ExtractX™

Zero in... extract value from your land and surface water monitoring programs

100%

Stantec's ExtractX™ gives you 100% coverage of your assessment area. Traditional on-ground approaches may cover only 2% or less.

Use ExtractX™ to zero in on your target and extract just what you need. Meeting and monitoring environmental commitments when identifying, quantifying and monitoring surface features can be expensive and risky. Stantec remote sensing and ecology specialists have developed an innovative approach that combines high-resolution image datasets with object-based image analysis (OBIA) for more accurate and efficient monitoring. Using our ExtractX™ services, clients can increase the spatial scale and extent of assessments while reducing cost and health and safety risk to field staff.

Stantec analyzes imagery and data collected by satellites, planes or unmanned aerial vehicles (UAVs) using OBIA. OBIA is a form of artificial intelligence, automatically breaking down images into objects using color, texture, shape, size and proximity characteristics. It essentially does what the human brain does instantaneously by clustering image pixels with similar properties to form a series of objects.

The value of ExtractX™

Properly-configured OBIA segmentation does in mere seconds what would take a photo interpreter hundreds of hours to complete. Unlike traditional remote sensing classification, OBIA allows for highly sophisticated decision-tree classification processes, resulting in finite and detailed class generation.
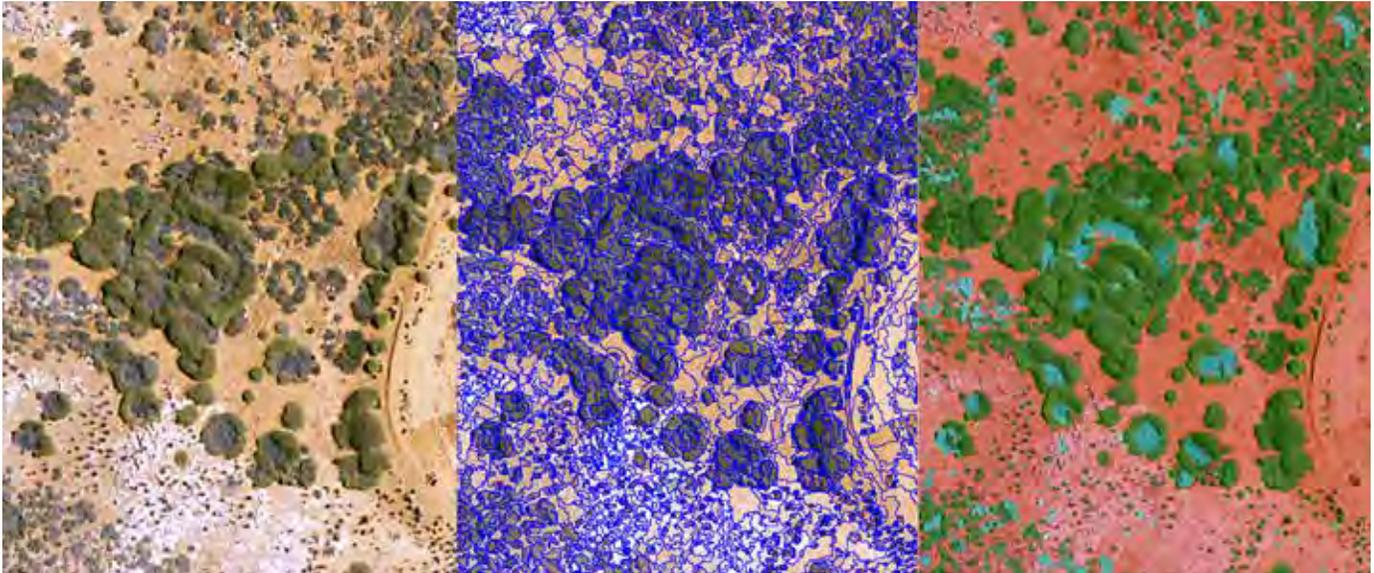
ExtractX™ was used to greatly improve effectiveness monitoring of vegetation rehabilitation of an oil and gas decommissioning project at a Class A island ecological preserve off northwest Australia.

Examples of applications

PNW Liquefied Natural Gas, Prince Rupert, BC, Canada
Eelgrass bed mapping for Salmon habitat suitability
- Utilizing high resolution (50 cm) imagery for intertidal vegetation maps

Barrow Island, Western Province, Australia
Monitoring vegetation of oil and gas sites
- Normalized Difference Vegetation Index (NDVI) for decommissioned oil and gas sites

Polar Knowledge Canada, Tuktoyaktuk, NWT, Canada
Shrubification of arctic tundra from climate change
- Correlating radar imagery with UAV and elevation data to identify shrub migration

Virginia Department of Military Affairs, VA, USA
Land Use/Land Change detection analysis 2002-2018
- Mapping impact of military activity over time

Manitoba Hydro, Bipole III Transmission Line, MB, Canada
Soil productivity and permafrost impact monitoring
- Using satellite imagery for change detection analysis

Brighton Reservation, Central Florida, USA
Identification and delineation of invasive vegetation
- Orthophoto and LiDAR DEM data to detect vegetation signature and height over time

Benefits of ExtractX™

- Process vast landscapes and isolated areas of interest quickly with remotely-sensed data, increasing study area coverage from only a fraction (field teams) to full coverage (ExtractX™)
- Increase environmental detail of remotely-sensed data in a reliable, scientifically-repeatable manner that is defensible to regulatory authorities
- Ideal for change detection analysis as the ExtractX™ method can be run automatically on multiple locations over time without human bias
- Reduce time in the field with just minimal groundtruthing, lowering cost and safety risk

When can ExtractX™ be used?

- Vegetation rehabilitation monitoring and assessment
- Vegetation impact assessment
- Vegetation cover and type identification
- Invasive species detection
- Disturbance feature delineation
- Habitat-related feature identification
- Contamination impacts
- Construction progress monitoring
- Disaster mitigation tracking

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