

sion on the McCloud River, California, during the whole period of their operations from 1872 to 1884, inclusive :

*Salmon eggs taken.*

Year.	No. of eggs.	Year.	No. of eggs.
1872.....	30,000	1880.....	7,500,000
1873.....	2,000,000	1881.....	7,500,000
1874.....	5,750,000	1882.....	4,000,000
1875.....	8,610,000	1883.....	1,000,000
1876.....	7,500,000	1884.....	
1877.....	7,000,000		
1878.....	14,000,000	Total.....	71,890,000
1879.....	7,000,000		

NOTE.—As most of the above figures are largely underestimated it is probably safe to assume that seventy-five or eighty million salmon eggs were taken at this station in the twelve years from 1872 to 1883, inclusive.

*Trout eggs taken.*

Year.	No. of eggs.	Year.	No. of eggs.
1870*.....		1883.....	380,000
1880.....	338,000	1884.....	315,225
1881.....	261,000		
1882.....	337,500	Total.....	1,640,725

\* Station established.

**5.—TRANSPLANTING LOBSTERS TO THE CHESAPEAKE\*—EXPERIMENTS UPON THE TEMPERATURE THEY CAN ENDURE.**

**By Lieut. W. M. WOOD, U. S. N.**

October 18 I procured from Mr. E. G. Blackford, in New York, 125 live lobsters of small and medium size, many of them being females with a full supply of eggs. They were placed in a tank through which salt water was circulated, but quite a number died the first few hours, being probably in poor condition when received from the market. On our arrival in the Chesapeake, I deposited 63 in good condition and trust they may be heard from in the future. They were deposited off Block River light at 11.30 p. m., October 19.

I tried the following experiments in this connection by means of the ice machine. In a cask containing salt water and maintained at a temperature of from 34° to 36° F. I placed 5 lobsters. At the end of twenty four hours 3 were dead and 2 alive and in apparent good condition.

In the cold chest, kept at a temperature of from 34° to 38° F., 5 others were put. At the end of twenty-four hours 2 were dead, 2 in excellent condition, and 1 rather weak. The 3 latter were allowed to remain another twenty-four hours, or forty-eight hours in all. The weak one was then dead and the other two in pretty good condition

\*On a previous planting see report in Bull. F. C. 1884, p. 16.

still. It is possible that the ones which died might have done so any way as the others did in the running water, and I should think, judging from those put in the cold chest that lobsters might be kept alive for a number of days in a temperature of from 40° to 45° or 50°. I think 34° was a little too cold for them. At present I could not well regulate the temperature, but hope at some future day to give it another trial.

I placed several lobsters in water at the freezing point. They were just alive after one hour's immersion, but did not recover when placed in running water. All these lobsters were taken from water at a temperature of 69° and 70°.

WASHINGTON, D. C., *October 21, 1884.*

### 6.—DIRECTIONS FOR COLLECTING EMBRYOTOCOID FISH EMBRYOS.

By JOHN A. RYDER.

The species collected should be carefully identified, if the adults are not sent along with the embryonic material. Locality, etc., are also essential, together with dates of collecting.

If the gravid ovaries are removed it should be very carefully done, so as not to bruise, crush, or displace the contents. The gravid ovaries should then be placed in from ten to twenty times their own bulk of Muller's fluid, where they can remain for three or four weeks, but should not be so crowded into the phials as to be malformed. On the whole it would be preferable to get as small a species as possible and preserve the gravid adults entire in Muller's fluid, the body-cavity being first opened carefully to allow the fluid access to the interior. In this they may remain three or four weeks before removal into two or three changes of water during a day, when they may be put into 70 per cent. alcohol. Washing or soaking in water is desirable for a day to get rid of the salts in the fishes which discolor the alcohol and also, in combination with the latter, make the objects brittle.

It is very desirable that the embryos be in their normal positions and relations to the adult in the ovaries, and that as many stages as possible be obtained in order that my studies may be as consecutive as possible.

The Muller's fluid will be supplied in packages of 13, 13, 19, or what is enough of the powdered potash-bichromate, and sodic sulphate to make a quart of fluid with that amount of clean, fresh water. The material collected should be addressed to John A. Ryder, Smithsonian Institution, Washington, D. C.

Glass jars will be the best to keep the material in. Fruit jars with screw tops answer the purpose well and prevent the leakage of the yellow Muller's fluid.