

1928-1977

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ORIGINAL LOG BOOK OF THE--"FISH HAWK"

UNITED STATES FISH COMMISSION

STATION NUMBERS

no. 1898

Numbers 1928 to 1977

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 1 - 1928
 Date, Oct. 26 - 98
 Time of day, 11.40 AM; of tide, 1st h. of flood
 Locality, Narragansett Bay R. I.
 Exact position, Whole Rock S.S. W. $\frac{1}{4}$ W
1 $\frac{1}{8}$ miles W.
 Depth, 33 fms.
 Nature of bottom, Sand, shell.
 Dredging instrument used, dredge
 Direction of drift, N. W.; distance, $\frac{1}{16}$ mile -
 Temperature of air, 62° F therm. No., 7397
 " of surface water, " "
 " at depth of fathoms, "
 " at bottom, 61° "
 Density at surface, 1.022 temp., 15.0
 " at depth of fathoms, "
 " at bottom, 1.029 " 14.50
 Number of salinometer, no 7301 surface
W
 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, North; force, 3 knot
 " of bottom " " ; force, "
 Name of vessel, U. S. F. S. "Fish Hawk"
 Service to which attached, U. S. Fish Commission
 Name and rank of commanding officer, Lt. Comdr
R. G. Savenport. U.S. Navy,
 Name and position of observer,
Pharmacist J. D. Mulligan
USN

NOTES RELATING TO STATION NO. 1

Lil Newport anchorage
 at 9³⁰ am and with
 Dr. H. C. Bumpus of
 Brown University &
 Mr. John Southwick, bot.
 of the Rhode Island Fish
 Commission proceeded
 around Bunker Hill St. to this
 station. The S. Wind
 increasing in force, the
 sea making in so much
 as to give the vessel great
 deal of motion and to
 becoming thick and
 rainy to get bearings and
 not properly only one cast
 of the dredge was taken
 the vessel was then steamed
 around Pt. of Conanicut and
 returned to the anchorage
 of Newport: No boring
 matter was brought up in
 the dredge

Ordinary ship's thermometer ^{no. 7597}
 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, 3rd h - ebb
 Locality, Providence River R. I.
 Exact position, Sacramento Pt. Lt. S x E. 5.56
mile mag
 Depth, 22 1/2 fms
 Nature of bottom, Black mud
 Dredging instrument used, 7 foot beam trawl
 Direction of drift, South; distance, 1/8 mile
 Temperature of air, 51 f. therm. No., 7397
 " of surface water, " 7344
 " at depth of fathoms, " 7344
 " at bottom, " 7344
 Density at surface, 1.017 temp., 17.5
 " at depth of fathoms, " 13.0
 " at bottom, 1.019 " 13.0
 Number of salinometer, Surface 7301
Bottom 7104
 Barometer reading, 30.31
 State of sky, clear
 Direction of wind, N. N. W.; force, 2
 Rain, No.
 Direction of surface current, South; force, .3 knot
 " of bottom " " ; force,
 Name of vessel, U. S. Fish Hawk
U. S. Fish Commission
 Service to which attached, ^
 Name and rank of commanding officer, Lt. Comdr.
R. T. Davenport, USNavy
 Name and position of observer,

R. M. Kelly, Commander USN

Last

NOTES RELATING TO STATION NO. 2

Put down 7 ft beam trawl
with anchor A and drift
into current to this station
(Sta. 2) now hauled up.
The trawl contained

only living animals 1 *Squilla*
few *Crangon*
Palaemonetes - few *Ellinassa*
many dead *Tritia*
Mysid shells circa
 $1\frac{1}{2}$ - $2\frac{1}{2}$ inches in length
few *Uca*

Anchorage A mag. $N\frac{3}{4}W$
.62 miles from Saccapras
St.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

1930

Station No. 3

Date, Oct. 28. - 1898

Time of day, 9.38 AM of tide, 3 1/4 hours of ebb

Locality, Providence River R.I.

Exact position, Sassafras Pt. dt. S 3/4 E .2 miles; Mag.

Depth, 2 1/2 fath.

Nature of bottom, Black mud.

Dredging instrument used, 7 foot beam trawl

Direction of drift, S x E 1/2 E; distance, 5/8 mile

Temperature of air, 51 f therm. No., 7397

“ of surface water, 13 a “ 7340

“ at depth of fathoms, “

“ at bottom, 13.5 a “ 7344

Density at surface, 1.011 temp., 13.2

“ at depth of fathoms, “

“ at bottom, 1.017 “ 13.5 a

Number of salinometer, Bottom - 7049
Surface - 7049

Barometer reading, 30.37

State of sky, Clear blue

Direction of wind, North; force, 4

Rain, no

Direction of surface current, S x E 1/2 E; force, .3 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. Davenport, U. S. Navy

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

List 3

NOTES RELATING TO STATION NO. 3

Put down 7 ft beam trawl
about station 1 and drifted
into current to ~~Station~~ Station
(Sta 3) when hauled up. The
trawl contained:

- Living forms - 1 Uca mercenaria
2 Platynoides ocellatus
6 Crayfish
1 Eupagurus longicaudus
 $\frac{1}{2}$ pt. Uca linearis
 $\frac{1}{2}$ pt. 1 Alpheidae

Many small dead bugs.

1 Stomatopoda duplicata

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, Less than 1/2 mi. S. of R. x R. 1/2 W. S.
300 feet mag.
 Depth, 27 feet
 Nature of bottom, Dark mud.
 Dredging instrument used, 1 ft beam trawl
 Direction of drift, S x E 1/4 E; distance, 1/8 mile
 Temperature of air, 52 f therm. No., 7397
 " of surface water, 13 c " 7344
 " at depth of fathoms, " " 7344
 " at bottom, 14 c " 7344
 Density at surface, 1.007 temp., 13 c
 " at depth of fathoms, " " " 14 c
 " at bottom, 1.017 " " " 1301
 Number of salinometer, 3032 surface Bottom 7049
 Barometer reading, 30.32
 State of sky, Clear blue.
 Direction of wind, North; force, 2
 Rain, No
 Direction of surface current, S x E 1/4 E; force, .3 knots
 " of bottom " " ; force, " "
 Name of vessel, U. S. F. S. Spt Hawk
 Service to which attached, U. S. Fish Commission
 Name and rank of commanding officer, Lt. Comdr
R. G. Sargent
 Name and position of observer, W. M. Kelley
Phonographer

NOTES RELATING TO STATION NO. 4

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

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

Several Fruiting Hydroids

Numerous Trilinea

Several Crayfish

Water holds many Peridinium

1 Panopeus

1 Syngnathus

1 Mytilus

1 colony of Clivassa with eggs

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

1932

Station No. 5

Date, Oct. 28 - 98

Time of day, 10:40 AM of tide, 4 1/4 hours of ebb

Locality, Providence River R.I.

Exact position, Cassaba Pt. Lt. Ho. NW 1/4 N
.28 miles mag.

Depth, 28.5 feet

Nature of bottom, Black mud

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, 13 C

“ at depth of fathoms, “

“ at bottom, 13 C

Density at surface, 1.008 temp., 13 C

“ at depth of fathoms, “

“ at bottom, 1.018 “ 13 C

Number of salinometer, Surface 7301
Bottom 7049

Barometer reading, 30.33

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. Fish Hawk

Service to which attached, U.S. Fish Commission

Name and rank of commanding officer, St. Comdr
R. G. Barringer, USNavy

Name and position of observer, J. M. [unclear]
Pharmacist

Station 5

NOTES RELATING TO STATION NO. 5

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

- Living - Several quarts of *Hyalina*
- 1 *Squilla*
- 2 Small *Uca* fender
- Several *Balanus*
- Several Crabs
- Several *Stomatopoda*, a hermit
- Several *Eupagurus* 1 *Rhyndochelone*
- Dead shells *Uca*, *Uca*

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 6 1933
 Date, Oct. 28-98.
 Time of day, 11.10 am; of tide, 4³/₄ hours of ebb
 Locality, Borden River R.I.
 Exact position, Sassafras Pt. abt. 4. N W $\frac{1}{4}$ N
42 miles N.W.
 Depth, 7¹/₂ feet.
 Nature of bottom, Black mud
 Dredging instrument used, 7 foot beam trawl
 Direction of drift, S. E.; distance, 1/8 mile
 Temperature of air, 54^f therm. No., 7397
 " of surface water, 13.5^c "
 " at depth of fathoms, "
 " at bottom, 14^c "
 Density at surface, 1.007 temp., 13.5^c
 " at depth of fathoms, "
 " at bottom, 1.017 "14^c
 Number of salinometer, Surface 7301
Bottom 7029
 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, Dr. Comdr.
R. G. Davenport USNavy
 Name and position of observer, J. W. Miffigan
Tram near

Auto

NOTES RELATING TO STATION NO. 56

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

- Many Callinectes
- Small filinea
- Several Eurytemora
- 2 Pecks of solid Mulinera
- 1 lime tritica
- 2-3 Small Mya
- 1 Small Star fish.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 7 1934
 Date, Oct. 28-1898
 Time of day, 11.35 ; of tide, 5 hours of ebb.
 Locality, Providence River R. I.
 Exact position, Fallus Pt. ab. N.O. E $\frac{1}{4}$ N
300 ft. mag.
 Depth, 31.5
 Nature of bottom, Black mud
 Dredging instrument used, 7 foot beam trawl
 Direction of drift, S. S. E. ; distance, $\frac{3}{16}$ mile
 Temperature of air, 50 f therm. No., 7397
 " of surface water, 14 $\frac{1}{2}$..
 " at depth of fathoms ..
 " at bottom, 14 $\frac{1}{2}$..
 Density at surface, 1008 temp., 14 $\frac{1}{2}$
 " at depth of fathoms, ..
 " at bottom, 1018 .. 14 $\frac{1}{2}$
 Number of salinometer, Surface 7301
Bottom 7049
 Barometer reading, 30.33
 State of sky, Clear blue
 Direction of wind, North ; force, 2
 Rain, No
 Direction of surface current, S. S. E. ; force, 1.5 miles
 " of bottom " ; force,
 Name of vessel, U. S. F. C. S. Fish Hawk
 Service to which attached, U. S. Fish Commission
 Name and rank of commanding officer, St. Comdr
R. G. Sampson, USNavy
 Name and position of observer,
J. M. Milligan
Pharmacist

NOTES RELATING TO STATION NO. 7

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

Wing Thunda Telva
 Numerous Hydroids.

- " Crayon
- 1 Platymachus ocellatus.
- 1 Heroid -

Unilinea less abundant, than at

" 7
1 Crepidula -

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 8 1935
 Date, Oct. 28/98
 Time of day, 2.55 PM; of tide, 3^d hr. of flood
 Locality, Narragansett Bay, R.I.
 Exact position, Conamicut Pt. dt. R.I.
NW x N 1 1/8 miles mag.
 Depth, 4 to 6 fms.
 Nature of bottom, mud
 Dredging instrument used, 7 ft. beam trawl
 Direction of drift, SE; distance, 1/8 of mile
 Temperature of air, 57.6 therm. No., 7397
 " of surface water, " "
 " at depth of fathoms, " "
 " at bottom, 13. " "
 Density at surface, 1.020 temp., 13.5
 " at depth of fathoms, " "
 " at bottom, 1.020 " 13.
 Number of salinometer, 7049
 Barometer reading, 30.30
 State of sky, Cloudy - fair
 Direction of wind, N. E.; force, 3
 Rain, No -
 Direction of surface current, N. N. W.; force, 3 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, Dr. Condy
R. H. Davenport,
 Name and position of observer, J. B. Lilligan

NOTES RELATING TO STATION NO. 8

- 2 *Haydnella*
- 2 *Raja cinacea* -
- 3 *Callinectes* -
- 2 dry leaf *Stas* -
- 1 large *Yeldia*.

Small *Clidias*

- 1 *Pelea hirtica*.
- 1 *Bothus maculatus*.
- 1 *Gupanus longicauda* -

Several *Tritia trinitata*

- 1 *Panopus*.

- 10 *Yeldias*.

Several *Palaeumetes*.

Eggs of *Illianassa*.

Several *Juncina*

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. *9* . *1936*
 Date, *Oct. 28 - 98*
 Time of day, *3.55 PM* of tide, *4th hr. of flood.*
 Locality, *Nanaimo Bay B.C.*
 Exact position, *Conamicut det. dt. H.*
N x W $\frac{1}{2}$ W 2 1/4 miles N.W.
 Depth, *3 $\frac{1}{2}$ to 4 $\frac{1}{2}$ fms.*
 Nature of bottom, *gravelly*
 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^c*
 " at depth of fathoms, " "
 " at bottom, *1.020* " *13^c*
 Number of salinometer, *surface 7049*
Bottom 7001
 Barometer reading, *30.30*
 State of sky, *Overcast*
 Direction of wind, *N. E.* ; force, *3*
 Rain, *no*
 Direction of surface current, *N. N. W* ; force, *3 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, *Lt. Comdr*
R. G. Davidson
 Name and position of observer,
R. W. Milligan
Pharmacist

NOTES RELATING TO STATION NO. 9

1 Star fish

Cancer Irroratus

Cistonides gouldii

Eupleura, Caudata

Crangon vulgaris

Mulinia lateralis

Tritia trivittata

Cerebratulus

Noldia limatula

Chidophora

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, *Narragansett Bay*
 Exact position, *Beaver Tail light N. E. x E 1/4 E.*
~~*1/2 mile distant*~~ *mag.*
~~*1/2 mile dist. from light N. W. 1/2 mile dist.*~~
 Depth, *15 fathom*
 Nature of bottom, *mid & sand.*
 Dredging instrument used, *7 feet beam trawl.*
 Direction of drift, *S x W. 1/2 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, *1.022* 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, *N. W.* ; force, *4*
 Rain, *no -*
 Direction of surface current, *S. S. 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. D. Milligan*
Pharmacist, US Navy

NOTES RELATING TO STATION NO.

Nothing in travel
Travel fouled

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 11th 1938
 Date, Oct. 31 - 1898
 Time of day, 11.20^{Am.}; of tide, 3 hr. 20 m of ebb.
 Locality, Narragansett Bay
 Exact position, Beaver tail light, N.E. x E 1/4 E,
~~1.12 miles~~ ~~1.12 miles~~ ~~1.12 miles~~
 Depth, 12 fathoms.
 Nature of bottom, Sand
 Dredging instrument used, 10 feet beam trawl.
 Direction of drift, N. 3/4 N; distance, 1/8 mile
 Temperature of air, 53° 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, 1.024 " 13.4°
 Number of salinometer, both obs. 7104
 Barometer reading, 29.77
 State of sky, Blue - cloudy
 Direction of wind, N. N. W.; force, 4
 Rain, no
 Direction of surface current, D. S. 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,
 R. G. Sawcypoor, US Navy.
 Name and position of observer,
 J. D. Melligan
 Pharmacist, US Navy

NOTES RELATING TO STATION NO. //

2 small maroon colored stars

2 Skates (Cerenacea)

2 Squirrel hake

5 Small fish ~~probably red~~ silver hake

Tritia

Dead bivalves

Hermit crab, Longicaepus

Most of the shells were inhabited

by Longicaepus

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, Martha's Vineyard Bay
 Exact position, Beacon Hill landing, N.E.E. ~~2.37~~ miles
~~1/2 mile S. of Beacon Hill, N.E.E. 1 mile S. of~~
 Depth, 12 fathoms
 Nature of bottom, Sand
 Dredging instrument used, 10 feet beam trawl
 Direction of drift, P.W. 1/40; 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^c
 Number of salinometer, both abo 710 L
 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.S. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, Lt. Comdr.
R. G. Davenport, U.S.N.
 Name and position of observer,
J. M. Milligan
Pharmacist, U.S.N.

- 27 Squawfish hake -
 about 7 big young silver hake
 4 *Arnica flounders*
 1 4 spotted " "
 1 large silver hake
 4 med. " "
 15 small skates
 1 barn-door "
 3 spine fish
 2 horn-sha crabs
 2 *Cancer* ~~inornatus~~, borealis
 3 " " young -
 1 blue crab
 2 large star fish. Forv.
 5 small purple star (?)
 Some kelp. dulce.
 1 young sea robin
 3 tritia
 Hydroid
 3 *Commensals*
 few *Astyris* on sea weed.
 1 *Neudibranch*.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 13 1960
 Date, Oct. 31 - 1898
 Time of day, 1:35 pm; of tide, 5 1/4 hours yet to
 Locality, Winnamissett Bay,
 Exact position, Beaver Tail light N.E. 1/2 N. 2.7
~~miles mag from at Spring Point N.W. 1/2 W. 1/2 mile~~
 Depth, 99 feet.
 Nature of bottom, Clayey, sticky sand
 Dredging instrument used, 10 feet beam trawl
 Direction of drift, E x N; distance, 1/8 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, Blue - cloudy
 Direction of wind, N. N. W.; force, 4
 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 -

4 squirrel hake

1 unknown fish (egg base?)

7 *Cancer irroratus* Borealis

few small probably this year

7 Jonah crabs

9 purple star

18 small - maroon

7 *Urechis*

1 rabe *Lucina philosa*

1 *Goldia* (piece)

1 *Fusus*

few *Caprella*

few triton shells occupied by *Sinquepus*

1 *Gammarid*

1 Parasitic Isopods

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. 3.25 miles
~~Beantails, N. N. S. 4 miles~~
 Depth, 19 1/2 fathoms
 Nature of bottom, Sticky, sandy clay
 Dredging instrument used, 10 foot beam trawl
 Direction of drift N. N. W.; distance, 1/4 mile
 Temperature of air, 55 Fahr therm. No., 7397
 " 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. F. C. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, St. Comdr.
R. G. Davenport, USNavy
 Name and position of observer,
J. D. Sullivan
Pharmacist, USNavy

NOTES RELATING TO STATION NO. 14

- 4 Maroon Star fish.
- 7 skate Erinacea
- 1 " spotted -
- 1 shrimp - red striped -
- 1 small silver hake.
- 1 winter flounder. had parasites
- 1 ^{men} large silver hake.
- 1 squirrel "

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 15 - 1962
 Date, Oct. 31-98
 Time of day, 3.00 pm ; of tide, 3/4 hour flood
 Locality, Narragansett Bay
 Exact position, ~~White Rock Light 2 mi S 1/2 E~~
~~1/2 miles - Pt. Judith N x S 1/2 S. 1 1/8 miles~~ 1.62
 Depth, 13 1/2 Mag
 Nature of bottom, hard sand
 Dredging instrument used, 10 feet beam trawl
 Direction of drift, N. D. 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, Lt. Comdr
R. H. Davenport. USN
 Name and position of observer,
J. Milligan.
Pharmacist. Narrag.

Several Caprella.

- 1 Pecten tenuicostata, Nutt.
- 1 Cancer ~~Emmota~~, borealis
- 3 young " "
- 1 Empty egg case large shell
- 2 small crinella
- 1 Annelid worm
- 1 small bass - (?)
- 6 red striped shrimp
- 1 young sea-robin
- 1 very large annelid
- 2 small flounder (small)
- 4 Squid hake
- 2 empty shell. modiola modiolus

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 16 - 1923
 Date, Oct. 31 - 95
 Time of day, 3.35 PM; of tide, 1 1/4 hrs. of flood
 Locality, Narragansett Bay
 Exact position, Pt. Judith N. W. 1/4 W. 2 miles mag.
~~Brenton N. E. 1/4 N - 5 miles~~
 Depth, 8 8/10 fath.
 Nature of bottom, Hard orange
 Dredging instrument used, 10 fms beam trawl.
 Direction of drift, S. W. x N. W.; distance, 5/8 mile
 Temperature of air, 54 Fahr therm. No., 7597
 " 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. F. C. S. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, Lieut. Comdr
R. G. Davenport, USN
 Name and position of observer,
J. J. McMillan
Pharmac. asst. USN

From 2 to 3 doz small purple star fish

1/2 doz small squid

6 *Eupagurus bernhardus*

3 young crabs (?)

2 " sea robins

Abelia on kelp.

1 *Eupagurus longicarpus*

1 *Pinnothens oystinum*

8 shrimp *Pandalus* (?)

1 *Buccinum*

1 Fragment of sponge (?)

1 large *Pecten tenuicostata*

1 med " "

2 small " "

2 empty shells of *Modiola Modiola*

1 large *Balanus* sp.

6 *Urosalpinx* *fluminea*

18 *Spurilla* *hatai*

2 *Silva* "

5 *Stalioa* (*arenacea*)

2 " *Barn door*.

The 10 foot beam trawl was badly
torn & disabled during this cast.
Presumably by rocks.

643

RECORD OF DREDGING,
TEMPERATURE AND DENSITY.

Station No. 17 — 1944
Date, Nov. 1st 1898.
Time of day, 9.15 am.; of tide, 1/2 hour of ebb,
Locality, Entrance to the Blk. Id. Sound
Exact position, Ft. J. light N 1/4 E. 1 3/4 miles ^{mag.}
~~Bl. Id., N. 1/4 E. 0. N. 7 3/4 miles~~
Depth, 9 1/4 fathoms
Nature of bottom, Rocky, sandy.
Dredging instrument used, 10 foot beam trawl
Direction of drift, N x E. ; distance, 3/8 of a mile
Temperature of air, 56° Fahr therm. No., 7397
“ 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°
Number of salinometer, 7104
Barometer reading, 30.73
State of sky, Clear blue
Direction of wind, N. N. W. ; force, 7
Rain, No —
Direction of surface current, N. ; force, 8
“ 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. H. McIlhenny
Pharmacist in Navy

- 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
Penicaria Hydroid 1 colony
Spirorbis borealis? on algae.
 a few *Urosalpinx*
 a few *Astyris*
- 1022 Small nudibranchs, *Aeolis*?
Mytilus (small) }
 small *Anomia* } in hold fast
Sepidomorus Sp. } of Devil's apron
- Several species *Bryozoa*
 1 spicule of coralline (?)
 1 *Saxicora*
 a few live eggs of *Urosalpinx*
 a small *Tetradellid*

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 Sound

Exact position,

Pt. Jedd light - N. E. 1/2 E, 2.7 miles ^{mag.}~~Block Island North light, S. W. 1/2 S. 6 1/4 miles~~

Depth,

13 fathoms

Nature of bottom,

Rock & sand

Dredging instrument used,

7 foot beam trawl

Direction of drift,

W. 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,

Rain,

no —

Direction of surface current,

N ; 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. S. Davenport, USN

Name and position of observer,

J. D. Mullen
Pharmacist honor

NOTES RELATING TO STATION NO. 18

Cliona sulphurea
algae with spirorbis sp. abundant
2 maroon stars

1 *Cribrella*

Bryozoa 2 or 3 species

Triton shells ^{adry.} inhab. by *C. longicarpus*

a few *Idotea* sp.

Lobostomatia shells. *C. longicarpus* inside

Hydroids in fruit

numerous crumpon

1 small runner

a few very small annelids in algae

Crepidula plana } on *L. triseriata*
" *fornicata* }

Hydractinea

a small fragment of *Amaracium* sp.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 19 — 1906
 Date, Nov. 1st 1898
 Time of day, 10.20^{am}; of tide, about high water
 Locality, Entrance to Bl. Island Sound
 Exact position, Pt. Jedd Light N x E 1/2 E. 3 1/4 miles
~~Bl. Island north light 0. 11. 1/2 N. 6 miles~~
 Depth, 3 fathoms
 Nature of bottom, Sandy - Rocky
 Dredging instrument used, 7 foot beam trawl.
 Direction of drift, N. N. W.; distance, 1/4 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, 1.024 " 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. F. C. S. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, Lt. Comdr
R. S. Sawyers, U. S. Navy
 Name and position of observer,
J. M. H. Jan
Pharmacist U. S. Navy

NOTES RELATING TO STATION NO. 19

- numerous small cribrella
a few very small purple stars
1 *Corbula contracta*
Mytilus,
Anachis
Fragments of *Alcyonium carneum*
a few *Sepidomantis*
Amorcinium
Cliona sulphurea
one or 2 varieties of sponge
1 piece *Astrangia*
Several doz. small *Cunners*
" Species Hybrid some in fruit
Quantities of *Delasseria* (oak leaf
alga) with *Spirorbis* attached
Ophiopholis aculeata
Gucibulum striatum
A few *Idotea*
E. longicaulus in *E. triseriata* shell
Small pieces of *Buccella*
a few eggs of *Urosalpinx*
Spirorbis
Bryozoa, tentacles with *E. longicaulus*

The bottom is rough -

RECORD OF DREDGING,
TEMPERATURE AND DENSITY.

Station No. 20 - 1947
 Date, Nov. 1st 1898
 Time of day, 10.50 ; of tide, 2 hours of ebb.
 Locality, Entrance to Black Seld Sound
 Exact position, Pt. Jut light. N.E. 1/2 N. 4.7 miles
~~Black Seld North light 0. N 1/2 E 4.3 miles~~
 Depth, 22 1/2 fathoms.
 Nature of bottom, sticky.
 Dredging instrument used, small dredge.
 Direction of drift, S. 1/2 W ; distance, 1/4 mile
 Temperature of air, 52 therm. No., 7397
 " of surface water, 1.023 "
 " at depth of fathoms, "
 " at bottom, 57 Regrett "
 Density at surface, 1.023 temp., 13.7°
 " at depth of fathoms, "
 " at bottom, 1.024 Siphon cup " 13.8°
 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 [as done]
This station not fully made out
NOTES RELATING TO STATION NO. 20

Syprina Islandica - 1 dead,
Asteris undatum
Cardium pinnulatum

Sypho pygmaea →

Small brachiopods - undetermined

Littorina

5 *Skates* *isometa*
About 2 *Squid* *hake*
Young *hake*

also see
Notes of
Sta 21 for
for remainder.

Campodon vulgaris

1 small silver *hake*

Numerous *Pandalus*

Few young *sculpin*

Numerous *purple* & *maroon star fish*

A few *cribrella*

an old coat of *green writhin*

- 20 -

a few small *holothurians* (undetermined)
Yoldia sapotilla

A number of dif spec. of *amphipods*

1 or 2 spec of *newestian*

Littorina

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

Spernastus fessa

Muscula strovata (numerous)

1 *Clidopera*

A few small *amphipods*

a large *sinker* covered with mud
tubes of a small *amphipod* (undetermined)

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 21 - 1968
 Date, Nov. 1st 1898
 Time of day, 11-45 Am. ; of tide, 3 hours of ebb.
 Locality, Entrance to Black Island Sound
 Exact position, ~~P. G. light N. N. E. 6 1/4 mi.~~
 Black Island North light N x E 1/2 S. 3 1/4 mi. ^{mills, mag.}
 Depth, 22 fathoms
 Nature of bottom,
 Dredging instrument used, 7 furl 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. Rejette
 Density at surface, 1.023 temp., 13.0°
 " at depth of fathoms, "
 " at bottom (Syden's cup) 1.024 " 13.0°
 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. F. 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. P. Sullivan,
 Pharmacist, USNavy

- Several large pieces of *suberites compacta*
 E. *Bornhardius* - several
 Kelp, cov. with *Bopygia*, prob. *membranifera*
 a few young *caurini*
 a number of *caprella*
 A few young *aguid*
 A few small *caurini* -
 a young *sea robin*
 or *sculpin* - (common)
 A few *Sypho pygmaea*
 1 young *pecten* ten -
 Some *amarocicum*
 2 small *holothuria*, (undet.)
 1 *Lucina filosa* - (dead)
 2 *metis* *arvensis*
 Few *mucoela* *rotorata*.
 1 small *hermit* *crab*, (undet.)
 " " *fish* (")
 Few *illanassa*,
 Few undetermined *univalves*
 " *isopods*,
 A small *gribby* - common.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. *22 - 1949*
 Date, *Nov. 1 '98*
 Time of day, *1.10 pm*; of tide, *about 4 1/2 hrs of ebb*
 Locality, *East of Block Island.*
 Exact position, *Block Island North Br. N x N 1/2 N*
~~*4 1/2 miles*~~
~~*3/4 mag. 13th St. S. E Light P. N. 1/4 S 1/2 W*~~
 Depth, *22 fathoms*
 Nature of bottom, *Sandy. Hard*
 Dredging instrument used, *7 fms beam trawl*
 Direction of drift, ~~*P. N. S*~~; distance, *1/2 mile.*
 Temperature of air, *54° Fahr* therm. No., *7397*
 " of surface water, "
 " at depth of fathoms, "
 " at bottom, *56° Fahr* *nycteti.*
 Density at surface, *1.023* temp., *13.1°*
 " at depth of fathoms, "
 " at bottom, *Sydes cup 1.023* " *13.2°*
 Number of salinometer, *7104*
 Barometer reading, *30.23*
 State of sky, *Blue - light haze.*
 Direction of wind, *N*; force, *2*
 Rain, *No -*
 Direction of surface current, *N*; 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. G. Sawinport master
 Name and position of observer,
J. D. Milligan
Pharmacist

~~Several winter flounder~~

1 Adult 4 spot "

1 small 4 " "

over a doz winter flounder (ascorted)
several window-panes (Bothus)

several young squid | small Hydrozoa
4 sculpins - 135 mm?

1 small sculp.

1 large sea-robin - unknown

Numerous *Fandulus*.

2 *Stelis* - *Erinacea*.

1 " Butterfly (?)

2 young ^{*Pearlinus*} *sea-robin* (small)

Few small currens

Several *Pecten* ten.

1 *Crepidula fornicata*

1 *Cyprina islandica* (dead)

1 *Buccinum* shell with *Bernhardus*

a few purple stars

Several *macrion* stars.

1 live *Buccinum* (small)

Several *Bernhardus* in *Sertia* & *Sypho*.

Spirobrans on algae

long dead stems of ^{heads} *tubularia* hydroid.

probably *Southwazi* (no heads)

1 *Crangon vulgaris*. Small

Few young base (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, 5³/₄ hours of ebb,
 Locality, East of Black Island.
 Exact position, Black Isl., north of it, N. W. 2¹/₄ miles
~~3³/₄ miles - Black Isl. S. E. by N. 2¹/₄ W. 2³/₄ miles~~
 Depth, 20 fathoms
 Nature of bottom, Hard sand
 Dredging instrument used, 7 feet beam trawl
 Direction of drift, S. W. 1/4 ; distance, 1 mile
 Temperature of air, 53 F therm. No., 7397
 " of surface water, " "
 " at depth of fathoms, 56° Fahr " "
 " at bottom, Regatta
 Density at surface, 1.023 temp., 13.1°
 " at depth of fathoms, " "
 " at bottom, 1.0235 Regatta 12.7°
 Number of salinometer, 7104
 Barometer reading, 30.22
 State of sky, Blue - light haze
 Direction of wind, N. ; force, ✓
 Rain, no
 Direction of surface current, N. ; 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. Dawson, US Navy
 Name and position of observer, Russell
Pharmacist

10 Squinella haka.

8 brittle flowered sea

1 small & 1 adult via emiacca

4 Window pane flounders

1 Coribrella

1 pink pecten Ten.

1 Pand dollar.

A few sea robins - young P. carolinus

2 Cracibulum striatum with eggs

Several Bernhardus

Caudalus, abundant.

Cyclocardia brevis.

Astarte sp.

Cyprina islandica (dead shell)

Several squid

Young silver hake

1 Cancer borealis.

few Crangon vulgaris

Young Gubby = A. ancae

1 Anemone -

Lunasinaria hirs

1 Small white holothuria

1 young - (Mp. base)

Dead eggs of skate

1 Panothores maculata

1 " ostreum

A few Maroon stars.

1 Hermit crab, undetermined

A fragment of Aplysina ^{Caverna punctatum (empty)} cavernum

1 large eulim 18 spine? ^{sterile}

1 live tubularia conthomy ^{Several}

1 dead shell of modiola (undetermined)

1 small purple star - fish (quite young)

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 24 - 1951

Date, Nov 15 1898

Time of day, 2.40 pm; of tide, low water

Locality, S. E. of Block Island

Exact position Blk. Isld S.E. Lt. No. 2 N. 1.67 miles
~~Montauk Isld N. 1/4 S. 15 miles~~

Depth, 16 fathoms

Nature of bottom, Sand - (Hard)

Dredging instrument used, 7 feet beam trawl

Direction of drift, S. 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° C

“ at depth of fathoms, “

“ at bottom, 1.023 lighter cup 17.9° C

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, St. Commr
R. G. Bavenport, USN

Name and position of observer,
J. M. Upton
Pharm

NOTES RELATING TO STATION NO. 24

- 1 winter flounder
 Several *Urolophycis fluminea*
 ? rusty
 1/2 bushels sand dollars.
 few small silver hake.
 1 large empty egg of skate.
 Few young sculpin.
 young sea robin - several, *P. corvina*
 small number *Pandalus*
 Hydroid. (?)
 Few *Cribrella*, small
 " ^{maroon star} small purple star
 " young squid.
Astarte castanea,
 young sea clams
 young rusty flounder
 small *Berhardus* -
 1 *Pecten* ten.
 Kelp covered with *obelia*
 1 large sculpin
 1 *Styrioides* base
 1 large skate
 Few Crangon
 5 skates, small - 2 sp.
Cyclocardia borealis
 1 young lump fish
 + white holothurian
Tortia
 Few young cancer
 1 very small sea anemone
 1 *Amachris*

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No.

75 - 1952

Date,

Nov. 1 - 98

Time of day,

3.30 pm; of tide, 1 hour of flood

Locality,

South of Block Island

Exact position,

Blk Id. O. E. Light: 0 N. E. $\frac{1}{2}$ E. 2.75 miles~~M. House for light. Aug. 12. 12 1/2 miles~~

Depth,

13 fathoms

Nature of bottom,

Hard, Gravelly.

Dredging instrument used,

7 fur beam trawl

Direction of drift,

S. W. $\frac{3}{4}$ S; distance, $\frac{3}{4}$ 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° C

" at depth of fathoms,

"

" at bottom,

1.025 ^{Hodges}

" 12.7°

Number of salinometer,

7104

Barometer reading,

30.28

State of sky,

Blue - light haze

Direction of wind,

N.

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

Rain,

NO

Direction of surface current,

Nepersceptible

" 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,

St. Comdr

R. G. Sawyers, USN

Name and position of observer,

J. M. Sullivan

Phar. USN.

- 5 White flounders
 5 Window panes
 Few young sea robins
 Several small white holothurians
 a few Crangon eul.
 Some young cancer borealis (?)
 few parvalus
 2 small pieces of pugna
 Lots of gravel
 Sponges with few small hydroids,
 a few Bernhardtia.
 Tritia.
 2 young sea clams.
 1 Sand dollar.
 1 Longicarpus.
 Lunacca trifurcata,
 2 or 3 very small purple stars.
 Several detritus 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. 2nd 1891*
 Time of day, *10. am.* ; of tide, *^{an hour} 3/4 of ebb*
 Locality, *Narragansett Bay*
 Exact position, *Dutch Geld light, E x N.*
Dist. 6 1/2 miles mag.
 Depth, *7 1/2 fathoms*
 Nature of bottom, *Muscul bed.*
 Dredging instrument used, *7 ft beam trawl*
 Direction of drift, *E x S.* ; distance, *1/4 miles 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. Davenport, U. S. Navy
 Name and position of observer, *J. D. Milligan*
Phar. U.S.N.

NOTES RELATING TO STATION NO. 26

- Mytilus edulis* - Half bushel - med size
 1 *Gribbetta*
 1 *Gomphus* *basu*
 2 *P. Carolinus* young.
 4 *Winter* flounder. med size
 4 *Skates* Bonnet. *Erinacea*.
 1 *Pycnopus*

Crepidula fornicata common
 few *Penopius*.

Pannaria hydroid. 2 or 3 colonies

3 Rock Cls. 1,

few, *Lepidonotus* sp.

1 *Bottle Star* - *Smactophora*

Eurosalpinx

Crepidula plana

1 *Prophonia affinis*.

Dead shells of *Mytilus*

" " *Crepidula convexa*

" " *Callista convexa*.

20 Star fish 7 inches (frob)

1 pipe fish

30 Sea machine *orbacia*

few *Crangon* Vul.

Anacharis - *Species* (few)

E. Longicaepus

Hydractinia

Small spec. of *Bugula*

Dead shells of sea *Transvona*.

1 *Littorina littorea*

Littorina

1 *Oyster* crab

few dead *anomia*.

Mytilus
Callista
Smactophora
 (dead shell)

Block

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RECORD OF DREDGING,
TEMPERATURE AND DENSITY.

Station No. 27 - 1954
 Date, Nov. 2-1898.
 Time of day, 10.15 am; of tide, 1 hour of ebb
 Locality, Narragansett Bay
 Exact position, Dutch Field Light R. 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°
 " at depth of fathoms, "
 " at bottom, 1.022 " 13.0°
 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.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. Davenport, U.S. Navy
 Name and position of observer,
 J. S. Milligan
 Pharmacist, U.S.N.

Cinclus - dead murex shells.

Aspidaria plenty

Few small hydroids.

Few lepidonotus

Few Tritia

E. longicauda

1 Microciona

Crangon Vul.

Bryozoa

Emmusalpinx

of star-fish (forb) rather small

Crepidula plana

1 *Glyptothorax* r.

Few dead shells *Crepidula*, *Murex*
and *Callista convexa*

Egg string of *Pyrotypus* with young.

Few small amphipods

Dark leaf *delessierii* (algae)

Panopeus few.

Heteromysis form. numerous
in dead shell of *Pyrotypus*.

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, *Narragansett Bay*
 Exact position, *Dutch Island Light, D. O. R.,*
2.67 miles up,
 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, *D. W.*; force, *6*
 Rain, *no*
 Direction of surface current, *D. W.*; force, *1/3 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, *Str Comdr.*
R. G. Sarsapar, USN
 Name and position of observer,
J. S. Milligan
Pharmacist
USN

- ~~Species~~
Sulphur sponge, (Cliona)
Few sipidonotus
6 Small star fish from $1\frac{1}{2}$ to 3 in. ^(fishes)
Pomopius.
Pieces of dead Mytilus 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 in 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*
H. G. Davenport, US Navy
 Name and position of observer,
J. D. Melligan
Pharmacist US Navy

about a bush of amph. sponge,
 several clusters *Aspula*.

Few *Cragon* val.

Few small *amphipods* numerous

and *Panopeus* few -

Lepidodotus

1 *E. Pollicaris*

Crepidula plana

1 squirrel hole

1 window pane 1 *Botano*.

1 piece of kelp ^{large} with *Obelia*.

2 small squirrel holes.

Membranipora.

20 small stars. *E.* 1 in to 3 or 4 in.

2 rock cell.

E. longicauda

Crepidula convexa.

Ellianana

Tritia afra with *longicauda*.

1 small shrimp. (?)

* *Esarella*

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 30 — 1957
 Date, Nov. 2 - 1898
 Time of day, 11, 30 am; of tide 1 3/4 hours of ebb
 Locality, Narragansett Bay
 Exact position, Conduent North point
light, S. E. x E. 1/4 E. 3 7/8 miles away
 Depth, 5 fathoms
 Nature of bottom, Sticky mud.
 Dredging instrument used, 7 fath beam trawl
 Direction of drift, S. E. x E. 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., 14.2°
 " at depth of fathoms, " "
 " at bottom, 1.022 " 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, D x Dr.; 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. B. Davenport US Navy
 Name and position of observer,
J. D. Mullygan
Pharmacist US Navy

NOTES RELATING TO STATION NO. 30

1 Squinell Lake large

1 silva "

1 Squilla

Few winter flounders

Several Sandown pines

2 Skates Erinacea.

1 large spotted flounder

Small undetermined

Very small cunner

Teredos

Rock pil

Bugula on old wood.

Sicyotiphus

Nereula (l)

Byzozoa

Crangons.

Scrupula

Mullinea

Hydroid

Tritia (l.)

1 Metridium

1 Bulla

Botryllus

Cleidophera (l)

Callista convexa

numerous dead shells

Young sp. carolina, sea robin

Dead shells of aplousia, talia

Anomia, Mytilus, Cleidophera

Sicyotiphus murata, crepidula

Cardium pinnulatum (dead)

Eupleura (l)

Pholus costata 1 piece

50 small stars ^{forbes} 1 in to 5 inches

a few small fish (?) like anchovy

1 Lyrocia hyalina

1 Cisterides - 1 young argina pexata

L. mesrieta

few Anelias

1 Pelia mutica

E. longicarpus - E. Pollicaris

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. *31 - 1958*
 Date, *Nov. 20 1898*
 Time of day, *1.30 pm*; of tide, *3³/₄ of ebb.*
 Locality, *Narragansett Bay*
 Exact position, *off N. Conlaricut Island North
from N. x S. 9/2 S. - 1.37 miles N. by*
 Depth, *5 fathoms*
 Nature of bottom, *Muddy*
 Dredging instrument used, *7 foot beam trawl*
 Direction of drift, *S. E. x E. 1/4 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 at bottom*, "
 " 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. Davenport, USNavy*
 Name and position of observer, *J. M. Sullivan
Pharmacist, USNavy*

NOTES RELATING TO STATION NO. 31

- ✓ Winter flounder
 1 Windowpane "
 1 Large skate *Etmoptera*,
 1 very small "
 5 small silver hake
 9 *Longicarpus*
 2 *Palaemonetes*
 + 60 Star fish (*Forbesi*) 2ⁱⁿ to 5ⁱⁿ, ^{varies} small
Callista convexa,
Foldia *Tritia*
Clidropora,
Crepidula fornicata,
 Young *P. caroliniana*
 1 " 4 Spot flounder.
 2 Crangon
 1 small fish like those in 30
Candrium pinnulatum (none alive)
Murex
 Some mollusks alive; some dead shells.
 1 *Siganichia pycnoloma*
 1 young *Canis inornata*.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 32 - 1959
 Date, Nov. 2 - 1898
 Time of day, 1.50 pm.; of tide, 4 hours past,
 Locality, Managassett 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., 17.7°
 " at depth of fathoms, "
 " at bottom, 1.024 " 17.6°
 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. Comdr.
R. G. Sawapurr, USNavy
 Name and position of observer,
J. D. Magellan
Pharmacist Navy

NOTES RELATING TO STATION NO. 32

- + 50 stars 1m to 5m
- 2 Window pane flounder, small
- 1 Amber
- 1 Med size P. Carolina.
- 1 Squilla.
- 1 piece sulphur sponge.
- 1 Parropinus.
- Few small fish like those in 30
- Chloropora. - Tritia, Yoldia, *Probably Mulina*
- Em. caudata, few
- few Crangon Vul
- Callista - several -
- Mulina lateralis few
- Number very small antherpods
- 1 Bipidula dead
- 1 L. Hyalina.
- Most of the mollusks empty shells
- 1 valve of Macoma (?)
- Scapharpa transversa dead
- Small Syotyspus (dead shell) *shell*
- L. truncata
- Piece of shell of Pholis costata,
- Mya (dead shell)
- few rock red?
- Pelia mutica -
- Anchid worms
- Euphros
- Mulina lateralis dead shell
- Pandern parulatum - Murex
- 1 Pinnixa. Species
- Many dead shells of these ^{mollusks}, some live
- Small Syotyspus

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 33 - 1960
 Date, Nov. 27 1898
 Time of day, 2.25 pm; of tide, 5 hours of eb
 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, Yew 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., 17.2
~~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, O x 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. Sawen for, us navy
 Name and position of observer,
J. Milligan
Pharmacist us navy

NOTES RELATING TO STATION NO. 33

250 to 300 ft. from the to 6 in.

9 ^{assorted} Window lace flowers

3 Window flowers

1 *Tautog*.

6 small silver brack shells.

3 *Spilla*

3 *Stakis* (*Primula*)

2 *Cancer irrorata*. Large

1 *Sycotopus*.

Crangon - *Litia* -

Clidippa, *Yoldia* -

Alonca, *Callista convexa*

note:

Number of dead shells of the more common Molluscs, in most of the hauls, and of varying abundance, in the different species. *Callista convexa*, 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 numbering the empty shells. The names 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, Slack-water
 Locality, Narragansett Bay
 Exact position, Marwick 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° C
 " at depth of fathoms, "
 " at bottom, 1.022 " 12.6° C
 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, At Comdr
R. G. Sawciper. US Navy
 Name and position of observer,
J. Mulligan
Pharmacist US Navy

NOTES RELATING TO STATION NO. 34

Few small flounders
 " window pane "
 Few pieces of spongy sponge
 Some *Porpita*
 1 *Stati* *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 Rockeel
Crepidula fornicata with eggs.
Pyrotypus
Crepidula plana
Craugon vulgaris
Callista coarctata
Valga leucon (dead shell)
Clidiaspa

A few scattering hydroids,
Panopaea

Eupheria candida
 Piece of mollusk
Sitta yoldae
Muricea lateralis
 Worm tubes —

Practically the same as 33

1 *Pygospio*
 1 *Cerbratulus*

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 35 - 1962
 Date, Nov. 2nd 1958
 Time of day, 4:00 pm; of tide, 1/2 hour of flood
 Locality, Narragansett Bay
 Exact position, Goat Island Light S. W. x
S. 1.50 of mile mark,
 Depth, 8 fathoms
 Nature of bottom, Muddy
 Dredging instrument used, 7 ft beam trawl
 Direction of drift, S. E 1/4 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, 1.021 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, E. N. E.; force, 7
 Rain, no
 Direction of surface current, N. N. E.; force, 1/4 knot
~~of bottom " " ; force,~~
 Name of vessel, U. S. Fish Com Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, St. Comdr
R. G. Barnhart, USN
 Name and position of observer, J. M. Hogan
Observer, USN

NOTES RELATING TO STATION NO. 35

- 1 large skate *Ermaea*
1 small "
about 100 Star fish 2 in to 5 inches
Coronula vulgaris
E. longicauda, very numerous
2 small winter flounder
3 *Minimiparus* (1 small)
Few young *P. carolinia*
Several pipe fish
Hydractis
Cinders & gravel.
Foldia
Few small anelids.
E. follicaris
Tritia, empty shells - dead
Callista many "
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.
Fulga - 1 small - empty
Lidopora few - empty
Pecten ten ^{small} few empty.
" " 1 live.
1-4 *Spit*, small.
1 Egg mass, jelly like, small (?)
Few *Astarte*, small yellow -
1 live specimen with small head of
Tubellaria conthomyi.

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, Nantuxant Bay.
 Exact position, Gould Island light
 S. W. 1/4 S. 1/2 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, $\frac{1}{4}$ knot
 " of bottom " ; force,
 Name of vessel, U. 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,
 J. M. Miller
 Ther. No.

- 1 large skate: *Erinacea*,
 1 small winter flounder,
 1 " window-pane. "
 2 small of spot "
 1 quinnat hake small
 2 silver " "
 E. Longicaepus, very numerous
 Several small cancer *irrorata*,
 Some Crangon,
 1 Green Wechin,
 About 70 star fish 2 to 4 1/2 inch
 Several large Anelid worms
 Asterias. Yellow. (?) 2 or 3 doz
 Some *Foldia*,
Cleodopera, numerous, small,
Britia - few live
 Several *Literna littoria* Few alive
 Few eggs of Skate *Erinacea*,
 most of the univalves occupied by
 E. Longicaepus,
 L. *Tricostata*, num
Callista *Concava*, numerous ^{small} dead shells
 1 *Trophonia*
 Few small shells of L. Texas.
 Few *Pecten*, few small.
 2 or 3 *Thracia* (?) 1 sp.
 1 dead shell *Lucina filosa*,
 1 live *Cylocardia borealis*, small

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 fur 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° C
 " at depth of fathoms, " "
 " at bottom, 1.023 " 13.6° C
 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, EXO; 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. S. Davenport, USNA
 Name and position of observer, J. D. Mangan
Pharmacist USNA

* adyo

NOTES RELATING TO STATION NO. 37

Alyonium carneum, numerous
small pieces

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

1 " " " "
1 arm of third star - Forbes
9 *Cribrella* 1/2" to 2 1/2 inch
1 *Anemone*

Few pieces of *Bugula* with bryozoa

1 fragment of hydroid (?)
1 small small *Callista conveya*

1 shell of *L. tricenata* with

E. longicaepus

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

1 *Juncate* (?)

Small piece *Ammarocium*

Clidoptera - 2 dead shells

~~widely represented~~

~~epitaxial~~

~~1 large empty egg~~

~~Dead shells of *Stenonema* hydroid~~

~~All pieces note box.~~

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 38 — 1965
 Date, Nov. 3rd 1898
 Time of day, 10.10 ^{am} ; of tide,
 Locality, Black Isld Sound
 Exact position, Black Island North Cr.
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. 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, Lt. Comdr
R. G. Savenport, U.S.N.
 Name and position of observer,
J. Milligan
Pharmacist U.S.N.

see note in frays book

NOTES RELATING TO STATION NO. 38

- 6 skate *Urolophora*
- 9 varying sizes white flounder
- 5- Window panes
- 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 (?)
- 2 multi a number small squid.

Pandalus - numerous -

- 1 large empty shell *Cyprina islandica*
- Several large pieces of kelp
- Piece of crabrack *rosca*
- Fritia a few - 1 *Yoldia*
- Manchus* 1 dead shell

Fusus - 1 -

- Few *L. triseriata* with *E. Bernhardt*
- Scraps of *Clidippa l. hyalina*
- 2 cancer *borealis* (young)
- 1 shell of *Cy^{dyparidum} borealis*
- 1 pair of *Astarte* (Sp)
- 1 brittle star small

About 150 maroon stars etc 3 in.

12 Purple stars - varying size
both light + dark

1 star fish, Forbes ^{with} 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. 3rd 1898
 Time of day, 10.50 am 1/4 hour of ebb
 Locality, Block Island Sound
 Exact position, Block Island north light
N. E x E. T. 3.25 miles way
 Depth, 20 fathoms
 Nature of bottom, Hard, sandy
 Dredging instrument used, 7 feet 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. O. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, LT. Comdr
R. G. Savenport, 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 Skates - immatures

3 small squirrel hake

1 young sea robin

1 " scup

1 E. Bernhardus

Spirobia

Few small green urchins

Some small squid (dozens)

Fragments of kelp with *Byozoa*

1 piece of *Cyprina islandica*

Very few *Pandalus*

Fritia alba & with hermits

E. longicarpus few

L. triseriata alba & with hermits

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 *Cydoceum borealis*

about 200 maroon stars, 1 to 2

Very few small purple "

2 - *Fritia* stars 1 in x 2 inch

1 small medibranch, *Dondella* (?)

~~few *Crepidula* & *Plana*~~

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 40 - 1967
 Date, Nov. 3rd 1897
 Time of day, 11.30^{am}; of tide, 1 1/4 hrs. of ebb.
 Locality, Black Island Sound
 Exact position, Black Isla No. light
N. E. 1/2 E. 4.50 miles mag.
 Depth, 18 fathoms
 Nature of bottom, Sand
 Dredging instrument used, 7 ft 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. F. C. S. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, St. Comdr
R. G. Davenport, USNavy
 Name and position of observer,
J. D. Milligan
Pharmacist, USNavy

Few small sandal

NOTES RELATING TO STATION NO. 40

- 1 Summer flounder
- 2 Squinid hake
- 2 Silver hake (1 med, 1 young)
- 1 winter flounder
- 1 skate - erinacea
- 1 window pane (Bothus)
- 3 very small silver hake
- 1 young sculp.

Bugula
 young Cancer local
 Lepidostomus few
 Caprellid few

modiola modiolus.

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

Few small squid,

- 1 empty egg case. erinacea
- Algae with cancria hydroid and Bryozoa
- Few pecten ten, small + med. size
- Few stems of tubularia costarici
- Crepidula fornicata.

1 Cancer irrorata

About 3 doz narrow stars

Few very small arbores

- 1 pycnogonid
- Fragment of sulphur sponge
- 6 very small purple stars.
- 2 small Buccinum
- 1 cyclodora borealis.

Few E. Longicarpus

Few Bernhardus

Few Caprellid plana,

2 Cancer irrorata, small,

Few empty shells of cycl. borealis

trita, sea clams, l. tricornata, anomia

cruciatulum, modiola modiolus

small buccinum, l. hevos, few isopods

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 41 — 1968

Date, Nov. 3rd 1898

Time of day, 12.05 ; of tide, 1 3/4 h. of ebb

Locality, Black Island sound

Exact position, Black Island, N.E. light
E 1/4 Sec. 3.50 miles away

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 knot

“ of bottom “ ; force, “

Name of vessel, U.S. F.C.V. 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 caryaria hydroids.
A little frond.
Some small sponges.
12 small purple stars. $\frac{1}{2}$ to 2 in.
2 Cribrella.
1 brittle star.
Some small isopods
" " amphipod
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 mudbranch ^{Cribrella}
1 Ruscel. Z. angularis (?)
2 Praxion. very small
Spirorbis (some)
a few young Cancer borealis,
Astralgia 1 piece

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 42 - 1969
 Date, Nov. 3 - 1918
 Time of day, 1.35 pm; of tide, 3 hours of ebb
 Locality, N. East of Black Island,
 Exact position, Black Island N. E. light
E x N, 6 miles mag.
 Depth, 20 1/4 fathoms
 Nature of bottom, Sand, gravelly
 Dredging instrument used, 7 foot 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. Davenport, USNavy
 Name and position of observer,
J. J. McEligan
Pharmacist, USNavy

NOTES RELATING TO STATION NO. 42

- 10 18 *opimia sculpinus*
 Several young sea robins
 " " " sculp.
 16 *Winter flounders*
 1 4 spot "
 2 small *erinnacea*
 6 *Window pane*
 16 *Pecten* ten. various sizes
Capriola formicata
Pandalus ^{some with eggs} *numerous* }
Hydrov. tubularia cutag.
 Small *guan. peneria hybrid*
 + *Coraline*
 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
Berechardus
 1 (?) *Eopadurus*
 + 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. *modiolus*
 " " *Cyprina islandica*
 1 *cur l. heros*
 Several colonies of what looks
 like coarse *Sargassum*

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 43 - 1970
 Date, Nov. 3rd 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 N. - 7.25 miles long
 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° Negeth
 Density at surface, 1.023 temp., 13.1°
 " at depth of fathoms, lighter cup
 " at bottom, 1.023 + " 13.2°
 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, E x S. ; force, 3/4 knot
 " of bottom " ; force,
 Name of vessel, U. S. F. C. P. Fish Hawk
 Service to which attached, Fish Commission
 Name and rank of commanding officer, Dr. Combs
R. G. Sawanperr. usnary
 Name and position of observer,
J. M. Sullivan
Pharmacist. usnary

NOTES RELATING TO STATION NO. 43

- 4 Rusty-flounder
 1 four spot "
 3 window pane "
 Round Dollars, Halfpuck ^{averaging} = small
 4 Pecten ten-larvae -
 few young sea robin
 4 " sculp
 " silver flounder (?)
 few Pandalus
 scallop *erinacia* (?)
 6 *Astarte castanea*
 a little coralline & algae
 few *Bornhardia*
 few *Tritia*
Sypho pygmaea
 Squid.
 1 young sea clam
 1 very young flounder (?)
 2 small pieces branch coral (?)
 1 young *Cancer borealis*
 few pieces of alcyonium, small
 1 or 2 crabs, small.
 2 doz 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, Spring of ebb
 Locality, N. E. of Block Island
 Exact position, At the Judith Light
N. N. x N. 1/2 N. 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, 3/4 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. Bowers, USNavy
 Name and position of observer,
Smilligan
Pharmacist, USNavy

NOTES RELATING TO STATION NO. 44

4 Arrow pines flounders

1 rusty "

1 white "

14 young sea robin

3 skate erinacea

3 " spotted. spines in middle of back
size of erinacea

Several young scup.

1 young silverside

1 " squirrel "

a few small squid

small number of sandhoppers

1 quart of sand. Dollars

6 pectin ten ^{3 small} _{3 large}

Lumaca heros.

Fricinata occupied by Bernhardi

a few tritina

Caprodula plana

fornicata

1 stem of hydroid - long - (?)

9 maroon stars ^{less than 1/2} _{in. to 2 in.}

2 crinbillum striatum - 1 with eggs -

RECORD OF DREDGING,

TEMPERATURE AND DENSITY.

Station No. 45 1972
 Date, Nov. 3rd 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. ; distance, 3/4 mile
 Temperature of air, 56° Fahr therm. No. 7397
 " of surface water, "
 " at depth of fathoms, "
 " at bottom, 55° Fahr Negretti.
 Density at surface, 1.023 + temp., 13.0°
 " at depth of fathoms, "
 " at bottom, 1.024 lighter cup " 13.2°
 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. 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

NOTES RELATING TO STATION NO. 45

- 5 Winter flounder
 12 Krill
 1 silver hake medium (?)
 3 squid
 3 Skates - immaculata
 1 skate spotted (?)
 few small sand dollars
 " sand alga
 several pieces of suberites compacta
 1 young silver hake (?)
 3 " sea robins,
 a few small squid.
 Bernhardus. Several in
 Tritia + tricerata shells
 4 Buccinum undatum
 1 small piece branch coral (?)
 about 24 Maroon stars. 1 to 2 m

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 46 - 1973
 Date, Nov. 14th 1898
 Time of day, 8.30 am; of tide, 3rd hof flood
 Locality, S. W. of mouth of Pekonnet River
 Exact position, Beantons reef l. ship
N. W. of 25 m. mark
 Depth, 18 fathoms
 Nature of bottom, Sandy - shelly
 Dredging instrument used, 7 feet beam trawl
 Direction of drift, S. E. x E 1/4 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 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. Comdr
R. G. Davenport, USN
 Name and position of observer, J. H. Gilligan
Pharmacist, USN

NOTES RELATING TO STATION NO. 46

- 7 squirrel hake -
- 4 Windowpane -
- Several young sea robin
- Few Pandalus
- 5 Skates - eromacea, ^{rather} small
- Several young silver hake (??)
- ✓ mostly flounder
- 1 four spot .. (Parasite on flounder
- 1 winter .. (Dy. (?)
- Few Crangon. Winter skate had
- 1 winter skate. Parasite
- Few small squid
- Few sand dollars
- Few empty shell of cyprina -
- islandica, with stems of Tubularia ^{Coastal}
- Tritia - numerous
- Neptuna pycna - few
- E. Bernhardus } in Tritia
- E. longicaopus } shells
- Suberites compacta.
- Few young hake - squirrel (?)
- few young Buccinum small.
- Nearly 100 Maroon stars, ^{1 1/2 in. to} 3 inches
- 1 valve of cyclocard. bivalis
- Hydractinia
- Capridula plana.
- Cucubulum
- L. Triceriatum with Herminia
- 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, 2nd of flood
 Locality, W. of mouth of Roxbury river
 Exact position, Edgewater light
E. N. E. 2.67 miles mag.
 Depth, 14 fathoms
 Nature of bottom, Sandy
 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. 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, Dr. Conner
R. Y. Dawenport, USNAV
 Name and position of observer,
J. H. Milligan
Pharmacist, USNAV

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
- Spirobolus
- few silver hake (?)
- few *Pandalus*
- Cappidula flava*
- 1 shell of *Littorina littorea* ^{with} _{hermit}
- 1 young cancer (?)
- Habia*. 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. 4th 1898.
 Time of day, 9.55 ; of tide, 4¹/₂ h. of flood
 Locality, Mouth of Port Antonio
 Exact position, Rakinner Light.
 S. x E. $\frac{1}{2}$ - $\frac{1}{2}$ 1.67 miles mag
 Depth, 9¹/₂ fathoms
 Nature of bottom, Sand - gravel
 Dredging instrument used, 7 feet beam trawl
 Direction of drift, N x E ; distance, $\frac{1}{2}$ mile
 Temperature of air, 57° Fah 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, 1.023 " 12.5°
 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, $\frac{1}{2}$ 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, US Navy
 Name and position of observer,
 J. M. Kellogg
 Pharmacist, US Navy

NOTES RELATING TO STATION NO. 48

- ✓ *Amia flavescens*
- 16 squirrel hake -
- 1 small sea-raven -
- 1 star-fish, *Forbesii*.
- 7 skate - *innacea*
- 3 sculpin.
- 1 young hake - squirrel
- 2 " cunner.
- 1 small conner
- Few sand dollars.
- 1 *Libinia* -
- Chalina doz bunches
- 2 narrow star $\left\{ \begin{array}{l} 1 - \frac{1}{2} \text{ in} \\ 1 - 2 \text{ in} \end{array} \right.$
- 2 *E. Bernhardus* -
- few *E. Pollicaris*. few -
- Buccinum undatum* - small.
- E. Conficarpus* - few
- Euroalpinus*
- L. Tricerata*. few
- * *L. heros* few
- Tritia*
- 1 pipe fish.
- Few crabs
- 1 anachis.
- 1 *E. annulipes*.
- 1 *Sycetyx* - small
- 2 small *Peta*
- Bunch of sculpin eggs

**RECORD OF DREDGING,
TEMPERATURE AND DENSITY.**

Station No. 49 — 1976
 Date, Nov. 4 - '98 High water
 Time of day, 10.30 ; of tide, High water
 Locality, In Sacramento river
 Exact position, Church Point N. W. 1/2 N
95 9 miles west
 Depth, 5 fathoms
 Nature of bottom, Gravelly
 Dredging instrument used, 7 foot beam trawl
 Direction of drift, N. E. x 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, 30.4
 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. USNavy
 Name and position of observer,
J. Milligan
Pharmacist USNavy

NOTES RELATING TO STATION NO. 49

- 1 doz skates *erinacea*
- 1 large & 1 small spined hake
- 2 *Stenobrama* flounders
- 2 window panes
- 1 Cunner
- 1 cluster of chalcid
- several young fish, slender 1/2 in
- Few crayfish.
- 1 *E. longicauda*
- 1 *E. pollicaris*
- 1 *E. annulipes* gurnal
- 1 *Capridon planus*
- 1 *fornicata*
- few *Balanus*
- Neversita* with hermit
- 1 *Cyclopterus* "
- 2 1/2 in. star fish (?) narrow
- Littorina littorea*
- Fritia*
- Hydrach turca*
- 1 *L. vincta* (?)
- 1 valve of goldia
- 1 young fish
- 3 " resembling bass
- 1 *Chirona tenella*.

RECORD OF DREDGING, TEMPERATURE AND DENSITY.

Station No. 50 1917
 Date, Nov. 4th 1898
 Time of day, 11. am ; of tide, High water
 Locality, In excavated river
 Exact position, High Hill point
N. E 1/2 N . 67 1/2 a mile
 Depth, 4 3/4 fathoms
 Nature of bottom, Rocks -
 Dredging instrument used, 7 feet beam trawl
 Direction of drift, N x W. ; distance, 3/8 mile
 Temperature of air, 60° Fahr therm. No., 7397
 " of surface water, "
 " at depth of fathoms, "
 " at bottom, "
 Density at surface, 1.022 temp., 15° 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, S. 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. G. Sawcypur. W. Navy
 Name and position of observer, J. M. Milligan
Pharmacist Navy

- Few sponges here
 1 *Umbra* flounders - 2 small
 2 *Skala* - *innata*.
 Few dead shells *Balanus*, with
Membranipora & *Cerpenia*
Crepidula fornicata
 " *plana*.
Escarella
E. Pollicaris several
E. Longicauda few
Limacia heros.
Neerita
 1 *Libinia*
 1 *Tricriata*
 2 *Pelicanus mutica*
 1 *Fus* *argina* + 1 empty shell
 a few small *Scapharca*
 1 *Eurosalpinx*.
Hydractinia.
 1 *Fulgur*
 1 regenerating *Tai*, Forbes
 Few *Lepidonotus*.
Plymenella
 1 *Gammarus* sp.
Copleura caudata dead shell