Suzuki's Tape

I was born in a small floathouse near Tupling on the protected northwest point on Don Island, a tiny island about 15 miles upstream from the Main Arm of the Fraser River on January 28, 1916. My name is Tatsuro Suzuki, however if you should make inquiries about a person by that name among my acquaintances, very few would be able to recognize that name. I am known to my friends as Buck.

My father and mother came from the northeastern prefecture of Miyagi in Honshu, Japan in the early part of the 1900's. Don Island was already a thriving salmon fishing settlement of Japanese-Canadian fishermen. They fished salmon under an agreement to deliver salmon and especially the sockeye salmon to a cannery known as Ewing Cannery, then the largest cannery owned by the British Columbia Packers Association which was situated on Lion Island, another small island immediately northwest of Don.

A child today starts his vocabulary by learning words such as car, television, radio, radar, etc. I began mine by picking up words such as boats, engine, net and later I heard the grown-ups talk about high tide, low tide, high slack, low slack, also such terms as half tide, high water, low water and the tide table. A child living in a floathouse moored to an island soon understands the meaning of these words for the effects related to these terminologies were evident all around him and could and did affect his activity and those around him. The river was not an inanimate piece of geography to me; it was alive. Its moods changed with the seasons and one learns to not only see these changes but to expect them; to become attuned even
to the delicate degrees of change in behavior and understand the reasons why. We also knew that we could make no changes, that we must accept these moods for there were other forces of nature that influenced the river's behavior over which we had no control.

I can remember my mother telling me that her former home in Japan was beside a river that ran rampant during heavy rains. Sometimes despite the utmost effort of villagers, the dykes would burst, resulting in loss of crops and sometimes in loss of life. She told me that she assured newcomers to this country in the early years that they need not fear that sudden fearful rise in the river's level even though there was heavy rainfall. That in the spring, autumn, and winter months the worst that happened during a heavy rainfall would be a slight discoloration in the water. History records that the Fraser River did run rampant during a late spring run-off in 1894 with disastrous results. However in the ensuing years the behavior of the river could be related to the seasons and until the latter part of the 1930's, it was almost always predictable. The seasonal changes in the Fraser's behavior were seldom abrupt. Each seasonal change seemed to blend into the next change in a smooth and orderly manner.

I have been on a fishing boat almost as soon as I could walk. I took out my first salmon license in 1925 when I was nine years of age. Since then except for a period from 1942 to 1948 I have fished salmon from the Juan de Fuca Strait to the head of Portland Canal on the B. C. - Alaska boundary. I have also fished for halibut off the west coast of Vancouver Island and the Hecate Strait. Everywhere I went I found that in order to be a successful fisherman, an understanding
of the tidal behavior was absolutely essential; that fish behavior could be related to the tidal changes.

From here on I shall confine my remarks to the water immediately adjacent to the Fraser River and the Fraser River itself. In the late 1930's and the beginning of the 1940's, fishermen learned to predict the arrival of the salmon runs quite accurately. We knew when each species of fish would arrive in a given area almost to the day. We knew that certain races of sockeye salmon used the North Arm of the Fraser River as their migration route to the spawning grounds. A large fleet of fishing vessels would fish the entrance area of the North Arm of the Fraser for this breed of sockeye salmon. Another species of salmon also used the North Arm and the Middle Arm of the Fraser as their migratory path to the spawning grounds.

Since the late 1930's and early 1940's, especially during the war years, there has been a tremendous increase in the industries that located on the north bank of the Fraser River and that area west of Marpole upstream all the way past New Westminster. The increase in industries brought about an increase in population. Waste from the industries was released into the Fraser with little or no treatment. That sewer outfall began discharging untreated waste from the ever increasing population directly into the Fraser River. These outfalls line both banks of the Fraser for about 40 miles.

The early species of sockeye salmon now began using the Main Arm of the Fraser or the extreme South Arm known as Canoe Pass as their new upriver migration route. The fishermen became convinced that the reason for this change in the fish migration route was due to excessive amounts of waste matter that was being discharged from
industrial and domestic outfalls along the north side of the Fraser River.

The fishermen through their union began making representations to the provincial and federal authorities that greater care be exercised by the industries and the municipalities in the matter of waste disposal. In August 1967 the fishermen's union appeared before a hearing of the provincial pollution board held in Surrey, B.C. under the chairmanship of Mr. Arthur Packett. The hearing centered on the Goldie Report, a preliminary investigation of waste disposal of the Lower Fraser River. At this hearing the union's representative expressed alarm that the ever-increasing amount of the domestic and industrial waste items becoming entangled in the fishermen's nets.

In 1969 a further brief expressing concern of a similar nature was presented by the fishermen's union before a hearing of the House of Commons Standing Committee on Forestry and Fisheries. And again on September 9, 1970, we fishermen appeared before a committee sponsored by the Anti-Pollution Association and here again expressed concern over the ever-increasing amount of waste matter that was being deposited into the Fraser River. I would like to for official record insert our brief before this hearing. I will now quote from this brief.

"Gentlemen: We appreciate this opportunity to appear before you and your willingness to hear our views on the pollution problems as it concerns members of our union residing in the southwest section of British Columbia and who are greatly dependent on the salmon runs originating in the Fraser River for their livelihood."
Domestic, industrial and agricultural wastes pouring into the water of the Lower Fraser River from municipalities, industries, and farms are a source of grave concern to the commercial fishermen who fish this area. Fishermen harvesting salmon with drift gill nets are each year encountering ever increasing volumes of domestic waste entangled in their nets. Observation has been made by fishermen living along the banks of the river near large industrial space of adult salmon behaving in an unnatural and erratic manner that are so overcome by some deleterious substance in the water.

Those who are advocates of the use of the Fraser River for waste disposal claim that the river dilution factor is such that we should have no fear of detrimental effects on either human or fish that use this water. The fishermen would agree with this premise if the Fraser River were a fast one-way flowing river. However, due to the very low gradient in the river's lower reaches, the Fraser is subject to the very great influences of the tides of the Gulf of Georgia, where reverse flows are noted for the greater part of the year as far upstream as the Vedder River. In a normal year the reverse flows in the lower reaches should be expected for approximately 9 months in each year and in years of extremely low outflow volume, this period could be extended to 10 months."
Our union, Steveston Local Anti-Pollution Committee, in its submission to the Federal-Provincial-Municipal Conference on Water Pollution at Richmond aptly described the results of effluent discharge into the Lower Fraser River under these tidal conditions.

"It is evident that during 9 months of the year, months other than freshet months, there is a day to day variant of water storage due to rising or back-up tides. The size of this storage is determined not only by the size of the tide but also the discharge into the river above Hope and the tributaries of the lower part of the river.

When estimating the dissipation of effluent flowing from any given outflow in the Lower Fraser, one must take into consideration the storage capacity of the river above an outfall on the incoming tide. Effluent caught in the turn of the tide in the lower outfall would drift up and down past the outfall making a trek down to the effluent and past the outfall with more being continuously added. It is soon caught again by the incoming half tide and once more slowly repeats itself. This means that the same effluent passes the outfall 5 times on its way to the sea.

It is a fallacy to state that tides help to flush the river. In reality they merely persist in keeping the effluent in the river depositing it on the shores and river bottoms. Certainly with the magnitude of the effluent combined with the action of the tides, discharge from the river is also deposited on ocean floors."
(Now I will continue with the brief.)

"Two species of salmon, the pink and the chum whose fry head out to sea during an extreme low water period on the Fraser River, have not responded to conservation efforts of our scientists and failed to return an expected number as adults to their parents' stream. Could the failure of these runs of salmon be attributable to high toxicity in the river affecting migrant salmon fry at certain periods of the river's capacity for dilution when it is lower due to tidal conditions? Does this type of toxicity have a sublethal effect on seaward bound salmon fry and make them more vulnerable to predators or even to environmental changes from fresh to salt water while enroute to the open sea?

Problems related to marine life conservation and propagation, especially salmon, are being rigorously undertaken by both the scientists in the federal Department of Fisheries and the International Pacific Fisheries Commission. We believe that study by oceanographers of the current flow and tidal behavior of both the Fraser River and the Gulf of Georgia must be furthured in order to trace the movement of both effluent and floating debris that depreciate the environmental qualities of this region. In these studies we believe also that the Department of Oceanography should seek cooperation from the meteorological services because of the tremendous influence of prevailing winds on the height of the tide
and the direction of current flow in the Lower Fraser and the eastern portion of the Gulf of Georgia.

One of the major forms of water pollution is caused by the forest industries that use the Fraser River for location of saw mills and chipper plants. In supplying these wood manufacturing plants with logs, extensive use is now being made of self-dumping log barges. Each barge transports several million board feet of logs to the Fraser River where they are unloaded and held in booms until needed for the mills located along the river. While this method of log transportation greatly facilitates the movement of logs, it also brings with it much of the forest debris such as bark, leaves, low-floating logs and deadheads that are a serious menace to navigation. At present the log-loading sights are located at 5 or 6 different areas spread over a 20 mile stretch of the river. Debris and low-floaters and deads menace the entire 20 mile stretch and eventually are a menace to navigation even in the Gulf of Georgia.

To minimize these hazards, the forest service must supervise loading of logs on barges at upcoast log-holding areas to insure that debris, low floaters and deadheads are not loaded on these log barges. Both the federal and provincial governments should share in the cost of locating a single safe log-loading and booming ground outside of the Fraser River. Consideration should be given for such a sight close to the mouth of either the North Arm or the
Main Arm of the Fraser. This would insure that most of
the debris would be identified prior to the fillings
of the log boom for towing upriver to the storage areas.

Extensive use has been made of pesticides on farms
to combat the various insects and fungi. They are also
used as regulators of plant growth and brush and plant
defoliants along the roadsides and rights of way of power
transmission lines. Both chlorinated hydrocarbons and
organic phosphorus compounds that are accumulative and
long-lasting with powerful effects on man, wild-life,
and environment, are used almost every day in the Lower
Mainland and eventually find their way into drainage
ditches. Water from almost every drainage ditch runs
into the Fraser River, some nearby trout and salmon
streams or out into estuarial marshes.

We believe that tests of both plant and aquatic
life in these drainage systems should be monitored to
determine if any dangerous amount of chlorinated hydro-
carbon or organic phosphorus compound is evident that
may cause a pyramiding effect on higher animal life."

Here in fact, I quote from a presentation made for the Richmond
Anti-Pollution Association. Further representation was made on April
27, 1971 before Mr. F. F. McKinnon, chairman of the Pollution Control
Board, in Victoria and members of this board and I will quote from
sections of the brief presented at that time by the fishermen.

"The noticeable year by year increase of domestic
and industrial waste poured into the waters of the Lower
Fraser River are a source of grave concern to the commercial fishermen who are dependent on salmon of Fraser River origin for their livelihood.

Those who are advocates of the use of the Fraser for waste disposal claim that the river's dilution factor is such that we should have no fear of detrimental effect on either the health of the persons who work on the water or for the survival of fish that use the river as their migration route to and from the sea. The fishermen have known that due to the very low gradient in the river's lower reaches, the Fraser is subject to the very great influences of the tides of the Strait of Georgia.

Strong reverse flows and tidal influences are noted for the greater part of the year as far upstream as the Vedder River. In a normal year the reverse flows in the lower reaches should be expected for approximately 9 months in each year and in years of extremely low outflow volume, such as in 1969 and 1970 the period of tidal influence could be extended to 10 months. During the periods of reverse flow and high tides of 14 feet and over occurring together with southwesterly winds, waste materials deposited at the sight of the present Gilbert-Blodel outfall on the South Arm of the Fraser could be carried back upriver up to and beyond the outfall of the proposed Annacis Island Sewage Treatment Plant. The effluent discharge from the outfall at Annacis Island Sewage
Treatment Plant on the same type that reached Douglas Island at the entrance to Pitt River.

These lengthy reverse flows occur in this region not because of the tidal influence on the Strait of Georgia alone but because of the fact that Pitt Lake also acts as a storage basin drawing water from the Fraser River to the connecting Pitt River. In certain times of the year there are periods when the river's outfall volume in New Westminster is very little greater than that of the reverse flow volume. Consequently, waste materials discharged at the sight could take up to 2 days to clear the mouth of the river.

During these low flow conditions when severe reverse flows occur, there are prolonged periods of very slow moving black water near the proposed sewage treatment plant. Solid sediment suspended during the strong tidal movement will not tend to settle on the river bottoms and along the banks. Primary treatment of domestic waste will remove the large noticeable waste material, however, the harmful waste in the form of human excrements and toxic substances together with the added chlorine will be discharged into the receiving water.

The scientists of the federal Department of Fisheries and the International Pacific Fisheries Commission have achieved great success in bringing back the sockeye salmon to the Fraser River. Their knowledge of salmon conservation and propagation is acknowledged throughout the world. However, two species of salmon, the pink
and the chum, whose fry head out to sea during an extreme low water period on the Fraser River have not responded to conservation efforts of our scientists and have failed to return an expected number as adults to their parents' stream. Could the failure of these runs of salmon be attributable to high toxicity in the river affecting migrant salmon at certain periods of the river's capacity for dilution when it is lower due to tidal conditions? Does this type of toxicity have a sublethal effect on seaward bound salmon fry and make them more vulnerable to predators or even to environmental changes from fresh to salt water while enroute to the open sea?

Until the mid 1950's the harvest of up to 8 million pink salmon of Fraser River origin in a season was not considered an exceptional catch. However, since 1959, despite all the efforts of the scientists and their knowledge of salmon conservation and propagation, we have witnessed 5 consecutive failures in the return of the adult pink salmon. This season the federal Department of Fisheries on the recommendation of the International Pacific Salmon Fisheries Commission has ordered a total ban on pink salmon fishing because again the young fry failed to survive during their seaward migration.

The fishermen fear that the building of a primary sewage treatment plant at Annacis Island servicing the
eastern half of the greater Vancouver region, Surrey, Burnaby, Port Coquitlam, Port Moody, New Westminster, Fraser Mills, and Delta, would seriously affect the water quality on the South Arm of the Fraser River. At present large numbers of small domestic effluent outfalls are located over many miles along the river. Under these conditions certain degrees of dilution take place, however, there is only one huge outfall discharging effluent collected from these various cities and municipalities. We fear that the receiving water near and westward of the discharge point will further deteriorate to an extent where survival of our salmon species will be more difficult.

The fishermen are of the opinion that because of these valuable salmon stock originating on the Fraser, the sewage treatment plant at Annacis Island and Gilbert Road should be a tertiary plant and under no circumstances should that be a secondary treatment plant. The responsibility for costs in order to insure clean water in the Fraser River is not that of the small municipalities and cities alone. Equal contributions toward cost must be assumed by both the federal and provincial governments. Only in this way can we assure the survival of the salmon that contributes so greatly to the total economy and welfare of the people of this province of Canada." (from a presentation made on April 27, 1971 before the Pollution Control Board, In Victoria)
You are now aware that fishermen first became active about the pollution question on the Lower Fraser due to the fears that the continued abundance of salmon of Fraser River origin will be seriously reduced and due to increased connecting industrial and agricultural waste that are being poured into the water of the Lower Fraser. We are also concerned for the health of fishermen who fish the Fraser and others who work along and play along the banks of the Fraser.

Insofar as survival of our salmon is concerned, we are of the opinion that the greatest threat could arise from domestic waste material receiving little or no treatment and being dumped from outfalls located all along the Fraser River. The most damaging and immediately the most dangerous form of water pollution affecting fishermen and other boaters comes from debris from forest industry operations in the form of sawn logs that have been lost from logging and log-holding areas, low floaters and dead heads that have been collected from upcoast logging operations loaded on log-carrying barges and brought into the Fraser River and Howe Sound log sorting dumps, saw mill wastes and logging wastes from the upper Fraser watershed forest industry operations.

Some of the floating debris results from careless construction operations that dismantle and discard old boards, pilings, deckings, etc. A small amount of dunnage from ships and barges operating along the Fraser area added to the situation.

The results of a large amount of natural waste that are brought downstream, especially during the beginning of each freshet season. However, because of high water volume and fast one-way outflow volume of water from the Fraser River at this period, no great amount of this
natural debris collects along the river bank in the outer Fraser watershed. Natural waste such as trees or roots coming downstream during periods of short, severe, fast floods during what is a normal low outward flow volume period on the Fraser tend to collect in the Fraser estuarial area.

Thirdly, extensive use of the pesticides are made on farms to combat various insects and fungi. Regulators of plant growth, brush and plant defoliants along roadsides and power right of ways are used by both farmers and municipalities. Chlorinated hydrocarbons and organic phosphorus compounds that are accumulative and long-lasting with harmful effects on man, wild-life, and environment are used almost everyday in the Lower Mainland and eventually find their way into drainage ditches. Water from almost every drainage ditch runs into the Fraser River or some nearby trout or salmon stream or out into estuarial marshes.

To our knowledge no concerted effort has been made to protect both plant and aquatic life in these drainage systems, and we are of the opinion that monitoring to determine if any dangerous amount of chlorinated hydrocarbon or organic phosphorus compound are evident that may cause a pyramiding effect on higher animal life should be made at the earliest opportunity. It is our opinion that if these conditions existed on the Great Lakes of Eastern and Central Canada or any other static body of water, methods for combating would be relatively easy. In order to combat the situations that I have described, it is our opinion that serious efforts should be made by oceanographers and hydrographic and meteorological departments to determine the tidal flows of the eastern Strait of Georgia, The Fraser
River and its estuaries, and the tides and flow of both Howe Sound and Burrard Inlet.

I would now like to make some comment with regards to the tidal flows during various seasons of the year and their effect that these tidal changes and situations have insofar as holding or spreading or accumulating or diluting or even dissipating much of this waste that I have described.