

# Save estuaries and you save people from starving

By **Moira Farrow**

If only it was possible to make bread out of river estuaries, people might realize their value.

But because the enormous value of estuaries in the food chain is not obvious — it is hidden away among the weeds and marshes — many of these vital areas of B.C.'s land masses are being seriously abused by development.

That's the opinion of Bruce Pendergast, a biologist with the provincial fish and wildlife branch, whose special responsibility is estuaries. And the desk of his Victoria office is littered with reports, letters and pamphlets that back up his charges.

Estuaries are among the most productive parts of the world, according to Pendergast.

Estuaries are twice as productive as the richest farmland because they trap, produce, concentrate and recycle nutrients. And in a world facing a protein crisis, that's an urgent reason to protect them.

"But people in industry and government agencies don't seem to be aware of what we stand to lose," says Pendergast. "And our education doesn't seem to be getting through to the public."

As the food shortage around the world grows daily more serious, B.C.'s estuaries fill up with murrins, dikes, log booms, pulp mills and subdivisions.

At the core of the problem is the fact that B.C. has no master plan for the operation of its coastline, says Pendergast. Such a plan — which would designate the estuaries that must be preserved and those in which development will be permitted — is essential as soon as possible.

Already many parts of the U.S. are ahead of B.C. with their coastal protection schemes.

"Mind you, it doesn't take much to be ahead of us," says Pendergast. "The U.S. has set up federal legislation to encourage individual states to develop coastal plans. And many states have taken advantage of the legislation."

Washington, for example, has a Shoreline Management Act. Oregon has strict controls on coastal development. And California recently set up a coastal zone conservation commission.

B.C. has no special legislation at all. In 1973 a Nanaimo school teacher, Peter Cook, came up with a proposal for a coastal zone management authority.

The idea was turned into a private member's bill by Richmond MLA Harold Steves but, like most private bills, it has made little progress.

Part of Pendergast's library of information on estuaries is a paper written in 1972 by Canadian Wildlife Service biologists R. D. Harris and E. W. Taylor.

This paper says that estuaries produce nutrients because . . . "microscopic plants flourish in the water. Salt marsh vegetation, nourished in the rich waters brought from the ocean at flood tide, produces enormous fields of organic matter. In addition, mud flats and shore areas alternately covered and exposed as the tides change, produce a variety of small animal life such as worms, snails and insects on which larger organisms feed. In turn, these organisms are the foundation for the food chain that is so vital to fish and wildlife."

B.C. has hundreds of estuaries ranging in size from very few to tens of thousands of acres and at least 170 of them face possible development. They all are important to wildlife, especially to salmon as well as steelhead and cutthroat trout. Young salmon feed the rich food supplies of estuaries for rapid growth before entering the ocean.

"It's fairly recent knowledge that salmon are so dependent on estuaries," says Pendergast. "When you start putting dollar figures on the billions of salmon that use the Fraser estuary alone, then the tremendous importance of estuaries becomes clear. Salmon is very high in protein and that's what the world is so short of today."

"I only wish you could eat grass in an estuary or make bread out of it — then people might realize the value of estuaries. The wonderful thing about them is that you don't have to plant and harvest them. The only thing you have to do is protect them but we're not even doing that. Like most public resources, estuaries are abused."

Pendergast says that if a master plan for coastal management is adopted by the provincial government, the most critically important estuaries could be identified and protected.

"We in the fish and wildlife branch spend most of our time turning down development proposals for estuaries that we know are critical — we call it fire fighting," says the biologist.

"We are always fighting rear-guard actions because we don't have enough time to do anything else. If some estuaries were officially declared unapproachable by developers we would not have to waste



Logging debris in Jordan River estuary, Vancouver Island

our time turning down endless propositions for them. But we could permit some more industry in estuaries that have already been developed."

Turning to specific estuaries, Pendergast says the Fraser is highly important to waterfowl as well as to salmon.

According to another publication by Harris, this time in partnership with D. R. Halladay of the fish and wildlife branch, the Fraser delta is one of the most valuable waterfowl migrating and wintering areas on the entire Pacific coast of North America.

"The waterfowl of three continents converge at the Fraser wetlands on their way to and from breeding and wintering areas that extend from Russia to South America," says the Harris-Halladay booklet, A Commitment to the Future.

"The Fraser River delta is the most important single area of aquatic bird habitat in B.C. Two million ducks, five million shorebirds and thousands of other bird species migrate annually through the lower Fraser valley."

"These birds attract, in turn, a variety of the often more spectacular raptorial birds such as hawks and falcons."

"The result is a dazzling array of wildlife made available not only to the people of B.C. but also to countless others who must rely on the capabilities of the Fraser wetlands to ensure the survival of birds."

But although the Fraser estuary is of critical importance to both salmon and birds, man has been intruding on the delta and detracting from its value to wildlife ever since the last century.

"But these sort of things keep happening — the importance of estuaries just doesn't seem to be getting through to people," says Pendergast.

According to a list prepared last year by the B.C. chapter of the Canadian Society of Environmental Biologists, 17 B.C. estuaries are considered to be "in jeopardy in terms of biological productivity and recreational use."

They are: Fraser River, Kitimat River, Nanaimo River, Coosaway River, Chemainus River, Steens River, Adam River, Semass River, Salmon River, Campbell River, Kokish River, Bush Creek (near Ladysmith), McKay Creek, McCarty Creek (Burrard Inlet), Mawkwas Creek (Rupert Inlet) and Cowichan River.

Pendergast agrees with all the nominations on the list and adds a few more "problem estuaries" of his own choice.

He points out that estuaries are particularly threatened in B.C. because the province has so much mountainous terrain that flat land, particularly along the coast, is at a premium.

Applications to build marinas in estuaries are among the most difficult problems facing fish and wildlife because they usually involve dredging.

"It's really ironic," says Pendergast. "Developers want to build marinas to capitalize on the fish resource but in the process of building the marina they could likely destroy the resource."

Campbell River on Vancouver Island, world famous for its sport fishery, already has one marina but another one is proposed, he says. As well as this, the estuary is used as a floatplane base, a log booming ground and has been subjected to much dredging.

"The only part of the estuary that hasn't been raised is the part the Indians own," says Pendergast, who believes it would be far better to restore productivity at Campbell River rather than tolerate plans to degrade the estuary even more.

The Oyster River estuary near Courtenay already has a small boat basin but a full-scale marina and a 360-acre subdivision and hotel development are on the drawing board. They'll get no further than the drawing board if fish and wildlife recommendations are listened to but there is no guarantee that they will be.

Log booming in estuaries is a particularly sore point with Pendergast because he considers it so destructive and widespread.

"Log booming goes on in almost every

sizeable estuary up and down the coast," he says. "Bank falls of the logs and — another vegetation under the water."

"But today log booming is becoming uneconomic because so many of the logs sink. The problem is that booming is being replaced by sorting on dry land and that can also cause trouble for estuaries. Often the estuary itself is the only piece of level ground for miles around so forest companies want to fill in estuaries and use them as dry land sorts."

The Jordan River estuary on the west coast of Vancouver Island is one example given by Pendergast of a river mouth that has been "completely destroyed" by a dry land sort. There's also a dry land sort in the Adams River, which is famous for its salmon run.

"Not long ago, the branch received an application from L and K Lumber Ltd. of North Vancouver to build a dry land sort in the estuary of Okalee Creek which empties into Howe Sound," says Pendergast. "The company, which is already booming in the estuary, wanted to fill in 6½ acres and the whole estuary is no more than 10 acres."

"The fish and wildlife branch and the federal department of fisheries turned down L and K's request and suggested that the dry land sort be built further up the creek."

"But when I got the company's second application I found it was scarcely any different from the first," says Pendergast. "Instead of filling in 6½ acres, the company suggested filling in six. All they had done was take a tiny sliver off one side of the sort — so I recommended that application be turned down too."

Estuaries are also a favorite location for pulp mills — Gold River and the Chemainus River on Vancouver Island are just two examples. The townsite of Thais is built on an estuary. Kitimat has an aluminum smelter and the Cowichan River has log sorting and storage.

The list goes on and on.

"Where is it all going to end?" asks Pendergast.

The Canadian Society of Environmental Biologists has little doubt about the answer to that question. In its brief the answer is clear:

"Without a multi-level, multi-government approach to coastal zone management, there is little doubt that in time the majority of the estuaries in B.C. will be despoiled beyond the point of repair."