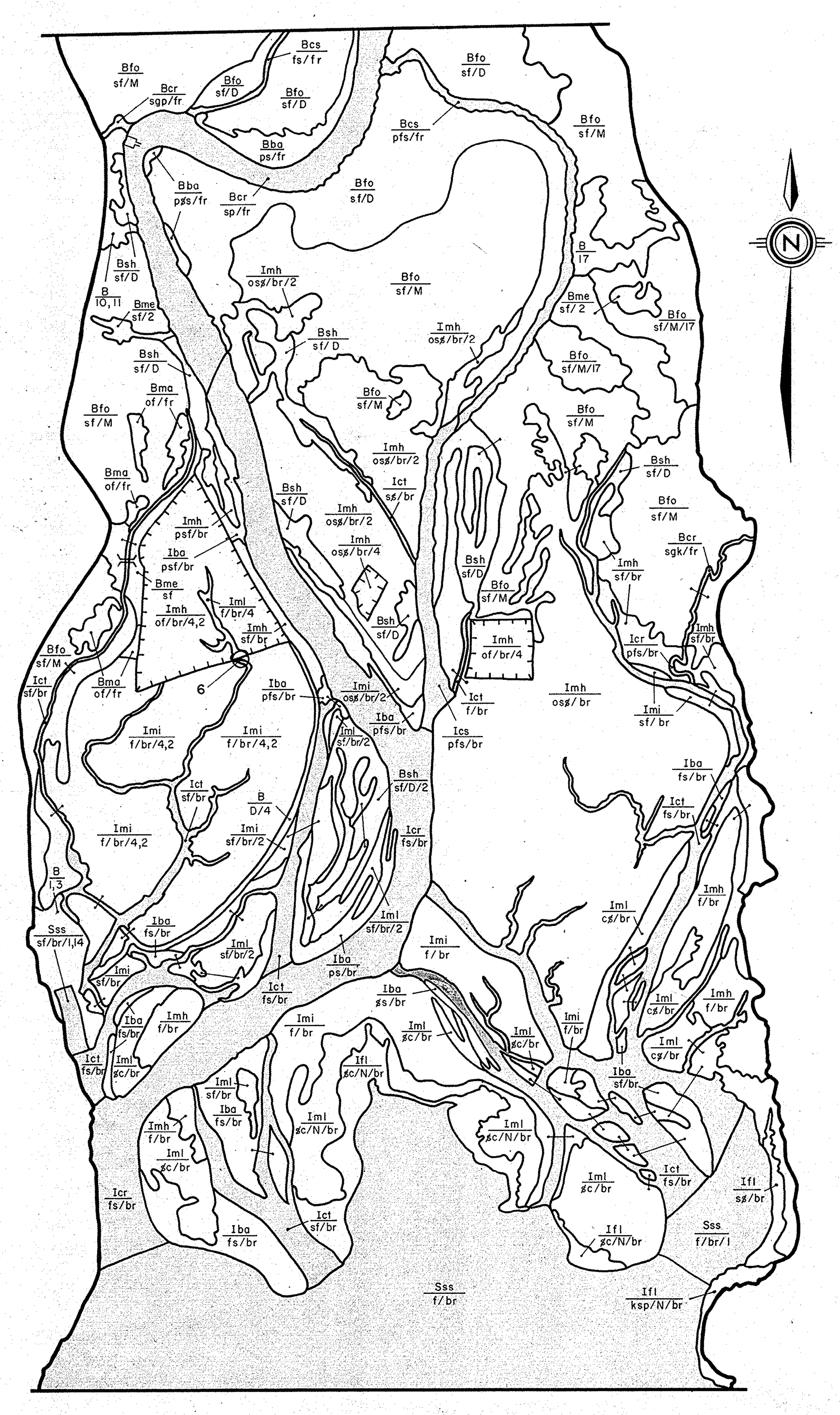
KINGCOME ESTUARINE HABITAT INVENTORY



Scale 1:10,000 (approx.)

Metres 250 0 250 500 750 1000 Metres

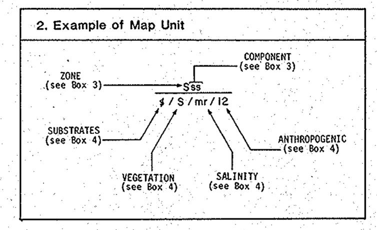
Feet 1000 500 0 1000 2000 3000 4000 Feet

LEGEND

1. Explanatory Notes

The estuarine habitat mapping and classification system is designed to delineate habitat types and describe them as a function of substrate, vegetation, salinity and anthropogenic influences. Information is derived from interpretation of recent large scale colour air photos and ground truthing, and is supplemented by information derived from historical reports and air photos. Specific descriptions of habitat types are presented in Box 5 along with area summaries expressed in hectares and as percentages. Because of the dynamic nature of estuarine systems maps may require updating. Users should therefore refer to the date of mapping shown in Box 8. Users are encouraged to consult APD Technical Paper, Estuarine Habitat Mapping and Classification System Manual 1982, for descriptions of inventory and mapping methods and terminology utilized in the classification system.

2. Example of Map Unit



3. Habitat Type

ZONE	SYMBOL	COMPONENT	SYMBOL
SUBTIDAL	S	reef	re
		deep subtidal	sd
		shallow subtidal	ss
INTERTIDAL	I	bar	ba
		berm/beach face	bf
		back channel	cb
		river channel	cr
		side channel	cs
		tide channel	ct
		flat	fl
		marsh	ma
		high marsh	mh
		intermediate marsh	mi
		low marsh	ml
		platform	pl
		reef	re
BACKSHORE	B	bar	ba
		bog	bo
		back channel	cb
		river channel	cr
		side channel	cs
		fen	fe
		forest	fo
		marsh	ma
		meadow	me
		permanent pond	pp
		semi-permanent pond	ps
		temporary pond	pt
		shrub	sh
		storm ridge	sr
		swamp	sw

4. Habitat Modifier

TYPE	SYMBOL	TYPE	SYMBOL
SUBSTRATES		SALINITY	
clay	c	brackish	br
silt	ø	fresh	fr
fines	f	marine	mr
sand	s		
small pebble	p		
large pebble	g		
cobble	k		
boulders	b		
bedrock	r		
organic	o		
shell	m		
VEGETATION		ANTHROPOGENIC	
coniferous	C	log handling	1
deciduous	D	agriculture	2
mixed	M	landfill	3
non-vascular	N	dyke, seawall, causeway	4
submerged vascular	S	culvert	5
		floodgate	6
		outfall	7
		pollution	8
		intake	9
		residential	10
		industrial	11
		marina	12
		port facility	13
		substrate removal	14
		jetty, groin, weir	15
		log debris	16
		logged	17

5. Description of Habitat Types

SYMBOL	DESCRIPTION	AREA (ha)	% Total
	SUBTIDAL	124.6	13.7
Sss	This habitat type which occurs along the delta front, includes brackish subtidal areas shallower than 10 metres. Log booming activities occur both in the southeast portion of the estuary and also within a dredged channel adjacent to the dry-land sort in the southwest.	124.6	13.7
	INTERTIDAL	485.2	53.3
Iba	This habitat type, located mainly along channel bends, is composed of silt, sands and occasionally small pebble substrates. Fluvial influences are the major factor in sediment transport and deposition patterns. The bars are generally unvegetated except for minor amounts of vascular vegetation in the more stable areas.	35.4	3.9
Icr	Mainstem areas of the Kingcome River and an unnamed small mountain stream are included in this habitat type. Having predominately sand substrates, these areas experience regular and seasonal fluctuations due to tidal and more importantly fluvial influences.	44.8	4.9
Ics	Included in this habitat type is a single side channel. The substrates are mainly silty sands and channel edges are generally steeper than those along the river mainstem.	4.7	0.5
Ict	This habitat type, influenced primarily by marine processes, includes numerous medium to fine textured steep-sided channels, sometimes drying at low tide, which drain the intertidal marshes and flats. Low marsh vegetation, particularly Lyngbye's sedge, is found within and along the channels. In the higher intertidal areas, channels are deeper (up to 2-3 metres) and are occasionally bordered by trees and shrubs.	53.3	5.8
Ifl	Exposed at low tides, this habitat type occurs mainly along the front of the estuary adjacent to the low marsh habitat. These brackish accretion areas, primarily composed of fine substrates, tend to be unstable with some slumping occurring along the leading edge. Drift rockweed (Fucus spp.) settles in the fine textured depressions. A few coarser textured pebble areas provide attachment sites for macroalgae.	16.2	1.8
Imh	Located on fine textured usually organic substrates in upper intertidal areas, this habitat type is drained by deeply incised tidal channels bordered by Lyngbye's sedge, creeping spike-rush and occasionally tufted hair grass and Chinook lupine. This extensive and floristically diverse habitat is dominated by Arctic rush and grasses, particularly creeping bent grass, red fescue, meadow fescue and water meadow foxtail. Kentucky blue grass and Pacific silverweed (usually in association with Arctic rush) commonly occur. In the south-eastern more seaward portion of the estuary, Pacific silverweed and dune wild rye grass predominate with lesser amounts of yarrow and tufted hair grass. Vegetation cover averages 85%. Dykes control the water flow patterns of several marsh areas with breaches and overdyking allowing varying degrees of tidal inundation. Chinook lupine replaces Arctic rush in dominance along dyke borders. Controlled cattle grazing occurs along the western side of the estuary while uncontrolled grazing occurs on the central and eastern portions of this habitat type.	175.8	19.3
Imi	Occurring on fine and occasionally organic substrates this transitional habitat type is less diverse with fewer grasses than the adjacent high marsh. This area is characterized by Lyngbye's sedge, Pacific silverweed, tufted hair grass and Arctic rush (particularly within dyked areas). Minor amounts of meadow barley, creeping bent grass, sea-side arrow-grass, springbank clover and Alaska plantain are often present. The western side is influenced by both a partial dyke and cattle grazing (mainly on sea-side arrow-grass and Lyngbye's sedge). Average vegetation cover is 95%.	92.3	10.1
Iml	This habitat type, occurring at approximately the mid-tidal level, is found on fine substrates near the delta front. Numerous tidal channels intersect and drain the area. Having the least plant diversity, these areas are dominated by Lyngbye's sedge with creeping spike-rush commonly occurring in depressions. In the seaward marsh areas Lyngbye's sedge is a co-dominant with sea-side arrow grass. In the transition zone to the intermediate marsh, tufted hair grass and occasionally Pacific silverweed and Douglas' water-hemlock are found. Vegetation cover ranges from 80-95%. This habitat type is undyked with the exception of a Lyngbye's sedge depression located within a dyked meadow. The latter area receives some tidal exchange via a floodgate.	63.7	7.0
	BACKSHORE ZONE	300.7	33.0
Bba	This generally fluvially dominated habitat type is composed of mainly sand with small pebbles and occasionally silt deposited along the river mainstem. Although largely unvegetated, these backshore bars are often bordered by trees and shrubs.	5.0	0.5
Bcr	This habitat type includes mainstem areas of the Kingcome River and two mountain streams, which are marginally influenced by tidal conditions. The Kingcome River is glacially fed with freshet conditions occurring in the late spring and early summer. Backshore riverine bed materials are coarser (predominately pebbles) than those in the intertidal areas.	18.5	2.0
Bcs	This habitat type consists of two side channels. The upstream one, a narrow channel dissecting a river bend, is bordered by a deciduous forest with numerous wind fallen trees along the channel edge. Also along this bend is a more extensive "blow-down" area surrounding an unmapped relic side channel. The larger downstream side channel, follows the eastern side of a major island. Due to sediment deposition and log debris accumulations at the channel mouth, flows are restricted except during freshet conditions.	5.8	0.6
Bfo	Deciduous, coniferous and mixed forests are present within the study area. Deciduous forests are dominated by red alder with lesser amounts of cottonwood along river channel borders. Coniferous forests are located on more elevated sites and are dominated by Sitka spruce and western hemlock with an understory of huckleberry, salmonberry and twinberry honeysuckle. Some sites along the eastern side of the estuary have been selectively logged.	220.6	24.2
Bma	This habitat type occurs in backshore areas with a high water table and fine organic substrates. In disturbed (previously cultivated) areas, the vegetation is dominated by Pacific common rush occurring with lesser amounts of grasses, mosses and sedges.	3.7	0.4
Bme	Included in this habitat type are disturbed predominately grass and rush dominated areas influenced by dyking, cattle and horse grazing, and residential settlement. Substrates are less organic and generally drier than the backshore marsh areas. Within the dyked region, the dominant plant species are creeping bent grass, Arctic rush and meadow fescue. Mosses commonly occur in moister areas.	12.5	1.4
Bsh	This habitat type includes deciduous shrubs and small trees. The dominant species are willows occurring with lesser amounts of red alder, Pacific crab apple, twinberry honeysuckle, coastal American red elder and gooseberry. Adjacent to the channels the understory includes Lyngbye's sedge, tufted hair grass and American skunk-cabbage. Cattle commonly graze on the understory.	19.0	2.1
B / 1,3	Located in the southwestern portion of the estuary, this area consists of former intertidal land filled to create a dry-land sort.	5.0	0.5
B / 4	Included in this habitat type is a partial dyke composed of unconsolidated fill material. A well developed shrub community is present along the dyke.	3.4	0.4
B / 10,11	This habitat type consists of a small settlement associated with the dry-land sort.	2.0	0.3
B / 17	This area has undergone recent log skidding operations. Logs were transported via the adjacent side channel.	5.2	0.6
	Total of entire study area.	910.5	100

6. Anthropogenic on Site Symbols

- bridge
- jetty
- dyke
- submarine cable
- float/wharf
- ramp
- rip rap
- (5) culvert
- floodgate (6)
- (7) outfall
- intake (8)
- study area boundary

7. Sources of further Information

Marshall, D.E., R.F. Brown, V.D. Chahley and D.G. Demontier. 1977. Preliminary Catalogue of Salmon Stream and Spawning Escapements Statistical Area 12 (Port Hardy and Alert Bay). Data Report PAC/D-77-2. Environment Canada, Fisheries and Marine Service, Pacific Region. 270 pp.

Planning and Resource Management Division. Coastal Water Bird Data Base. Surveys and Resource Mapping Branch, Ministry of Environment, Victoria, B.C.

8. Credits

Mapping supervised by R.A. Hunter
Mapped by M.M. Wayne
Field work by L.E. Jones, R.A. Hunter, A. Campbell
Date of field work, July and September 1981
Photography used BCC136:170-176
Map drafted by Cartography, Surveys and Resource Mapping Branch, December, 1982
Base map produced by Cartography, Surveys and Resource Mapping Branch

309235