

Sediment Sample Collection



Why collect sediment?

To investigate...

- Trends in contaminant loading
- Potential effects on sediment and aquatic organisms
- Better indicator of long-term conditions than water samples



Common Sediment Contaminants:

Metals

Arsenic
Chromium
Copper
Lead
Mercury

Pesticides

Chlordane
DDT
Diazinon
Dieldrin
Endrin

Semivolatile Organics

PAHs
Phthalates
Phenols

Volatile Organics

Benzene
Carbon
Tetrachloride
Ethylbenzene
Toluene
Xylenes

Use of Sediment Data

DRAFT 2006 Texas Water Quality Inventory
Water Bodies with Concerns for Use Attainment and Screening Levels

1006 Houston Ship Channel Tidal

		<u>Level of Concern</u>
<i>1006_04 Patrick Bayou Tidal</i>		
acenaphthene in sediment		CS
orthophosphorus		CS
pyrene in sediment		CS
total phosphorus		CS
phenanthrene in sediment		CS
mercury in sediment		CS
acenaphthylene in sediment		CS
fluorene in sediment		CS
nitrate		CS

The Matrix:

Many of the contaminants of concern adsorb to fine particles. Sediment samples should consist of fine, recently deposited particulate matter.



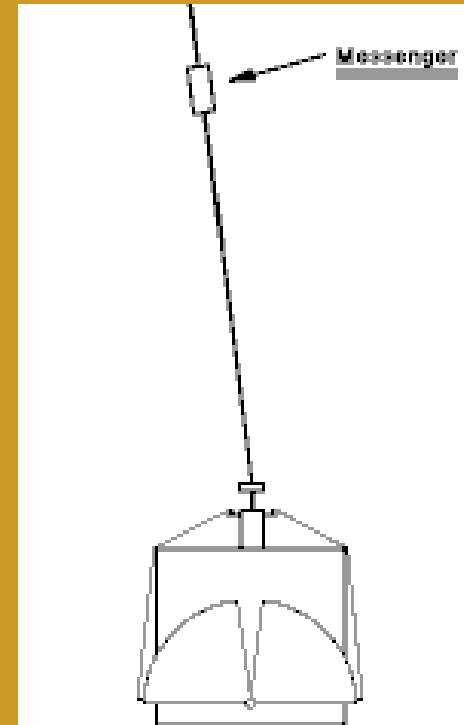
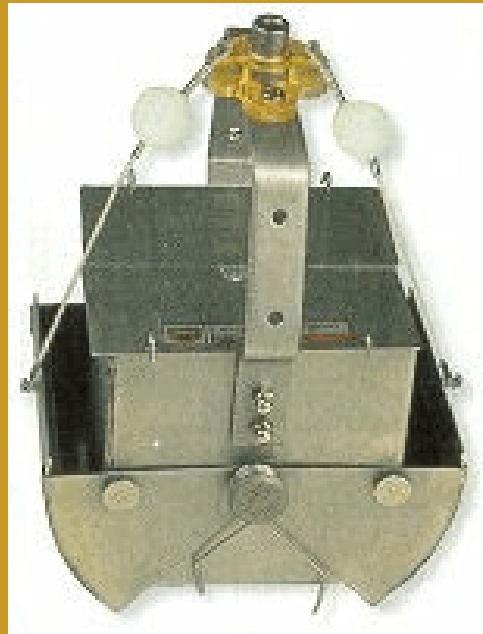
Avoid clay, gravel, bank deposits, disturbed/filled areas



The Equipment:

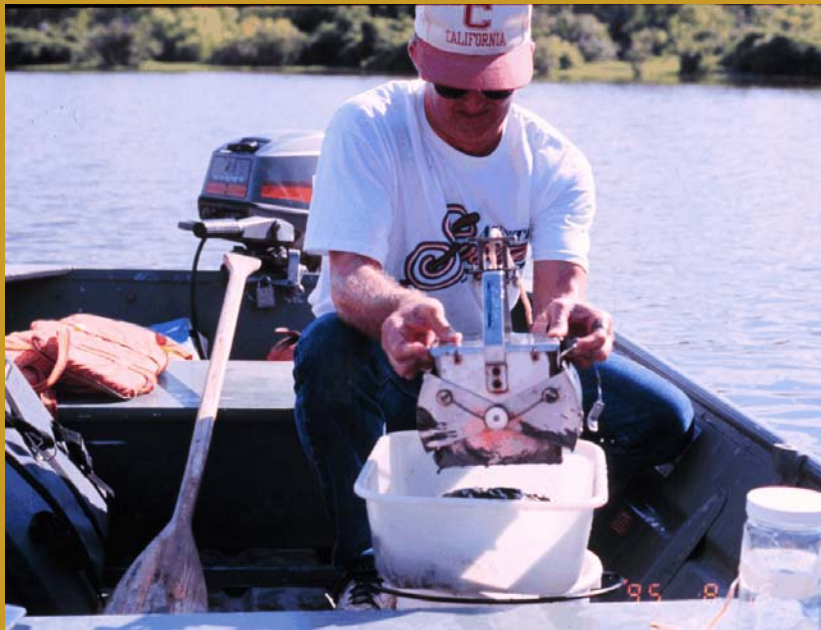
- Dredge
 - Used primarily in reservoirs and estuaries (though may be used in larger rivers with depositional areas)

Eckman



Large Rivers, Reservoirs, and Bays...

Dredges are primarily used from a boat in deeper water but can be used with a pole for wadable water bodies.



- Small, lighter weight
- Needs area with soft mud, sand, silt
- Easily fouled by twigs, leaves, rock, etc.

Wadeable Streams...

The Equipment:

- Scoop - Teflon or Stainless Steel
 - May be used in streams or rivers where dredges are not very effective



- Requires calm, shallow water
- May be used in areas with multiple substrate types
- Fines may wash out in water column
- Take care not to dig too deep; need surface layer

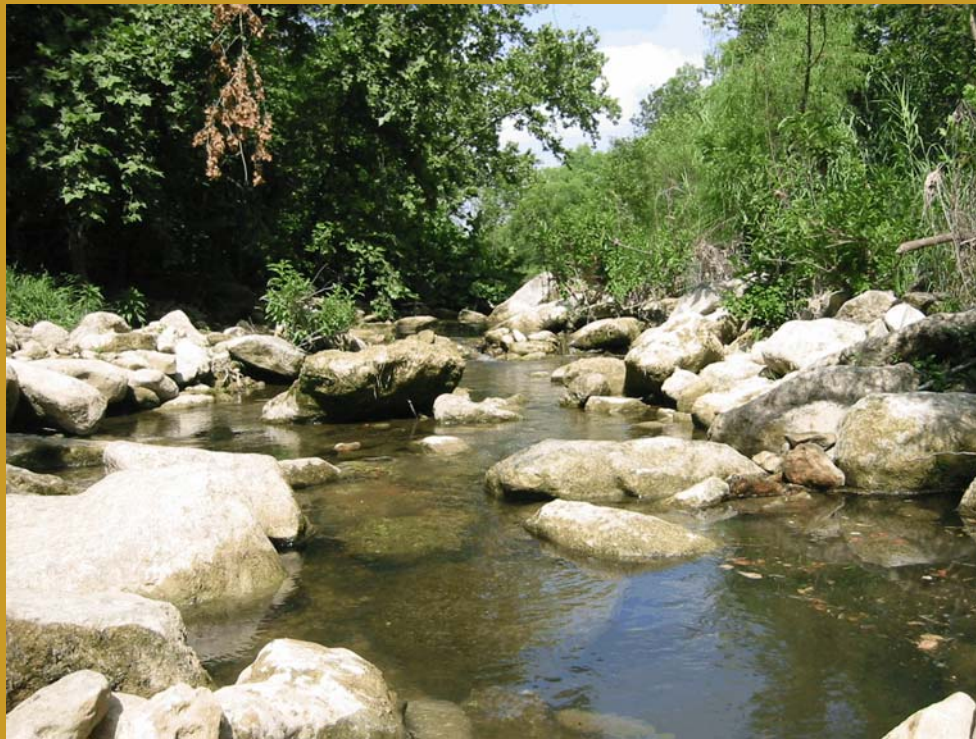
Site Selection: Streams and Rivers



Sometimes you really
have to hunt....

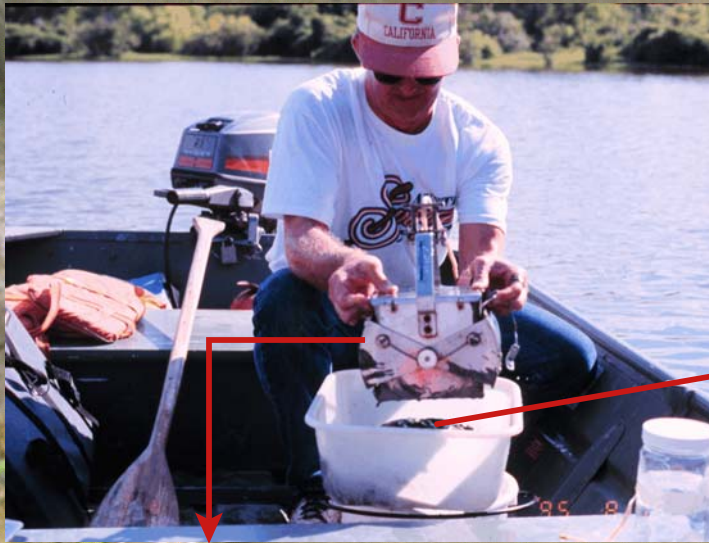
Site Selection: Streams and Rivers

- Collect sample from depositional areas



- Inside bends with pools
- Downstream of obstacles (boulders, islands, sandbars)
- Avoid collecting next to the bank; the material tends to be soil from the bank and not river sediment

Collecting the sample...



A minimum of 3 grabs are put in a clean pan/bucket.



Sediment grab may be stratified with a light colored aerobic layer and a black anoxic layer.

Subsamples are composited in a clean pan/bucket with teflon or stainless steel scoop



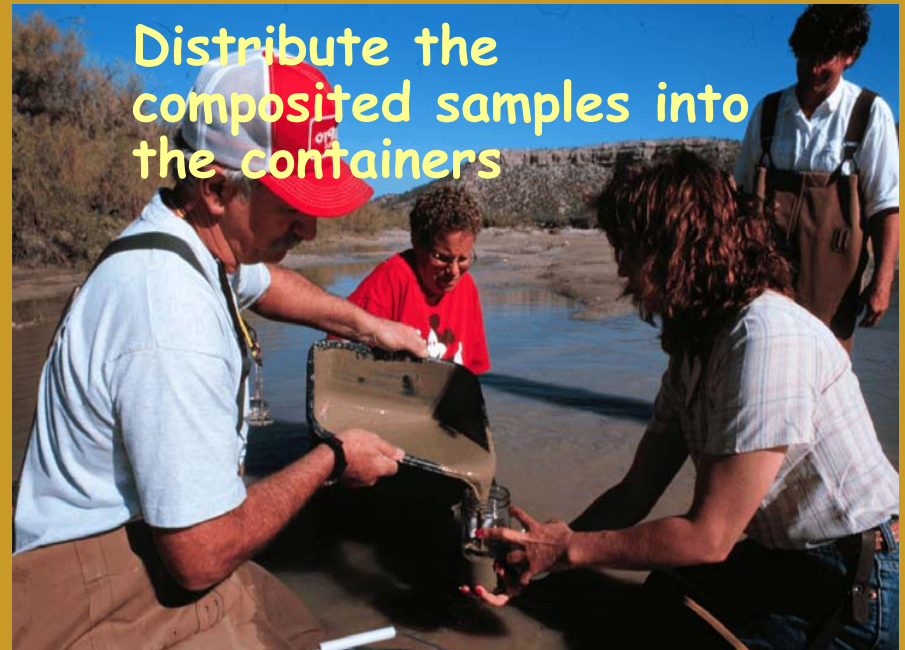
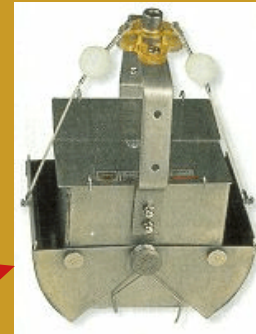
Collecting the sample...

*Conventionals, Metals,
Pesticides, and Semivolatiles:*

✓ Composite min. 3 grabs* in
pan, mix, and transfer to
sample containers



*Collecting by hand
requires multiple scoops
to meet the required
sample volume



Avoid transferring
leaves, sticks, rocks,
and any other debris

Questions?

