

ST LUCIA DOCUMENT COLLECTION



Author CHAMPION H F B

Title RECOMMENDATIONS RELATING TO PENAEID PRAWN RESEARCH
IN THE ST. LUCIA LAKE SYSTEM DURING 1969 AND 1970

Source 1968 UNPUBLISHED REPORT

Keywords PRAWNS

H.F.B. Champion.

Introduction

The current series of penaeid prawn surveys of the St. Lucia lake system are to be discontinued at the end of December 1968 as time must now be allocated for a detailed analysis of accumulated data, if a meaningful interpretation of this work is to emerge.

The continued implementation of sound management policies with respect to the commercial prawn fishery at St. Lucia and recognition of the effects of environmental stress on the St. Lucia prawn population, however, depend on the continued monitoring of physical and biological data from the lake.

It will be extremely difficult for the Oceanographic Research Institute to undertake regular monitoring at St. Lucia during 1969, as the available research staff will be occupied analysing accumulated data and continuing equally important prawn surveys in other Natal estuaries.

This report is therefore presented to focus the attention of relevant authorities on the problem and to suggest the most economical way of meeting minimum monitoring requirements

Centralisation of Biological Data Extraction

The most productive prawn area in the St. Lucia lake system is a long winding channel connecting the main lake with the sea, known as the Narrows. This area is also the most important biological sampling area for the following reasons:-

- (1) All penaeid prawns entering the system must return to sea in order to spawn successfully. The Narrows thus carries a two way traffic of prawns, covering virtually the entire range of biological development to be encountered in the lake system, entering and leaving the lake at various times of the year.
- (2) The narrow confines of this channel through which the prawns must pass ensures greater concentration of the prawn shoals resulting in a higher netting yield per unit area compared with the rest of the lake.
- (3) The combination of the length (5-7 miles) and the narrowness of the Narrows has a "bottleneck" effect on seaward migrating prawn populations resulting in high yield netting returns during migrations and minimising the chances of migrations to offshore areas passing unnoticed during regular netting operations.
- (4) Finally since all prawns entering the lake must eventually leave it in order to spawn successfully, prawns from the entire lake system contribute to and are at some stage reflected in catches in the Narrows. Abundance trends interpreted from catches in the Narrows therefore ultimately apply to the entire lake system since if, over a period of time, a progressive decrease in catch returns occurs which cannot be attributed to seasonal abundance fluctuations, the obvious conclusion is that prawn abundance in the rest of the lake has fallen off and there are fewer prawns passing to and fro through the Narrows.

It is therefore considered that future penaeid prawn sampling (data extraction), confined to the Narrows, will adequately fulfill some of the more important requirements of the penaeid prawn research programme at St. Lucia.

The Research Role of Commercial Netting

The productivity of the Narrows together with its accessibility make it an ideal area for commercial operations and it is thus not surprising that the Natal Parks Board confine commercial netting activities almost exclusively to this area.

Although finance is the primary consideration of any commercial enterprise it should be realised that commercial netting at St. Lucia lake, in view of the importance of the Narrows outlined above, has an extremely important secondary function, namely research. It was in fact only by correlating commercial catch returns and experimental survey results that critical interpretation of the times at which major seaward migrations from St. Lucia lake have occurred over the past 2 years was possible.

Commercial netting in the Narrows should thus be seen as an integral part of the overall research effort at St. Lucia.

Research Requirements

Daily commercial catch statistics including such information as the number of nets operating, time and duration of operations, and prevalent weather conditions are returned to D.R.I. each month as a result of the enthusiasm and excellent co-operation of the Natal Parks Board, particularly the St. Lucia estuary staff in charge of netting. This information provides a far more realistic basis for the interpretation of abundance trends than any experimental survey could provide because of the inherent "hit and miss" weakness of sampling surveys of this type.

Abundance trends in themselves are, however, virtually meaningless unless they in turn are interpreted in terms of relevant qualitative data such as species, size and sex compositions, gonad conditions etc. This function has in the past been fulfilled by research surveys and it is this specific requirement which must be met before the end of January 1969 when research surveys will have ceased.

Recommendations

(1) Centralisation of Research work

It is recommended that the accumulation and processing of routine biological data continue in 1969 and that this work be confined to the Narrows of St. Lucia lake.

(2) Staff

A technician capable of competently carrying out the above work must be delegated without delay. His duties might include making physical recordings in the Narrows and the rest of the lake, depending on the extent of co-operation possible with other research projects at St. Lucia.

(3) Quantitative penaeid prawn analysis

The vital contribution the Natal Parks Board have made in the past both in rendering assistance when needed and in making available details of commercial catches is gratefully acknowledged. It is sincerely urged that this co-operative effort continue in 1969, particularly with respect to commercial catch returns.

(4) Qualitative penaeid prawn analysis

A qualitative analysis of prawns netted in the narrows should be undertaken at fortnightly intervals. Specimens should be obtained either by independent netting in the Narrows or by routinely processing representative samples of the N.P.B. catch (a single day's catch every fortnight). The latter system would involve approximately 500 specimens for each sample, all of which could be returned to the Natal Parks Board directly the analysis was completed.

(5) Physical data

It is essential that the routine accumulation of physical data from the entire St. Lucia lake system continue. Details of the requirements should be discussed with the N.P.B. and other research project leaders involved at St. Lucia.

4 December, 1968.