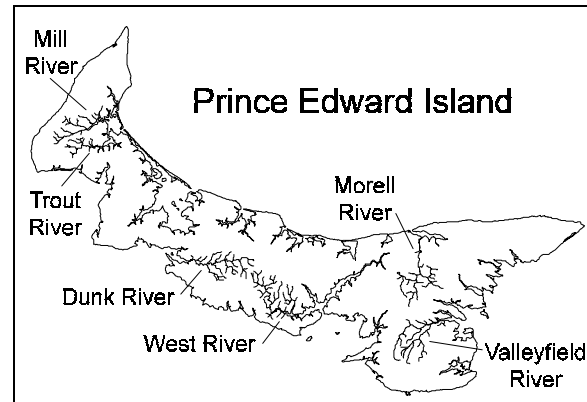


Atlantic Salmon Prince Edward Island SFA 17



Background

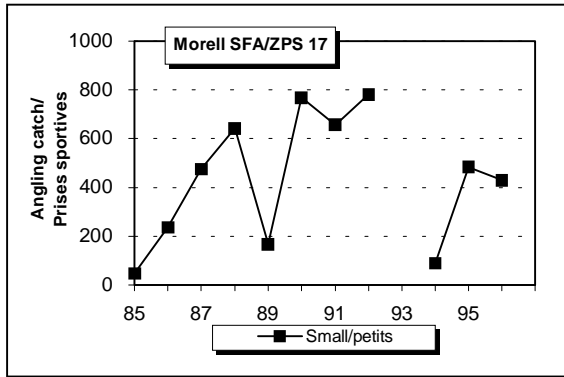
Prince Edward Island's original Atlantic salmon runs were largely eliminated in the 19th century by habitat destruction and overexploitation. Since the mid 1980s, community groups and government agencies have targeted several streams for intensive habitat enhancement and regular stocking. Most stocked fish are 2+ smolts which have spent a year in open ponds where they are fed artificial foods, but are also exposed to predation, natural environmental variation, and natural foodstuffs.

This salmon rehabilitation program has been most successful on the Morell River, which currently accounts for the majority of PEI's returning salmon, harvested salmon, and salmon rod-days. Most salmon on the Morell are small (<63 cm) (88%), hatchery-reared (86%), and early-run (85%). Enhancement and stocking efforts have also been directed at the Mill, Trout, Dunk, West, and Valleyfield Rivers, but returns on these rivers are much lower than those of the Morell.

The Fishery

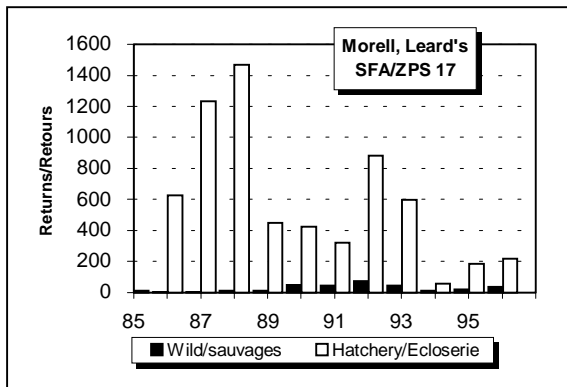
The basic salmon angling season on Prince Edward Island is 15 June - 15 September, but other seasons apply in some rivers. Salmon fishing begins on the Morell on 1 June, and closes from 14 October to 30 November, depending on the location on the river. The daily bag limit on PEI is one small salmon, with a seasonal limit of seven. Retention of large salmon is not permitted.

A licence stub survey estimated a retained catch of 543 small salmon on PEI in 1996, including 429 on the Morell. Estimated rod days totaled 6,293, including 4,107 on the Morell. Angling effort and catch is in the mid-range of the 12 year time series. An agreement between the Department of Fisheries and Oceans and the PEI Native Council allowed for a harvest of 400 small salmon on the Morell River in 1996. Seventeen small salmon were taken.



Resource Status

Direct counts of wild and hatchery salmon ascending the fishway at Leards Pond, on the Morell’s West Branch, are as follows:



However, in the past several years evidence from angler catches and redd surveys has suggested that substantial numbers of salmon have entered the pond without being counted. In 1996, a mark recapture experiment indicated that only 40% of salmon arriving at Leards were counted. Arrivals at Leards in 1996, adjusted for trap efficiency, were 623 fish. This is a decrease from the late 1980s peak of 1,481 fish, but exact comparisons cannot be made because trap efficiency was not measured in earlier years.

In 1995, a mark-recapture analysis of salmon marked at the mouth of the Morell and recovered at Leards estimated a total run of 1,550 fish. Counts at Leards in 1996 rose

24% from the previous year. If capture efficiency and the distribution of fish among the river’s branches remained unchanged, the 1996 run was 1,920 fish. Under similar assumptions, the 1994 run was only 501 salmon, which reflects an interruption in the stocking program due to a die-off in the semi-natural rearing pond.

Exploitation rates of small salmon on the Morell calculated from stub and mail-out surveys and from run sizes as estimated above were 34%, 35%, and 26% for 1994-1996, respectively.

Potential egg deposition was calculated using angling mortality from the stub survey and fecundity, small/large ratios, and sex ratios measured on the Morell in previous years. Egg deposition above Leards, based on fishway counts and adjusted for trap efficiency, was estimated as 243% of conservation requirements (2.4 eggs m⁻² of river habitat). This figure is based on total returns and is not adjusted for angling mortality. Egg deposition in the whole river was estimates as 265% of conservation requirements. This figure is based on total returns minus angling mortality.

Salmon runs in other rivers are estimated from counting fences which operate in some years. No other salmon river in PEI has met or exceeded spawning conservation requirements. The Valleyfield River, the only other river whose returning salmon were counted in 1996, received a record 96 salmon, but egg deposition was only 22% of conservation requirements.

Summer water temperatures in 1996 were cooler than those of the two preceding years, and did not pose problems for salmon.

Outlook

The continuation of salmon runs on the Morell and other PEI rivers depends largely on the continued release of semi-naturally reared 2+ smolts. Smolts released into the Morell in 1996 were not counted. If survival of fish placed in the rearing pond in summer 1995 was similar to the mean of previous years (65%), then the 1996 release totalled close to 43,000 fish. This is the second highest stocking rate since 1990. However, comparisons of stocking and return rates on the Morell indicate that number stocked does not predict future returns. In the absence of any predictive relation, the best estimate of the 1997 run is that it will be similar to the 1996 run. This would result in a surplus above conservation requirements of about 1,600 small salmon.

Management Considerations

Estimated returns to the Morell in 1996 exceeded presently defined conservation requirements by a wide margin (265%). This estimate is derived from an extrapolation of run size from 1995 data, using assumptions which have not been tested. It seems reasonable to conclude that egg deposition in 1996 was probably at least as great as that of 1995 (160% of conservation requirements).

The Department of Fisheries and Oceans is currently divesting its salmon hatcheries to private groups and consortia. A successful transfer of hatcheries to such groups is a prerequisite to the continuation of sizable salmon runs in PEI rivers.

Prince Edward Island is a densely populated province whose economic base is agriculture. Because extensive stretches of PEI streams run through farmland, siltation and pesticides

are continuing sources of concern to salmon conservation.

The Morell River depends largely on hatchery-reared fish for its adult runs. For this reason, and because escapements appear to exceed presently defined conservation requirements, no change to current management is recommended.

Returns to other PEI salmon rivers also depend heavily on stocking. No change is recommended to current management of these rivers.

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References

Cairns, D.K., 1997. Status of Atlantic salmon on Prince Edward Island in 1996. DFO Canadian Stock Assessment Secretariat Res. Doc. 97/21.

This report is available from the:

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