

# ForeTalk

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# ForeSTalk

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**Cover:** It's spring again; the forest awakens. The buds on every tree and plant burst into full flower under the warming sun. The western wood lilies featured on this issue's cover were photographed by Nelson freelance writer and photographer Doug Leighton.

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The Ministry of Forests' recently-announced timber apportionment plans for B.C.'s crown forests are the culmination of an extensive overhaul of the forest tenure system in B.C. that began with the 1978 forestry legislation. These new apportionment plans — the issuing of revised timber cutting rights to the forest industry — will provide both long-term stability for industry and flexibility for government. Notably, the ministry is setting aside significant amounts of timber for the small business enterprise program, and additional timber will be kept in Forest Service Reserve to meet special requirements.

*Tom Waterland*

Hon. Tom Waterland, Minister of Forests

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# ESTUARY LOGJAM

by Peter Grant

Whether the Fraser or the Cowichan, the Nanaimo or the Skeena, dozens of B.C. rivers make their way to the ocean through flat, fanning lowlands of rich soil washed by saltwater tides. With their complex food chains nourishing hundreds of wildlife and fish species, estuaries like these are among the world's most productive ecological zones.

But estuaries have another premium value: they have long served as key points in human trade and commerce. Half the world's great cities are situated at rivermouths, and in the hundred-year growth of B.C.'s coastal forest industry, rivermouths have been the favoured site for mills. Today 80 percent of the 31 million cubic metres of wood harvested annually along the coast travels by water to tidewater mills on the south coast. The manufactured lumber, pulp and paper is then shipped from railheads and freighter berths handy to the rivermouth sites.

The act of storing logs in an estuary, however, can harm much of the estuary's animal and vegetative life. Added to that are the effects of dredging for ship channels and the ills of haphazardly-managed city and mill waste. Just how much human activity can any estuary stand before it loses its value as a natural habitat?





### Conflict On The Cowichan

The scene is the intertidal shallows of Cowichan Bay near Duncan on Vancouver Island's protected east coast: from the end of Westcan Terminal's jetty thrusting into deeper water, the log booms aren't that noticeable, but they stretch halfway across the Cowichan estuary's two-kilometre width. The logs in some booms are bleached white by long exposure to the weather. At low tide they sit on mud crawling with life.

The tide is in, and men in dozer-boats are sorting logs into booms for towing across the Strait of Georgia to sawmills on the Fraser River. Beyond the boats a dozen gleaming white swans paddle peacefully about. In the distance, just back of the furthest reach of the tide, is a sawmill; its clatter and whine can be heard a mile away. Lumber from this and other sawmills is piled on the jetty, awaiting shipment overseas.

The sawmill belongs to Doman Industries, a Duncan-based company. Its Cowichan estuary sawmill is well-known for high speed and efficiency in milling small timber. Most of the logs Doman harvests or buys are sorted in the company's mill pond. Logs not selected for the sawmills are reboomed and stored in the estuary until a tow is accumulated. Some of these logs will be taken to Doman's Nanaimo sawmill; others will be sold on the open log market. In all, Doman

uses about 60 of the 100 hectares of the estuary shoreline leased for log handling and storage, and over the past seven years this activity has been the subject of continuous study and controversy.

Cowichan Bay is world famous for its sport salmon fishing, and it supports a cluster of marinas and tourist facilities. The Cowichan produces more fish than any other estuary on Vancouver Island, and the Cowichan Indian band, along with the wider-ranging commercial fishing industry, depends on the chinook, coho and chum that run the bay and the river. But there is a general concern that the handling of logs in estuaries is detrimental to salmon runs in rivers like the Cowichan.

The Cowichan estuary is also a stopping place of international importance for waterfowl on the Pacific flyway; some 35 species of ducks, geese and other waterfowl, and over 200 species of songbirds, use the estuary at various times of the year. Their value may be less tangible than the salmon fishery's, but threats to the habitat of some species provoke a

strong reaction from protection groups like the B.C. Wildlife Federation.

Two task forces have studied the conflicting claims for the Cowichan estuary, and log storage has emerged as the major problem because of its impact on the intertidal zones. The first task force, convened by the B.C. government in 1974, recommended no industrial expansion. Soon after this report, however, Doman Industries purchased and rebuilt the small sawmill already located there. Several subsequent industrial development proposals further challenged the no-development policy, and the government assembled a second task force. In its 1980 report, the task force recommended that the log flow pattern through the estuary be changed, reducing by 70 percent the area used for storing logs. The task force's aims are being pursued by negotiation between government agencies and industry users. Meanwhile the logs are in the estuary as before.

Doman Industries' vice-president Joe Frumento points out that any coastal mill needs rivermouth storage areas if it is to store logs in water: if logs are left for even just a few weeks

PHOTO: MICHAEL McNALL



in undiluted salt water the wood can be attacked by the teredo, a marine animal that bores into the logs and ruins their value as lumber. But Frumento says the company has been looking for ways to reduce its log handling and storage space in the estuary. It is using booming grounds in Howe Sound, and a proposed dry-land storage yard next to the Cowichan estuary sawmill would eliminate some of the handling and storage in the water. If alternative storage can be found "within a mile or two," more logs can be removed from the estuary.

"The mill has to keep a month's log supply within a day-and-a-half's tow," Frumento says, stressing that there will always be fluctuations in the log flow through the estuary due to seasonal patterns of logging and towing. (The mill has to build up a handy inventory for the winter months when the remote logging camps feeding the mill are shut down.) As for the recommended 70 percent cutback in Doman's log storage area, Frumento says: "You can do anything you want if you have the money. The forest industry is looking at hard times. We have to keep our competitive edge in world markets."

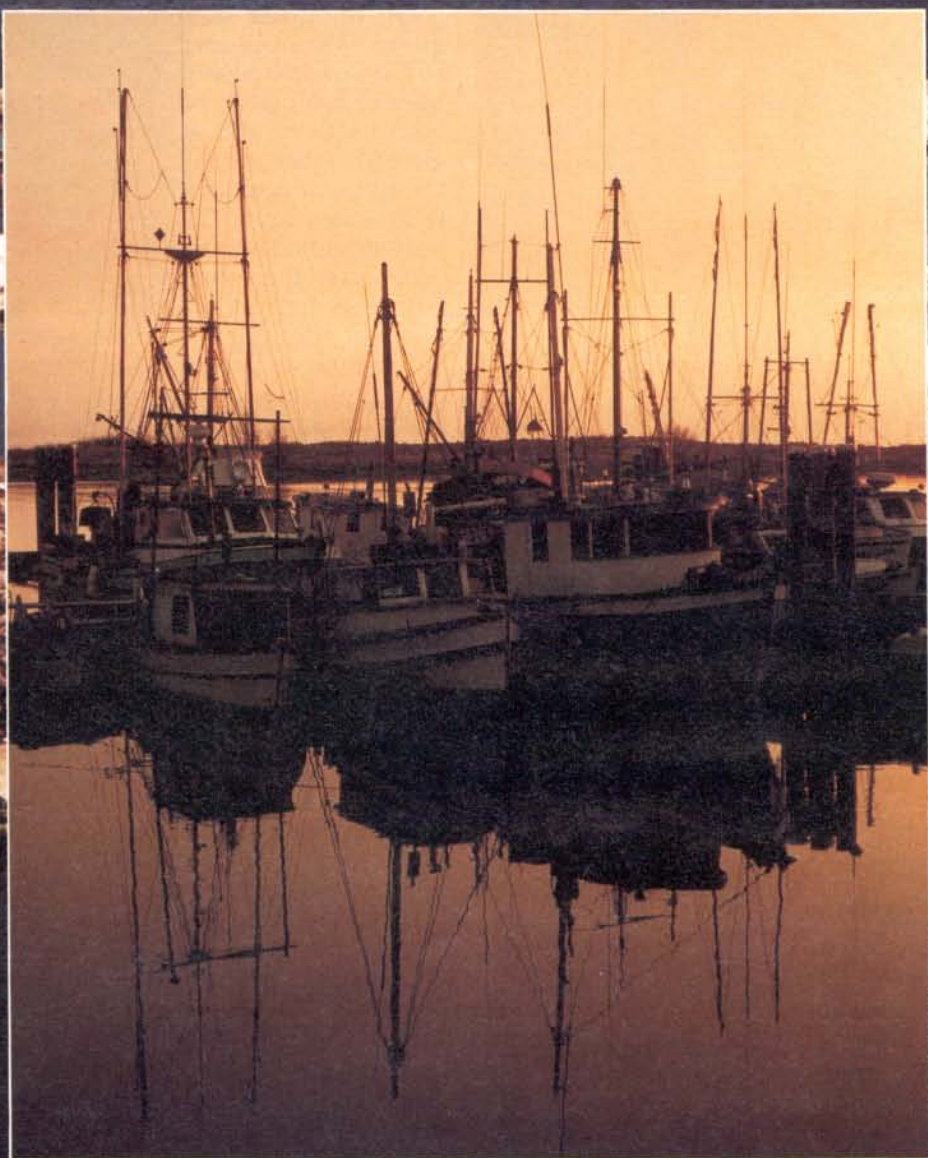


PHOTO BY WILHELM FRIEDRICH

*As with all natural resources, there are limits to the uses B.C.'s estuaries can be put to, but defining those limits is an arduous process. Log handling and log storage in the Cowichan Bay estuary (double page) have been the subject of seven years of continuous study and controversy; it could take two more years to settle all the resource-use conflicts here. The fishing boats of Lulu Island at the mouth of the Fraser (above) are just one of over 150 Fraser River estuary users identified in a massive study aimed at regulating estuary activity on the Fraser.*



PHOTO: K. I. CHALLENGER



PHOTO: TIM FITZMAKES

*Marine life and wildlife thrive in river estuaries, making full use of the sheltered waters and abundant food supplies. While a heron (above) is easy enough to spot enjoying a day's fishing at a river mouth, it takes a signpost (top) to let people know that estuaries can be valuable salmon habitat.*

On the other side of the issue, a group of Duncan-area citizens known as the Cowichan Estuary Preservation Society has been a persistent critic of both industry and government. Birgitte Meagher, president of the society and a director of the B.C. Wildlife Federation, says: "The task force report identified log storage as the main problem in the estuary, but our governments have done nothing to implement the report. When pressure builds up from people like us, they go back and study the problem rather than do something. Why have a whole new study to come to the same conclusion as the one reached six years ago — that logs shouldn't be stored on the estuary?"

Meagher also points out that one of the conditions Doman was required to meet when it was granted permission to build its Cowichan mill was that it use no more than eight hectares of the estuary for temporary log storage.

Ann Holden, another preservation advocate, feels the federal fisheries department has been unwilling to take a firm stand on protecting the estuary's productive habitat.

Ken Lambertsen, a coordinator with the B.C. Ministry of Environment, is in charge of implementing the estuary task force findings. He sees the process of settling the Cowichan log flow problem as being part of a method for dealing with all estuary conflicts — a method that is still evolving. The Ministry of Environment has already developed some of the needed tools, but an important element is still missing: how to rank the importance of various estuary uses. Says Lambertsen: "It's difficult to put ecological values down on a balance sheet."

Lambertsen expects the competing claims for use of the Cowichan estuary will be settled by intelligent trade-offs, "with minimum loss of the estuary's productivity. We have to maintain a reasonable balance among legitimate interests, and manage the environment wisely." He says it could take two years to settle all the conflicts on the Cowichan.

### Compromise On The Nanaimo

The search for a way out of B.C.'s estuary logjam has yielded one modest success story so far: a management plan for the Nanaimo River estuary. The Nanaimo estuary fish habitat and log handling task force, comprised of

representatives from the forest industry, fishermen and various government agencies, was established in 1978 to look at the estuary-use conflicts surrounding the proposed Duke Point port and industrial park south of Nanaimo. The federal fisheries department, pointing to the powerful new Fisheries Act, insisted on protection of salmon habitat. The result? The estuary's most productive areas will be protected as fish habitat, while log booms are now confined to the less productive river channel.

The environment ministry's Ray Travers, a task force member, says the Nanaimo estuary study was a B.C. landmark: the first time a land-use conflict had been settled through a cost-benefit study. The study enabled the group to peg the estuary's value as a salmon habitat.

Research by John Sibert of the Pacific Biological Station in Nanaimo established that propeller wash and scouring by logs damaged the eel grass shallows where juvenile salmon feed, eliminating hosts of tiny nutritive organisms. "It wasn't previously recognized that juvenile salmon feed in estuaries," Sibert explains. The next step was to weigh the cost of this damage to fish populations against the extra cost of relocating the logs.

### An Awesome Task

There are other signs of headway towards sound management of B.C.'s estuaries, but deciding estuary use by a process of negotiation is an awesome task. In cases like the Tsitika River estuary on Vancouver Island, where an unusual killer whale habitat was threatened by a proposed log handling facility, the solution was relatively simple — a ban on the handling of logs.

The Fraser River estuary study, on the other hand, is a massive enterprise aimed at regulating the needs of over 150 users of an estuary that supports a shipping industry employing 20,000 people; clusters of heavy and light manufacturing industries extend another 30 kilometres upstream. The Fraser has one of the world's largest salmon runs and is Canada's largest wintering area for waterfowl. Log handling on the Fraser's north arm is only one issue in the tangle facing the task force.

Among the points that have come out of estuary studies is the need for more fisheries research. Just how important are estuaries as feeding and



PHOTO: TED GURFELD/PHOTO GRAPHICS

*Log booms and log barges (below), together with dozer boats (left), are common sights along B.C.'s coastline. But while B.C.'s coastal forest industry is looking for new ways to store and handle its log harvest, river mouths and sheltered bays will continue to serve as major log handling centres.*



PHOTO: TED DAVIS



PHOTO: KOOS DYKSTRA/IMAGE FINDERS

*The north arm of the Fraser (above) is a major log storage area, whereas the river itself supports one of the largest salmon runs in Canada. Considerable estuary research, like the work carried out by researchers from U.B.C.'s Westwater Research Centre (right), is still needed to determine how much industrial activity B.C.'s estuaries can tolerate before losing their value as habitat for both fish and wildlife.*



PHOTO: R.J. CHALLENGER

nurturing grounds for salmon? Nobody knows for sure.

"The fisheries department has done insufficient research to indicate the priority estuaries have in their environmental concern about fish," says Doman Industries' Joe Frumento. Biological researchers, says one report to the Cowichan estuary task force, "have only begun to understand the inter-relationships involved in the food web of an estuary." Biologists have zeroed in on the intertidal zone as the crucial food-producing ecosystem, but the state of knowledge is such that no one can prove, for instance, that all log handling degrades the estuary habitat. In fact, a study of the Musqueam booming grounds on the Fraser estuary by U.B.C.'s Westwater Research Centre suggests that juvenile salmon may have a tolerance for log booms.

The federal fisheries department has another key role to play in the management of B.C.'s estuaries. It's one of the few agencies with the clout needed to enforce environmental standards. In a recent book, *Salmon Protection and the B.C. Coastal Forest Industry*, Westwater assistant director Anthony Dorsey writes: "The federal Fisheries Act has provided regulators with substantial power that helps them counterbalance the immense economic and political power of the forest industry."

Rod Bell-Irving of the federal Fisheries and Oceans' habitat management division admits that to date his agency has not assumed an active role in dealing with impacts on the salmon fishery. "We tend to be reactive, to fight fires." But, he says, "once you start sitting down with the forest industry and fully discuss each other's concerns, you can start finding solutions. The Nanaimo estuary study is a classic case of this."

Looking ahead, a recent government-industry study sees no decrease in coastal mills' total log requirements over the coming decades, and the study's steering committee sets out a series of recommendations covering long-range planning and comprehensive management of storing logs in water. While dryland sortyards are being built by some mills (when they can buy land at a reasonable cost), freshwater estuaries, which repel the destructive teredo and by their very nature provide logs with protection from wind

and wave action, will continue to be the preferred place for storage of logs along the coast.

Choosing between one use and another in an estuary will be the result of a political assessment of the costs and benefits of the competing uses. An example of the stakes: there's a proposed expansion of the Squamish Terminals' pulp shipping facility in the Squamish estuary. If the expansion goes ahead it could damage the estuary's already declining value as a fish and wildlife habitat. If, on the other hand, the Squamish estuary study group turns down the proposal, plans for an industrial park based on ready access to deep-sea shipping will also fall through. So the study group is sponsoring a series of biological studies and cost-benefit analyses aimed at pinpointing the effects of building or not building the berths.



PHOTO: CATHY AND GRAHAM HERBERT



PHOTO: MARTIN PETROV/PHOTO GRAPHICS

While the coastal forest industry is reconsidering its methods of transporting and storing logs, and while the federal government, seeking ways to build up the Pacific fisheries' salmon stocks, is moving to halt the erosion of productive estuary habitat, informed observers wonder if enough is being done overall for B.C.'s estuaries.

Some people, like former B.C. Wildlife Federation executive director Bill Otway, are pessimistic. "Our estuaries are being two-bitted to death," Otway says.

Others, such as the members of the Fraser River estuary study steering committee, are optimistic: "There is still time to avoid irreparable degradation to the remaining natural ecosystem while continuing to provide for the needs of the region's port and commercial facilities," reads the committee's report, holding out hope that we may be on our way to reclaiming an undervalued heritage. **■**

*Whether it's the unique killer whale habitat (top) provided by the Tsitika estuary, or the low lying bog lands of the Fraser being used to harvest cranberries (above), B.C.'s estuaries serve a multitude of natural and industrial needs. Their value simply cannot be over-estimated.*