

MAPPING TECHNIQUES IN SUPPORT OF INDIGENOUS COMMUNITY TRADITIONAL LAND USE STUDIES: AN ALBERTA CANADA OIL SANDS DEVELOPMENT CASE STUDY

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Northern Alberta, Canada holds one of the largest oil sands development areas in the world. Oil sands extraction has had an enormous impact on the economic, ecological and cultural landscapes of the region, and indeed, of Canada. Industry is planning additional developments in the coming years with oil production expecting to rise from 1.31 million barrels per day in 2008 to 3 million barrels per day in 2018. The large expanse of the development on the land and associated negative environmental effects stemming from a large scale oil projects can have immediate and long term effects on traditional ways of life for the surrounding First Nations (indigenous people in Canada) communities. Already almost completely surrounded by industrial development, First Nations in the area are rising to the challenge to engage in meaningful consultation with government and industry by developing better cultural data collection methodologies and spatial decision support tools.

In this poster we describe process and provide 'hypothetical' mapping examples of cartographic work and GIS analysis that is typical for a community of this type. Some of our methodology is based on the seminal work of Terry Tobias, and other parts come from our experience working with the Integral Ecology Group and Kwusen Research of Victoria, British Columbia. Our intention is to demonstrate challenges that we have encountered and solutions that we have developed in our recent work. Our hope is that this material will contribute to a set of best practices around mapping and GIS for, and by indigenous communities, specifically in a Northern Alberta context. There are seven stages of the mapping process that we document: (1) creating a community base map - collecting and managing base layers to cover a variety of cartographic needs; (2) creating maps for data collection in use and occupancy mapping interviews; (3) digitizing features from interview hardcopy, predominantly film overlays; (4) adding GPX-format GPS data from site verification field visits; (5) creating thematic maps for community discussion; (6) creating anonymized maps for industry review; (7) GIS analysis to generate statistics for reports.

We spend a portion of the poster describing our toolset: ESRI ArcMap, Garmin GPS units, and the Quantum open-source GIS. We also detail some of the mapping data standards pertinent to our work.

The mapping support described in this poster required hundreds of hours of cartographer time, but this represented only a small fraction of the effort that went into the entire community engagement and consultation process. The feedback received emphasizes that the high quality map products were extremely useful in contextualizing proposed developments and exploring impact on traditional uses. There are, however, significant challenges both technical and procedural, which include difficulties getting mapping and maps to be fully accessible by indigenous communities. We conclude the poster with discussions about how open-source and web-mapping tools will likely be part of any future solutions.