Metadata for <u>Legacy 2D Seismic Lines with Ecology Data</u>

BCER
BRITISH COLUMBIA **ENERGY** REGULATOR

Use Limitations: The legacy seismic data (GEO_LEGACY_2D_TRIM_ECOLOGY_LN) is a value-added product derived from multiple spatial data sources, including but not limited to, TRIM Miscellaneous Lines, vegetation resource inventories, historical wildfires, caribou herd locations, consolidated cutblocks and generalized forest cover ownership. The data is as is, and with fault, and the Regulator does not warrant or guarantee the accuracy, completeness, or reliability of the data.

This data is for representation purposes only. The Regulator provides this data "as is" with the understanding that it is not guaranteed to be accurate, correct, or complete and conclusions drawn from such information are the responsibility of the user. It carries no guarantee of any kind, express or implied.

Background

The Legacy 2D Seismic with Ecology dataset (GEO_LEGACY_2D_TRIM_ECOLOGY_LN) was generated by the BC Energy Regulator to be a foundational dataset for planning, executing, and managing 2D seismic restoration projects. The seismic spatial data is derived from the [BC TRIM Miscellaneous Lines](#) dataset.

The data is value-added with physical, environmental and land use parameters to support planning operations. This includes attributes for seismic line width, alternate line use, shrub and canopy cover derived from high resolution satellite imagery. Please reference the [Caslys 2D Seismic Recovery Mapping Summary Report 2023](#) for additional information including methods and accuracy assessment.

The dataset also references attributes for soil moisture and soil nutrient regime; line elevation and orientation; adjacent cover type (species, height, and projected age); surrounding BCLSC land use information; land ownership data; forest fire; cutblocks; and wetland information sourced from the [BC Geographic Warehouse](#). These attributes are indicative of forest cover and vegetation adjacent to the seismic line (not on-line vegetation). The dataset also indicates when the line is within identified caribou ranges.

The seismic lines are segmented to capture variable attributes along each seismic line. If for example a line is partially located on private land or a wetland, the line will be in multiple segments where the line intersects different features.

Data Dictionary

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
OBJECTID	Object Id	Object ID		Automatically assigned by database
SHAPE	SHAPE	Geometry (Line)		Contains the geometry information for mapping software.
SHAPE.LEN	SHAPE.LEN	Double		Line length automatically calculated by database.
SEGMENT_ID	Unique Segment ID	Long		
LINE_WIDTH	Line Width	Text	20	This classifies line width into three classes, either <3m, 3-7m, or >7m.
WIDTH_CODE	Width Code	Long		This is the width class of the line feature (3m,5m, or 7m). Line width is derived from satellite imagery.*

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
ALTERNATE_USE	Alternate Use	Text	30	The alternate use references any other land use on the seismic line, including agriculture, residential, forest fire, cutblock, pipeline, road, hydro line, industrial, recreation and insect damage. This value also identifies where the are no trees or light trees and flags any criteria that may impact interpretation such as cloud cover. Alternate use is derived from satellite imagery and various spatial land use datasets. *
ALT_USE_CODE	Alternate Use Code	Text	30	This field contains the alternate use letter code. If null, then there is not alternate use identified. *
TREE_COVER	Tree Cover Class	Text	30	This is the tree cover class for the line feature; either none, rare, sporadic-significant, or continuous. This attribute is derived by interpretation of high resolution satellite imagery. *
TREE_CODE	Tree Code	Long		This is the tree cover class code for the line feature (0,2,5, or 9). *
SHRUB_COVER	Shrub Cover Class	Text	30	This is the shrub cover class for the line feature; either none, rare, sporadic-significant, or continuous. This attribute is derived by interpretation of high resolution satellite imagery. *
SHRUB_CODE	Shrub Code	Long		This is the shrub cover class code for the line feature (0,2,5, or 9)
RAW_ATTRIBUTES	Full Attribute Code	Text	30	This is the full attribute code provided to the record during image interpretation. It will either be a numeric code indicating width, tree cover, and shrub cover, or a letter code indicating alternate use. For reference only. *
ASSESSMENT_3D	3D Seismic	Text	1	The field identifies if a record was flagged as a 3D seismic feature. A "Y" in this field indicated that it is a 3D feature. It may be fully or martially attributed. There are incidentally some 3D lines in the base dataset, although the data is primarily 2D seismic. *
ADMIT_YEAR	TRIM Year	Short		Year the data was committed to the TRIM database.
ASRC_YEAR	Admit Source Year	Short		The admit source year of the imagery used when the data was first committed to the TRIM database.
RSRC_YEAR	Imagery Year	Short		The year of the imagery used when revisions or updates were done in TRIM.
BCGS_TILE	BCGS Tile ID	Text	7	BCGS Tile ID.
SOURCE_ID	TRIM Source ID	Text	52	TRIM designated line identifier.
TRIMLENGTH	TRIM Source Length (m)	Double		TRIM line feature length (note lines may be segmented).
Z_MIN	Z Min	Double		Minimum line elevation sourced from Digital Elevation Model (Shuttle Topography Radar Mission).
Z_MAX	Z Max	Double		Maximum line elevation sourced from Digital Elevation Model (Shuttle Topography Radar Mission).

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
Z_MEAN	Z Mean	Double		Mean line elevation sourced from Digital Elevation Model (Shuttle Topography Radar Mission).
ORIENTATION	Line Orientation (Degrees)	Double		Line orientation from geometry.
BCLCS_LEVEL_1	BCLCS Level 1	Text	10	From BC Land Cover Classification Scheme. V = vegetated N = non-vegetated and U = unreported
BCLCS_LEVEL_2	BCLCS Level 2	Text	10	From BC Land Cover Classification Scheme. T = Treed (if >10% area is live crown cover) N = non-treed OR for non-vegetated areas L = land and W = water
BCLCS_LEVEL_3	BCLCS Level 3	Text	10	From BC Land Cover Classification Scheme. W = wetland U = upland and A = alpine
BCLCS_LEVEL_4	BCLCS Level 4	Text	10	From BC Land Cover Classification Scheme. For Treed Units: TC = treed-coniferous TB = treed-broadleaf and TM = tree-mixed. For non-treed units ST = shrub tall, SL = shrub low, HE = Herb, HF = Herbs predominantly forbs HG = herbs predominantly graminoids, BY = bryoid, BM byroad-moss (predominantly mosses, liverworts and hornworts), BL = byroad-lichens (predominantly lichens). For non-vegetated: SI = snow ice, RO = rock/rubble, EL = exposed land.
BCLCS_LEVEL_5	BCLCS Level 5	Text	10	From BC Land Cover Classification Scheme. For treed, shrub and herb: DE = Dense, OP = open, SP= sparse. For bryoids: CL = closed cover >50%, OP = open <50%. For non-vegetated GL = glacier, PN = Snow Cover, BR = bedrock, TA = talus, BI = blockfield, MZ = Rubbly Mine Spoils, LN = lavabed. For exposed soil: RS = river sediments, ES = exposed soils, LS = pond or lake sediments, RM = reservoir margin, BU = burned area, MU = mudflat, RZ = road surface, MN = moraine, GP = gravel pit, UR = urban, CL= cultivated land, MI = open pit mine. For water cover: LA = lake, RE = reservoir, RI = stream/river.
BEC_PHASE	BEC Phase	Text	1	A code indicating the areas biogeoclimatic phase.
BEC_SUBZONE	BEC Subzone	Text	3	A code indicating the areas biogeoclimatic subzone. Subzone names define the normal regional climate for the division if a biogeoclimatic zone.
BEC_VARIANT	BEC Variant	Text	1	A code indicating the areas biogeoclimatic variant. This denotes a location within a biogeoclimatic subzone (i.e. eastern)
BEC_ZONE_CODE	BEC Zone Code	Text	4	A code indicating the areas biogeoclimatic zone. This is the name given to a large geographic area having similar patterns of energy flow, vegetation, and soils as a result if a broad homogeneous macro climate.
CROWN_CLOSURE	Crown Closure	Short		Percentage ground area covered by the crown of tree cover
EST_COVERAGE_PCT	Estimated Coverage Percent	Short		The amount the polygon occupied by the predominate Land Cover Component.

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
EST_SITE_INDEX	Estimated Site Index	Double		Estimated site index
FOR_MGMT_LAND_BASE	Forest Mgmt Land Base Indicator	Text	1	An indicator showing the line is in the Forest Management Land base
FREETOGROW	Free to Grow Indicator	Text	1	Indicates whether or not the polygon represents a Free To Grow opening.
FULL_LABEL	VRI Full Label	Text	1000	The full Vegetation Map label. It contains the polygon id, Opening number, species composition, projected age, projected height, site index and crown closure, and indicator of shrub, herb, bryoid, or non vegetative components
HARVEST_DATE	Harvest Date	Date		The date in which the area was last harvested.
HERB_COV_PAT	Herb Cover Pattern	Text	10	Spatial distribution of shrubs in a polygon (clumps, continuous, patchy)
HERB_COV_PCT	Herb Cover Percent	Short		The portion of herb cover that is not obscured by canopy cover.
HERB_COV_TYPE	Herb Cover Type	Text	10	Herb types as defined in the VRI
LINE_3_TREE_SPECIES	Line 3 Tree Species	Text	50	A list of major species (minor species) ordered by percentage. The species symbols are F (Douglas fir), C (western red cedar), H (hemlock), B (balsam), S (spruce), Sb (black spruce), Yc (yellow cedar), Pw (western white pine), Pa (whitebark pine), Pf (limber pine), Pl (lodgepole pine), Pj (jack pine), Py (yellow pine), L (larch), Ac (cottonwood), D (red alder), Mb (broadleaf maple), E (birch), Al (aspen).
LINE_4_CLASSES_IDX	Label Line 4 Classes Indexes	Text	12	Line 4 is made up of 4 numerical characters followed by a hyphen, the site index, a slash, and the estimated site index. The four numerical characters represent projected age class, projected height class, projected stocking class, and crown closure class in that order.
LINE_5_VEG_COVER	Line 5 Vegetation Cover	Text	11	A listing of the non-vegetated descriptors or the non tree vegetative cover types ordered from most to least common.

Possible values in the list are sh (shrub), he (herb), by (bryoid), or the non-vegetative cover codes. |
| NON_FOREST_DESC | Non Forest Descriptor | Text | 10 | Flag identifying land segments that are not forested sourced from VRI as per the British Columbia Land Cover Classification Scheme Level 2

T = Treed A polygon is considered Treed if at least 10% of the polygon area, by crown cover, consists of tree species of any size.

N = Non-treed A polygon is considered Non-Treed if less than 10% of the polygon area, by crown cover, consists of tree species of any size. |
| OPENING_ID | Opening ID | Long | | Unique identified assigned to a forest opening |

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
PROJ_AGE_1	Projected Age 1	Short		The projected age of the dominant species in the stand
PROJ_AGE_2	Projected Age 2	Short		The projected age of the second most common species in the stand
PROJ_HEIGHT_1	Projected Height 1	Double		The projected height of the dominant species in the stand
PROJ_HEIGHT_2	Projected Height 2	Double		The projected height of the second most common species in the stand
SITE_IDX	Site Index	Double		Site index is an estimate of site productivity for tree growth
SMALL_LABEL	Small Label	Text	200	Vegetation Map label. It contains the polygon id, opening number, species composition, projected age class, projected height class, crown closure class, a hyphen, site index, a forward slash, estimated site index, and code(s) for shrub, herb, bryoid, or non vegetative components, and the historic disturbance and forest management activities. It is at most 8 lines. Back slashes represent carriage returns.
SOIL_MOIST_REG_1	Soil Moisture Regime 1	Text	10	Refers to the average amount of soil water. Coded 0-8. 0 = very xeric, 1 = exeric, 2 = subexeric, 3 = sumesic, 4 = mesic, 5 = subhygric, 6 = hygric 7 = subhydric and 8 = hydric.
SOIL_NUTR_REG	Soil Nutrient Regime	Text	10	The relative amount of essential soil nutrients, particularly nitrogen. Coded A-F. A = very poor, B = poor, C = medium, D = rich, E = very rich and F = ultra rich.
SPECIES_CD_1	Species Composition Code 1	Text	10	The predominate type of tree in the leading tree layer,
SPECIES_CD_2	Species Composition Code 2	Text	10	The second most dominant tree species in the leading tree layer.
SPECIES_PCT_1	Species Percent 1	Double		This is the leading species as per the VRI Species Composition Code. A code describing the leading commercial species or brush species in the layer. The species with the highest percent composition (e.g. gross volume or, if a very young stand, the relative number of stems per hectare) is identified a the leading commercial species. Species must be above a specified diameter to be recognized in the species composition of the layer. Leading species are described in terms of Genus, Species and Subspecies. There are currently 27 commercial tree species and five genus values recognized in the Province. The code may also used to describe brush species in cases where the Non-Productive Descriptor is NPBR or the Non-Forest Descriptor is NCBR. Measurement Criteria The species with the highest percent composition is identified as the leading commercial species. Leading species are described in terms of Genus, Species and Subspecies.

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
SPECIES_PCT_2	Species Percent 2	Double		Second Species Description: A code describing the leading commercial species or brush species in the layer. The species with the highest percent composition (e.g. gross volume or, if a very young stand, the relative number of stems per hectare) is identified a the leading commercial species. Species must be above a specified diameter to be recognized in the species composition of the layer. Leading species are described in terms of Genus, Species and Subspecies. There are currently 27 commercial tree species and five genus values recognized in the Province. The code may also used to describe brush species in cases where the Non-Productive Descriptor is NPBR or the Non-Forest Descriptor is NCBR.
TREE_COV_PAT	Tree Cover Pattern	Text	10	The spatial distribution of the tree cover within each tree layer in the polygon.
TREE_NOTREE	Tree Notree	Text	20	Summary class – is the area treed or not treed
WATERBODY_ID	Waterbody Poly ID	Double		Wetland Waterbody_Poly_ID as sourced from Fresh Water Atlas
WETLAND	Wetland Indicator	Text	10	Occurrence of Wetland area as sourced from Fresh Water Atlas
WETLAND_HA	Wetland Area (Ha)	Double		Size of the wetland as sourced from Fresh Water Atlas
FIRE_NUMBER	Fire Number	Text	10	Unique composite of the following fields: Zone, Fire ID and Fire Centre from
FIRE_YEAR	Fire Year	Short		Forest year sourced from Fire Perimeters Historical
FIRE_LABEL	Fire Label	Text	16	Forest fire information sourced from Fire Perimeters Historical
FIRE_HA	Fire Size (Ha)	Double		Forest fire area sourced from Fire Perimeters Historical
FIRE_CLASS	Fire Year Class	Text	20	Summary class: FIRE PRE 1970, FIRE 1970-1989, FIRE 1990-2020 (recent)
OWNER	Landowner	Long		Landowner information from Generalized Forest Ownership code 40 = private
OWNER_DESCR	Ownership Description	Text	100	Landowner description from Generalized Forest Ownership
SCHEDULE	Schedule	Text	1	Code indicating whether or not a given area is available for long-term integrated resource management, i.e., A, B, or C (land available for long-term integrated resource management), N (not available), or U (availability unknown). This code is used in conjunction with the Ownership code to determine land that contributes to the forest land base from Generalized Forest Ownership
SEG_LENGTH	Segment Length	Short		Seismic line segment length within given unique land type calculated field
HERD_NAME	Herd Name	Text	40	Caribou herd names as defined by Caribou Herd Location of BC

Attributes / Column Name	Field Alias	Data Type	Data Precision	Comments
ECOTYPE	Caribou Ecology Type	Text	10	A definition of caribou ecology type as defined by Caribou Herd Location of BC
CARIBOU	Caribou Indicator	Text	10	Summary indicator to identify where lines intersect Caribou Herd Location of BC
HARVEST_YR	Harvest Year	Short		Harvest year is derived from the disturbance start date or satellite imagery. This is extracted from the Consolidated Cutblocks.
CUTBLOCK	Cutblock Indicator	Text	10	Summary indicator to show where lines intersect Cutblocks. Source Consolidated Cutblocks.

*Source: Caslys

Renewal Triggers and Service Levels

1. To be determined

Downstream Applications

Web Application	Map Service
BCER Data Center	https://www.bcogc.ca/data-reports/data-centre/?category=44925
Map Service	https://geoweb-ags.bc-er.ca/arcgis/rest/services/REFERENCE/GEO_LEGACY_2D_TRIM_ECOLOGY_LN /MapServer/0

Contact Information:

For further information please contact environmental.support@bc-er.ca