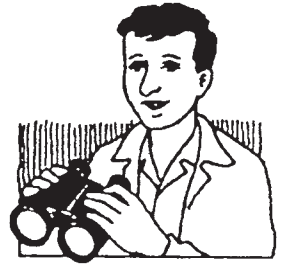


# DISCOVER YOUR ESTUARY INVESTIGATION SHEETS: JUST PHOTOCOPY AND GO!

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In this section, we have provided a number of ready-to-use Activity Sheets that allow you to just photocopy the quantities you need—one per person or one per group—and go! We recommend that you take a copy of the *“Discover Your Estuary”* Book with you for reference. Usually there is helpful background information in the Book to supplement the Activity Sheets.

*Every scientist has a field form or book for measurements and observations.*

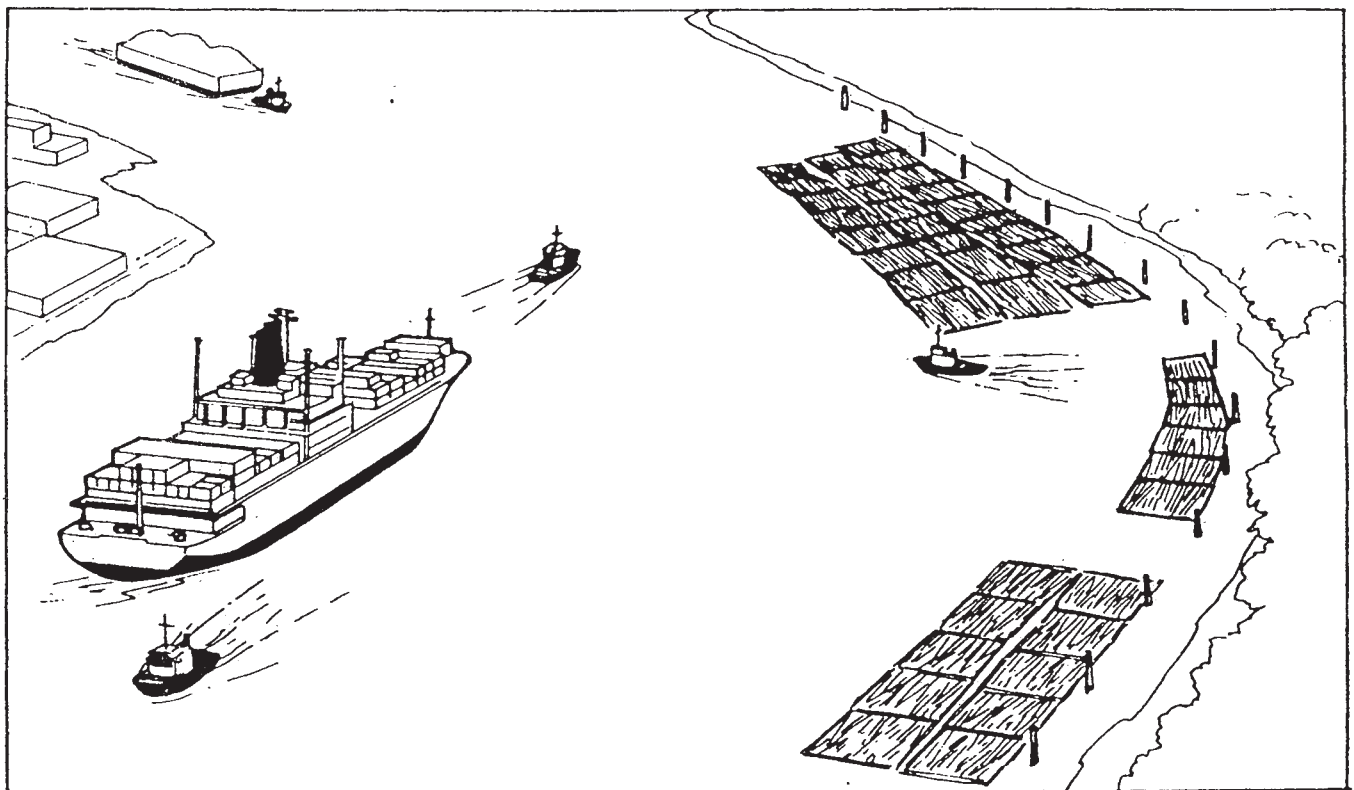


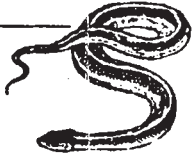
The “Safari” sheets (#’s 2, 4, 5, 6, 7, and 10) are like “treasure hunts”: kids of all ages can use them to practise their observation skills and record their observations.

The “Micro-habitat Observation” sheets (#’s 1, 3, and 8) suggest in depth studies that will require patience and perhaps some demonstration and practice. The most elaborate study is found on Investigation Sheet #3, “Tideflat micro-habitat study”. You can read more detailed instructions in the Book and in the Salt marsh and Tideflat chapter. There are two “general” observation sheets that can be used for many purposes, and in any area of the estuary, #9 AND #11.

Investigation Sheet #9 encourages free-form exploration; and it is designed to fold into a small square that fits into a kid’s pocket easily. On this rainy day each of the students can use a small square of corrugated cardboard as a “clipboard”, and keep the sheet dry inside a ziplock baggie.

Investigation Sheet #11 encourages kids to think about how humans are changing the estuary. There are three chapters in the Book that give background information on human effects on the estuary; you may want to use some of this material in preparation for the field trip, and there is a wealth of information in these chapters for students to do their own research, before or after the field trip.





# LIFE IN A BACK-YARD

## Micro-habitat Observation Sheet

Locate a micro-habitat in a back-yard, school-yard or park. This could be a log, a flower-bed, a bush, under a rock, a stump, even a concrete surface.



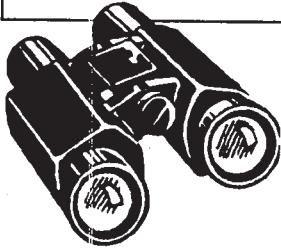
Book  
pp. 62-63

Where is your micro-habitat? Record the location.

Describe or draw the animals and plants you see here:

Why do they want to live here?

# SALTMARSH SAFARI



Book  
pp. 42-53



Keep track of what you find while you're investigating (circle each picture when you find it) ...



Bald Eagle



Saltwort



Black Brant



Marsh Wren



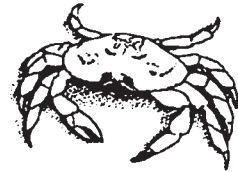
Arrowgrass



Rough-legged Hawk



Saltgrass



Dungeness Crab



Saltbush



Dead Eelgrass



Short-eared Owl



Townsend's Vole

...AND draw pictures of, or describe, other organisms you find:

## NOTES FOR PARENT AND TEACHER on Investigation Sheet #3

Quadrats are used to sample a known surface area. Digging out the top 2" of the quadrat reveals a living "mud carpet", since Invertebrates are found under the surface of the mud. Illustrations and further instructions can be found on pages 45 and 46 of the Book; and see Suggested Readings, pp. 118-120.

Unless it is a piece of human waste (eg., styrofoam) or nonliving matter (eg., pebbles) everything the treasure hunters find can be categorized as follows:

	ANIMAL	PLANT
LIVING THINGS	<p><u>Molluscs</u> are either</p> <ul style="list-style-type: none"> <li>• bivalves (pair of hinged shells; looks like a clam) or</li> <li>• gastropods (single shell, usually spiral)</li> </ul> <p><u>Crustaceans</u> (insect-like animals with exterior shell and legs)</p> <p><u>Marine Worms</u> (small, usually have bristles)</p>	<p>algae mats (described on page 46 of the Book)</p>
ARTIFACTS	<p>dead creatures</p> <p>pieces of shell</p> <p>fecal casts</p> <p>animal body parts</p> <p>footprints</p> <p>droppings</p> <p>other evidence of the presence of animals</p>	<p>plant detritus (e.g., leaves, sticks, stems, decayed matter)</p>

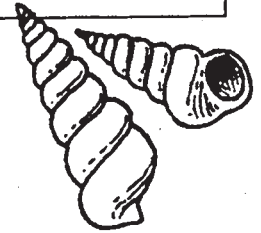
Classification is an important science skill!

# LIFE BENEATH THE TIDEFLAT

## Observation Sheet for a Tideflat Quadrat



Book  
pp. 45-46



As described on pages 45 and 46 of the Book, dig up a "square core" of mud and record your observations here:

Location of quadrat : \_\_\_\_\_

Dimensions of mud dug up : \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_  
(length) (width) (depth)

Record what you find in this quadrat :

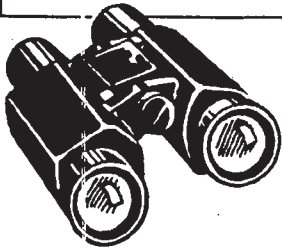
	ANIMAL	PLANT
LIVING THINGS		
ARTIFACTS		

### ANIMAL DENSITY CALCULATION :

Name of invertebrate :	Number of individuals :	Density per square ____	Estimated density :
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Did you see any plants or animals or artifacts you could not identify? If so, make drawings on the back of this sheet, including measurements, and plan to do further research.

# TIDEFLAT SAFARI



Book  
pp. 42-53



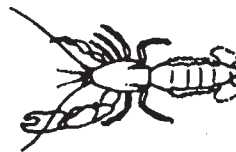
Keep track of what you find while you're investigating (circle each picture when you find it) ...



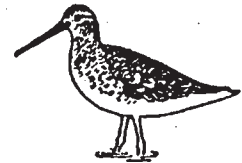
Lugworm



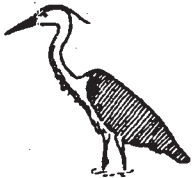
Fecal Casts



Ghost Shrimp



Long-billed Dowitcher



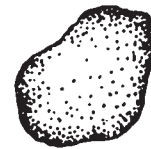
Great Blue Heron



Dunlin



Screw Shell Snail



Algae Mats



Edible Blue Mussel.



Western Sandpiper



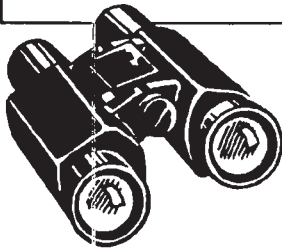
Heron Tracks



Northern Pintail

...AND draw pictures of, or describe, other organisms you find:

# BRACKISH & FRESHWATER MARSH SAFARI



Book  
pp. 35-41



Keep track of what you find while you're investigating (circle each picture when you find it) ...



Seacoast Bulrush



Red-winged Blackbird



Lyngbeil's Sedge



Northern Harrier



Long-billed Marsh Wren



Cat-tails



Pacific Silverweed



Yarrow



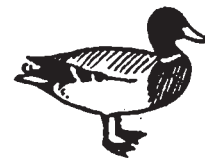
Snow Geese



American Widgeon



American Bulrush

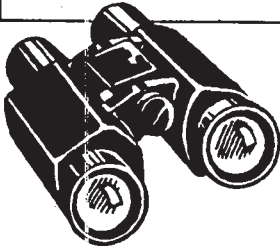


Mallard

...AND draw pictures of, or describe, other organisms you find:



# SLOUGH SAFARI



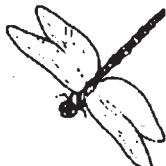
Book  
pp. 65-73



Keep track of what you find while you're investigating (circle each picture when you find it) ...



Water Boatman



Dragonfly



Detritus



Amphipod



Bald Eagle



Small Shrimp



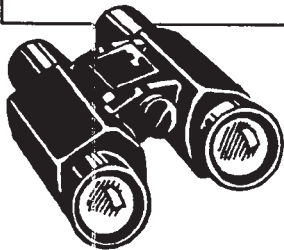
Dragonfly Nymph



Leech

...AND draw pictures of, or describe, other organisms you find.

# FLOODPLAIN FOREST SAFARI



Book  
pp. 54-61



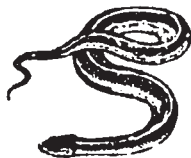
Keep track of what you find while you're investigating (circle each picture when you find it) ...



Eastern Cottontail



Downy Woodpecker



Puget Garter Snake



Wood Duck



Red-tailed Hawk

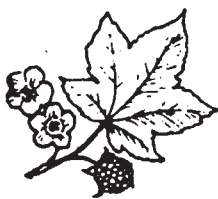
Check each tree or shrub you see...



Elderberry



Oregon Alder



Thimbleberry

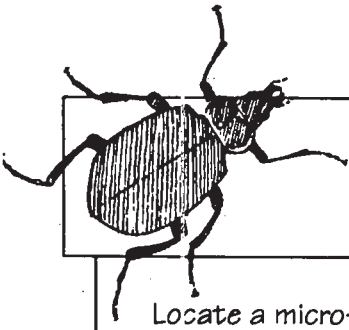


Pacific Willow



Black Cottonwood

...AND draw pictures of, or describe, other organisms you find.



# FOREST FLOOR

## Micro-habitat Observation Sheet

Locate a micro-habitat in the floodplain forest—  
a log, or a shrub, or perhaps do a quadrat  
(investigate a square area of known dimensions)



Book, pp.  
61-63

Where is your micro-habitat? Record the location.

Describe the animals and plants you see here:

Why do they want to live here?

[Empty box for Name]

(NAME)

[Empty box for Buddy's Name]

(BUDDY'S NAME)

FIELD NOTES FOR

[Empty box for Date]

(MONTH) (DAY) (YEAR)

FIELD TRIP TO:

[Empty box for Location]

(PLACE)

WEATHER:

[Empty box for Weather]

OBSERVATIONS AND MEASURES

(SIGHTS, SOUNDS, SMELLS, TOUCH)

[Lined area for observations and measures]

SPECIAL INVESTIGATIONS:

(QUESTIONS TO EXPLORE)

[Numbered lines for special investigations questions]

SKETCH: A FAR-AWAY LOOK

[Large empty box for far-away sketch]

SKETCH: A CLOSE-UP LOOK

[Large empty box for close-up sketch]

INTERESTING THOUGHTS... [Thought bubbles for reflections]



# MINIBEAST SAFARI

Locate a minibeast—a creature small enough for you to capture, examine and release without hurting it. You might want to capture it in a glass jar.

Fill in an observation sheet for each minibeast you examine.

Name of minibeast:

\_\_\_\_\_

Minibeast #: \_\_\_\_\_

Location:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_

Describe how it moves : \_\_\_\_\_

\_\_\_\_\_

How does it eat ? \_\_\_\_\_

\_\_\_\_\_

Who eats this minibeast ? \_\_\_\_\_

\_\_\_\_\_

How does it protect itself ? \_\_\_\_\_

\_\_\_\_\_



# HUMAN ACTIVITY IN THE ESTUARY

## Observation Sheet



Book, pp. 80-89: Settlement by Europeans, Present-Day Use

What are some of the indications of humans in the area you are visiting today?  
(Write or draw your observations.)

How do you think this affects the estuary?