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## **Voyage Of Discovery -- An Investigation Of Puget Sound - The Finale -- Lessons From The Logbook: With Vigilance, Diligence, We May Yet Preserve Paradise**

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"Accompanied by Mr. Broughton and some of the officers, I went on shore about one o'clock, pursuing the usual formalities which are generally observed on such occasions, and under the discharge of a royal salute from the vessels, took possession accordingly of the coast."

- George Vancouver, June 4, 1792.

CYPRESS ISLAND, Skagit County - On the last day of our voyage, I launch my kayak from the stern of the Velella, anchored in tranquil Strawberry Bay, where Vancouver anchored in 1792. The kayak carves a liquid V on a mirrorlike surface as I paddle out to Strawberry Island, a forested gem about 200 yards long at the focal point of the bay.

Here seagulls perch on the tidal rocks, each with its beak tucked neatly into one wing. Pigeon guillemots - sleek, black seabirds with remarkable red feet - inhabit the granite cliffs. A lone fisherman in his small aluminum boat drifts just off the kelp, his fish line glinting in the morning sun as he leans back with a cup of coffee and grins at me as if to say, "It doesn't get any better than this."

I beach my boat and climb to the top of the island, stopping to admire the wind-weathered madronas and Douglas firs, some of which appear old enough to have been admired by Vancouver.

The view from the top encompasses 100 square miles of inland waters and 50 miles of coastline. The sole signs of humanity are the Anacortes ferry steaming across the southern horizon and my fisherman friend working the kelp.

This does not look like a sick ecosystem. It looks like Paradise.

Yet, paradoxically, scientists seem to agree that, for all their splendors, these waters are troubled. Most of Puget Sound's fish populations - salmon, herring, rockfish - are in serious decline. Federal endangered-species listings are imminent, with as-yet-unknown impacts on people's lives.

To scientists, natural beauty and ecological trouble are not contradictions. Puget Sound, like all oceans, mirrors daylight while shrouding the biological complexity beneath the surface.

Over the past three weeks, we have sailed more than 400 miles of this inland sea, retracing the 1792 route of George Vancouver from Discovery Bay to the South Sound, from Bainbridge to Strawberry Bay.

Our days turned on tide and wind as we relearned how to live with, not resist, the rhythmic ebb and flow of nature. We dreaded our return to the city.

From an aesthetic standpoint, at least, we came home encouraged. We saw virtually no litter, not a single plastic six-pack yoke or hamburger wrapper, and none of those surface "rainbows" that indicate oil on the water. Even in notorious corners such as Elliott Bay and Eagle Harbor, the sound looks remarkably clean.

Everywhere we sailed, we encountered bald eagles, great blue herons and harbor seals.

While prices for waterfront property inflate, much of the shoreline resembles what Vancouver described two centuries ago. There are miles of seemingly pristine shore in areas such as the western bluffs of Whidbey Island and the eastern shore of Hood Canal. State officials consider two-thirds of Puget Sound's shoreline to still be "natural."

Admitted, these observations are not scientific and we are not scientists. I am a journalist; my old friend and skipper Keith Benson is a historian of science. In lieu of scientific expertise, we brought to this voyage our keen, personal interest in preserving this inland sea.

Along the way, we conferred with biologists and oceanographers, fishermen and environmentalists. We glimpsed the endangered Redfish Lake sockeye at the Manchester labs near Port Orchard and sampled oysters plucked straight from the waters of Burley Lagoon in the South Sound.

Here is the essence of what we learned:

Puget Sound is far more complex than we give it credit for. It is both an ecosystem and a web of ecosystems that invite oversimplification and defy understanding.

For all its ecological woes, Puget Sound also shows many signs of health. State officials, who test these waters on a regular schedule, report that water quality is generally improved. Horribly polluted sediments in Elliott Bay and Commencement Bay have been cleaned up or capped. Sewage treatment has been upgraded, and outfalls have been moved so discharges are more effectively diluted.

Less obvious are the neighborhood responses. In Port Townsend, eighth-graders collect data from monitoring stations on the bay. In Seattle and other urban ports, scores of volunteers with the Puget Soundkeeper Alliance track down polluters, then work with them to find nonpolluting alternatives. In the San Juans, citizens have created mini-reserves for depleted rockfish.

Although most fin fish have declined, shellfish show steady improvement. Commercial and recreational oyster beds that had been closed for years have been reopened, and oyster growers had their best year since 1984. Mussels, which naturally accumulate pollutants, now accumulate far fewer of them. Last spring, hundreds of people turned out on Hood Canal to harvest healthy populations of shrimp and crab.

Some fin fish - halibut, for example - show improvement. And although herring runs are generally down, they're on the upswing in certain spots such as Vashon Island's Quartermaster Harbor.

Scientists are much better at identifying these trends than they are at explaining them. There is reason to believe rockfish have been overharvested, but herring have not been heavily fished for several years. Biologists disagree on whether salmon have been overfished, but both sides seem to agree that the

biggest problems are environmental - not in Puget Sound, but in the rivers and the ocean.

The ocean is the wild card. There is growing evidence of what scientists call a "Pacific decadal oscillation," meaning long-term temperature cycles in the North Pacific that appear to have favored fish in Alaskan waters at the expense of Washington's for the past 20 years. But researchers can't say if or when that oscillation will swing back in favor of Puget Sound.

All this uncertainty breeds two schools of thought.

One says: Err on the side of caution. Crack down on all forms of pollution - industrial outfalls, undertreated sewage, overloaded septic tanks and oily bilges. Prohibit or curtail construction along the shoreline. Ban fishing. Spare no expense, because we cannot afford to lose Puget Sound.

The other says: Be sensible. Our biggest problems can be traced to ocean temperatures beyond our control. Meanwhile, Puget Sound is far healthier and more resilient than we think. It has survived more than a century of human development and, if we proceed with common sense, it will survive for centuries to come.

There is ample science to support either point of view. Most scientists do their best to stay out of the fray.

I think back to a conversation two weeks ago on the Seattle waterfront with biologists from the Muckleshoot Indian tribe, who face a dilemma of science and politics.

After years of unrelenting pollution, Elliott Bay and the Duwamish River are being cleaned up, they said. As part of that effort, the Muckleshoots closed their own salmon fishery for four years to help rebuild depleted Duwamish runs. This summer, those closures are expected to pay off with the return of up to 100,000 salmon above the level needed for sustainable spawning. This may include several thousand surplus chinook - the same species deemed endangered.

Tribal fishermen want to net those fish in Elliott Bay, but county officials fear that an Indian fishery would lead to conflicts with non-Indians who can't fish. Science says: Go fishing. Politics says: Stay on the beach.

Similar debates have occurred over the need for costly sewage-treatment plants or the fish-gobbling sea lions at the Ballard Locks. Science gives us information on which to base decisions, but it does not make those decisions.

In Strawberry Bay I climb back into my kayak and paddle around tiny Strawberry Island. An incoming tide is now streaming past, and I paddle onto a bed of kelp to hold my position while I jot some thoughts.

Back aboard the Velella are two cardboard boxes of interview notes, books and charts I have accumulated - a makeshift log of my voyage, literal and intellectual, through Puget Sound. There is much to see and learn and think about.

I watch six of those sleek guillemots work the tide. Starting at the southern end, they ride the current, dipping their heads into the water and occasionally diving for prey. At the north end, they take to the air and race back to repeat the process, wing tips leaving a trail of tiny splashes on the surface.

Now I watch the happy fisherman work the opposite side of the channel, drifting with the tide at the foot

of a granite cliff, revving his outboard to run back against the current, then repeating his course. His strategy mimics the guillemots, though not as effectively.

Back on the Velella, Benson returns from his own foray to Cypress Island and displays a delicate pink blossom - "Hooker's onion," he says. Archibald Menzies, the botanist aboard Vancouver's ship, identified the same plant here in 1792.

Twenty years ago, Cypress Island came very close to being bulldozed. It was privately owned and slated for massive clear-cutting, 1,000 homes and condominiums, a 100-slip marina and 18-hole golf course - all approved by the state.

It was rescued by a few far-sighted citizens, by the nonprofit Nature Conservancy, and finally purchased by the state. Today the island is preserved in its natural state, a permanent memorial to the power of citizen action.

Given declining fish runs, this is no time for complacency, but neither is it a time for despair. We have done well over the past 15 years - cleaning up sewage and toxic sediments, preserving wildlife habitat, instilling an environmental ethic. Polls show a broad public consensus that favors doing the right thing for Puget Sound.

But what might that be? People crave direct causes and effects, heroes and villains. Some would close down fishing altogether. Others demand tougher laws against pollution. Others want more public ownership of critical wildlife habitat.

Science provides no road map. On the contrary, with each new breakthrough, the oceans become more complex and the solutions less obvious. Our best bet is a deeper and broader understanding of a marine web composed not just of leaping salmon and noble orcas but of microscopic diatoms, prosaic herring and homely rockfish.

This is the lesson learned by those eighth-graders in Port Townsend, or the rockfish defenders in the San Juans. For all those costly sewage plants, individual action still matters. A better understanding of this intricate inland sea should lead to wiser decisions and enrich future voyages of discovery.

"The surface of the sea was perfectly smooth and the country before us exhibited everything that bounteous nature could be expected to draw into one point of view . . . I could not possibly believe that any uncultivated country had ever been discovered exhibiting so rich a picture."

- George Vancouver, May 1792

----- A changing profile -----

-- Area: 2,000 square miles.

-- Shoreline: 2,300 miles.

-- Mean depth: 600 feet.

-- Volume: About 1 trillion cubic meters.

- Temperature range: 45 to 60 degrees F.
- Adjacent human population: 3.8 million .
- Government jurisdictions: 8 counties, 5 major cities.
- Recreational vessels: 16,000 power boats, 21,500 sailboats, 43,500 canoes and kayaks.
- Ship traffic: 3,000 cargo and passenger ships per year; 560 tankers, 4,000 oil and chemical barges.

Shoreline: Of Puget Sound's 2,300 miles of shoreline, about one-third has been modified by development ranging from timber bulkheads to world-class seaports. Two-thirds, or 1,541 miles, remain essentially natural.

Water quality: Generally improved from a decade ago, probably because of better sewage treatment and enforcement of pollution laws.

Herring: Spawning stocks of herring, an important food supply for larger fish, are generally down from around 20,000 tons in the late 1970s to about 13,000 tons now. But some specific stocks, such as Quartermaster Harbor, have improved.

Harbor seals: Puget Sound populations have grown from about 5,000 to 20,000 since the early 1970s and are increasing by more than 6 percent per year. Scientists are studying whether seals are a factor in depressed salmon and herring runs.

Salmon: A mixed message. Many of the 209 distinct runs in Puget Sound have declined. Puget Sound chinook may soon be added to the endangered list. South Sound chum salmon are considered extinct. But other runs, especially those in the South Sound and Hood Canal, are considered healthy.

Mussels: Recent tests show significant declines in levels of mercury, copper, PCBs and other toxicants that shellfish accumulate.

Oysters: Commercial beds that had been closed for years are being reopened. Growers in 1995 had their best year since 1984.

Marine birds: Populations of scoters have declined as much as 50 percent since the late 1970s. But other seabird populations appear to be stable and healthy.

Rockfish: Many species, such as copper rockfish and lingcod, are believed to be declining, probably due to recreational fishing.

Bald eagles: Eagles show dramatic improvement since 1980 in both nesting success and young eagles per nest.

----- Reprints -----

Special reprints of the Voyage of Discovery series will be published later this summer. Details will be announced in The Seattle Times.

----- Reading -----

Those interested in further voyages of literary discovery could investigate a number of primary sources and academic or popular works.

Published in 1799, Vancouver's account of his Northwest exploration attracted international attention. Today it is hard, but not impossible, to find. The definitive four-volume version, edited and with commentary by Canadian historian W. Kaye Lamb, was published in 1984 by the Hakluyt Society in London. It sells for about \$150 new.

A one-volume 1907 edition, edited by University of Washington historian Edmond Meany, is long out of print but can be tracked down by rare-book stores for \$25 to \$50.

The journal of naturalist Archibald Menzies was published in 1922 by the British Columbia Archives and is long out of print. I found a copy at the Seattle Public Library. A shortened version, containing his notes from the Olympic Peninsula, is available from the Jefferson County Historical Society in Port Townsend.

Peter Puget's brief journal from the South Sound was published by Pacific Northwest Quarterly in April 1939 and is available at many libraries. "Peter Puget," a biography by Robert Wing and Gordon Newell (Gray Beard Publishing, Seattle, \$25) is lavishly illustrated and available in new and used bookstores.

As for natural history, there are many fine field guides to Pacific Northwest waters. I used Eugene Kozloff's "Seashore Life of the North Pacific Coast," (University of Washington Press, \$30).

Joel Rogers' new book, "Watertrail: the Hidden Path through Puget Sound," (Sasquatch, \$22) is a terrific blend of field guide and fine photography.

"The Fertile Fjord," Richard Strickland's account of Northwest plankton, is the best of four books on Puget Sound science published by Washington Sea Grant and the UW Press.

Bruce Brown's "Mountain in the Clouds," recently reprinted by UW Press, remains the definitive popular account of what happened to Northwest salmon runs.

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