

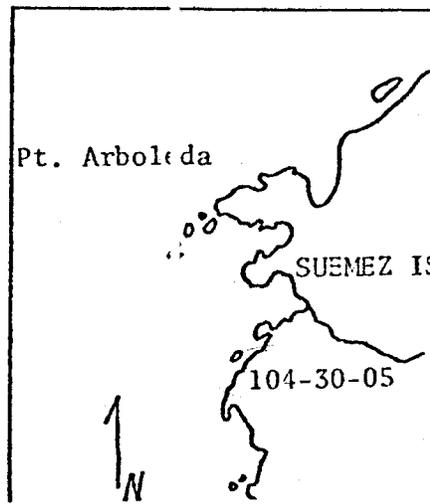
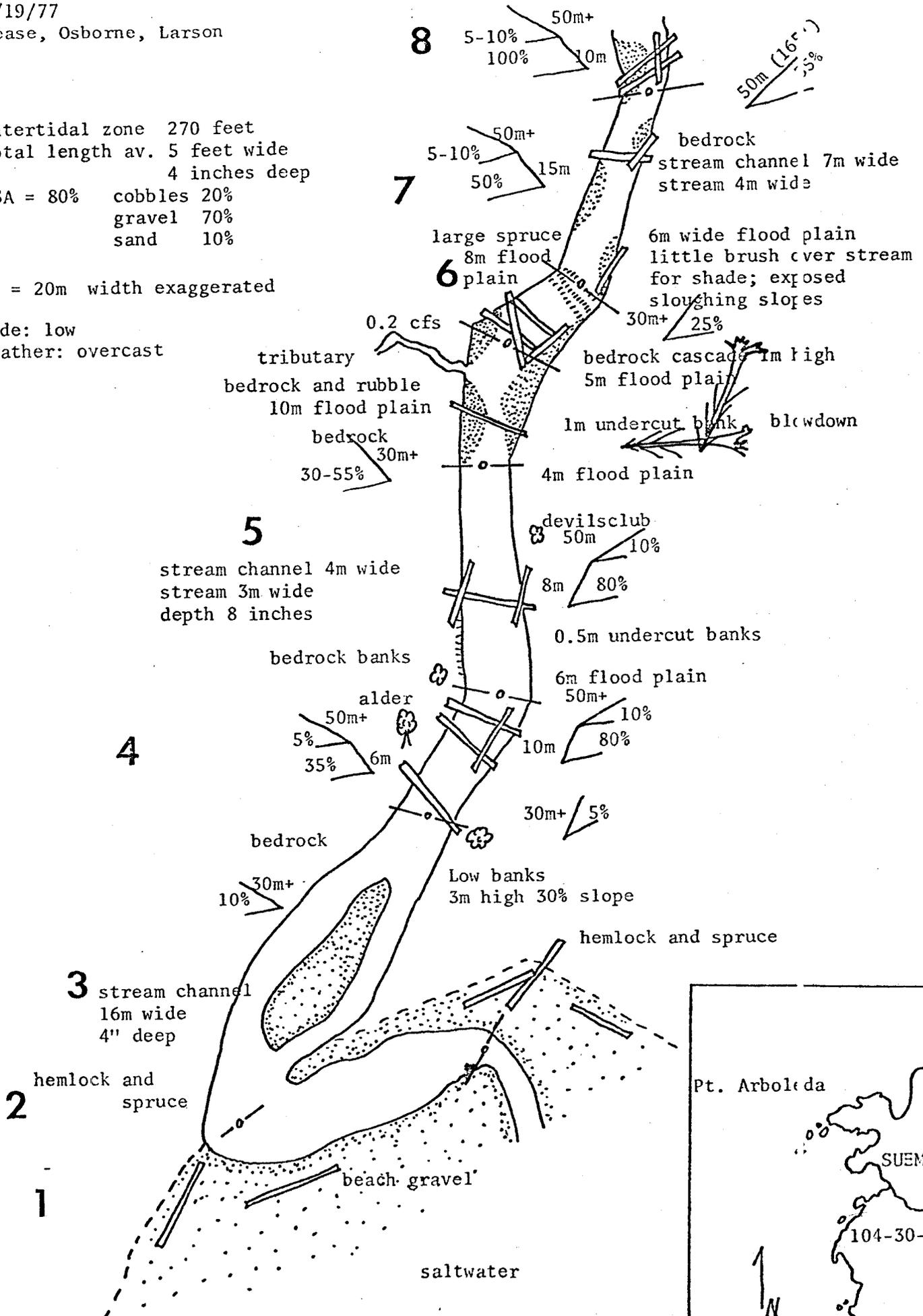
104-30-05  
 7/19/77  
 Pease, Osborne, Larson

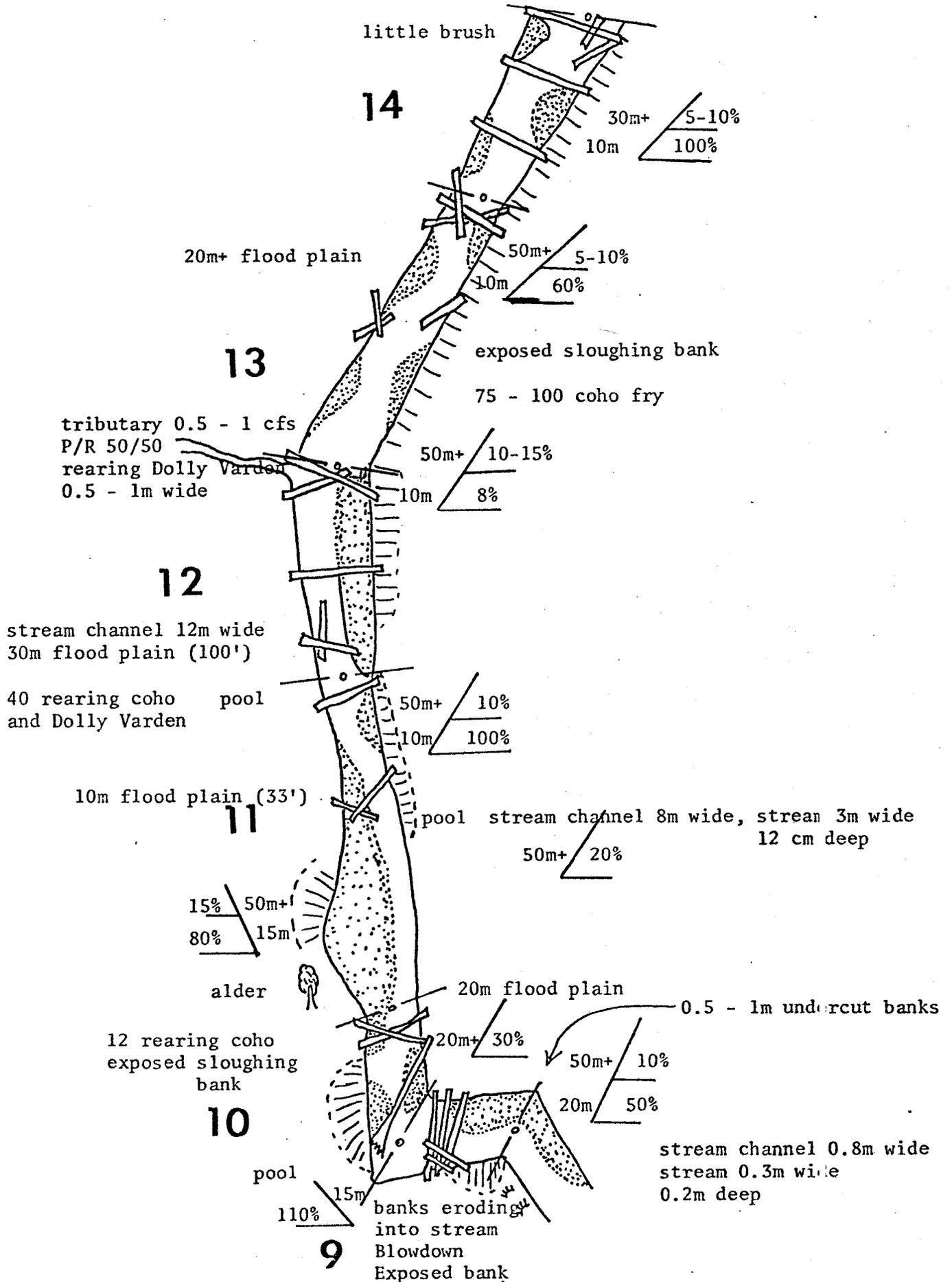
104-30-10050 104-30

Intertidal zone 270 feet  
 Total length av. 5 feet wide  
 4 inches deep  
 ASA = 80% cobbles 20%  
 gravel 70%  
 sand 10%

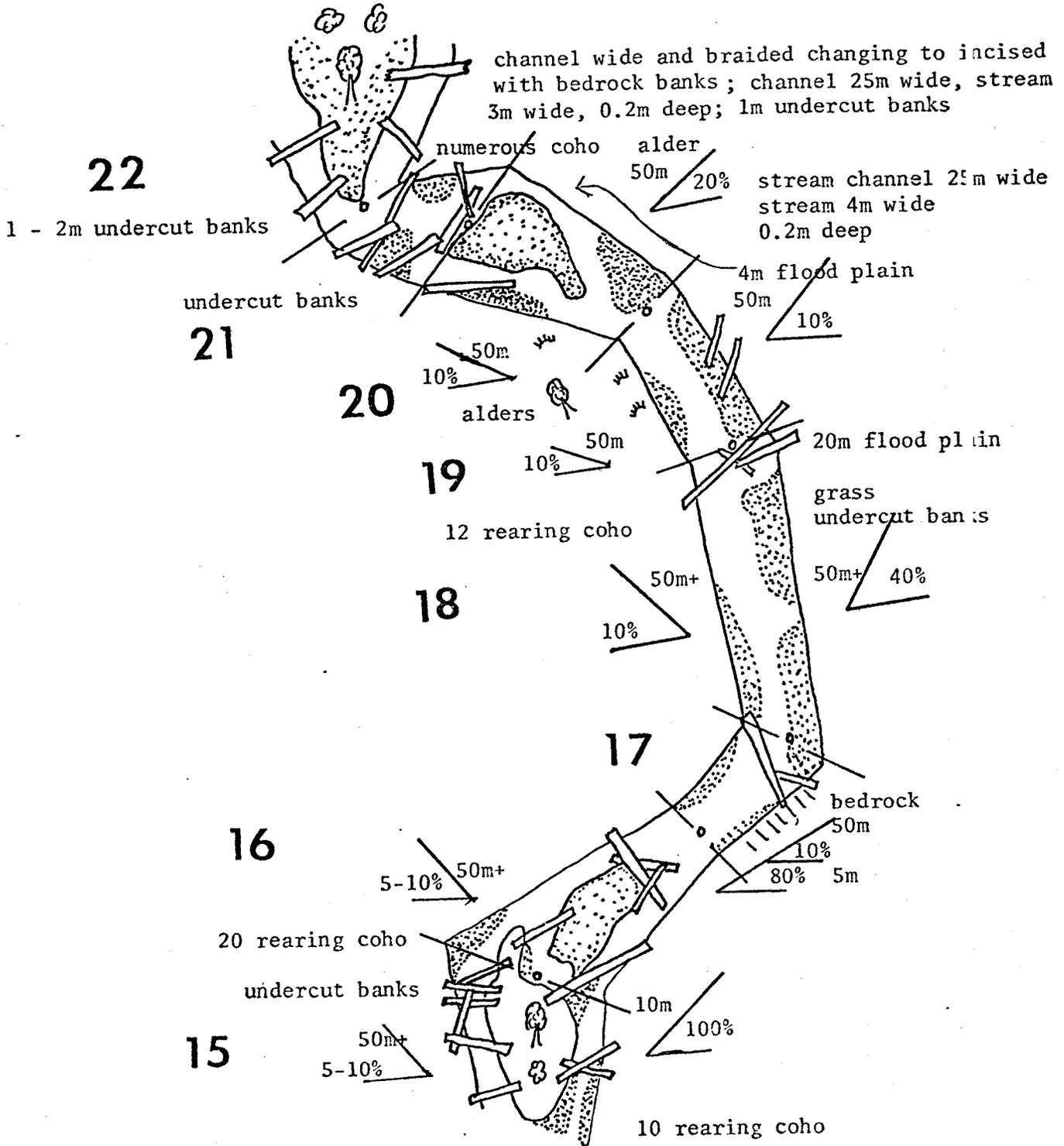
1" = 20m width exaggerated

Tide: low  
 Weather: overcast





Walked another 200-250m upstream, P/R changes to a consistent 5/95, substrate 80-90% boulders - bedrock. Gradient 5%+; coho present however low quality habitat; signs of flooding and unstable stream area should be visible on aerial photos. Streamside vegetation changes to scrub cedar and hemlock.



Name: Pt. Arboleda Creek  
Latitude: 55°18'38" 41"  
Longitude: 133°26'54" 56"  
Geodetic Map No: Craig B5-6  
Location: 0.5 miles N.E. of Pt. Quemada  
on Suemez Island

104-30-10050  
Catalog No: 104-30-05  
Former Stream No: \_\_\_\_\_  
Work Area: Ketchikan  
Watershed Length: 0.8 miles  
Drainage Area: 1.5 sq miles  
Water Supply Type: runoff from low  
forested land and scattered muskegs, steep  
slopes

Trails & Survey Routes: stream bed easily walked for  
distance surveyed

Aerial Survey Notes: the mouth and intertidal sections only are visible from  
the air

Anchorage: in Port Delores

Tide Stage when Surveyed: low

### RESOURCES

COMMERCIAL FISHERIES (species, escapement, timing, spawning area):  
pink, chum, and coho; fair rearing for coho but limited by small size of stream;  
timing - late (September); no known escapement data  
Spawning area 1046m<sup>2</sup> (see map and summary sheet)

Schooling Areas: at mouth and in several pools in the lower stream (see map)

Spawning Areas: throughout the length of survey

SHELLFISH POTENTIAL: abalone present on nearby rocky coast

SPORT FISHERIES: none

LAND USE (history, present, proposed): presently in a natural state

REHABILITATION POTENTIAL: none needed

SOILS: generally stable; several small slide areas are depicted on the map

GAME RESOURCES (species, use, habitat): deer, bear, wolves and other  
furbearers are present in the area; several bald eagles observed

SECTION NUMBER	LENGTH	AV. WIDTH	ASA %	ASA METERS <sup>2</sup>	STREAM GRADIENT	UPSTREAM MAGNETIC HEADING	% BEDROCK	% BOULDERS	% COBBLES	% GRAVEL	% SAND	% FINES	POOL/RIFLE RATIO (P/R)	SLOPE OF UPPER RT. BANK (ORIENTATION UPSTREAM)	SLOPE OF UPPER LEFT BANK	INVERTIBRATE	CONCENTRATION	DISTANCE FROM BEGINNING OF SURVEY TO END OF SECTION (M)	COMMENTS
1	40M	1.5M	80		3%	338°	0	0	0	70	10	0	10:90	0	0	Med		40	Upper intertidal
2	56M	2.5M	40		1%	118°	0	5	0	90	5	0	10:90	5%	10%	0		96	
3	21.5M	2.5M	30		1%	118°	0	20	0	60	0	0	10:90	10%	5%	0		117.5	
4	35M	3M	20		2%	82°	10	10	40	30	10	0	10:90	10%	30%	0		152.5	
5	18.5M	2M	10		3%	98°	0	20	50	30	0	0	5:95	25%	30-55%	0		171	
6	13M	1.5M	0		9%	140°	10	30	50	10	0	0	30:70	10%	25%	0		184	
7	31.5M	4M	10		1%	104°	20	10	60	10	0	0	5:95	35%	50%	0		215.5	
8	23M	3M	40		5%	80°	0	5	10	80	5	0	20:80	50%	100%	0		238.5	
9	18M	2M	60		5%	10°	0	0	10	70	20	0	50:50	30%	15%	0		256.5	
10	21M	3M	80		1%	105°	0	0	10	85	5	0	60:40	20%	110%	0		277.5	
11	49M	3M	80		2%	102°	0	0	10	80	10	0	15:85	100%	80%	0		326.5	
12	31M	4M	40		3%	106°	0	0	10	70	20	0	70:30	80%	15%	0		357.5	
13	46M	2M	70		2%	138°	0	0	30	65	5	0	40:60	60%	0-5%	0		403.5	
14	31M	6M	30		2%	140°	0	10	30	50	10	0	10:90	100%	0-5%	0		434.5	
15	20M	4M	10		10%	92°	0	0	20	70	10	0	50:50	100%	5-10%	0		454.5	
16	31M	4M	70		2%	147°	0	0	20	70	10	0	40:60	10%	5-10%	0		485.5	
17	17M	6M	30		3%	144°	0	0	10	90	0	0	70:30	100%	10%	0		502.5	

STREAM NUMBER:

104-30-05

## PROCEDURES

### Stream Inventory

Basic inventory data of the stream environment is lacking for most of the streams in Southeastern Alaska. This deficiency in having a suitable fisheries data-base was recognized in 1971 when the ADF&G started cooperative land-use planning with the USFS on the Tongass National Forest. Commercial timber is normally of high quality along the salmon producing streams, and attention is thereby focused on the management of these areas. It was recognized by investigators that the basic morphological and biological characteristics of each stream must be determined to achieve knowledgeable and accurate land-use planning for areas scheduled for clear-cut logging. Kingsbury (1974) developed a basic inventory method that established a precedent for today's inventory approach. Novak (1975) further developed the stream inventory criteria that utilized a systematic data collection technique similar to that being utilized today.

Standard methods of inventory were developed to facilitate classification of systems according to physical, hydrological and fishery production criteria. A review of the criteria presented by Novak (1973), with recent refinements, considers the established stream inventory format being used:

#### 1. Volume of Flow

- a. Record velocity of flow in feet per second (fps) by the flow board or flow meter method. If the bottom is rough and strewn with rocks and coarse gravel, the resultant value should be multiplied by 0.8 and if the bottom is a smooth composition of mud, sand, hardpan or bedrock, 0.9 is used.
- b. Measure the average width and depth. Depth measurements are taken at several points across the section.

- c. Calculations are made by computing average depth ( $\bar{d}$ ) in feet and determining cross sectional area A in square feet,  $A = w\bar{d}$ . Average velocity is then computed in fps with the stream discharge (Q) in cubic feet per second (cfs).
2. Velocity
    - a. Sluggish - 0.5 fps.
    - b. Rapid - greater than 0.5 fps with regular succession of pools and rapids.
    - c. Torrential - descends steep gradients and has few if any pools in the course.
  3. Size of Pool - the length and width of pools within a stream section are recorded in feet.
  4. Type of Pool
    - a. Deep - depth greater than 2 feet with abundant shelter, much drift or detritus.
    - b. Moderate - pools intermediate in depth.
    - c. Shallow - exposed pools without shelter, scouring basins.
  5. Frequency of Pools - the proportion of pools to riffle or rapid areas is expressed as a pool-riffle (P/R) ratio. A close succession of pools and riffles with an approximate 50% to 50% relationship would be expressed as a 50/50 PR where as 65/35 PR would indicate approximately twice as much pool as riffle.
  6. Turbidity
    - a. Clear - bottom distinctly seen through 4 or more feet of water.
    - b. Slightly turbid - bottom is indistinct at 1 to 4 feet
    - c. Turbid - bottom visible in less than 1 foot.

7. Color
  - a. Colorless.
  - b. Light brown.
  - c. Dark brown.
8. Bottom Type (as according to the National Research Council Grading Scales).
  - a. Detritus - organic debris.
  - b. Sand - 0.00246" - .1"
  - c. Silt - less than 0.100246".
  - d. Gravel - .1" - 2.5".
  - e. Cobble - 2.5" - 10".
  - f. Boulder 10" - 161".
  - g. Bedrock
9. Higher Plants - the major species of riparian vegetation and its distribution is noted as well as the approximate percentage composition of the forest tree types bordering the stream.
10. Aquatic Vegetation
  - a. Dense - every rock has abundant vegetative growth.
  - b. Medium - one-half of the rocks have vegetative growth.
  - c. Sparce - vegetative growth seldom observed.
  - d. The bottom vegetative type is recorded where appropriate i.e. mosses, filamentous algae, periphyton and vascular plants.
11. Fry Abundance (species observed or collected and numbers)
 

a. Coho	e. Rainbow and Steelhead
b. Dolly Varden	f. Pink Salmon
c. Cottidae	g. Chum Salmon
d. Cutthroat	h. Unknown or other (sample collected)

12. Adult Salmon Counts

a. Aerial surveys.

1) Species composition

(a) An attempt is made to differentiate species.

2) A map or sketch is made showing spawning distribution of salmon and schooling areas.

b. Foot surveys.

1) Species composition is noted.

2) Map or sketch showing spawning distribution of salmon and schooling areas are drawn.

13. Temperature

Air and water temperatures are taken with a hand thermometer at intervals corresponding to lengths and widths. Time and atmospheric conditions are also documented.

14. pH Readings

Readings are usually taken at two locations in the streams; one immediately above the intertidal zone and another above the midsection of the watershed.

15. Soils

Stable or unstable soil conditions of the watershed are to be identified. Soils and geology reports for other agencies are used when available.

16. Rehabilitation

a. Barriers.

1) Location.

2) Extent.

(a) Height, width (include sketch).

(b) Remarks as to fish passage and possible enhancement, etc.

b. Log jams.

1) Location.

2) Extent.

(a) Fish blockage.

(b) Damage to spawning riffles.

(c) Remarks as to possible enhancement.

17. Stream Gradient and Slope Angle

The gradient of the stream sections and the slope are recorded in degrees. Widths of the side slopes are measured at intervals.

18. Land Use at Present

Any land use activities presently operating in the watershed or any future activity that is known to develop in relation to the watershed is recorded for reference.

19. Land Use History

Past development or use by logging, mining, or the fishing industries is documented. A brief description and dates of activities (if known) is classified as pertinent information.

20. Sport Fisheries

Past sport fish surveys in addition to observations during field surveys will be used. All species are considered to have sport fisheries potential.

21. Shellfish Potential

The associated estuary to the inventoried watershed will be surveyed for crab, shrimp and clam production if data is not available from subsistence and commercial fisheries.

22. Commercial Fisheries

Species of salmon normally associated with the watershed during

spawning or rearing periods.

23. Optimum Escapement

The number of salmon which will most efficiently utilize the available spawning gravels of the stream. Calculated by determining available spawning area ( $m^2$ ) and assigning one female spawner for each square meter of area. Lengths and widths will be presented in conjunction with percent availability of spawning area. Other factors such as past escapement and gravel quality may also be used to determine spawner density.

24. Species Composition

Number of one species relative to the number of other species are recorded to evaluate present stream production.

25. Escapement

Timing - actual observed stream escapement is recorded from counts made by various agencies on most salmon producing streams. Small streams with unrecorded escapement histories are classified according to other stream timing in the close proximity. A complete literature search is made to determine peak escapement surveys for past years.

26. Game Resources

Observations of wildlife made during field surveys are recorded to establish total fish and wildlife values common to the stream. Additional notes as to habitat quantity and quality are made when know.