



Paddle to Quw'utsun – GIS makes history

On July 28th 2008, history was made as North America's largest ever Tribal Journey Canoe Voyage landed at Cowichan Bay, marking 98 First Nations traveling from all directions – North, East, South, and West – on the “Tribal Journeys 2008 – Paddle To Quw'utsun.”

Spectators marveled as 109 canoes pulled into shore, carrying over 1,000 paddlers. Some participants had traveled from as far and wide as Northern Alaska, the Queen Charlotte Islands and Oregon State – with several paddlers dressed in impressive traditional regalia such as West Coast button blankets, hats woven from the inner bark of the western red cedar tree and Salishan masks.

First launched in 1989 as a celebration of Indigenous Peoples' highly sophisticated relationship with the ocean, this continues to be an annual traditional gathering of nations among the North American Indigenous Peoples. Supported by family, friends, sponsors and spectators, the event celebrates and carries on “those traveling the ancestral highways” legacy.

Hosts of the 2008 Tribal Journey – Cowichan Tribes – tackled this challenge by blending ancient tradition with modern day technology and used GIS to plan a successful voyage, carry on a legacy and overcome a number of significant challenges.

Each year, the First Nation in charge of hosting the event creates a route map and schedule to guide the large number of participants. The 2008 map is an international effort that started with the Muckleshoot Indian Tribe – host of the 2006 Tribal Journeys and was passed to the Lummi Nation in 2007. The involvement of Cowichan Tribes in producing the map for the “Tribal Journeys 2008 – Paddle to Quw'utsun” began in April of 2008 when staff members were approached by the Tribal Journey planning team to create a route map for this event.

Cowichan Tribes had been implementing GIS in their daily processes over several years for land management as well as addressing, and improving sewer and water infrastructure. They wished to leverage this technology to create a truly

effective route map that unlike a paper map could be easily altered and shared.

Given the tight timeline to produce a route map, members of the Cowichan Tribes GIS team, Brenda Underwood and Pamela Williams, appealed to Lummi Nation (host of the 2007 Tribal Journeys). Lummi Nation gladly complied and sent a DVD-ROM containing the ArcGIS geodatabase that was used to create the route maps produced for 2006 and 2007. Pamela Williams explains:

“We breathed a sigh of relief when the geodatabase arrived, the feature datasets we received from Lummi gave us

a head-start on producing a map for this year's event.”

One of the main purposes of the map was to acknowledge and display the various communities where the participants had traveled from. This would help to foster an understanding between individuals, enabling participants to learn about one another. However, this was not possible with

the existing datasets that the Cowichan GIS team had in their possession. As participants would be traveling from both Canada and the US, two different datasets were required and Cowichan Tribes only had Canada's dataset.

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Brenda Underwood, GIS Technician

The GIS team quickly overcame this challenge by acquiring ESRI's ArcView 9.2 media kit that included the entire North American coastline and shaded relief. Pamela Williams adds:

“Without the shaded relief, the map looked flat and uninteresting. The shaded relief layer added much visual interest.”

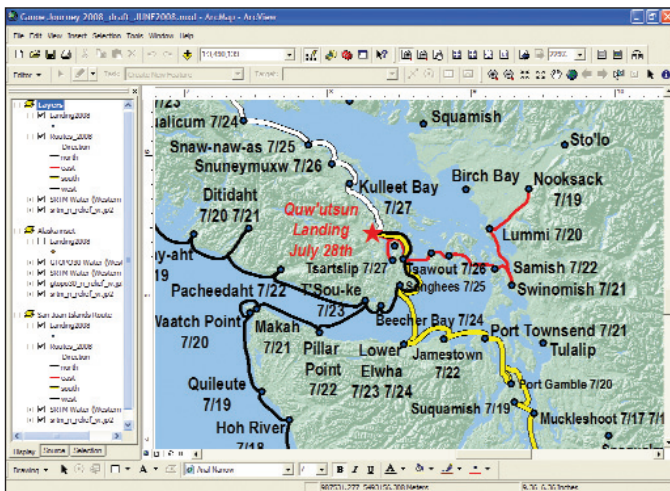
The coastline enabled the team to expand the database and populate dots on the map to show all of the communities where the participants had come from, in addition to mapping out the routes that would be traveled in the journey. ArcMap enabled the GIS team to illustrate North, East, South, and West – labelled in the four traditional colours white, red, yellow and black in response to a last minute request from the Tribal Journeys planning team for a final touch-up on the map.

The team then printed copies of the map and provided one to each family participating in the voyage as a keepsake that they could cherish forever. Describes GIS Technician Brenda Underwood:

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GIS Used to Document Environmental Changes

Adding to this precedent setting use of technology was a unique scientific component of the 2008 Tribal Journey. Through a partnership that was struck between the US Geological Survey and the Indigenous Peoples of the Salish Sea ecoregion, a project was implemented to address concerns over diminishing water quality. The Salish Sea which



Using ArcView, the 2008 Canoe Journey Map is demonstrated including routes traveled and the location of the final Quw'utsun Landing. North, East, South and West routes are represented by polylines in the four traditional colours – white, red, yellow and black.

Cowichan Tribes welcomed and honoured the paddlers with gifts of traditional songs and dance. In the following four-day protocol, the paddlers, families, friends, sponsors and spectators were brought together celebrating and sharing cross-cultural values, traditional songs, stories and food.

The sheer magnitude of this event requires months of strategic planning, organizing and preparation.

is the inland waterway stretching from Tumwater, Washington to the southern edge of Johnstone Strait, British Columbia, continues to show signs of environmental deterioration, including increasing accounts of low dissolved oxygen, pollution, parasites (sea lice), and high turbidity.

To research this further, five of the traveling canoes participating in the 2008 Tribal Journey carried water quality probes and Global Positioning System (GPS) units along five different routes through the Salish Sea (North, South, East and West, and Fraser River). They measured water temperature, salinity, pH, dissolved oxygen, and turbidity across the Salish Sea. The canoe proved to be an ideal vehicle from which to conduct the testing as it is slow moving and does not disturb the water or add further toxins to the environment.

Gathered data is currently being downloaded to an ArcMap application and used to compile a database of water quality measurements across the Salish Sea that will help tribal, federal, state and

local entities to identify water quality issues. This test will be repeated each year to accurately document changes in the water quality, helping to address issues related to the recent deterioration of ancestral waters and marine resources. Eric Grossman, Geologist for the US Geological Survey who spearheaded this project explains:

“Water quality parameters were measured every ten seconds along the five different pathways and the information was sent to a water quality logger. Technicians would then email the information into a central server each night, enabling almost real-time results to be plotted and disseminated through Google Maps on the USGS website <http://www.usgs.gov/coastsalish>. The data will also be used with ArcMap to create maps, GIS data layers, and posters of the findings. Scientists who are interested in water quality and environmental management will find this data invaluable when conducting future tests.”

GIS to Increase Productivity

Looking forward, Cowichan Tribes - over 4,100

members strong and the largest First Nation in British Columbia - will continue to leverage GIS technology to improve many aspects of their operations. Currently, GIS is being used to update reserve addresses into a database that feeds directly into the 911 emergency system and a reserve road atlas is underway. GIS is also being employed in ongoing efforts to improve sewer and water infrastructure on reserves.

Next year will mark the Tribal Journeys 20th anniversary. Cowichan Tribes will proudly pass along their Canoe Journey Map and geodatabase to the Suquamish Tribe, Washington State – hosts of next year’s Tribal Journey event – and the legacy will continue.

Tribal Journeys 2008:
www.tribaljournays2008.com