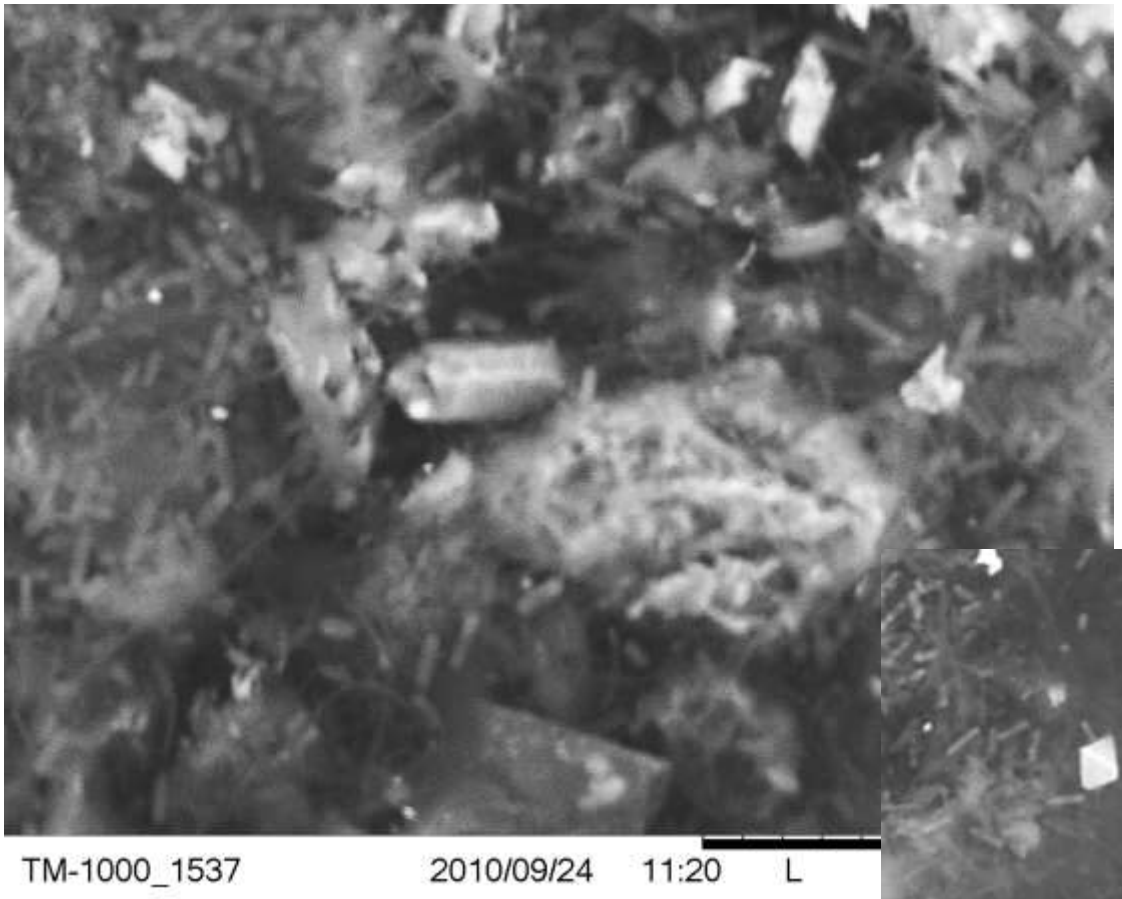
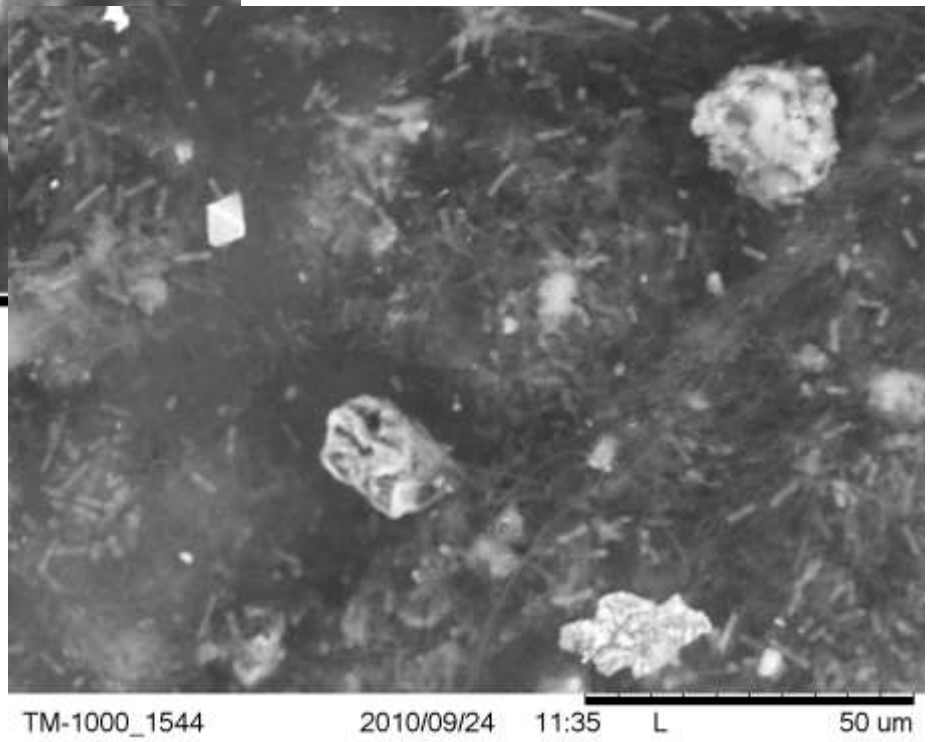

Hydrogen Sulfide
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
4, 0.75
1
2
3
4
Collection

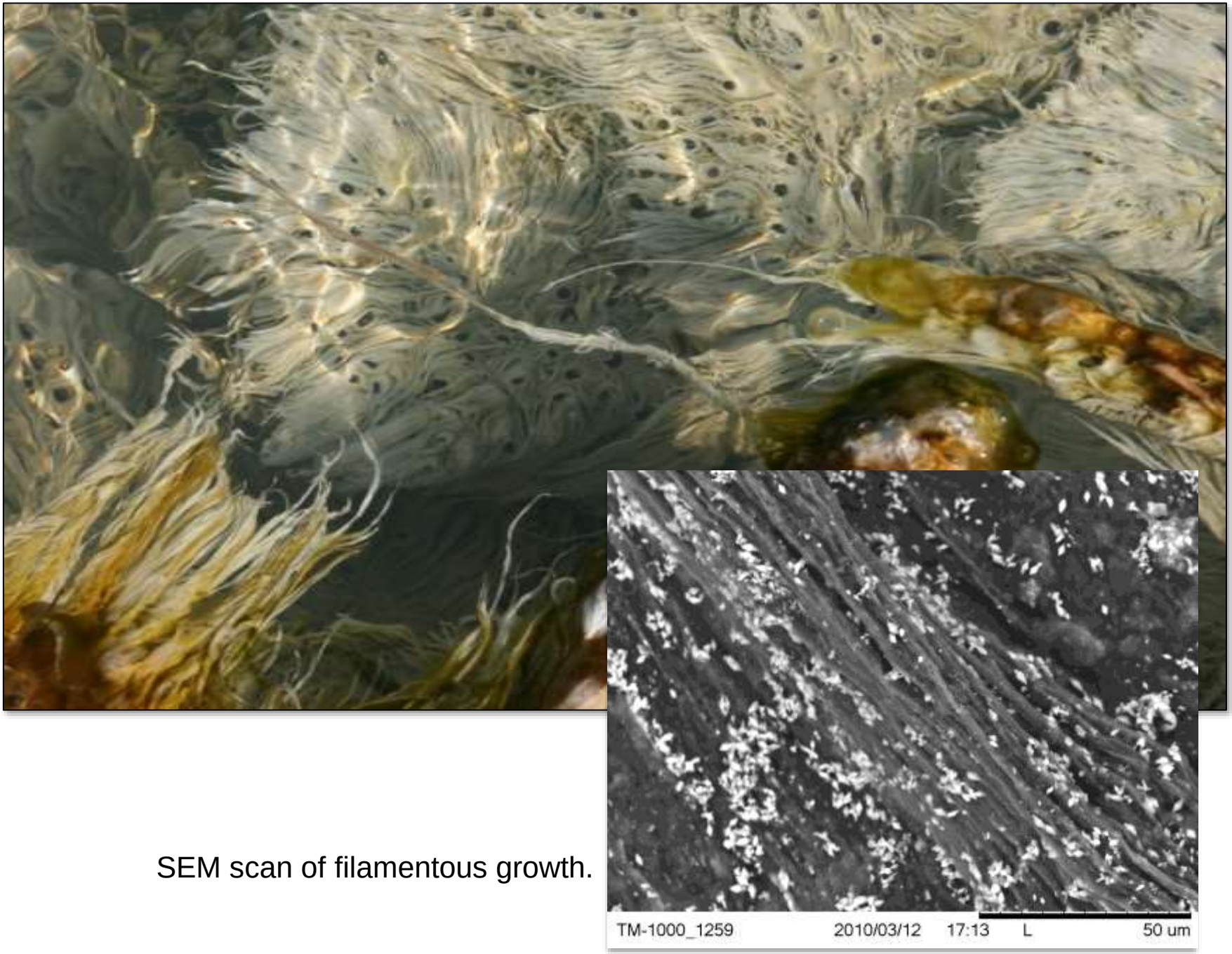

Depth of Water
28
27.5
27
26.5
26
25.5
25
24.5
24
23.5
centimeters
4, 27.5
1
2
3
4
Collection Days


TM-1000_1532
2010/09/24
11:09
L
1 mm

SEM scans of mat sample

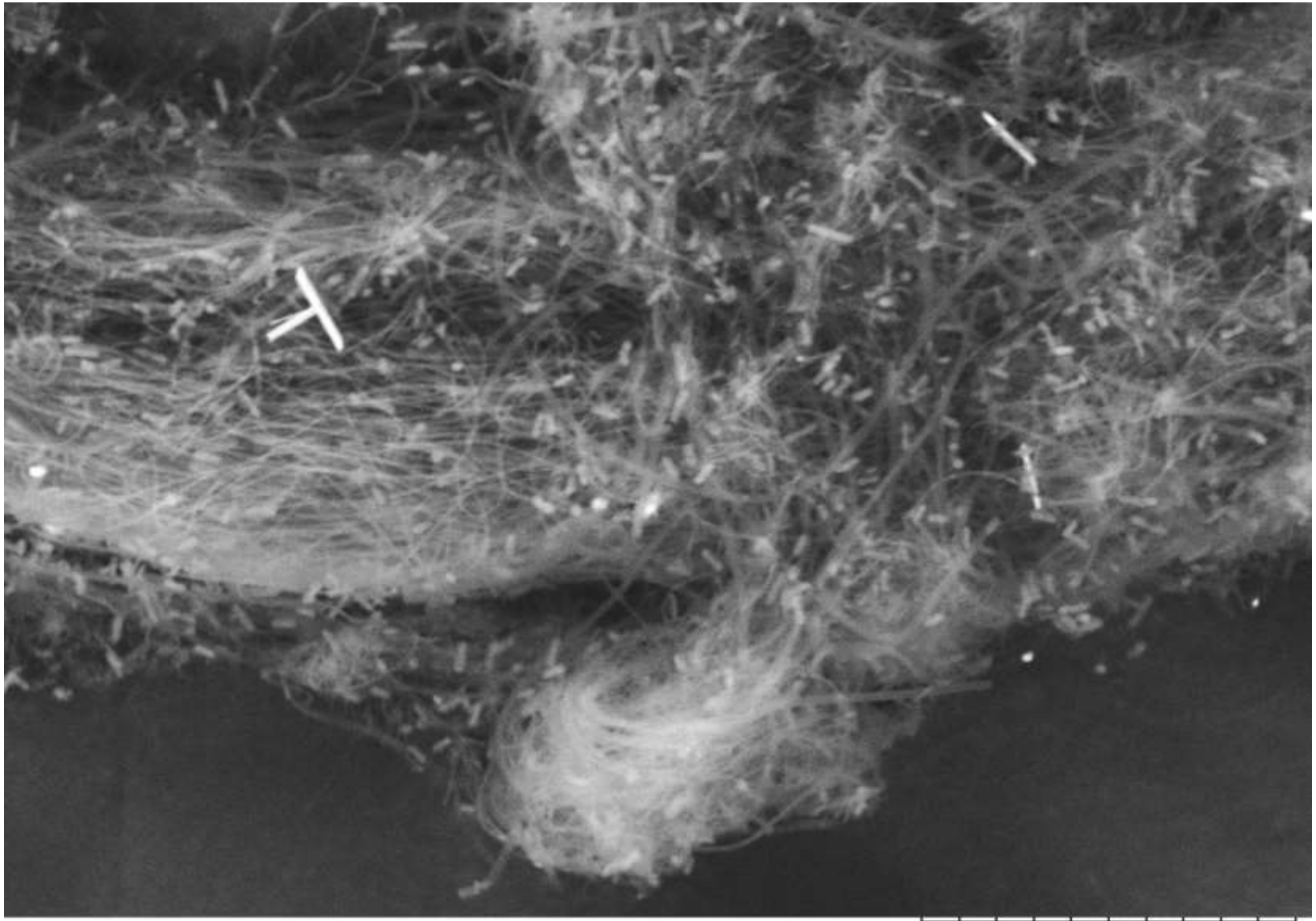






SEM scan of filamentous growth.


TM-1000_1562
2010/09/24
12:39
L
30 um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2010/09/27
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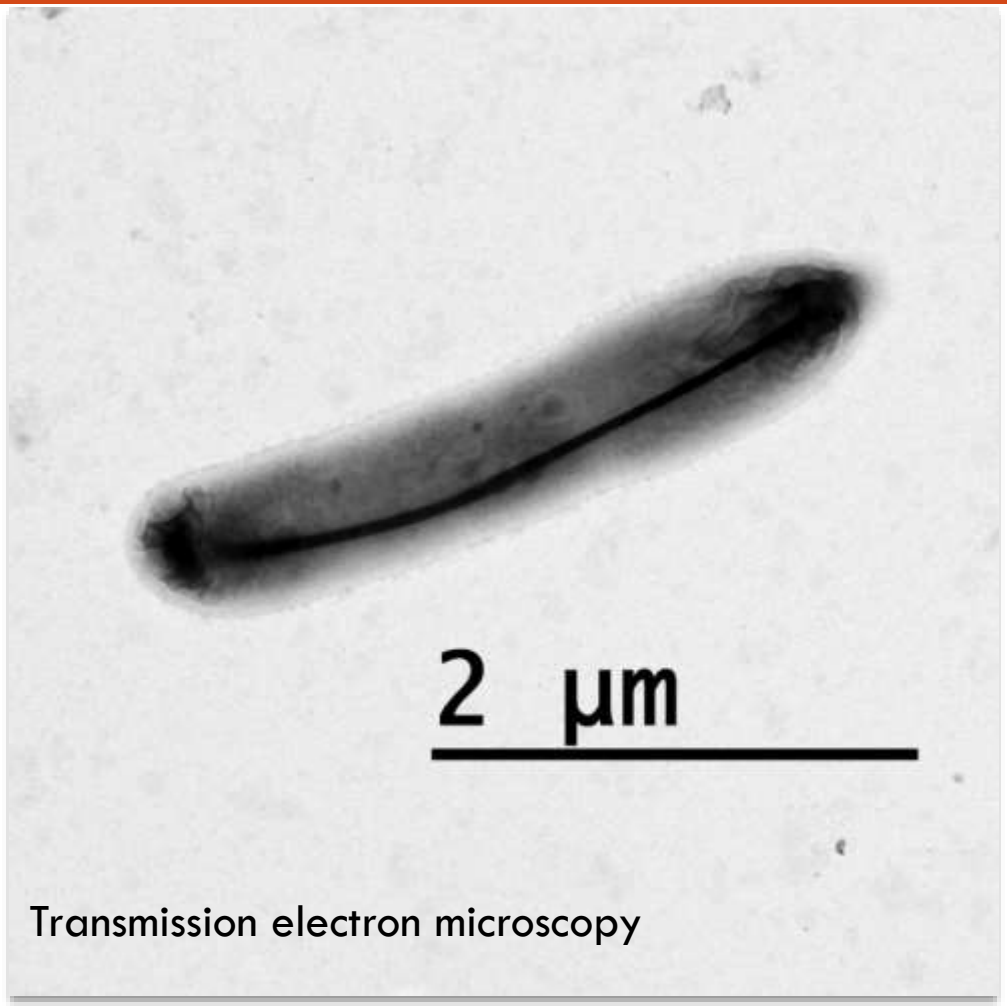
50 um

Current and Future Research



Transmission electron microscopy

UBO - unidentified bacterial object

RESOURCES

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Acknowledgements

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