Database Code: AS006

Title: Aquatic Vertebrate Population Study in Mack Creek, Andrews Experimental Forest, 1987 to present

Abstract:

Populations of Coastal Cutthroat trout (Onchorhyncus clarkii clarkii) in two standard reaches of Mack Creek in the H.J. Andrews Experimental Forest have been monitored since 1987. Monitoring of Coastal Giant Salamanders, Dicamptodon tenebrosus began in 1993. The two standard reaches are in a section of clearcut forest (ca. 1963) and an upstream 500 year old coniferous forest. Sub-reaches are sampled with 2-pass electrofishing, and all captured vertebrates are measured and weighed. Additionally, a set of channel measurements are taken with each sampling. This study constitutes one of the longest continuous records of salmonid populations on record.

Keywords: Amphibians; Animal populations; Aquatic habitats; Biomass; Demography; Disturbance; Ecology; Fish; Fish habitat; Fish populations; Floods; Herpefauna; Population dynamics; Resistance and resilience; Stream ecology; Streams; Timber harvesting; Trout; Vertebrates; Populations; habitats; populations; demography; ecology; stream ecology; population dynamics; floods; biomass; resistance and resilience; disturbance; timber harvest; aquatic ecosystems; streams; animals; vertebrates; amphibians; fishes; trout; reptiles;

Date data commenced: 1987-10-06

Date data terminated: 2019-09-05

Principal Investigator: Ivan Arismendi

List of Entities:

1. Vertebrate numbers and size
2. Habitat dimensions

<table>
<thead>
<tr>
<th>Attribute List</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DBCODE</strong></td>
</tr>
<tr>
<td><strong>ENTITY</strong></td>
</tr>
<tr>
<td><strong>YEAR</strong></td>
</tr>
<tr>
<td><strong>SITECODE</strong></td>
</tr>
<tr>
<td><strong>SECTION</strong></td>
</tr>
<tr>
<td><strong>REACH</strong></td>
</tr>
<tr>
<td><strong>PASS</strong></td>
</tr>
<tr>
<td><strong>UNITNUM</strong></td>
</tr>
<tr>
<td><strong>UNITTYPE</strong></td>
</tr>
<tr>
<td><strong>VERT_INDEX</strong></td>
</tr>
<tr>
<td><strong>PITNUMBER</strong></td>
</tr>
<tr>
<td><strong>SPECIES</strong></td>
</tr>
<tr>
<td><strong>LENGTH1</strong></td>
</tr>
<tr>
<td><strong>LENGTH2</strong></td>
</tr>
<tr>
<td><strong>WEIGHT</strong></td>
</tr>
<tr>
<td><strong>CLIP</strong></td>
</tr>
<tr>
<td><strong>SAMPLEDATE</strong></td>
</tr>
</tbody>
</table>
### 2. Habitat dimensions

Measurements of channel units within vertebrate sampling area

**Attribute List:**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Null</th>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBCODE</td>
<td>N</td>
<td>N</td>
<td>char(5)</td>
<td>enum</td>
<td></td>
</tr>
<tr>
<td>ENTITY</td>
<td>N</td>
<td>N</td>
<td>numeric(1,0)</td>
<td>range</td>
<td>2.0000 - 2.0000</td>
</tr>
<tr>
<td>YEAR</td>
<td>Y</td>
<td>Y</td>
<td>numeric(4,0)</td>
<td>range</td>
<td>1987.0000 - 2019.0000</td>
</tr>
<tr>
<td>SITECODE</td>
<td>Y</td>
<td>Y</td>
<td>char(8)</td>
<td>place</td>
<td></td>
</tr>
<tr>
<td>SECTION</td>
<td>Y</td>
<td>N</td>
<td>char(2)</td>
<td>enum</td>
<td></td>
</tr>
<tr>
<td>REACH</td>
<td>Y</td>
<td>N</td>
<td>char(1)</td>
<td>enum</td>
<td></td>
</tr>
<tr>
<td>UNITNUM</td>
<td>Y</td>
<td>Y</td>
<td>numeric(4,1)</td>
<td>range</td>
<td>1.0000 - 20.0000</td>
</tr>
<tr>
<td>UNITTYPE</td>
<td>Y</td>
<td>Y</td>
<td>char(3)</td>
<td>enum</td>
<td></td>
</tr>
<tr>
<td>LENGTH</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,1)</td>
<td>range</td>
<td>1.0000 - 5.7100</td>
</tr>
<tr>
<td>WIDTH1</td>
<td>N</td>
<td>N</td>
<td>numeric(4,1)</td>
<td>range</td>
<td>0.3000 - 9.4000</td>
</tr>
<tr>
<td>WIDTH2</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,1)</td>
<td>range</td>
<td>0.2000 - 10.9000</td>
</tr>
<tr>
<td>WIDTH3</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,1)</td>
<td>range</td>
<td>0.1000 - 12.5000</td>
</tr>
<tr>
<td>WIDTH4</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,1)</td>
<td>range</td>
<td>0.2000 - 11.3000</td>
</tr>
<tr>
<td>WIDTH5</td>
<td>N</td>
<td>Y</td>
<td>numeric(3,1)</td>
<td>range</td>
<td>0.2000 - 11.0000</td>
</tr>
<tr>
<td>DEPTH1</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.7000</td>
</tr>
<tr>
<td>DEPTH2</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.9200</td>
</tr>
<tr>
<td>DEPTH3</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.6800</td>
</tr>
<tr>
<td>DEPTH4</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.8600</td>
</tr>
<tr>
<td>DEPTH5</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.7400</td>
</tr>
<tr>
<td>DEPTH6</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.8800</td>
</tr>
<tr>
<td>DEPTH7</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.7600</td>
</tr>
<tr>
<td>DEPTH8</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0300 - 0.8800</td>
</tr>
<tr>
<td>DEPTH9</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 1.0200</td>
</tr>
<tr>
<td>DEPTH10</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.9600</td>
</tr>
<tr>
<td>DEPTH11</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.7900</td>
</tr>
<tr>
<td>DEPTH12</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0200 - 1.0200</td>
</tr>
<tr>
<td>DEPTH13</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.5200</td>
</tr>
<tr>
<td>DEPTH14</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0200 - 0.5300</td>
</tr>
<tr>
<td>DEPTH15</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0100 - 0.5900</td>
</tr>
<tr>
<td>DEPTH16</td>
<td>N</td>
<td>Y</td>
<td>numeric(4,2)</td>
<td>range</td>
<td>0.0300 - 0.9500</td>
</tr>
</tbody>
</table>
DEPTH17  N  Y  numeric(4,2)  range  0.0100  0.6100  m
DEPTH18  N  Y  numeric(4,2)  range  0.0100  0.6000  m
DEPTH19  N  Y  numeric(4,2)  range  0.0100  0.9000  m
DEPTH20  N  Y  numeric(4,2)  range  0.0200  1.0000  m
MAXDEPTH  N  Y  numeric(4,2)  range  0.1000  1.1000  m
SAMPLEDATE  N  N  datetime  range  10/6/1987/5/2019  YYYY-MM-DD
            12:00:00  12:00:00  AM  AM
NOTES  N  Y  varchar(150)  freetext

Attributes Definitions:

CLIP
    Fin clip type (Onchorhyncus recaptures only). Ended in 2006.

DBCODE
    Database Code

DEPTH1
    Depth 1 along width1 transect

DEPTH10
    Depth 2 along width3 transect

DEPTH11
    Depth 3 along width3 transect

DEPTH12
    Maximum depth along width3 transect

DEPTH13
    Depth 1 along width4 transect

DEPTH14
    Depth 2 along width4 transect

DEPTH15
    Depth 3 along width4 transect

DEPTH16
    Maximum depth along width4 transect

DEPTH17
    Depth 1 along width5 transect

DEPTH18
    Depth 2 along width5 transect

DEPTH19
    Depth 3 along width5 transect

DEPTH2
    Depth 2 along width1 transect
DEPTH5
    Depth 1 along width2 transect
DEPTH6
    Depth 2 along width2 transect
DEPTH7
    Depth 3 along width2 transect
DEPTH8
    Maximum depth along width2 transect
DEPTH9
    Depth 1 along width3 transect
ENTITY
    Entity number
LENGTH
    Channel unit length
LENGTH1
    Length type 1 (total or snout-fork length for Onchorhyncus, snout-vent for Dicamptodon). See supplemental information in metadata.
LENGTH2
    Length type 2 (Dicamptodon only--snout-tail)
MAXDEPTH
    Maximum depth channel unit
NOTES
    Comments
PASS
    Electoshocking pass number
PITNUMBER
    Unique pit tag number; tag is embedded in vertibrate. Began in 2007.
REACH
    Reach sampled (in 50 m distances)
SAMPLEDATE
    Date sampled
SECTION
Location of sampling section

SITECODE
  Coded name of sample area

SPECIES
  Vertebrate species sampled

UNITNUM
  Channel unit number (sequential)

UNITTYPE
  Channel unit classification type

VERT_INDEX
  Unique numerical index of vertibrates measured (for creating key field)

WEIGHT
  Weight of individual organism (not taken after 1999)

WIDTH1
  Wetted width of channel unit -- transect 1

WIDTH2
  Wetted width of channel unit -- transect 2

WIDTH3
  Wetted width of channel unit -- transect 3

WIDTH4
  Wetted width of channel unit - transect 4

WIDTH5
  Wetted width of channel unit - transect 5

YEAR
  Year of Survey

Enumerated Domains:

Enumerated Domain for Attribute: CLIP
  LV  Left ventral fin
  LVRV  Left and right ventral fins
  RV  Right ventral fin
  NONE  No ventral fin clip

Enumerated Domain for Attribute: DBCODE
  AS006  FSDB database code AS006

Enumerated Domain for Attribute: REACH
  L  Lower reach of section, 0-50 m
  M  Middle reach of section, 50-100 m
  U  Upper reach of section, 100-150 m
Enumerated Domain for Attribute: SECTION
  AL  Above Lava Falls, in old-growth forest (1996 only)
  CC  Cleacut
  OG  Old Growth

Enumerated Domain for Attribute: UNITTYPE
  C   Cascade
  I   Riffle
  IP  Isolated Pools -- not connected to main channel
  P   Pool
  R   Rapid
  S   Step (small falls)
  SC  Side Channel
  NA  Not sampled by unit

Enumerated Domain for Attribute: DBCODE
  AS006  FSDB database code AS006

Enumerated Domain for Attribute: REACH
  L   Lower reach of section, 0-50 m
  M   Middle reach of section, 50-100 m
  U   Upper reach of section, 100-150 m

Enumerated Domain for Attribute: SECTION
  AL  Above Lava Falls, in old-growth forest (1996 only)
  CC  Cleacut
  OG  Old Growth

Enumerated Domain for Attribute: UNITTYPE
  C   Cascade
  I   Riffle
  IP  Isolated Pools -- not connected to main channel
  P   Pool
  R   Rapid
  S   Step (small falls)
  SC  Side Channel
  NA  Not sampled by unit