ANNUAL MEETING - JUNE 1962

Report of the Meeting of Sea Scallop Investigators at
Woods Hole, Massachusetts, on February 13-15, 1962

The meeting was attended by C. Medcof and N. Bourne of Canada;
J.A. Posgay, A.S. Merrill, E. Haynes, H.W. Graham, R.C. Hennemuth,
and R.L. Edwards of the United States.

Mr. Posgay presented his analysis of mortality rate data and yield
per recruit calculations based on an average growth rate for Georges
Bank. Dr. Bourne presented his analysis of both U.S. and Canadian
mesh selection experiments.

1. The present gear used by both fleets, 3-inch rings with up to
3 links between rings, catches considerable numbers of scallops
smaller than those used by the fishermen. The 50% cull point is
at about 95-100 mm. with most U.S. boats culling at the lower end
and most Canadian boats at the upper end of the range.

2. The yield per recruit calculations indicate, using our best
available estimates of natural mortality, .12, and fishing mortality,
.90, that there would be an increase of about 14 percent if age at
shucking were postponed from the present 5 (95 mm.) to 6 (108 mm.).
Postponing from age 5 to age 7 (118 mm.) would result in an increase
of about 20 percent. The natural mortality rate used is probably
conservative and if it proves that it is actually smaller there would
be larger increases in yield. The yield model shows that there are
only small changes in yield over rather large changes in fishing
mortality.

3. The gear selection studies indicate that scallops do not escape
from the dredges by their own efforts but that any escapement is the
result of mechanical sorting. On those parts of Georges Bank that
supply most of the landings approximately 50 percent of the catch is
trash which clogs the rings and inter-ring spaces. This reduces the
amount of sorting that can occur during normal fishing activities.

4. The mesh experiments also indicate that dredges made up with
larger rings not only release smaller scallops but are also more
efficient in catching and retaining larger scallops. The conventional
yield models do not allow for these complex effects of changing mesh.

5. Increasing ring size from 3-inch to 4-inch does reduce the catch
of 4-year-old and younger scallops but it does not alter the catch of
5-year-olds (95-100 mm.) It does increase the catch of older year
classes and reduce the amount of trash. Requiring the use of 4-inch
rings, therefore, will not increase yield by postponing the age at
which they are shucked. However, it may increase yield by reducing
the death rate (so far unmeasured) among the 4-year-olds and younger
scallops which are now hauled on deck but culled out and thrown back.
Most discards probably survive but some are damaged and soon die.
The larger ring would also reduce the labor now required to cull out
the useful scallops from those too small to shuck and from the trash.

6. Increasing ring size to 4-1/2 or 5 inches would again increase
the catch of scallops 6 years old and over but reduce the catch of
5-year-olds. The limited available data, however, do not provide
a firm basis for calculating just what percentage of the 5-year-olds
would be released by these gears. We cannot, therefore, now cal-
culate just what increase in yield might be realized by the introduction
of rings larger than 4 inches.

7.   It was, therefore, the consensus of the meeting that, under present conditions on Georges Bank, postponing the size at which sea scallops are shucked and landed would result in an increase in yield. However, the complex manner in which the present dredges catch and retain the various sizes prevents us from predicting the precise result of changing the size of ring and link in use.

8.   The aspects of the problem which needs more investigation in order to resolve the questions raised above were discussed at length. The conventional yield models can perhaps be modified to allow for the special conditions encountered in the sea scallop fishery or new models may have to be developed. Although progress has been made in estimating rates of natural and fishing mortality, further efforts should be made to increase the precision of these estimates. The behaviour of the animals, particularly in avoiding the dredges, should be studied. Perhaps it will be necessary to design an entirely different gear which will fish selectively for the desired sizes while releasing or not capturing the smaller sizes. The first three years of the sea scallop's life is almost unknown. More knowledge is needed if predictions of recruitment and abundance are to be made.

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