

Minutes of the 850th Meeting of the Brodie Club, May 16, 1989, Faunal Lab, Univ. of Toronto

Ritchie chaired the meeting which was attended by nine members and three guests who were Isabelle Côté guest of John Reynolds, Margaret Bodsworth guest of Bodsworth, and Eric Crump guest of Savage. Young acted as Secretary.

Savage read the minutes of the previous meeting which were adopted after two minor changes.

Announcements

Savage presented copies of a letter which was written by Martin on behalf of the Brodie Club in response to the circulated request of the Ministers of Municipal Affairs and Natural Resources for comment on their "Draft Policy Statement on Wetlands under the Planning Act". The comments made in Martin's letter were warmly approved by members and Savage stated that he would forward it promptly.

Aird said that the Heritage Trust is meeting in Canada this year, and will be held in Convocation Hall. Members of the University of Toronto staff are invited.

Savage noted that the outdoor meeting of the Brodie Club is being held this year at Presqu'ile on June 3. Members will assemble in the picnic ground near the fork in the road.

Speaker

The speaker, Ian Fleming, was introduced by Savage. He stated that Ian Fleming had received his MA at Queen's University in 1983, and that he is continuing his study of the Pacific Salmon in a PhD programme at the University of Toronto with field work on the western coast.

Fleming stated that his interest in salmon dates from the age of ten. Fortunately, he moved to Vancouver for some time, and he was able to pursue his interest at first hand. He is very impressed by the importance of salmon on the west coast and noted the influence of the species on the culture there, particularly among Indian tribes. Many myths are associated with the migration of salmon upstream.

The eggs are laid in the fall, and some of the young go directly to the ocean as fingerlings; others, for example, coho, spend one year in fresh water. They put on size and weight fairly quickly in the ocean, but fresh water appears to be safer for egg development. Coho return to the panhandle of Alaska and to the Aleutians for spawning, and they undergo many dangers in their journey. The accuracy of return to the place of origin is remarkable, sometimes within one hundred yards, and this is done after a trip by the salmon of perhaps 300 miles, with the fish frequently suffering injury from rocks.

The female salmon uses her tail to dig a shallow depression of about thirty centimetres in the bottom of the stream. She is often courted by several males. Some males are quite small for breeding, and the testis may account for half of their body size. The smaller males try to sneak under larger males in order to fertilize the eggs. These smaller males may have spent only one-half a year in the ocean, whereas larger males spend one and a half years in the ocean. The females guard the nest until young develop from the eggs, after which females die as the males do. Streams such as the Adams River, and many others are lined with salmon carcasses in the autumn.

The female body cavity is filled with eggs when she is in breeding condition, and such egg production demands considerable energy. An energy budget of this fish would be divided into three almost equal parts: one-third of her energy might be given to migration, one-third to competition with other fish, and the final third would be devoted to egg production. For successful breeding, the female must choose a site that allows percolation of water through the gravel in the stream bottom.

The problem proposed in Fleming's MA thesis is the reason for coho salmon varying in size and morphology. The snout or kype development of the male happens only after its return to fresh water. The red colouration of the wild male seems to be a badge of social status. Coho produced in hatcheries are dark in colour with steely-blue backs; they lack the reddish colour of the wild coho.

The study site involved eighteen populations of fish ranging from Seattle to Squamish River. The speaker used a dip-net and a wooden tray for measuring and for taking egg and scale samples.

Fleming noted that hatchery production is very efficient since there is no competition for the young fish. An interesting comparison is provided between hatchery and wild production with respect to colour, kype and other characteristics.

In the autumn of 1988, Fleming went to the Oyster River which is located on Vancouver Island between Courtenay and Campbell River. At this study site a channel was dug out for the natural spawning of coho salmon. Eighteen pens were set up. Seine net was used for selecting fish before they went to the pens. An electric wire was used for selecting some wild fish before they went to the pens. Different populations of fish were put into the pens after log numbers and colour codes were put on their dorsal fins to facilitate identification. The speaker humorously remarked that this part of the study was something like birdwatching, since he used a blind and binoculars to help him observe the marked fish. He noted that in his study, wild fish seemed to breed more rapidly than hatchery fish.

Pens in the ocean were also used. Sometimes predators got into the pens and had to be shot.

The speaker observed that the pressure on fish populations from heavy fishing was incredible. He said that the lowlands of rivers are favoured by large trees, but these are the ones subject to clear cutting by lumberers. Stream banks are then made available for farming, but this activity results in stream water that is too warm for successful fish breeding.

The speaker was thanked by John Reynolds who observed that the choice of salmon study was a happy one, since it permits Fleming to combine a hobby with a university programme.

Questions

Bodsworth asked whether the huge biomass of dead salmon found along western streams in autumn could be used. The speaker said it had not been used commercially, but that it did serve as fish food. He stated that the high hormone level of the biomass might make it a problem if over-used. Bodsworth also wondered why bald eagle population on the Pacific coast was so successful compared with other parts of Canada. The speaker said that coastal conditions probably account for the difference.

In response to a question by Falls, Fleming stated that disease was indeed a problem in fish hatcheries. In Norway, where the success of hatchery production is widely admired, disease is still a serious problem.

Aird was interested in the reasons why salmon die after spawning, and was told that simple exhaustion might account for it, but there might possibly be a phylogenetic reason.

Bodsworth asked whether female salmon could successfully adapt to another spot if the home area were unavailable. The speaker said that the female salmon seemed to be fairly adaptable to a new spawning site. He added that return to the site of birth is still thought to be largely by smell.

John Reynolds was concerned with damage to streams from large masses of decaying fish in the autumn, but the speaker said that rising levels of streams seemed to sweep out decayed matter within relatively short time.

Ritchie asked whether salmon eggs were born separately or as a mass. The speaker said that they were placed in the nesting site one by one.

Members' Observations

Falls reported a Worm-eating Warbler that he saw in Thickson's Woods on June 6.

Speakman has found that he can now distinguish between the calls of the female and male Pileated Woodpecks found on his property at Lake Simcoe. Although he now sees two males from time to time, the female has not been seen for a while and is presumably in a nesting site.

Savage commented on a report of the fracturing of moose bones that was made at a recent meeting of the Canadian Archeological Association. According to the report, it seems virtually impossible to distinguish between bones broken by sudden pressure, eg by automobile, and those broken by continuous pressure over considerable time, eg as under pavement.

Ritchie reported seeing a great number of storks, many nesting, while he was driving between Lisbon and Madrid during a recent trip.

The meeting was adjourned at 9.45 pm.

Brodie Club Field Outing

The annual Brodie Club Field Outing was held on Saturday 3 June 1989 at Presqu'ile Provincial Park. 4 members and 1 guest assembled at the picnic grounds, Norm and Norma Martin, Don and Jennifer Young and Art Boissoneau. After lunch, some "birding" was done. A threatening weather forecast and at some distance from Toronto prompted an early dispersal.