

Maybeso Creek Experimental Forest Metadata Report (MEF)

Juneau, Alaska

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Research Area Information

Maybeso Creek Experimental Forest..... MEF

Maybeso Creek Experimental Forest

Research Area Information

Harvest URL - Option 1

ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/exchange_file_maybeso_final_ascii.csv

Harvest URL -Option 2

ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/exchange_file_maybeso_final_ascii.csv

Site north bounding coordinate (decimal degree) long:132.72 lat:55.53

Site west bounding coordinate (decimal degree) long:132.82 lat:55.50

Site south bounding coordinate (decimal degree) long:132.74 lat:55.47

Site east bounding coordinate (decimal degree) long:132.64 lat:55.51

Site Climate URL

<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?akholi>

Site Watershed URL

ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/publications

Site Map URL

ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/watershed_topo

Experimental Design

The Maybeso Experimental Forest was established in 1956 to study hill slope erosion, changes in fish habitat, forest regeneration and silviculture responses to pre-commercial thinning following intensive timber harvest. It is part of the temperate rainforest and is characterized by a cool moist climate. The mean temperature is 6.7degC with an average rainfall of 276 cm annually. The dominant conifers are Sitka spruce (*Picea sitchensis*) and western hemlock (*Tsuga heterophylla*). Others include Alaska cedar (*Chamaecyparis nootkatensis*) and mountain hemlock (*Tsuga mertensiana*). Red alder (*Alnus rubra*) is the most common deciduous tree in the watershed. The watershed is also home to pink (*Oncorhynchus gorbuscha*), chum (*Oncorhynchus keta*) and coho salmon (*Oncorhynchus kisutch*), Dolly Varden (*Salvelinus malma*), cutthroat trout (*Oncorhynchus clarki*) and steelhead (*Oncorhynchus mykiss*). Long term data collected (intermittent) includes: hydrology (flow and rainfall), silviculture (thinning plots), stream channel morphology and salmonid habitat. Research results include establishing thinning regimes for Sitka spruce, management of harvest on steep slopes to avoid landslides, management of large wood in streams and alder and watershed productivity.

Publications

For list of site publications on file at Juneau Forestry Science Laboratory including

WATERSHED MANAGEMENT, FISHERIES AND SILVICULTURE RESEARCH:
ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/publications

USGS Harvest URL

http://gce-liter.marsci.uga.edu/harvest/usgs/mef_lter.txt

Meteorological Stations

Hollis Meteorological Station HOLLIS

Hollis Meteorological Station

Meteorological Station

Latitude (decimal degrees)55.30
Longitude (decimal degrees) 132.30
Elevation (meters; a.m.s.l.)6.1
Begin Date..... 19490501
End Date..... present

Topography

shoreline

Area Description

For non-recording gage (rain can)- located on beach in open, at Wanigan 13.
Recording and non-recording gages in close proximity.

History

Location of station on Cat Island from May1952-June1964; long:5528 lat:13240 at an elevation of 6.1 meters. For additional meteorological data and metadata go to
Western Regional Climate Center Webpage:
<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?akhol>

Photo URL

ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/hollis_photo

Air Temperature

Begin Date..... 19500509
End Date..... 19630930
Data Logger Sampling Interval..... continuous
Summary Interval daily
Data Accuracy (degree celsius) +/-0.6 degrees C
Instrument Height (meters) unknown
Minimum QC Threshold (degree celsius)-18
Maximum QC Threshold (degree celsius)33

Precipitation

Begin Date..... 19490501
End Date..... 19630930

Data Logger Sampling Interval..... 1 day
Summary Interval daily
Data Accuracy (millimeters) +/- .254 mm
Instrument Height (meters) 1

Instrumentation Description

Rainfall recorded with two gages: non-recording and recording. Non-recording gage was standard 8" rain can, 2" cylinder and measuring stick. Recording gage consisted of old model (predating early 50s) Stevens water gage recorder, 2.5" float filled half full, and 7.6" funnel w/3ft of pipe including petcock 6" from bottom.

Methods Description

For non-recording gage: amount of rain measured and recorded. For recording gage: pencil location marked, amount of rain in tube measured by opening petcock and allowing water to flow out into W.B. 2" cylinder. Rain accumulation recorded and float/pencil reset to zero. Both non-recording and recording gage values noted.

Minimum QC Threshold (millimeters)0.0
Maximum QC Threshold (millimeters)264

Snow Depth

Begin Date..... 19500501
End Date 19630331
Data Accuracy (millimeters) +/-25.4 mm
Minimum QC Threshold (millimeters)0.0
Maximum QC Threshold (millimeters) 1000

Watershed

Maybeso Watershed..... Maybeso_

Maybeso Watershed

Watershed Spatial Characteristics

North bounding coordinate (decimal degrees)	long:132.72 lat:55.53
West bounding coordinate (decimal degrees)	long:132.82 lat:55.50
South bounding coordinate (decimal degrees)	long:132.74 lat:55.47
East bounding coordinate (decimal degrees)	long:132.64 lat:55.51
Area (hectares)	5366
Minimum watershed elevation (meters; a.m.s.l)	0.0
Maximum watershed elevation (meters; a.m.s.l)	1005.8

Watershed Ecological Characteristics

Mean annual precipitation (millimeters)	2,756.7
Channel length (meters)	219500
Channel length description	Perennial. Length derived from GIS table. Main channel 8.3 +/-0.5 km.
Drainage density (km/km ²)	4.0906
Mean snowpack description	0.0254 meters

Watershed Descriptions

Pre-treatment vegetation

76% western hemlock, 20% Sitka spruce, 2% western red cedar, 2% Alaska cedar

Pre-treatment description

44 MBF/acre

Geology description

Swanston, D.N. 1969. A late-Pleistocene glacial sequence from Prince of Wales Island, Alaska. Arctic 22: 25-33

Treatment History

23% of the watershed was clearcut logged from 1953-62. Effects on salmon spawning were studied from 1949-1966; changes in stream flow, water temperature, and water quality effects of timber harvest were included in this study. Apparent acceleration of soil mass movement, after logging, was identified in 1962. Studies on the relationship between landslide occurrence, geology and geomorphology, soil creep, soil hydrology, tree root strength and deterioration occurred. Natural regeneration

following clearcutting was investigated on a 700 acre cutting unit starting in 1955. This study continued during the initial regeneration-establishment period until 1962. Studies include seed dispersal distance, pattern, and timing; drainage and seed factors; advanced regeneration; and the effects of small mammals on regeneration. In 1974, a study of the effects of stand density on tree growth began and continues to the present. Plots were installed in second-growth stands that originated after logging in 1954, and trees were thinned to three levels of stocking.

Succession description

Natural regeneration occurred in the Maybeso watershed and produced new-growth stands consisting of 53% western hemlock, 41% Sitka spruce, 6% western red cedar and Alaska cedar. Reforestation studies showed successful regeneration on most upland sites but the following problems were identified: Less than adequate re-stocking of conifers on alluvial flood-terrace sites; site deterioration and loss of tree growth on steep slide-prone slopes and loss of growth potential in over-dense conifer stands on upland sites.

Comparison description

stand density average 4000 stems/acre

Gauging Stations

Maybeso Gauging StationMAYBESO

Maybeso Gauging Station

Hydrologic Gauging Station

Latitude (decimal degrees)55.4908
Longitude (decimal degrees) 132.6753
Begin Date..... 19490501
End Date..... 19630930
Watershed Area (hectares)5366

Associated meteorological station

HOLLIS: This meteorological station was located <1 km from the mouth of Maybeso Creek

Photo URL

ftp://ftp2.fs.fed.us/incoming/chugtong_r10/maybeso/hollis_gage

History

Records indicate gage located in same place throughout data set. Gage station erected in 1949. Creek often froze during winter, accounting for questionable discharges during these time periods. Gage heights missing in parts of record, but an estimate was made based on known gage heights/discharges (previous/subsequent days), discharge on other streams and rainfall. These days are marked with an E, for estimate.

Weir Description

cable bridge used (no weir present)

Weir Calibration and Modification History

Discharge measurements occasional and associated rating curve created every few years. Line of best fit drawn by hand on graph (x and y log increments). The curves were used as follows: Rating curve 1: 6/1/49 to 12/23/50 AND 1/6/63 to 9/30/63
 Rating curve 2: 12/24/50 to 12/24/56 AND 10/14/61 to 10/15/62
 Rating curve 3: 12/25/56 to 12/5/59 AND 10/16/62 to 1/5/63
 Rating curve 4: 12/6/59 to 10/13/61

Stream Discharge

Begin Date..... 19490501
End Date..... 19630930
Data Logger Sampling Interval..... continuous
Summary Interval daily
Data Accuracy (liters per second) +/-28 lps

Instrumentation Description

Stevens Water Level Recorder, model A-35-T (with thermograph accessory). Manufactured by Leupold & Stevens Instruments, Inc. Portland, Oregon.

Methods Description

Data recorded continuously by Stevens instrument. Quality of gage height recordings assured by regular recalibration by field crews (every month to few months). Discharge measurements flagged as Q when stream frozen. When gage height record missing (presumably to instrument failure), estimated discharge values flagged E; estimations based on know discharges from previous/subsequent days, rainfall, and/or discharge values from nearby streams.

Sensor History

None on record.

Calibration History

Calibrations of both gage height and water temperature recordings made on usual basis by field crew (every month to few months). Gage height, temperature, and clock setting errors over time generally slight due to continuous calibrations.

Minimum QC Threshold (liters per second) 1
Maximum QC Threshold (liters per second) 84951

Water Temperature

Begin Date..... 19500509
End Date..... 19550919
Data Logger Sampling Interval..... continuous
Summary Interval daily
Data Accuracy (degree celsius) +/-0.7 degrees C

Instrumentation Description

Thermograph Accessory, Stevens Water Level Recorder, model A-35-T. Manufactured by Leupold & Stevens Instruments, Inc. Portland, Oregon.

Methods Description

Frequent calibration. Daily high and low temperatures read from chart (recorded on hydrograph), daily means also calculated for short time period.

Sensor History

Water temperature records are sparse and seasonal; winter records are generally missing (note: creek and well typically freeze). Uncertain as to why temperature data are intermittent.

Calibration History

Frequent recalibration of instrument by field crews, monthly to every several months.

Minimum QC Threshold (degree celsius) 0.0
Maximum QC Threshold (degree celsius) 15.6