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CATCH PROJECTION FOR THE 1988-89 BLUE CRAB DREDGE FISHERY

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Virginia Marine Resource Report No. 89-1

THE COLLEGE OF WILLIAM AND MARY
SCHOOL OF MARINE SCIENCE/VIRGINIA INSTITUTE OF MARINE SCIENCE
CRUSTACEOLOGY PROGRAM

CATCH PROJECTION FOR THE 1988-89 BLUE CRAB DREDGE FISHERY

Romuald N. Lipcius and Willard A. Van Engel

We have recently completed an exploratory statistical analysis of a significant component of the VIMS Trawl Survey data for the blue crab. These results will be published in a 1989 issue of the Bulletin of Marine Science as an article tentatively entitled "Blue Crab Population Dynamics in Chesapeake Bay: Variation in Abundance (York River, 1972-1988) and Recruit-Stock Functions" by R. N. Lipcius and W. A. Van Engel. Although there are several noteworthy results, a key finding is the identification of a significant positive correlation between Trawl Survey Abundance (A) and the subsequent Dredge Fishery Catch (C). The statistical relationship is:

$$C = 0.4582(A)e^{-0.0176(A)}$$

which is a Ricker Stock-Recruit model with $r^2 = 0.80$ and $P < 0.0005$. From this statistical relationship we have generated a Dredge Fishery Catch projection for the 1988-89 season (December, 1988 - March, 1989) of:

9.049 million pounds.

The caveat for this projection is that the Trawl Survey Abundance value for 1988 lies in a region of the regression where variation is highest--the middle range of values--indicating that the confidence interval about this projection is relatively broad. Nonetheless, our analysis indicates that the Dredge Fishery Catch is expected to be above the 1972-1988 Dredge Fishery average of 7.49 million pounds. In addition, the analysis clearly shows that any significant reductions of juvenile blue crabs during the year (e.g., juvenile mortality in traps) will impact subsequent Dredge Fishery Catch rates. We will provide you with our manuscript once completed, and assume this to be the start of a consistent and timely provision of fishery-independent data analyses useful in managing the blue crab fisheries.



THE COLLEGE OF WILLIAM AND MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE
SCHOOL OF MARINE SCIENCE

12 January 1989

Dr. Erik Barth
Virginia Marine Resources Commission
P. O. Box 756
Newport News, VA 23607

Dear Erik,

Enclosed please find the revised report of the catch projection for the 1988-89 blue crab dredge fishery. Please note that any use of this information should be referenced as VIMS Marine Resource Report No. 89-1.

Sincerely,

A handwritten signature in cursive script that reads "Rom Lipcius".

Romuald N. Lipcius, Ph.D.
Crustaceology Program

RNL/cht

Enclosure

cc: Dr. Frank O. Perkins, Dean/Director
Dr. Robert J. Byrne, Associate Director for Research
Dr. Robert J. Orth, Assistant Director,
Division of Biological and Fisheries Sciences
Professor Emeritus Willard A. Van Engel