

1928-1977

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ORIGINAL LOG BOOK OF THE--"FISH HAWK"

UNITED STATES FISH COMMISSION

STATION NUMBERS

*Apr. 1898*

Numbers 1928 to 1977

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 1 - 1928  
 Date, Oct. 26 - 28  
 Time of day, 11.40 AM of tide. 1<sup>st</sup> 1/4 of flood  
 Locality, Narragansett Bay, R. I.  
 Exact position, Woods Point S.S. W. 1/4 W  
1 1/2 miles in.  
 Depth, 33 fathoms  
 Nature of bottom, Sand, shells  
 Dredging instrument used, Dredge  
 Direction of drift, N. E.; distance, 1/2  
 Temperature of air, 67° F therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, 61° "  
 Density at surface, 1.022 temp., 15° C  
 " at depth of fathoms, " "  
 " at bottom, 1.024 " 14.5° C  
 Number of salinometer, 7301 surface  
 Barometer reading, 29.81  
 State of sky, Overcast  
 Direction of wind, S. S. E; force, stiff - 10  
 Rain, Yes - Continuous & hard  
 Direction of surface current, with; force, 1 1/2 Knot  
 " of bottom " " ; force, "  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, U. S. Fish Commission  
 Name and rank of commanding officer, Lt Comdr.  
R. G. Sawcport, U.S.N.  
 Name and position of observer,  
Pharmacist J. A. Mulligan  
U.S.N.

NOTES RELATING TO STATION NO. 1

did important anchoring  
 at 9<sup>00</sup> am and with  
 Lt. H. C. Bumpsee of  
 Brown University &  
 Mr. J. B. Southwick, both  
 of the Rhode Island Fish  
 Commission, proceeded  
 around Bowen's Cove, to this  
 station. The S. E. wind  
 increasing in force, the  
 sea making it very rough  
 as to get the vessel great  
 deal of water and to  
 becoming so thick and  
 rainy to get bearings and  
 not perfectly only, the cast  
 of the dredge was later  
 the vessel was then steamed  
 around Pt. of Comauncald and  
 returned to the anchorage  
 of Newport: No boring  
 matter was brought up in  
 the dredge

Ordinary ship's thermometer, <sup>no. 7397</sup>  
 for air temperature used.

## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 2 1929  
 Date, Oct. 28 - 98.  
 Time of day, 9:20 am ; of tide, 3<sup>rd</sup> h. - ebb  
 Locality, Providence River R. I.  
 Exact position, Sacramento Pt. L. S x E. 56  
mile mag  
 Depth, 2 1/2 fms  
 Nature of bottom, Black mud.  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, drift ; distance, 1/8 mile  
 Temperature of air, 51.6 therm. No., 7397  
 " of surface water, 73.44  
 " at depth of fathoms, "  
 " at bottom, "  
 Density at surface, 1.017 temp., 17.5 C  
 " at depth of fathoms, "  
 " at bottom, 1.019 " 13 C  
 Number of salinometer, Surface 7301  
Bottom 7104  
 Barometer reading, 30.31  
 State of sky, Clear  
 Direction of wind, N. W. ; force, 2  
 Rain, No.  
 Direction of surface current, South ; force, .3 Knot  
 " of bottom " ; force,  
 Name of vessel, U. S. Fish Com.  
 Service to which attached, U. S. Fish Commission  
 Name and rank of commanding officer, St. Evens  
K. P. Carpenter, Master  
 Name and position of observer,

W. H. ...

NOTES RELATING TO STATION NO. 2

Put down of the beam travel  
with anchorage and drifted  
with current to this station  
(Sta. 2) where hauled up.  
The travel contained

Very many animals (Squilla)  
few Anas  
Volucres - in addition  
Many dead birds  
Many shells, etc.  
We skinned a few  
for bones

Anchorage A mag. N<sup>3</sup>/<sub>4</sub> W  
.62 miles from Sacoafra  
St.

RECORD OF DREDGING,  
TEMPERATURE AND DENSITY.

Station No. 3 1930  
 Date, Oct 25. - 1898  
 Time of day, 9.3 AM of tide, 5/8 low water  
 Locality, Providence River R.I.  
 Exact position, Sarrasin Pt. dt. S 3/4 E. 2 miles Mag.  
 Depth, 22' fath.  
 Nature of bottom, Black mud  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, S 45 E; distance, 5/8 mile  
 Temperature of air, 51 f therm. No., 7097  
 " of surface water, 13.2 " 75.0  
 " at depth of fathoms,  
 " at bottom, 23.5 " 73.0  
 Density at surface, 1.011 temp., 13.2  
 " at depth of fathoms,  
 " at bottom, 1.017 Bottoms - 70.29  
 Number of salinometer, Surface - 70.65  
 Barometer reading, 30.57  
 State of sky, Clear blue  
 Direction of wind, North; force, 5  
 Rain, no  
 Direction of surface current, N 1/2 E; force, .3 knot  
 " of bottom " " ; force,  
 Name of vessel, U.S. Fish Com. Hawk  
 Service to which attached, U.S. Fish Commission  
 Name and rank of commanding officer, R. G. [unclear]  
 Name and position of observer, [unclear]

NOTES RELATING TO STATION NO. 3

Put down 4 ft beam trawl about station 1 and dragged into current to this station (Sta 3) when hauled up. The trawl contained:

- Living forms - 1 *Uca* *mercuraria*
- 2 *Platyoides* *ocellatus*
- 6 Crayfish
- 1 *Eupagurus* *longicaudus*
- 1/2 pt. *Uca* *lineata*
- 1/2 pt. *Alpheidae*
- many small dead bugs.
- 1 *Stomatopoda* *duplex*
- Everything very dark & black.



RECORD OF DREDGING,  
TEMPERATURE AND DENSITY.

Station No. 4 1931  
Date, Oct. 26 - 98  
Time of day, 10.15 AM of tide, 3 3/4 hours of ebb  
Locality, Providence River R., I.  
Exact position, Lower part of No. 0 St x St 1/2 St  
300 feet Quay.  
Depth, 27 feet.  
Nature of bottom, Dark mud.  
Dredging instrument used, 1 1/2 beam trawl  
Direction of drift, S x E; distance, 1/2 mile  
Temperature of air, 57 f therm. No., 7397  
" of surface water, 62 c " 7344  
" at depth of fathoms, " 7320  
" at bottom, 62 c " 7300  
Density at surface, 1.007 temp., 62 c  
" at depth of fathoms, " 62 c  
" at bottom, 1.017 " 62 c  
Number of salinometer, 3032 301  
Barometer reading, 30.32 7049  
State of sky, Clear blue.  
Direction of wind, North; force, 2  
Rain, No  
Direction of surface current, S x E 1/2 E; force, .3 knots  
" of bottom " " : force,  
Name of vessel, U. S. F. S. S. S. Hawk  
Service to which attached, U. S. Fish Commission  
Name and rank of commanding officer, E. J. ...  
Name and position of observer, W. M. ...



NOTES RELATING TO STATION NO. 4

Pul down 7 ft beam trawl  
 in 12 ft water inside red  
 buoy No 10. Tacked out then  
 drifted with the current to  
 this station (4) when hauled up.  
 The trawl contained one <sup>large</sup> star  
 fish and.

- Wing - 1 Raja erinacea  
 1 Pseudopleuronectes americanus  
 1 Starfish  
 1 Sycotyphus  
 Several Balanus

Small Fungus, Siphon.

Numerous Trilinea

Several Crayon

Water holds many Peridinium

1 Panopeus.

1 Siphon

1 Mytilus

1 colony of Ulvassa with eggs.

# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

1932

Station No. 5

Date, Oct 28 - 1932

Time of day, 10:40 AM of tide, 4th hour of ebbs

Locality, Roman Pt. I.

Exact position, Cassaba Pt. Sta. NW 1/4 N.  
2.8 miles N.W.

Depth, 28.5 feet

Nature of bottom, fine sand

Dredging instrument used, 7 foot beam trawl

Direction of drift, S. x E 1/2 E.; distance, 3/10 mile

Temperature of air, 58 f therm. No., 7397

" of surface water, 53 =

" at depth of fathoms, "

" at bottom, 53 =

Density at surface, 1.008 temp., 13 C

" at depth of fathoms, "

" at bottom, 1.018 " 13 C

Number of salinometer, surface 301  
bottom 7006

Barometer reading, 30.33

State of sky, Clear blue

Direction of wind, North : force, 2

Rain, No

Direction of surface current, S. x E. force, .3 knots

" of bottom " : force,

Name of vessel U.S. F.B.S. Fish Hawk

Service to which attached, W. I. S. Fish. Museum

Name and rank of commanding officer, St. Lawrence

Name and position of observer, W. M. Wilson  
Observer

NOTES RELATING TO STATION NO. 5

Put trawl down near  
Sta. # and drifted with  
current to Sta. Station (5)  
when hauled up. The trawl  
contained

Many - Several quarts of *Thulinca*  
1 *Squilla*  
2 Small *Uca* *puerulus*  
Several *Balanus*  
Several *Crangon*  
Several *Stomatopoda*, a *hermit*  
Several *Cupressus*      *Gay. Rhyndakobolus*  
Dead shells *Uca*, *mya*

## RECORD OF DREDGING.

## TEMPERATURE AND DENSITY.

Station No. 6 1933  
 Date, Oct. 21 - 26  
 Time of day, 11.10 am; of tide, 4<sup>3</sup>/<sub>4</sub> hours of ebb  
 Locality, Bardonia River P.I.  
 Exact position, Sacramento R. at H. NW  $\frac{1}{4}$  N  
42 miles Nag.  
 Depth, 14 fathoms  
 Nature of bottom, fine mud  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, S. E.; distance, 1/2 mile  
 Temperature of air, 54<sup>f</sup> therm. No., 7397  
 " of surface water, 13.5<sup>c</sup> ..  
 " at depth of fathoms, ..  
 " at bottom, 14<sup>c</sup> ..  
 Density at surface, 1.007 temp., 13.5<sup>c</sup>  
 " at depth of fathoms, ..  
 " at bottom, 1.017 .. 12.5<sup>c</sup>  
 Number of salinometer, Bottom 7301  
 Barometer reading, 30.33  
 State of sky, Clear blue  
 Direction of wind, North; force, 2  
 Rain, no  
 Direction of surface current, S. E.; force, 4 knots  
 " of bottom " : force,  
 Name of vessel, U.S. Fish Hawk  
 Service to which attached, U.S. Fish Com.  
 Name and rank of commanding officer, St. Comdr.  
R. M. Sawyer USNavy  
 Name and position of observer, J. M. Williams  
Thorn actor

NOTES RELATING TO STATION NO. 6

Put trawls down near sta 5  
and drifted with current  
to this station (6), then hauled  
up. The trawls contained

Very

Callinectes

Small Felicia

Several Crangons

2 Pecks of solid Annelinea

1 Lime trita

2-3 Small Mya

1 Small Star fish.

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 7 / 1930  
 Date, Oct 28 - 1898  
 Time of day, 11:35 ; of tide, 5 hours of ebb  
 Locality, Providence River R. I.  
 Exact position, Fuller Pt. dt. N.O. E  $\frac{1}{4}$  N  
300 ft. mag.  
 Depth, 31.5  
 Nature of bottom, Blue mud  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, N.E. ; distance,  $\frac{3}{16}$  miles  
 Temperature of air, 50° F therm. No., 7397  
 " of surface water, 14° C ..  
 " at depth of fathoms ..  
 " at bottom, 14° C ..  
 Density at surface, 1008 temp., 14° C  
 " at depth of fathoms, ..  
 " at bottom, 1018 .. 14° C  
 Number of salinometer, Surface 7001  
Bottom 7000  
 Barometer reading, 30.33  
 State of sky, blue  
 Direction of wind, North ; force, 2  
 Rain, No  
 Direction of surface current, S.S.E. ; force, 1.5 knots  
 " of bottom " ; force,  
 Name of vessel, U.S. Fish Hawk  
 Service to which attached, U.S. Fish Commission  
 Name and rank of commanding officer, Dr. Cooper  
R. S. Carpenter, Surgeon  
 Name and position of observer, W. H. Miller  
Assistant

NOTES RELATING TO STATION NO. 7

Put trawl down near station  
and drifted with current  
to the station when hauled up  
The trawl contained one small  
star fish and

- Wing      Thulea  
            Thunus Hypocentrus.  
            "      Coryphæus  
            1 Platymachus scutellatus.  
            1 herichthys -  
            Mullus less abundant than at  
" 7  
            Cephalopoda -



# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 8 1935  
 Date, Oct 28/98  
 Time of day, 2:55 PM; of tide, 3<sup>d</sup> hr. of flood  
 Locality, Long Beach, Long Beach, Cal.  
 Exact position, Long Beach Pt. at. Ho.,  
NW x N 1 3/8 miles mag.  
 Depth, 4 to 6 fms.  
 Nature of bottom, Mud  
 Dredging instrument used, 7 ft. beam trawl  
 Direction of drift, SE; distance, 1/2 mile  
 Temperature of air, 57.6 therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, 13.0 "  
 Density at surface, 1.020 temp., 13.5  
 " at depth of fathoms, " "  
 " at bottom, 1.020 " 13.0  
 Number of salinometer, 7049  
 Barometer reading, 30.30  
 State of sky, cloudy - fair  
 Direction of wind, NE; force, 3  
 Rain, No -  
 Direction of surface current, N. by E; force, 3 knots  
 " of bottom " " ; force, " "  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, U. S. Fish Comm.  
 Name and rank of commanding officer, LT. Comdr.  
 Name and position of observer, H. S. ...

NOTES RELATING TO STATION NO. 6

2 *Lygus* *quilla* ~

2 *Raja* *crucata* -

3 *Callinectes* -

2 dry leaf *Staes* -

1 large *Lygus*.

Several *Clidias* *phalaena*.

1 *Pala* *hulica*.

1 *Bothus* *maculatus*.

1 *Empidonax* *longirostris* -

Several *Tritia* *trinitata*

1 *Panopeus*.

10 *Lygus*.

Several *Blacus* *inermis*.

1 *Lygus* *quilla*.

Several *Tritia* *trinitata*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 9 . 1936  
 Date, Oct. 28 - 95  
 Time of day, 3.55 PM of tide, 4<sup>th</sup> hr. of flood.  
 Locality, Northampton Bay, Rd  
 Exact position, Conamicut det. dt. H.  
N x W  $\frac{1}{2}$  W 2 1/4 miles N. by.  
 Depth, 3  $\frac{1}{2}$  to 4  $\frac{1}{2}$  fms.  
 Nature of bottom, quartz  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, E. S. E ; distance, 1/8 mile  
 Temperature of air, 50° f therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.019 temp., 13.5<sup>c</sup>  
 " at depth of fathoms, " "  
 " at bottom, 1.020 " 13<sup>c</sup>  
 Number of salinometer, surface 7341  
bottom 7301  
 Barometer reading, 30.30  
 State of sky, Overcast  
 Direction of wind, NE ; force, 2  
 Rain, no  
 Direction of surface current, NE ; force, 3 knots  
 " of bottom " ; force, "  
 Name of vessel, U.S. Fish Com.  
 Service to which attached, U.S. Fish Commission  
 Name and rank of commanding officer, W. G. Lawrence  
 Name and position of observer, R. W. Kellogg  
Surgeon

NOTES RELATING TO STATION NO. 9

1 Star fish

*Cancer Irroratus*

*Cistodius gouldii*

*Eudleura, Chudata*

*Crangon vulgaris*

*Mullus surmuletus*

*Tritia trivittata*

*Cerastoderma*

*Naldia limatula*

*Cidophora*

# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. *10* 1937  
 Date, *Oct 31 1898*  
 Time of day, *11-am* ; of tide, *3 hours ebb*  
 Locality, *Harpooners Bay*  
 Exact position, *Below Tark light N E. x E 1/4 E*  
~~*1.75 mile distant from*~~  
 Depth, *15 fathoms*  
 Nature of bottom, *fine sand*  
 Dredging instrument used, *7 foot beam trawl*  
 Direction of drift, *S x W 1/4 W* ; distance, *1/2 mile*  
 Temperature of air, *57 Fahr.* therm. No., *7397*  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, *56* " "  
 Density at surface, *1.024* temp., *12.6°*  
 " at depth of fathoms, " "  
 " at bottom, *1.024* " *13.0°*  
 Number of salinometer, *both obs. 7104*  
 Barometer reading, *29.77*  
 State of sky, *Clear blue & cloudy*  
 Direction of wind, *W. Dr.* ; force, *4*  
 Rain, *No -*  
 Direction of surface current, *SE W.* ; force, *3/10*  
 " of bottom " ; force, "  
 Name of vessel, *U. S. F. C. S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *St. Comdr.*  
*R. G. Davenport, US Navy*  
 Name and position of observer,  
*J. S. Milligan*  
*Permanist, US Navy*

NOTES RELATING TO STATION NO. \_\_\_\_\_

Nothing in travel  
Travel fouled.

## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 11<sup>th</sup> 1938  
 Date. Oct. 31 - 1898  
 Time of day, 11.20<sup>Am.</sup> : of tide, 3 hr. 20 m of ebb.  
 Locality, Narragansett Bay  
 Exact position, Beaver-tail light, N.E. x E 1/2 E,  
~~1.12 mag. 1/2 mile from light, N x N. 45 W. 1/2 mile.~~  
 Depth, 12 fathoms  
 Nature of bottom, Sand  
 Dredging instrument used, 10 foot beam trawl.  
 Direction of drift, N. 3/4 N : distance, 1/8 mile  
 Temperature of air, 53° Fahr. therm. No., 7897  
 " of surface water, ..  
 " at depth of fathoms, ..  
 " at bottom, ..  
 Density at surface, 1.022 temp., 12.7°  
 " at depth of fathoms, ..  
 " at bottom, 1.024 .. 13.4°  
 Number of salinometer, both obs. 7104  
 Barometer reading, 29.77  
 State of sky, Blue - cloudy  
 Direction of wind, N. W. ; force, 4  
 Rain, No  
 Direction of surface current, 0.2 W. ; force, 3/10  
 " of bottom .. ; force, ..  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr,  
 K. G. Sweeney, USNavy  
 Name and position of observer,  
 J. D. Milligan  
 Pharmacist, USNavy



NOTES RELATING TO STATION NO. 11

2 Small maroon colored s. tops

2 *Squilla* (common)

2 *Squilla* (large)

5 Small fish ~~probably~~ Silver hake

*Tritia*

*Scud bivalve*

Hermit crab. *Limacina*

Most of the shells were inhabited

by *Limacina*

3 *Crangon vulgaris*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 12 1939  
 Date, Oct. 31 - 1898  
 Time of day, 12.05 P.M.; of tide, 4 hours ebb.  
 Locality, Massachusetts Bay  
 Exact position Beacon Hill bearing, N. E. E. 2.37  
~~1/2 mile from Beacon Hill, N. E. E. 1 mile from~~  
 Depth, 12 fathoms  
 Nature of bottom, Sand  
 Dredging instrument used, 10 feet beam trawl  
 Direction of drift, P. N. W.; distance, 3/8 of mile  
 Temperature of air, 53 Fahr., therm. No., 7397  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, ..  
 Density at surface, 1.022 temp., 13.4  
 " at depth of .. fathoms, ..  
 " at bottom, 1.023 .. 13.6°  
 Number of salinometer, with obs 7104  
 Barometer reading, 29.74  
 State of sky, Cloudy  
 Direction of wind, N. W.; force, 4  
 Rain, No  
 Direction of surface current, D. O. W.; force, 3/10  
 " of bottom ..; force ..  
 Name of vessel, U. S. F. C. D. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr.,  
R. G. Davenport, U. S. Navy.  
 Name and position of observer,  
J. M. Milligan  
Pharmacist, U. S. Navy

- 27 Ogunnill lake -  
 about 7 by young silver hake  
 4 *Merluccius floundrus*  
 1 4 spotted " "  
 1 large silver hake  
 4 med. " "  
 15 small skates  
 1 barn-door "  
 3 spine fish  
 2 horn-like crabs  
 2 *Cancer* ~~inornatus~~, borealis  
 3 " " young -  
 1 blue crab  
 2 large star fish, four,  
 5 small purple star (?)  
 Some kelp, dulse.  
 1 young sea urchin  
 3 tritina  
 Hydroid  
 3 *Chironomus*  
 few *Astyris* on sea weed,  
 1 *Neidibranchia*.

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 13 1900  
 Date, Oct. 31 - 1898  
 Time of day, 1:35 pm : of tide, 5 1/4 hours ebb  
 Locality, Warrigamutt Bay,  
 Exact position Beaver Tail light N.E. 1/4 N. 2.7  
~~miles 7 from at 7 pm Dist. 7 1/2 N. 1/2 E. 1/2 N.~~  
 Depth, 99 feet  
 Nature of bottom, Clayey, sticky sand  
 Dredging instrument used, 10 feet beam trawl  
 Direction of drift, E x N : distance, 1/2 mile  
 Temperature of air, 56 Fahr therm. No., 7397  
 " of surface water, " "  
 " at depth of  fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.022 temp., 13°  
 " at depth of  fathoms, " "  
 " at bottom, 1.024 " 14°  
 Number of salinometer, 7104  
 Barometer reading, 29.72  
 State of sky, 1 Blue - cloudy  
 Direction of wind, N. N. W : force, 1  
 Rain, No  
 Direction of surface current, S. D. W : force, 2/10  
 " of bottom " : force, "  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, St. Comdr.  
R. G. Davenport. US Navy  
 Name and position of observer,  
J. D. Milligan  
Pharmacist US Navy

NOTES RELATING TO STATION NO. 13

1 young cusk -

2 *Agonostomus* ~~lake~~

1 *Arctostomus* ~~lake~~ (egg case?)

7 *Cancer* ~~irregularis~~ *Borealis*

few small " probably this year

7 *Jonas* ~~crabs~~

2 purple star

18 small - ~~in~~ *margin*

7 *Urechis*

1 *Urechis* *Lucina* *philosa*

1 *Urechis* (*piece*)

1 *Urechis*

few *Caprellas*

few *Antia* shells occupied by *Leptocarpus*

1 *Gammarid*

1 *Parasitic* *Leptod*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 14 - 1941  
 Date, Oct 31 - 1898  
 Time of day, 9, 20 pm: of tide, low water.  
 Locality, Narragansett Bay  
 Exact position, Pt. Judith N x S 1/2 S. <sup>3.25</sup> ~~1/2~~ miles  
~~mag. 70.71 S. 1/2 miles~~  
 Depth, 19 1/2 fathoms  
 Nature of bottom, Sticky, sandy clay  
 Dredging instrument used, 10 foot beam trawl  
 Direction of drift N. E. W.: distance, 1/2 mile  
 Temperature of air, 55 Fahr therm. No., 7097  
 " of surface water, " "  
 " at depth of  fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.022 temp., 13.1°  
 " ~~at depth of~~ fathoms, " "  
 " at bottom, 1.0235 " 13.3°  
 Number of salinometer, both obs, 7104  
 Barometer reading, 29.76  
 State of sky, Blue - Cloudy  
 Direction of wind, N. N. W.; force, 4  
 Rain, No  
 Direction of surface current, 0: force, 0  
 " of bottom " : force, "  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, St. Comdr.  
R. S. Davenport USN  
 Name and position of observer, J. D. Sullivan  
Pharmacist USN

NOTES RELATING TO STATION NO. 14

- 47 Maroon Star fish.
- 7 Skates Erinaceus
- 1 " spotted -
- 1 shrimp - red striped -
- 1 small silver hake
- 1 ~~small~~ flounder, had parasites
- 1 ~~small~~ silver hake.
- 1 squirrel "



# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 15 - 1902  
 Date, Oct. 31 - 98  
 Time of day, 3.00 pm : of tide, 3/4 hour flood  
 Locality, Narragansett Bay  
 Exact position, 7 1/2 miles S. of light  
~~1/2 mile~~ Dr. Judith St. S. 1/2 S. 1/8 miles 1.62  
mag  
 Depth, 13 1/2  
 Nature of bottom, hard sand  
 Dredging instrument used, 10 foot beam trawl  
 Direction of drift, N. O. N. ; distance, 1/2 mile  
 Temperature of air, 54 therm. No., 7397  
 " of surface water, ..  
 " at depth of fathoms, ..  
 " at bottom, ..  
 Density at surface, 1022 temp., 13.5  
 " ~~at depth of~~ fathoms, ..  
 " at bottom, 10235 .. 13.5  
 Number of salinometer, 7104  
 Barometer reading, 29.78  
 State of sky, blue - cloudy  
 Direction of wind, N. W. ; force, 4  
 Rain, no -  
 Direction of surface current, N. E. ; force, 1/10  
 " of bottom " : force,  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, St. Comm'r  
R. H. Thompson  
 Name and position of observer,  
J. Milligan  
Chesapeake Bay

Several Caprellida.

- 1 *Pecten tenuis costata*, Mur.
- 1 *Cancer ~~bonalis~~, bonalis*
- 3 "young."
- 1 Empty egg case large shell
- 2 small crinella.
- 1 small worm.
- 1 small bass - (?)
- 6 red striped shrimp.
- 1 young sea urchin.
- 1 very large cummer.
- 2 small flounder (small)
- 4 *Agurru* hare
- 2 empty shell *modiola modiolus*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 16 - 1943  
 Date, Oct. 31 - 94  
 Time of day, 3.35 PM; of tide, 1/2 hour of flood  
 Locality, Narragansett Bay  
 Exact position, Pt. Judith N. 77. 1/4 W. 2 miles <sup>mag.</sup>  
~~Brenton N. 8. 1/2 W. 5 miles~~  
 Depth, 8 8/10 fathoms  
 Nature of bottom, hard mud  
 Dredging instrument used, 10 fath beam trawl  
 Direction of drift, S. W. x N. W.; distance, 5/8 mile  
 Temperature of air, 54 Fahr therm. No., 7397  
 " of surface water, " "  
 " at depth of " fathoms, " "  
 " at bottom, " "  
 Density at surface, 1022 temp., 13°  
 " at depth of " fathoms, " "  
 " at bottom, 1024 " 13.1  
 Number of salinometer, 7104  
 Barometer reading, 29.79  
 State of sky, Blue - cloudy  
 Direction of wind, N. N. W.; force, 4  
 Rain, No  
 Direction of surface current, N. E; force, ✓  
 " of bottom " " : force, "  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Dr. Comdr.  
R. G. Davenport USN  
 Name and position of observer,  
J. J. McGowan  
Pharmacist, USN

- From 2 to 3 doz small purple star fish  
 1/2 doz small squid  
 6 *Eupagurus branchiatus*  
 3 young oysters (?)  
 2 " sea worms  
 Abled on kelp.  
 1 *Eupagurus longicarpus*  
 1 *Porrotheca oysterium*  
 8 *Chironomus Pondicola* (?)  
 1 *Buccinum*  
 1 Fragment of sponge (?)  
 1 large *Pecten tunicostata*  
 1 med " "  
 2 small " "  
 2 empty shells of *Modiola Modiola*  
 1 large *Balanus* sp.  
 6 *Montia flammula*  
 18 *Squilla Hasea*  
 2 *Squilla* "  
 5 *Stelis* (*arenacea*)  
 2 " *Brown Dove*.

The 10 fath beam trawl was badly  
 torn & disabled during this case.  
 Presumably by rocks.

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RECORD OF DREDGING,  
 TEMPERATURE AND DENSITY.

Station No. 17 — 1944  
 Date, Feb. 15 1898.  
 Time of day, 9.15 am.; of tide, 1/2 hour of ebb,  
 Locality, Entrance to the Old Sound  
 Exact position, Ft. Light N 1/4 E, 1 3/4 miles <sup>mag.</sup>  
~~Al. Light, N 1/4 E, 0.75 miles~~  
 Depth, 9 1/2 fathoms  
 Nature of bottom, Rocky mud  
 Dredging instrument used, 10 fath beam trawl  
 Direction of drift, N 2 E; distance, 3/8 of a mile  
 Temperature of air, 52 therm. No., 7037  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.023 temp., 12.8  
 " at depth of fathoms, " "  
 " at bottom, 1.024 " 13.0  
 Number of salinometer, 7104  
 Barometer reading, 30.73  
 State of sky, Blue  
 Direction of wind, N 2 E; force, 7  
 Rain, No  
 Direction of surface current, N; force, 8  
 " of bottom " : force,  
 Name of vessel, U.S. Fish Com. Steamer  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr. R. S. Davenport, USN  
 Name and position of observer, R. S. Davenport

NOTES RELATING TO STATION NO. 17

- 1 small *Cumacea*
- 1 Devil's apron string covered with  
*Membranipora* and *Obelia* Sp.  
 Fragments of *Cliona sulphurea*,  
 sponge attached to algae.  
 a few small purple stars  
*Peronaria* Hydroid 1 colony  
*Spirorbis borealis*? on algae.  
 a few *Urosalpinx*  
 a few *Astyris*
- 1022 Small nudibranchs aetia?  
*Mytilus* (small) } in hold fast  
*S. n. anomia* } of Devil's apron  
*Leptodermis* sp.
- Several species Bryozoa
- 1 spicule of coralline (?)
- 1 *Toxicon*
- a few live eggs of *Urosalpinx*
- A small tubicolid

## RECORD OF DREDGING.

## TEMPERATURE AND DENSITY.

Station No. 18 — 1945  
 Date, Nov. 15 1898  
 Time of day, 9.45 am. ; of tide, 1 hour of ebb,  
 Locality, Entrance to the (old) Ormskirk  
 Exact position, Pt. Light - N.E. 1/2 E, 2.7 miles  
~~Black Lake North light, S. W. x S. 6 1/4 miles~~  
 Depth, 13 fathoms  
 Nature of bottom, Rock & sand  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, N. x N. ; distance, 5/8 of mile  
 Temperature of air, 53° Fahr therm. No. 7397  
 " of surface water, "  
 " at depth of fathoms, "  
 " at bottom, "  
 Density at surface, 1.023 temp., 12.9°  
 " at depth of fathoms, "  
 " at bottom, 1.024 .. 13.1°  
 Number of salinometer, 7104  
 Barometer reading, 30.25  
 State of sky, Clear blue.  
 Direction of wind, N. N. W. ; force, 1  
 Rain, no —  
 Direction of surface current, N : force, 1 knot  
 " of bottom " ; force,  
 Name of vessel, U. S. Fish Commission  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr.  
 Name and position of observer,



NOTES RELATING TO STATION NO. 18

*Cliona sulphurea*  
algae with spirorbis sp. abundant  
2 mason stars  
1 Librella

Bryozoa 2 or 3 species

Tritia shells <sup>adog.</sup> in hab. by *C. longicarpus*

a few *Idotea* sp.

Loxostomatia shells, *C. longicarpus* inside

Hydrozoa in fruit

numerous crinoids

1 small runner

a few very small annelids in algae

*Crepidula plana* } on *C. triseriata*  
" *fricata* }

Hydractinea

a small fragment of *Amaroecium* sp.

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 19 — 1946  
 Date, Nov. 1<sup>st</sup> / 1898  
 Time of day, 10.20<sup>am</sup>; of tide, about 1/4 full  
 Locality, Entrance to Bl. Isd. Sound  
 Exact position, Pt. Light N x E 1/2 E. 3 1/2 miles  
~~Bl. Isd. Sound, N. 1/2 E. 6 miles~~  
 Depth, 3 fathoms  
 Nature of bottom, Sandy - Rocky  
 Dredging instrument used, 7 ft beam trawl  
 Direction of drift, N. N. W.; distance, 1/2 mile  
 Temperature of air, 52° Fahr, therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.023, temp., 13°  
 " at depth of fathoms, " "  
 " at bottom, 1.024, " 13.5°  
 Number of salinometer, 7104  
 Barometer reading, 30.26  
 State of sky, Clear blue  
 Direction of wind, N. N. W.; force, 1  
 Rain, No.  
 Direction of surface current, N.; force, 1 knot  
 " of bottom " " ; force,  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, R. E. ...  
 Name and position of observer, ...

NOTES RELATING TO STATION NO. 19

- numerous small tribella  
a few very small purple stars  
1 *Corbula contracta*  
*Mytilus*  
*Anachis*  
Fragments of *Aleynium carneum*  
a few *Sepidomatus*  
*Amorecium*  
*Cliona sulphurea*  
one or 2 varieties of sponge.  
1 piece *Astromeria*  
Several doz. small cornera  
" Species Hybrid some in fruit  
Quantities of *Delaviera* (oak leaf  
alga) with *Sporobis* attached  
*Phriophorus aculeata*  
*Gucibulum striatum*  
A few *idotea*  
E. *Longicarpus* in *L. triseriata* shell  
Small pieces of *Buccella*  
A few eggs of *Urosalpinx*.  
*Sporobis*  
*Bryozoa*, *tritic* with *E. longicarpus*

The bottom is rough -

RECORD OF DREDGING,  
TEMPERATURE AND DENSITY.

Station No. 20 - 1947  
 Date, Nov. 1<sup>st</sup> 1898  
 Time of day, 10.50 ; of tide, 2 hours of ebb.  
 Locality, Entrance to Black Island Sound  
 Exact position, Pt. Light N.E. 1/2 N. 4. 7/8 miles  
~~Black Island North Light 0. 2 1/2 miles~~  
 Depth, 22 1/2 fathoms.  
 Nature of bottom, sticky.  
 Dredging instrument used, small dredge.  
 Direction of drift, S. 1/2 W ; distance, 1/2 mile  
 Temperature of air, 52 therm. No., 7397  
 " of surface water, 1.023 ..  
 " at depth of fathoms, ..  
 " at bottom, 57 Regatta ..  
 Density at surface, 1.023 temp., 13.7° C  
 " at depth of fathoms, ..  
 " at bottom, 1.024 surface temp. 13.8° C  
 Number of salinometer, 7104  
 Barometer reading, 30.26  
 State of sky, Clear blue  
 Direction of wind, N. N. W. ; force, 1  
 Rain, No -  
 Direction of surface current, W. ; force, 1 knot  
 " of bottom " ; force, ..  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
 R. G. Davenport, USNavy  
 Name and position of observer,  
 J. D. Milligan,  
 Pharmacist, USNavy

The specimens of [unclear]  
This station not fully made out  
NOTES RELATING TO STATION NO. 20

*Syprina Islandica* - (dead)  
*Asteris undatum*  
*Cardium pinnulatum*  
*Sypho pygmaea* ♂

Small brachiopods - undetermined  
*Littorina*

5 *Alates ornata*

about 3 *Squilla* sp.

Young *hake*

*Limulus vulgaris*

1 small *silurus* *hake*

numerous *Amphipoda*

Few young *corp.*

Numerous *Scapho* & narrow *lar* fish

A few *corbula*

an old cast of *pen* *uridium*

also see  
Notes of  
Stn 21 for  
for remainder

- 20 -  
a few small *holothurians* (undetermined)  
*Yoldia sapotilla*

A number of dif spec. of *amphid* *worm*

1 or 2 spec of *nerve* *tear*

*Littorina*

Few dif spec. *undeter.* small *brachiopods*

*Spermapes* *forma*

*Murex* *strorala* (numerous)

1 *Clidiaspora*

A few small *amphipods*

a large *sinder* covered with mud  
tube of a small *amphipod* (undetermined)

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. *21 - 1968*  
 Date, *Nov. 1<sup>st</sup> 1898*  
 Time of day, *11-45 Am.* : of tide, *3 hours of ebb.*  
 Locality *Entrance to Black Island Sound*  
 Exact position, ~~*P. S. light N. N. S. 6 1/4 mi.*~~  
*Black Island North light N x E 1/2 S. 3 1/4 mi.*  
 Depth, *22 fathoms*  
 Nature of bottom,  
 Dredging instrument used, *7 fur beam trawl*  
 Direction of drift, *N x W.* : distance, *1/2 mile*  
 Temperature of air, *55° Fahr.* therm. No., *7397*  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, *56.5° Fahr. Regatta*  
 Density at surface, *1.023* temp., *13° C*  
 " at depth of fathoms, " "  
 " at bottom, *(Sigsbee's cup) 1.024* " *13° C*  
 Number of salinometer, *7104*  
 Barometer reading, *30.24*  
 State of sky, *Clear blue*  
 Direction of wind, *N.* ; force, *1*  
 Rain, *No -*  
 Direction of surface current, *W.* : force, *1 knot*  
 " of bottom " : force, "  
 Name of vessel, *U. S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *St. Comdr*  
*W. S. Davenport, U. S. Navy,*  
 Name and position of observer,  
*J. P. Sullivan,*  
*Pharmacist, U. S. Navy*

- Several large pieces of substrate compacted
- E. Benth and his - several
- Relatively few *Polydora*, *Polydora membranifera*
- A few young *Coronula*
- A number of caprellids
- A few young squid
- A few small crinoids -
- a young sea robin
- or sculpin - (common)
- A few *Sypho pygmaea*
- 1 young *Pecten* ten -
- Some *Amarocicum*
- 2 small *Solutaria* (undated)
- 1 *Lucina filosa* (dead)
- 2 *Urechis* common
- Few *Urosalpinx* *torquata*.
- 1 small *Urosalpinx* (undated)
- " " " " " "
- Few *Urosalpinx*.
- Few undetermined univalves
- " isopods.
- Very small goby - common.

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. *22 - 1909*  
 Date, *Nov. 1 '98*  
 Time of day, *1.10 pm*; of tide, *about 4 1/2 hrs past*  
 Locality, *East of Block Island*  
 Exact position, *Block Island North Br. N x N 1/2 N*  
*3/4 miles*  
~~*3/4 miles*~~  
 Depth, *22 fathoms*  
 Nature of bottom, *Sandy. Hard*  
 Dredging instrument used, *7 fms beam trawl*  
 Direction of drift, *N. W. x S*; distance, *1/2 mile*  
 Temperature of air, *54° Fahr* therm. No., *7297*  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, *56° Fahr* *myrtille.*  
 Density at surface, *1.023* temp., *13.1°*  
 " at depth of fathoms, " "  
 " at bottom, *Cylinder cup 1.023* " *13.2°*  
 Number of salinometer, *7104*  
 Barometer reading, *30.23*  
 State of sky, *Blue - light haze.*  
 Direction of wind, *N.*; force, *✓*  
 Rain, *No -*  
 Direction of surface current, *Dr*; force, *1 knot*  
 " of bottom " " ; force, " "  
 Name of vessel, *U. S. F. C. S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *St. Asst -*  
*R. S. Sawyers Lt. Comdr*  
 Name and position of observer, *J. H. Mullen*  
*Pharmacist*



Several *Amia flourens*

1 Adult " "

1 Small " "

over a by *Amia flourens* (as usual)  
Several window-panes (Bottus)

Several young squid | small Hydroids  
+ sponges. 185

1 small sculp.

1 Large sea-robin - unknown

Numerous *Laudulna*

2 *Stelis* - *Erinacea*

1 " Butterfly (?)

2 young *Acropora* <sup>^</sup> *rostrata* (small)

Few small *Cancer*

Several *Pecten* ten.

1 *Crepidula fornicata*

1 *Cyprina islandica* (dead)

1 *Buccinum* shell with *Amia*

a few purple stars

Several *maroon* stars

1 *Buccinum* (small)

Several *Bombardier* *Erinacea* & *Sycho*

*Spirorbis* on algae

Long dead stems of *Urbularia* <sup>^</sup> *hypnoid*.

probably *Solothouyi* (no heads)

1 *Ceramium vulgare* Small

Few young *bace* (rock, ?)

Very small *Cancer borealis*

Few pieces of sponge

1 *Cancer borealis*

1 *Anomoea aculeata*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 23 - 1950  
 Date, Nov. 1 - 98  
 Time of day, 2:00 pm; of tide, 5<sup>3</sup>/<sub>4</sub> hours of ebb  
 Locality, East of Black Island  
 Exact position, ~~Black Island, north of U. S. Navy~~ <sup>north of U. S. Navy</sup> 2<sup>3</sup>/<sub>4</sub> miles  
~~2<sup>3</sup>/<sub>4</sub> miles - All the U. S. Navy - U. S. Navy, 2<sup>3</sup>/<sub>4</sub> miles~~  
 Depth, 20 fathoms Mag.  
 Nature of bottom, Hard sand  
 Dredging instrument used, 7 fms beam trawl  
 Direction of drift, S. 11<sup>1</sup>/<sub>2</sub> W; distance, 1 mile  
 Temperature of air, 53<sup>f</sup> therm. No., 7397  
 " of surface water, " "  
 " at depth of ~~20~~ fathoms, 56<sup>f</sup> negatives  
 " at bottom, 56<sup>f</sup> negatives  
 Density at surface, 1.023 temp., 13.1<sup>o</sup>  
 " at depth of ~~20~~ fathoms, "  
 " at bottom, 1.0235 negatives 12.7<sup>o</sup>  
 Number of salinometer, 7104  
 Barometer reading, 30.22  
 State of sky, Blue - light haze  
 Direction of wind, W.; force, ✓  
 Rain, no  
 Direction of surface current, W.; force, 1 knot  
 " of bottom " " : force,  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
R. G. Newcomb, US Navy

Name and position of observer,

W. J. ...  
Pharmacist

- 10 Squinella haka.
- 4 *Forsteri* flounders
- 1 small + 1 adult *via* *crucifera*
- 4 *Minow* *parva* flounders
- 1 *Cribrella*
- 1 pink *Pellia* *Ten.*
- 1 *Pand* *dollar*.
- A few sea robins - young *P. carolinensis*
- 2 *Crucibulum striatum* with eggs
- Several *serphidus*
- Caudalus*, abundant,
- Cyclocardia brevis*.
- Astarte* *Pastena*
- Cyprina* *stellata* (dead shell, several seen)
- Young silver hake - } *Tritia*
- 1 *Canis* *brevis*. } *Green sea-mach*
- Just *Crangon vulgaris*
- Young *Gubby* = *A. anceps*
- 1 *Anemone* -
- Lunaria* *hirsuta*
- 1 small white *holothuria*
- 1 young - (*My. bars*)
- Dead eggs of *Stella*
- 1 *Panopaea maculata*
- 1 " *ostrea*
- A few *Maroon* stars.
- 1 *Hermit* *shell* *unidentified*
- 2 fragments of *Hexagonium* *subvittatum*
- 1 large *serpim* 18 spine? *stars*
- 1 *Cor* *tubularia* *corthomy*. *Several*
- 1 dead shell of *medusa* (condition?)
- Several purple star - fish (quite young)

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 24 - 1951  
 Date, Nov 1<sup>st</sup> 1898  
 Time of day, 2.40 pm; of tide, low water  
 Locality, S. E. of Block Island miles  
 Exact position Block Isd. S. E. Lt. No. 2 N. 1.67 mag  
~~North of Block Isd. N. 40. 15 miles~~  
 Depth, 16 fathoms  
 Nature of bottom, Sand - (Hard)  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, 0, N. 1/2 W; distance 3/4 mile  
 Temperature of air, 51° Fahr. therm. No., 7397  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, 56.5 Negretti  
 Density at surface, 1.023 temp., 13°  
 " at depth of .. fathoms, ..  
 " at bottom, 1.023 Right up 17.9°  
 Number of salinometer, 7104  
 Barometer reading, 30.23  
 State of sky, Blue, light haze  
 Direction of wind, N.; force, ✓  
 Rain, no  
 Direction of surface current, 0; force, 0  
 " of bottom " ; force,  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Ch. Comdr  
R. H. Bannister, USN  
 Name and position of observer,  
John M. ...  
...

NOTES RELATING TO STATION NO. 24

- 1 winter flounder
- Several winter flounder
- ? rusty
- 1/2 bushels sand dollars
- few small silver hake
- 1 large empty egg of skate
- few young sculpin
- young sea robin - several, P. carolinensis
- small number pandalus
- Hydroid (?)
- Few corbularia small
- 1 small peripatus star
- young squid
- Astarte castanea
- young sea clams
- young rusty flounder
- small Berhardus
- 1 pecten ten
- Kelp covered with obelia
- 1 large sculpin
- 1 Stenopus trache
- 1 large skate
- Few crabs
- 5 skates, small - 2 of
- Cyclocardia baccata
- 1 young lumpfish
- 1 white holothurian
- Tortoise
- Few young cancer
- 1 very small sea anemone
- 1 Anacharis

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 75 - 1903  
 Date, Nov. 1 - 98  
 Time of day, 3.30 pm: of tide, 1 hour of flood  
 Locality, South of Black Island  
 Exact position, Blk Is. 0.8 miles NE  $\frac{1}{4}$  E 2.75 miles  
~~1/2 mile S. of Black Is. 1 1/2 miles~~  
 Depth, 13 fathoms  
 Nature of bottom, Hard, Gravelly.  
 Dredging instrument used, 7 ft beam trawl  
 Direction of drift, S. W.  $\frac{3}{4}$  S; distance, 3/4 mile.  
 Temperature of air, 50 Fahr therm. No., 7397  
 " of surface water, ..  
 " at depth of fathoms, ..  
 " at bottom, ..  
 Density at surface, 1.023 temp., 13° C  
 " at depth of fathoms, ..  
 " at bottom, 1.025 .. 12.7° C  
 Number of salinometer, 7104  
 Barometer reading, 30.28  
 State of sky, Blue - light haze  
 Direction of wind, N.; force, 2  
 Rain, NO  
 Direction of surface current, Not perceptible  
 " of bottom " : force,  
 Name of vessel, U.S.F.C. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, C. S. Smedley  
R. S. Parson  
 Name and position of observer, J. H. ...  
...

- 5 Water flowers  
 5 Window frames  
 Few young sea robins  
 Several small white hydrozoans  
 A few *Ceramium* reds  
 Some young *Ceramium boreale* (?)  
 Few *Paludana*  
 2 small pieces of *Pyrosoma*  
 Lots of *Gravel*  
 Sponge with few small hydroids,  
 A few *Theridion*.  
*Tritia*.  
 2 young sea clams  
 1 Band shell  
 1 *Longicarpus*.  
*Limnoria trifenestrata*,  
 2 or 3 very small purple stars.  
 Several *Astrata castanea*.  
 few *Caprella*.  
 4 purple stars 2 in. across.  
 2 light, 2 dark

# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. *26* - *1953*  
 Date, *Nov. 2<sup>nd</sup> 1898*  
 Time of day, *10. am.* ; of tide, *<sup>an hour</sup> 3/4 of ebb*  
 Locality, *Narragansett Bay*  
 Exact position, *Dutch Field light, E x W.*  
*Dist. 6 1/2 miles mag.*  
 Depth, *7 1/2 fathoms*  
 Nature of bottom, *Mixed soft*  
 Dredging instrument used, *7 ft beam trawl*  
 Direction of drift, *E x S.* ; distance, *1/4 mile mag*  
 Temperature of air, *56° Fahr.* therm. No., *7397*  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, *1.022* temp., *12.7°*  
 " at depth of fathoms, " "  
 " at bottom, *1.026* .. *13.°*  
 Number of salinometer, *7104*  
 Barometer reading, *30.17*  
 State of sky, *Blue - clouds -*  
 Direction of wind, *S x W.* ; force, *5*  
 Rain, *no*  
 Direction of surface current, *S x W.* ; force, *1/4 knot*  
~~" of bottom " ; force,~~  
 Name of vessel, *U. S. F. C. S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *Dr. Comdr*  
*R. G. Sawinport, U.S. Navy*  
 Name and position of observer, *J. D. Milligan*  
*Phar. U.S.N.*



- Mytilus edulis - Half bushel - med size
- 1 Crinoid stem
- Common barn
- 2 P. Carolinus young
- 4 Miles flounder med size
- 4 Kales Bonnet. Erinacea.

1 Pycnopus  
 Crapidula formicata: Common  
 Few Panopis.

Panaria hydroid 2 or 3 colonies

3 Rock cels. 1,

few Lepidonotus sp.

1 Brittle Star. Cucumaria

Eurosalpinx

Crepidula plana

1 Trophonina affinis.

Dead shells of Mytilus

" " Crapidula convexa

" " Callista concava.

20 Star fish 7 inches (frob)

1 Pipe fish

30 Sea machine robacia

few Crangon Ver.

Anachis - Species (few)

E. Lingicarpus

Hydractinia

Small spec of Crinoid

Dead shells of sea Transviana.

1 Littorina littorea

Littoria

1 (1) sea crab

Few dead anomia

Mysidophorus  
 Clidiasphera (dead shell)

# Block

643

## RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 27 - 1956  
Date. Nov. 2 - 1898.  
Time of day. 10.15 am; of tide, 1 hour of ebb  
Locality, Narragansett Bay  
Exact position, Dutch Field Light S. W. x S.  
1/4 South - dist. 1 1/4 miles mag.  
Depth, 10 1/4 fathoms  
Nature of bottom, Stony, shelly  
Dredging instrument used, 7 feet beam trawl  
Direction of drift, E x S.; distance, 1/2 mile  
Temperature of air, 56° Fahr therm. No., 7397  
" of surface water, ..  
" at depth of fathoms, ..  
" at bottom, ..  
Density at surface, 1.022 temp., 17.5°C  
" at depth of fathoms, ..  
" at bottom, 1.022 .. 13.0°C  
Number of salinometer, 7104  
Barometer reading, 30.17  
State of sky, Blue, Cloudy  
Direction of wind, S W.; force, 5  
Rain, no  
Direction of surface current, S x W.; force, 1/3 knot  
" of bottom " ; force,  
Name of vessel, U. S. F. C. S. Fish Hawk  
Service to which attached, Fish Commission  
Name and rank of commanding officer, Lt. Comdr  
R. G. Sargent, USNavy  
Name and position of observer,  
J. D. Melligan  
Pharmacist, USN.

NOTES RELATING TO STATION NO. 27

Cinders - dead nutty lms shells.

Aspidaria plenty

Few small hydroids.

Few lepidonotus

Few Tritia

E. longicauda

1 Microciona

Orangon Vul.

Bryozoa

Eusalpinx

of starfish (prob) rather small

Crepidula flacca

1 Gemmose

Few dead shells crepidula, nutty lms  
and callista convexa

Egg string of Sycotypus with young

Few small amphipods

Dark leaf delleryia (algae)

Panopeus few

Heteromysis form. numerous

in dead shell of Sycotypus.

## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. *28 - 1955*  
 Date, *Nov. 2 - 1898*  
 Time of day, *10.45 am* of tide. *1/6 h. of ebb*  
 Locality, *Nantuxent Bay*  
 Exact position, *Dutch Island Light, O. O. R.*  
*2.67 miles N.W.*  
 Depth, *9 fathoms*  
 Nature of bottom, *Hard - sandy*  
 Dredging instrument used, *7 feet beam trawl*  
 Direction of drift, *E 1/2 N* distance, *1/4 miles*  
 Temperature of air, *56° Fahr.* therm. No., *7397*  
 " of surface water, "  
 " at depth of fathoms, "  
 " at bottom, "  
 Density at surface, *1.021* temp., *12.3°*  
 " at depth of fathoms, "  
 " at bottom, *1.022* .. *13°*  
 Number of salinometer, *7104*  
 Barometer reading, *30.16*  
 State of sky, *Cloudy*  
 Direction of wind, *N. W.* ; force, *6*  
 Rain, *no*  
 Direction of surface current, *N. W.* ; force, *1/3 knots*  
 " of bottom " ; force "  
 Name of vessel, *U. S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *Dr. Condr.*  
*R. G. Barrington, U.S.N.*  
 Name and position of observer,  
*J. D. Melligan*  
*Pharmacist*  
*U.S.N.*

NOTES RELATING TO STATION NO. 28

Species

Sulphur sponge, (Cliona)

Few Sipidonotus

6 Small star fish from <sup>(total)</sup> 100 ft 3 m.  
Pinnopius.

Pieces of dead Pectylen shells.

Dead shell of razor clam - small.

Few small Amphipods

Escharella (?) Encrusting  
some of the sulphur sponge.

## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. *29 - 1956*  
 Date, *Nov. 25 1898*  
 Time of day, *11.05 am* ; of tide, *1/2 h. of ebb*  
 Locality, *Narragansett Bay*  
 Exact position, *Comanent North Pt. Light, N. E. 1/4 E. 1.25 miles mag.*  
 Depth, *7 fathoms*  
 Nature of bottom, *Sandy*  
 Dredging instrument used, *7 feet beam trawl*  
 Direction of drift, *E 3/4 N.* ; distance, *3/8 of miles*  
 Temperature of air, *57° Fah.* therm. No., *7397*  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, ..  
 Density at surface, *1.021* temp., *17.3°*  
 " at depth of .. fathoms, ..  
 " at bottom, *1.023* .. *17.7°*  
 Number of salinometer, *7104*  
 Barometer reading, *30.15*  
 State of sky, *blue w/ cloudy*  
 Direction of wind, *R. W.* ; force, *6*  
 Rain, *No*  
 Direction of surface current, *R x W* ; force, *1/2 knots*  
 " of bottom .. : force, ..  
 Name of vessel, *U. S. F. C. S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *Lt. Comdr*  
*R. G. Davenport, USNavy*  
 Name and position of observer,  
*J. D. Melligan*  
*Pharmacist USNavy*

- About a bush of amph. sponges  
 several clusters *Claspula*  
 Few *Cragon* val.  
 Few small *amphipods* numerous  
 few *Panopaea* few  
*Lepidocrotus*  
 1 *E. Pollicaris*  
*Asperula plana*  
 1 squirrel hole  
 1 window pane 1 *Botrus*  
 1 piece of kelp <sup>large</sup> with *Obelia*  
 & small squirrel hole  
*Membranipora*  
 20 small stars. 8. 1 in to 3 or 4 in.  
 2 rock shells  
*E. longicaulus*  
*Crepidula convexa*  
*Ellianana*  
*Tritia alvi* with *longicaulus*  
 1 small *Trimp.* (?)  
 \* *Escarella*

## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 30

1957

Date, Nov. 2 - 1898

Time of day, 11.30 am

; of tide  $1\frac{3}{4}$  hours of ebb.

Locality, Narragansett Bay

Exact position, Conanicut North point

light, S. E. x E  $\frac{1}{4}$  E.

3 7/8 miles away

Depth, 5 fathoms

Nature of bottom, Muddy mud.

Dredging instrument used, 7 foot beam trawl

Direction of drift, S. E. x E  $\frac{3}{4}$  E.

; distance, 5/8.

Temperature of air, 57° Fahr.

therm. No., 7397

" of surface water, ..

" at depth of fathoms, ..

" at bottom, ..

Density at surface, 1.021

temp., 14.5°

" at depth of fathoms, ..

" at bottom, 1.021

.. 13.0°

Number of salinometer, 7104

Barometer reading, 30.15

State of sky, Blue, cloudy

Direction of wind, P. Dr.

; force, 6

Rain, No -

Direction of surface current, S x W

; force,  $\frac{1}{2}$  knots

" of bottom " ; force,

Name of vessel, U. S. F. C. S. Fish Hawk

Service to which attached, Fish Commission

Name and rank of commanding officer, Lt. Comdr

R. S. Davenport USNavy

Name and position of observer, J. B. Mullygan

Pharmacist USNavy



NOTES RELATING TO STATION NO. 130

1 Squirrel Lake large

1 siphon "

1 Squilla

Few water flowers

Several Amphipods

2 Skate Echinacea

1 young spotted flower

Small undetermined

Very small cunner

Teredos Rock ul

Bugula on old wood

Sicyopterus } Nerula (l)

Byzozoa } Crangons

Scrupula } Mullinea

Hydroid } Tritia (l)

1 Metridium 1 Bulla

Botryllus

Clidophera (l)

Callista convexa numerous dead shells

Young sp. carabina, ca 1000

Dead shells of siphon, terebra

Anomia, Mytilus, Clidophera

Sicyopterus, nerula, crepidula

Cardium pinnulatum (dead)

Eupleura (l)

Pholus costata 1 piece

450 small stars <sup>forbes</sup> 1 in to 5 inches

a few small fish ? like anchovy

1 Lyonia hyalina

1 Cisterides - 1 young argona pupa

L. inessita

few Anelias 1 Pelia mutica

E. longicarpus - E. pallidus

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 31 - 1958  
 Date, Nov. 20 1898  
 Time of day, 1.30 pm. : of tide, 3<sup>3</sup>/<sub>4</sub> of ebb.  
 Locality, Narragansett Bay  
 Exact position, 1/2 N. Conlarient Island North  
from N. x S. 1/2 S. - 1.37 miles N. by  
 Depth, 5 fathoms  
 Nature of bottom, Muddy  
 Dredging instrument used, 1/2 beam trawl  
 Direction of drift, S. E. x E 1/2 E : distance, 3/4 mile  
 Temperature of air, 56° Fahr. therm. No., 7397  
 .. of surface water, ..  
 .. at depth of .. fathoms, ..  
 .. at bottom, ..  
 Density at surface, 1.020 temp., 14.1° C  
 .. at depth of ~~.. fathoms~~ ..  
with muddy or other ..  
 .. at bottom, 1.025 .. 12.7° C  
 Number of salinometer, 7104  
 Barometer reading, 30.06  
 State of sky, Blue Cloudy  
 Direction of wind, S. W. : force, 6  
 Rain, no  
 Direction of surface current, S x W : force, 1/2 knot  
 .. of bottom .. : force.  
 Name of vessel, U. S. F. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
R. G. Barnard, USN  
 Name and position of observer,  
J. W. Murray  
Pharmacist, USN

NOTES RELATING TO STATION NO. 31

- ✓ Winter flounder
- 1 Windowpane "
- 1 Large skate *Etmoptera*
- 1 very small "
- 5 small cross hake
- E. longicauda*
- 2 *Palaenopterus*
- + 60 Star fish (fishes) 2<sup>nd</sup> to 5<sup>th</sup> m <sup>varies</sup>, small
- Callista compta*
- Solida Fortia*
- Clidropora*
- Crepidula fornicata*
- ✓ young *P. Carolina*
- 1 " 14 Spot flounder.
- 2 Crangon
- 1 Small fish-like form no 30
- Candrium punctatum* (none alive)
- Murex*
- Some mollusks alive; some dead shells.
- 1 *Synochia pyralina*
- 1 young *Cancer inorata*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 32 - 1959  
 Date, Nov. 2 - 1898  
 Time of day, 1.50 pm.; of tide, 2 hours past  
 Locality, Massachusetts Bay  
 Exact position, Andrews North point  
light, S. W. 1/4 N. 2.37 mile way  
 Depth, 5 fathoms  
 Nature of bottom, Muddy & shelly  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, E x S., distance, 1/2 mile  
 Temperature of air, 56 Fahr., therm. No., 7397  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, ..  
 Density at surface, 1.021, temp., 14.7°  
 " at depth of .. fathoms, ..  
 " at bottom, 1.024, .. 12.6°  
 Number of salinometer, 7104  
 Barometer reading, 30.07  
 State of sky, Blue - cloudy  
 Direction of wind, S. W.; force, 7  
 Rain, no  
 Direction of surface current, S x W.; force, 1/2 knots  
 " of bottom ..; force, ..  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Dr. Condit  
P. G. Sawyer, USN  
 Name and position of observer, J. H. McGowan  
Pharmacist Navy

NOTES RELATING TO STATION NO. 32

- + 50 stars 1m to 5m
- 2 Minnow pane flounder, small
- 1 Star
- 1 Red snapper P. Carolina.
- 1 Squilla.
- 1 piece sulphur sponge.
- 1 Parapornis.
- Few small fish like those in 30
- Chloropora - Tritia, Yoldia, *Alia*
- Can. caudata, few
- from Crangon shell
- Callista - several
- Mulinia lateralis few
- Number very small another good
- 1 Brepudula dead.
- 1 L. Hyalina.
- Most of the mollusks empty shells
- 1 valve of Macoma (?)
- Scapharipa transversa dead
- Small Syostyris (dead shell)
- L. truncata
- Piece of shell of Pholis costata,
- Mya, dead shell,
- Let's rock shell - ?
- Pellia mutica -
- Unidentified worms
- Euphros
- Mulinia lateralis dead shell
- Andromeda formidabilis - Mulinia
- 1 Pinnixa. Species
- Many dead shells of these <sup>mollusks,</sup> some live
- Small Syostyris

*Alia*  
*Yoldia*  
*Tritia*  
*Chloropora*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 33 — 1060  
 Date, Nov. 27 1898  
 Time of day, 2.25 pm : of tide, Stems ofebb  
 Locality, Narragansett Bay  
 Exact position, Conanicut North Point  
Light N. H. 2.67 of mile long.  
 Depth, 4 1/2 fathoms  
 Nature of bottom, Muddy  
 Dredging instrument used, Flux beam trawl  
 Direction of drift, E. S. E. : distance, 3/4 of mile  
 Temperature of air, 56° Fahr. therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.021 temp., 17°  
~~at depth of fathoms, " "~~  
 " at bottom, 1.025 " 17.5  
 Number of salinometer, 7104  
 Barometer reading, 30.07  
 State of sky, Blue, Cloudy  
 Direction of wind, N. W. ; force, 7  
 Rain, No  
 Direction of surface current, OxW : force, 1/2 knot  
~~of bottom : force,~~  
 Name of vessel, U.S.F.C. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, U.S. Comdr  
R. S. Savinier, USNavy  
 Name and position of observer,  
W. Milligan  
Master's Mate USNavy

NOTES RELATING TO STATION NO. 33

250 to 300 stars from 1/4 to 6 in.

9 *ascites* Window lace flowers

3 *Winkii* flowers

1 *taulog*,

6 small above lava small.

5 *Spulla*

1 *skales* ( *comaca* )

2 *Cancer* *innata* large -

1 *Sycotyphus*,

*Crangon* - *Litia* -

*Clidippa*, *Yolda* -

*Aranea*, *Callista* *conceps*.

note:

A number of dead shells of the more common molluscs, in most of the hauls, and of varying abundance, in the different species. *Callista* *conceps*, nearly always dead shells. There are a few live specimens, usually of all the species mentioned, in the different hauls and in some cases out hauls bring the empty shells. The numbers indicate more or

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. *34* - *1961*  
 Date, *Nov. 22 1898*  
 Time of day, *3 10 pm.*; of tide, *Black-water*  
 Locality, *Narragansett Bay*  
 Exact position, *Narrick Light N. x W.*  
*2.75 miles away.*  
 Depth, *4 1/2 fathoms*  
 Nature of bottom, *Muddy*  
 Dredging instrument used, *7 ft beam trawl*  
 Direction of drift, *E. x S.*; distance, *3/4 of mile*  
 Temperature of air, *56° Fahr* therm. No., *7397*  
 " of surface water, ..  
 " at depth of fathoms, ..  
 " at bottom, ..  
 Density at surface, *1.021* temp., *12.1°*  
 " ~~at depth of fathoms,~~ ..  
 " at bottom, *1.022* .. *12.6°*  
 Number of salinometer, *7104*  
 Barometer reading, *30.05*  
 State of sky, *Blue - cloudy*  
 Direction of wind, *P. W.*; force, *7*  
 Rain, *no*  
 Direction of surface current, *0*; force, *0*  
 " ~~of bottom~~ ..; force, ..  
 Name of vessel, *U.S.F.C.S. Fish Hawk*  
 Service to which attached, *Fish Commission*  
 Name and rank of commanding officer, *dt Commr*  
*R. B. Swenson, USN*  
 Name and position of observer,  
*J. Mulligan*  
*Narragansett Bay*



NOTES RELATING TO STATION NO. 34

Few small *flourens*

" *nodosus* form.

Few pieces of *Sycon* sponge

Small *Aspidula*

*Aspidula* *crinata*.

1 *Tantog*

1 *Pinguilla*

Few small fish like those in 30

2 silver sides

Some Kelp

Over 150 stars size of station 33

1 Rock cell

*Aspidula formicosa* with eggs

*Aspidula*

*Aspidula plana*.

*Craugon vulgaris*

*Callista corvacea*

*Salpa longicauda* (dead shell)

*Clidiaspina*

A few scattering hydroids,

*Panopaea*

*Euplexira caudata*.

Piece of mollusk

*Urosalpinx* *goldae*

*Muricea lateralis*.

Worm tubes —

Practically the same as 33

1 *Sycon*

1 *Cerastulus*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 35 - - 1962

Date, Nov. 2<sup>nd</sup> 1962

Time of day, 4:00 pm : of tide, 1/2 hour of flood

Locality, Narragansett Bay

Exact position, Goulds Isla. Light S. W x  
S. 1.50 of mile mark.

Depth, 8 fathoms

Nature of bottom, Muddy

Dredging instrument used, Trawl

Direction of drift, S.E. 1/4 distance, 3/4 of mile  
56° Fahr.

Temperature of air, 56° Fahr., therm. No., 7397

" of surface water, ..

" at depth of fathoms, ..

" at bottom, ..

Density at surface, 1.021 temp., 13.0°

" ~~at depth of fathoms,~~ ..

" at bottom, 1.023 .. 13.2°

Number of salinometer, 7104

Barometer reading, 30.07

State of sky, Blue-Cloudy

Direction of wind, S.W. : force, 7

Rain, no

Direction of surface current, N.N.E. : force, 1/2 hour

~~of bottom " " force.~~

Name of vessel, U.S. Fish Com. Fish Hawk

Service to which attached, Fish Commission

Name and rank of commanding officer, Lt. Comdr. R. L. Brown

Name and position of observer, J. H. [unclear]

NOTES RELATING TO STATION NO. 35

- 1 large skate *Ermaea*
- 1 small "
- about 100 star fish 2 in to 5 inches
- Some crabs *Callinectes*
- E. *linguicarpus*, very numerous
- 2 small winter flounder
- 3 *Mimicrana* (1 small)
- Few young *P. carolinus*
- Several pipe fish
- Hydractinia* -
- Cinders & gravel.
- Foldia*
- Few small anemone.
- E. *follicularis*
- Tritia*, empty shells - dead
- Callista* *lamar* " "
- Few young silver hake
- " " *Squilla* "
- 1 young *Cancer irroratus*, dead
- L. tricerata* - numerous dead
- Litorea litoria* few - dead
- Few small *L. heros* - dead empty
- Dryotenus*.
- Tulga* - 1 small - empty
- Alidopora* few - empty
- Pecten* ten - small few empty.
- " " 1 live.
- 1-4 *Spix*, small.
- 1 Egg mass, jelly like, small (?)
- Few *Astarte*, small yellow
- 1 live specimen with small head of *Tubellaria conthoyi*.

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 36 1963  
 Date, Nov 2 - 1898  
 Time of day, 4.20 pm: of tide,  $\frac{3}{4}$  hour of flood  
 Locality, Nantuxawalt Bay.  
 Exact position, South of Id. lights  
 0. N. W. 1/4 S. 50 of mile mag.  
 Depth, 7 fathoms  
 Nature of bottom, Muddy  
 Dredging instrument used, 7 fathom Trawl  
 Direction of drift, S, E. ; distance,  $\frac{5}{8}$  of mile  
 Temperature of air, 56° Fah therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.021 temp., 12.7° =  
 " at depth of fathoms, " "  
 " at bottom, 1.023 .. 13° =  
 Number of salinometer, 7104  
 Barometer reading, 30.07  
 State of sky, Cloudy  
 Direction of wind, S. W. ; force, 4  
 Rain, no  
 Direction of surface current, N. N. E. ; force, 1/4 knot  
 " of bottom " ; force,  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, U. S. Commission  
 Name and rank of commanding officer, Lt. Comdr  
 R. B. Davenport  
 Name and position of observer,  
 J. M. Mullan  
 J. H. Van

NOTES RELATING TO STATION NO. 36

1 large skate: *Erinacea*.

1 small winter flounder.

1 " window-pane. "

2 small of upset. "

1 squinnet-like small

V silver. " "

E. longicauda, very numerous

Several small cancer crabs,

some crabs,

1 green hermit.

About 70 starfish, 2 to 4" diam.

Several large *Aurelia aurita*

*Asterias*. Yellow (?), 2 or 3 doz

Some *Foldia*.

*Cleodopera*, numerous, small.

*Britia* - few live

Several *Littorina littorea* few alive

Live eggs of skate *Erinacea*,

most of the numbers occupied by

E. longicauda.

E. *trilineata*, num.

*Callista* *limosa*, numerous <sup>small</sup> dead shells

1 *Trophonia*

Few small shells of *L. Texas*.

Few *Pecten* ten small.

2 or 3 *Thracia* (?), sp.

1 dead shell *Lucina filosa*.

1 live *Cylocardia bivalvis*.

# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. *37 - 1964*

Date, *Nov 13 - 98*

Time of day, *9:30 am*; of tide, *Nearly low water*

Locality, *Entrance to Black Isld Sound*

Exact position, *Black Isld North light*  
*D. 74 E. 2.50 mag.*

Depth, *18 fathoms*

Nature of bottom, *Hard - rock & sand*

Dredging instrument used, *7 feet beam trawl*

Direction of drift, *N x N.*; distance, *1/2 mile*

Temperature of air, *52° Fahr.* therm. No. *7397*

" of surface water, ..

" at depth of .. fathoms, ..

" at bottom, ..

Density at surface, *1.023* temp., *13.4°*

~~" at depth of .. fathoms, ..~~

" at bottom, *1.023* .. *13.6°*

Number of salinometer, *7104*

Barometer reading, *30.46*

State of sky, *Blue - light clouds*

Direction of wind, *N. N. E*; force, *3*

Rain, *No*

Direction of surface current, *EXD*; force, *1/3 knot*

~~" of bottom .. : force, ..~~

Name of vessel, *U.S. F. C. S. Fish Hawk*

Service to which attached, *Fish Commission*

Name and rank of commanding officer, *Dr. Comdr*  
*R. G. Barrington*

Name and position of observer, *R. M. Morgan*  
*Pharmacist*

\* adv.

NOTES RELATING TO STATION NO. 37

*Alyonium carneum*, numerous  
small pieces

a few pieces Sulphur sponge  
different from *Cliona sulphurea*  
1/2 star. fish Forbes 3 to 4 1/2 inches  
by two inch purple star.

1/2 " " " "  
1 arm of *Thrid* star - Forbes

9 *Cribrella* 1/2 to 2 1/2 inch

1 *Anemone*

Few pieces of *Bugula* with *Bozoza*

1 fragment of hydroid (?)

1 small small *Callista conveya*

1 shell of *L. tricornata* with

*E. longicarpus*

*Tritia* 2 alive, one  
with *E. longicarpus*.

1 *Juncate* (?)

Small piece *Ammonoium*

*Clidoptera* - 2 dead shells

~~1 large ...  
1 small ...  
1 ...~~  
All pieces ...



## RECORD OF DREDGING.

## TEMPERATURE AND DENSITY.

Station No. 38 — 1965  
 Date, Nov. 3<sup>rd</sup> 1898  
 Time of day, 10.10 <sup>am</sup> ; of tide.  
 Locality, Black Island Sound  
 Exact position, Black Island North Br.  
 E x S. 1.75 miles mag  
 Depth, 19 fathoms  
 Nature of bottom, Hard - Sandy  
 Dredging instrument used, 7 fur beam trawl  
 Direction of drift, N. x S. ; distance, 5/8 mile  
 Temperature of air, 52° Fahr therm. No., 7397  
 " of surface water, ..  
 " at depth of fathoms, ..  
 " at bottom, ..  
 Density at surface, 1.023 temp., 13.6° =  
 " at depth of fathoms, ..  
 " at bottom, 1.023 .. 14.1° =  
 Number of salinometer, 7104  
 Barometer reading, 30.46  
 State of sky, Blue - light clouds.  
 Direction of wind, N. N. E ; force, 3  
 Rain, No  
 Direction of surface current, N N. ; force, 1/2 knot  
 " of bottom " ; force.  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
 R. G. Sawinport, U.S.N.  
 Name and position of observer, J. W. Milligan  
 Pharmacist



see note in traps book

NOTES RELATING TO STATION NO. 38

- 6 skate *Urolophora*
- 9 varying sizes mottled flounder
- 5 Window pane
- 2 young *P. Carolina*
- 1 large squirrel hake
- 1 small silver "
- 1 " squirrel "
- 3 small sculp - young
- 1 med. + 1 small of spot flounder
- 2-18 spine sculpin (?)
- Seeds a number small squid.
- Pandalus* - numerous -
- 1 large empty shell *Cyprina islandica*
- Several large pieces of kelp
- Piece of combback *rosca*
- Fritia few - 1 *Goldia*
- Monacha* 1 dead shell
- Fusus* - 1 -
- Few *L. tricolorata* with *E. Bernharti*
- Scraps of *Clidippa l. hyalina*
- 2 cancer *borialis* (young)
- 1 shell of *Cy<sup>lucardina</sup> toralis*.
- 1 piece of *Astarte* (Sp)
- 1 brittle star small
- About 150 maroon stars etc 3 in.
- 17 Purple stars - varying size  
from light to dark
- 1 star fish, Forbes <sup>with</sup> 2 arms  
evidently regenerated
- Lepidonotus*
- 1 large empty egg case of skate
- Dead stems of *Fucus* *hydroid*

## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 39 1966  
 Date, Nov. 3-5 1898  
 Time of day, 10.50 am 1/2 hour of low  
 Locality, Black Island Pond  
 Exact position, Black Island north light  
N. E x E. T 3.25 miles west  
 Depth, 20 fathoms  
 Nature of bottom, Hard, sandy  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, N. 1/2 N.; distance, 3/8 mile  
 Temperature of air, 53° Fahr therm. No., 7397  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, ..  
 Density at surface, 1.023 temp., 13.3°  
~~at depth of .. fathoms, ..~~  
 " at bottom, 1.023 .. 13.5°  
 Number of salinometer, 7104  
 Barometer reading, 30.46  
 State of sky, Blue - light clouds  
 Direction of wind, N. N. E; force, 1  
 Rain, No  
 Direction of surface current, No perceptible current; force, ..  
~~of bottom ..; force, ..~~  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Dr. Comdr  
R. G. Sawinport, US Navy  
 Name and position of observer, J. W. Milligan  
Pharmacist, US Navy

NOTES RELATING TO STATION NO. 39

- 1 Window pane  
 2 silver hake, small  
 20 squirrel hake  
 30 skate - immatures  
 3 small squirrel hake  
 1 young sea robin  
 1 " sculpin  
 1 E. Bernhardtus  
 Spherobis  
 Few small green urchins  
 Some small squid. (dozen)  
 Fragments of kelp with bryozoa  
 1 piece of *Cyprina islandica*  
 Very few *Pandanus*  
*Tritia alba* & with hermit  
*E. longicaepus* few  
*L. triseriata* alba & with hermit  
 Few small isopods (*Idotea* sp. (?)  
 7 empty shells of *Lucina filosa*  
 2 or 3 small *Holothurina*  
 1 large *Cancer borealis*  
 1 small 4 spot flounder  
*Crepidula fornicata*  
 Dead shell of *Cylocardium boreale*  
 About 200 narrow stars, 1 to 2  
 Very few small purple "  
 2 - *Trites* stars 1 in x 2 inch  
 1 small med branch, *Dondella* (?)

~~1 small med branch, *Dondella* (?)~~

# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 40 - 1067

Date, Nov. 3<sup>rd</sup> 1897

Time of day, 11, 30 am; of tide, 1/4 from ebb.

Locality, Black Island Sound

Exact position, Black Island No. light  
N. E. 1/2 E. 4.50 miles mag.

Depth, 18 fathoms

Nature of bottom, Sand

Dredging instrument used, 7 foot beam trawl

Direction of drift, South; distance, 1/2 mile

Temperature of air, 53° Fahr. therm. No., 7397

" of surface water, "

" at depth of fathoms, "

" at bottom, "

Density at surface, 1.023 temp., 14.8°

~~" at depth of fathoms, "~~

" at bottom, 1.024 .. 13.2°

Number of salinometer, 7104

Barometer reading, 30.46

State of sky, Blue - light clouds

Direction of wind, N. E; force, 2

Rain, no

Direction of surface current, N. W.; force, 1/2 knot

~~" of bottom " ; force,~~

Name of vessel, U. S. Fish Hawk

Service to which attached, Fish Commission

Name and rank of commanding officer, St. Louis  
R. G. Davenport, USNavy

Name and position of observer, J. D. Milligan  
Pharmacist, USNavy

Few small *Pandalus*

NOTES RELATING TO STATION NO. 40

- 1 Summer flowered } *Bugula*
- 2 Squirrel hake } young cancellated
- 2 Silver hake } *Lepidionotus* few
- 1 young } *Cystodonta* few

- 1 winter flowered
- 1 skate - *erinacea*
- 1 window pane (*Bothus*)

3 very small silver hake

1 young sculp.

*Modiola modiolus*.

About a doz pieces of long leaf laminae with sponges attached, covered with *Trypana* and hydroids. (*Obelia*)

Few small squid,

1 empty egg case, *erinacea* by *Trypana*

Algae with *comeria* hydroid and

*Felis pecten* ten, small & med. size

Few stems of *tubularia* *contorta*;

*Crepidula fornicata*.

1 *Cancer irrorata*

About 3 doz narrow stars

Few very small *orbacea*

1 *pyrosoma*

Fragment of sulphur sponge

6 very small purple stars.

2 small *Buccinum*.

1 *Cyclodonta borealis*.

Few *E. Longicarpus*

Few *Boronhardus*

Few *Crepidula plana*.

2 *Cancer irrorata*, small,

Few empty shells of *Cycl. borealis*

*trita*, sea clams, *L. tricornata*, *anomia*

, *cruciatulum*, *modiola modiolus*

small *buccinum*, *L. leuco*. Few *scabrid*

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 41 — 1968  
 Date, Nov. 3<sup>rd</sup> 1898  
 Time of day, 12.05 ; of tide, 3/4 h. of ebb  
 Locality, Black Told sound  
 Exact position, Black Told, S. E. light  
E 1/4 W. 3.50 miles way  
 Depth, 7 1/4 fathoms  
 Nature of bottom, gravelly  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, North ; distance, 1/8 mile  
 Temperature of air, 54° Fahr. therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.023 temp., 13.2° C  
 " at depth of fathoms, —————  
 " at bottom, 1.023+ .. 13° C  
 Number of salinometer, 7104  
 Barometer reading, 30.46  
 State of sky, Blue, light clouds  
 Direction of wind, N. E ; force, 1  
 Rain, No —  
 Direction of surface current, N. W ; force, 1/2 knots  
 " of bottom " " ; force, —————  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, St. Louis  
R. G. Davenport, USNavy  
 Name and position of observer, J. D. Milligan  
Pharmacist, USNavy

NOTES RELATING TO STATION NO. 41

- about half a piece of coralline  
and *conarrina* hydroids.  
A little frond,  
Some small sponge.  
12 small purple stars,  $\frac{1}{2}$  to  $\frac{2}{3}$ "  
2 *Cribrella*.  
1 brittle star,  
Some small isopods  
" " amphipods  
*Byozoa*, plentiful  
1 small piece of alcyonium  
a very few small squid.  
*Anachis* 1 or 2  
*Tritia* 1 or 2  
A few astyris.  
2 or 3 small nudibranch <sup>*Dorididae?*</sup>  
1 *Russell*. *Z. angulatus* (?)  
2 *Praxinos*. very small  
*Spyrobia* (some)  
a few young *Cancer brevis*,  
*Astralgia* 1 piece



## RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 42 - 1969  
 Date, Nov. 3 - 1898  
 Time of day, 1.35 pm; of tide, 3 hours of ebb  
 Locality, N. East of Block Island.  
 Exact position, Block Isld N. E. light  
E x N, 6 miles mag.  
 Depth, 20 1/4 fathoms  
 Nature of bottom, Sand, gravelly  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, N. E x E; distance, 1/2 mile  
 Temperature of air, 57° Fahr. therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms. " "  
 " at bottom, 56° negative  
 Density at surface, 1.023 temp., 13.3° C  
 " at depth of fathoms, Sigbee cup  
 " at bottom, 1.023 " 13.2° C  
 Number of salinometer, 7104  
 Barometer reading, 30.46  
 State of sky, Blue - light clouds  
 Direction of wind, S. S. E.; force, 1  
 Rain, No  
 Direction of surface current, E; force, 1/2 knot  
 " of bottom " " force,  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, St. Comdr  
R. G. Bawcutt, U. S. Navy  
 Name and position of observer, J. T. McIlhenny  
Pharmacist, Navy



NOTES RELATING TO STATION NO. 42

- 10 18 *oprea sculpinus*  
 Several young sea robins  
 " " " sculp.  
 16 *Ardea flounders*  
 1 4 spot "  
 2 small *comacea*  
 6 *Window pane*  
 16 *Pecten* ten. various sizes  
*Capriola fornicata*  
*Pandalus* <sup>some with eggs</sup> ~~numerous~~ }  
*Hydrod tubularia cutag.*  
 Small *guan. peneria bysial*  
 + *Coralis*  
 A few *Crucibulum striatum*  
 some small pieces of *alcyonium*  
 young silver hake (?)  
 2 young squid.  
 1 deep sea anemone  
 few young silver hake (?)  
*Cyclocardia borealis*  
*Sypho pynna* - several  
 some alive; some with hermits  
*Berecharous*  
 1 (?) *Eopadous*  
 + 30 *Maroon stars* 1/2 to 2 in  
 2 *purple stars*. 1 in to 3 in  
 Few broken shells.  
 1 small anemone  
 Empty shell mod. modiol  
 " " *Cyprina islandica*  
 1 *sea l. heros*  
 Several colonies of what looks  
 like *Crassa heligolandica*

# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 43 - 1970  
 Date, Nov. 3<sup>rd</sup> 1898  
 Time of day, 4.20 pm. : of tide 4 hours of ebb,  
 Locality, N. E. of Block Island,  
 Exact position, Pt. Judith Light  
N. N. 1/2 W. - 7.25 miles mag  
 Depth, 20 fathoms,  
 Nature of bottom, Sandy, gravelly  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, E x S 1/2 S distance, 3/4 mile  
 Temperature of air, 57° Fahr. therm. No.,  
 " of surface water, "  
 " at depth of  fathoms, "  
 " at bottom, 56° Neqwith  
 Density at surface, 1.023 temp., 13.1°  
 " at depth of  fathoms, higher cup  
 " at bottom, 1.023 + " 13.2°  
 Number of salinometer, 7104  
 Barometer reading, 30.46  
 State of sky, Blue - light clouds  
 Direction of wind, S. S. E ; force, 1  
 Rain, no  
 Direction of surface current, E x S ; force, 3/4 knot  
 " of bottom " : force,  
 Name of vessel, U. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Dr. Louis  
R. U. Sampson USNavy  
 Name and position of observer,  
J. M. Sullivan  
Pharmacist, USNavy

NOTES RELATING TO STATION NO. 43

- 4 Rusty-flowered
- 1 four spot "
- 3 window pane "
- Rain Dollars, Halfpence <sup>average</sup> = small
- 4 Pecten ten-lap -
- few young sea robin
- 4 " sculp
- " silver flounder (?)
- few Pandalus
- Scali rostrata (?)
- 6 Astarte castanea
- A little Corallium & algae
- Few Bernhardus
- Few Tritia
- Sypho pygmaea
- Squid.
- 1 young sea clam
- 1 very young flounder (?)
- 2 small pieces branch coral (?)
- 1 young cancer brachis.
- few pieces of alcyonium, small
- 1 or 2 Crangon, small.
- 2 dry Maroon stars
- 1 - 1/2 inch purple star (?)
- 2 "

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 44 - 1971  
 Date, Nov. 3 - 98  
 Time of day, 3.10 pm.; of tide, 3/4 of ebb  
 Locality, N. E. of Black Island  
 Exact position, At Judith Light  
N. N. x W 1/2 W. 6.50 miles mag  
 Depth, 16 fathoms.  
 Nature of bottom, Hard sand.  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, E 3/4 N.; distance, 5/8 mile  
 Temperature of air, 56° Fahr., therm. No., 7397  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, 56° negretti ..  
 Density at surface, 1.023 temp., 13.3° C  
 " at depth of .. fathoms, ..  
 " at bottom, 1.023 + .. 13.7° C  
 Number of salinometer, 7104  
 Barometer reading, 30.42  
 State of sky, Blue light clouds  
 Direction of wind, N. W; force, .. ✓  
 Rain, no  
 Direction of surface current, ExD; force, 3/8 kmr  
 " of bottom " ..; force, ..  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr.  
R. G. Barrington, USN  
 Name and position of observer,  
J. Milligan  
Pharmacist, USN

NOTES RELATING TO STATION NO. 44

4 *Amidow pavo flavidum*

1 rusty "

1 *tricolor* "

14 young sea robin

3 *stale. erinacea*

3 " spotted. <sup>tooth</sup> spines in middle of  
size of *erinacea*

Several young sculp.

1 young silverside

1 " squirrel "

a few small squid.

small number of *pandulus*

1 quart of sand. *Dollare*

6 *pecten* ten <sup>3 small</sup>  
<sub>3 large</sub>

*Lunaria heros*.

*Fricinata* occupied by *Bonhardi*

a few *tritica*

*Caprodula plana*

*fornicata*.

1 stem of hydroid - long - (?)

9 maroon stars <sup>less than 1/2</sup>  
<sub>in. to 2 in.</sub>

2 *crucibulum striatum* - 1 with eggs -

# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 45 1972  
 Date, Nov. 3<sup>rd</sup> 1908  
 Time of day, 3.55 : of tide, low water  
 Locality, N.E. of Black Island  
 Exact position Pt. Judith Light  
1 1/2 N. 8.50 miles  
 Depth, 17 1/2 fathoms  
 Nature of bottom, Sandy  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, E x N 1/2 ; distance, 3/4 mile  
 Temperature of air, 56° Fahr therm. No. 7397  
 " of surface water, ..  
 " at depth of .. fathoms, ..  
 " at bottom, 55° Fahr Regatta  
 Density at surface, 1.023 + temp., 13.1°  
 " at depth of .. fathoms, ..  
 " at bottom, 1.024 .. 13.2° Regatta  
 Number of salinometer, 7104  
 Barometer reading, 30.41  
 State of sky, Blue - light clouds  
 Direction of wind, N. O. W. ; force, 2  
 Rain, no  
 Direction of surface current, 0 ; force, 0  
 " of bottom " ; force.  
 Name of vessel, U.S. Y. C. Y. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
R. G. Savenport, USNavy  
 Name and position of observer,  
J. D. Milligan  
Pharmacist USNavy

NOTES RELATING TO STATION NO. 45

5 *Amia plumbea*

2 *Trinectes maculatus*

1 silver hake medium (?)

3 eperlanes "

3 skates - *innocentia*

1 skate spotted (?)

few small sand dollars

" *fauciatulus*

several pieces of *subvittis* *compacta*

1 young silver hake (?)

3 " sea robins,

a few small squid.

*Bernhardus*, several in

*Intia* + *tricerata* shells

4 *Buccinum* *intertextum*

1 small piece branch coral (?)

about 24 maroon stars, 1 to 2 in



# RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 46 - 1973  
 Date, Nov. 14<sup>th</sup> 1898  
 Time of day, 8.30 am of tide, 3<sup>d</sup> hof flood  
 Locality, S. W. mouth of Pequonnet River  
 Exact position, Phonon's reef l. ship  
N. W. 1/25 mile way,  
 Depth, 18 fathoms  
 Nature of bottom, Sandy - shelly  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, S. E x E 1/2 E distance, 5/8 mile  
 Temperature of air, 58° Fahr. therm. No., 7397  
 " of surface water, "  
 " at depth of fathoms, "  
 " at bottom, "  
 Density at surface, 1.023 temp., 13.3  
 " at depth of fathoms, "  
 " at bottom, 1.023 + " 14° C  
 Number of salinometer, 7104  
 Barometer reading, 30.44  
 State of sky, Blue hazy.  
 Direction of wind, Calm; force, —  
 Rain, no  
 Direction of surface current, N. W.; force, 1/2 knot  
 " of bottom " : force,  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, St. Comdr.  
R. G. Davenport  
 Name and position of observer,  
J. H. Gilligan  
Pharmacist, Navy



NOTES RELATING TO STATION NO. 46

- 7 squirrel hake -
- 4 Windowpane -
- Several young sea robin
- Few Pandalus.
- 5 Skates - cornacia, <sup>rather</sup> small
- Several young silver hake (??)
- 2 molly flounder
- 1 four spot .. (Parasite on flounder
- 1 winter .. (Dy. (?)
- Few Crangon. (Winter skate (had
- 1 winter skate. (parasites
- Few small squid
- Few sand dollars
- Few empty shell of cyprina -
- islandica, with stems of Tubularia <sup>Caulleryi</sup>
- Fritia - numerous
- Neptuna pycna - few -
- E. Bernhardtus } in Fritia
- E. longicaopus } shells
- Suberites compacta.
- Few young hake - squirrel (?)
- few young Buccinum small.
- Nearly 100 Maroon stars. <sup>1 1/2 in. to</sup> 3 inches
- 1 valve of cyclocard bivalis
- Hydractinia.
- Capriola plana.
- Cucibulum
- L. Tricriatum with Hermites
- 1 valve, small oyster.
- Few small shrimp. name (?)

RECORD OF DREDGING,  
TEMPERATURE AND DENSITY.

Station No. 47 — 1974  
 Date, Nov. 4 - 98  
 Time of day, 9.15 : of tide, 4<sup>th</sup> of flood  
 Locality, E. of mouth of Rye River  
 Exact position, Edgewater Light  
 E. N. E. 2.67 miles mag.  
 Depth, 14 fathoms  
 Nature of bottom, Gaudy  
 Dredging instrument used, 7 foot beam trawl  
 Direction of drift, E. N. E. ; distance, 5/8 mile  
 Temperature of air, 59° Fahr therm. No., 7397  
 " of surface water, "  
 " at depth of fathoms, "  
 " at bottom, "  
 Density at surface, 1.023 temp., 13.3° C  
 " at depth of fathoms, "  
 " at bottom, 1.024 " 13.3° C  
 Number of salinometer, 7104  
 Barometer reading, 30.45  
 State of sky, Blue, hazy  
 Direction of wind, Calm ; force,  
 Rain, no  
 Direction of surface current, N. N. ; force, 1/2 knot  
 " of bottom " ; force,  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
 R. G. Dawson, USNavy  
 Name and position of observer,  
 J. M. Milligan  
 Pharmacist, USNavy

NOTES RELATING TO STATION NO. 47

- 4 winter flounders
- 1 very large summer flounder
- 1 rusty flounder
- 1 squirrel hake.
- 4 skates *erinacea*
- 2 winter " (?)
- 1 peck sand dollars
- Few young *P. Carolina*
- Fragment of sponge
- a little algae
- Spirorbis*
- few silver hake (?)
- few *Pandalus*
- Cappidula flava*
- 1 shell of *Littorina littorea* <sup>with</sup> <sub>hermit</sub>
- 1 young *canes* (?)
- Hittia*. small number
- Few crawfish
- about 2 doz maroon stars  $\frac{1}{2}$  to 3 in
- 1 or 2 young *Buccinum*.

RECORD OF DREDGING,  
TEMPERATURE AND DENSITY.

Station No. 48 - 1975  
 Date, Nov. 4<sup>th</sup> 98.  
 Time of day, 9.55 ; of tide, 4 1/2 h of flood  
 Locality, Mouth of Boston Harbor  
 Exact position, Akumner Light  
 S. x E. 1/2 - 9, 1.67 miles away  
 Depth, 9 1/2 fathoms  
 Nature of bottom, Sand - gravel  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, N x E ; distance, 1/2 mile  
 Temperature of air, 57° Fahr therm. No., 7397  
 " of surface water, "  
 " at depth of fathoms, "  
 " at bottom, "  
 Density at surface, 1.023 temp., 13.0  
 " at depth of fathoms, "  
 " at bottom, 1.023 .. 12.50  
 Number of salinometer, 7104  
 Barometer reading, 30.45  
 State of sky, Blue  
 Direction of wind, Calm ; force, 0  
 Rain, No  
 Direction of surface current, N x E : force, 1/2 knot  
 " of bottom " : force,  
 Name of vessel, U. S. F. C. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
 R. G. Swenson  
 Name and position of observer,  
 H. M. Kellogg  
 Pharmacist U.S.N.

NOTES RELATING TO STATION NO. 48

- 4 small flowers
- 16 squirrel hares
- 1 small sea-raven
- 1 star-fish, Forbesii.
- 7 skate - immacia
- 3 sculpins.
- 1 young hake - squirrel
- 2 " curmer.
- 1 small conch
- Few sand dollars.
- 1 Libinia -
- Chalina doz bunches
- 2 narrow star  $\frac{1}{2}$  -  $\frac{1}{2}$  in.
- 7 E. Bernhardus -
- few Pollicaris. few -
- Buccinum undatum - small.
- E. Conspicuos - few
- Euroalpinus
- L. Triceriata. few
- \* L. heros few
- Tritia
- 1 pipe fish.
- Few crabs
- 1 Anachis.
- 1 E. armilipes.
- 1 Sycoetycus - small
- 2 small Petia
- Bunch of sculpin eggs

. RECORD OF DREDGING,  
TEMPERATURE AND DENSITY.

Station No. 49 — 1976  
 Date, Nov. 4 - '98  
 Time of day, 10.30 ; of tide, High water  
 Locality, In Sacramento river  
 Exact position, Church Point N. W. 1/2 N  
.75 of mile west.  
 Depth, 5 fathoms  
 Nature of bottom, Gravelly  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, N. E. 1/2 N. distance, 1/4 mile  
 Temperature of air, 60° Fahn therm. No., 7397  
 " of surface water, " "  
 " at depth of fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.022 + temp., 17.0° C  
 " at depth of fathoms, " "  
 " at bottom, 1.023 " 17.1° C  
 Number of salinometer, 7104  
 Barometer reading, 30.45  
 State of sky, Blue  
 Direction of wind, Calm ; force, "  
 Rain, no  
 Direction of surface current, 0 ; force, 0  
 " of bottom " ; force, "  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Lt. Comdr  
R. S. Davenport  
 Name and position of observer,  
W. H. Milligan  
Thomas H. Vane

NOTES RELATING TO STATION NO.

44

- 1 *Onchidium ashiaticum*
- 1 large & 1 small sponges
- 2 *Hydroids* flowers
- 2 window sponges
- 1 *Cumma*
- 1 cluster of *Chalonia*
- several young fish, slender 1/2 in
- Few crabs
- 1 *E. longicauda*
- 1 *E. pollicaris*
- 1 *E. multipes*, several
- 1 *Caprellidella plana*
- 1 *Fornicata*
- few *Balanus*
- 1 *Neorhiza* with hermit
- 1 *Cyclopterus* "
- 2 1/2 in. star fish (?) narrow
- Littorina littorea*
- Fritia*
- Hydrach tinea*
- 1 *L. sinensis* (?)
- 1 valve of *Yoldia*
- 1 young fish
- 3 " resembling bass
- 1 *Chirona tenella*.



# RECORD OF DREDGING,

## TEMPERATURE AND DENSITY.

Station No. 50 / 1977  
 Date, Nov. 4<sup>th</sup> 1898  
 Time of day 11. am ; of tide, High water  
 Locality, In excavated river  
 Exact position, High Hill point  
N. E 1/2 N. 6.7 of a mile  
 Depth, 4 3/4 fathoms  
 Nature of bottom, Rocky -  
 Dredging instrument used, 7 feet beam trawl  
 Direction of drift, N x W. ; distance, 3/8 mile  
 Temperature of air, 60° Fahn therm. No., 7397  
 " of surface water, " "  
 " at depth of  fathoms, " "  
 " at bottom, " "  
 Density at surface, 1.022 temp., 12° C  
 " ~~at depth of~~ fathoms, " "  
 " at bottom, 1.023 " 12.4° C  
 Number of salinometer, 7104  
 Barometer reading, 30.45  
 State of sky, Blue  
 Direction of wind, N. W. ; force, 1  
 Rain, no  
 Direction of surface current, 0 ; force, 0  
 " of bottom " " force, "  
 Name of vessel, U. S. F. C. S. Fish Hawk  
 Service to which attached, Fish Commission  
 Name and rank of commanding officer, Dr. Comdr  
R. E. Sawyer, M. D.  
 Name and position of observer, J. M. Milligan  
Pharmacist, M. D.



- Few sponges here  
 1 *Amphimedusa* *flammarum* - small  
 1 *Skala* - *rosacea*.  
 Few dead shells *Balanus*, with  
*Membranipora* & *Carpula*  
*Crepidula fornicata*  
*flava*.  
*Eccarella*  
*E. Pollicaris* several  
*E. Longicauda* few  
*Lomatia heros*.  
*Neerita*  
 1 *Libinia*  
 1 *trivittata*  
 2 *Pelicanus* *mutica*  
 1 *Fos* *virgata* + 1 empty shell  
 a few small *Scapharca*  
 1 *Strombosalpinx*.  
*Hydractinia*.  
 1 *Fulgur*  
 1 regenerating *Sta.* *Forbes*  
 Few *Lepidonotus*.  
*Chymenella*  
 1 *Gammarus* sp.  
*Cyprina caudata* dead shell