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Ekman grab, stainless steel, dimensions 152x152x152 mm, contents 3.5 litres, complete with messenger, 30 m synthetic line and carrying case.

## Background:

The Ekman Bottom Grab is a light weight bottom grab designed to collect samples in soft, finely divided sediments free from vegetation and intermixtures of sand, stones and other coarse debris.

It samples well on substrate composed of finely divided muck, mud, ooze, submerged marl or fine peaty materials.

Wildco® makes Ekman grabs in 3 sizes: 6 x 6 x 6, 6 x 6 x 9, and 9 x 9 x 9.

## Safety:

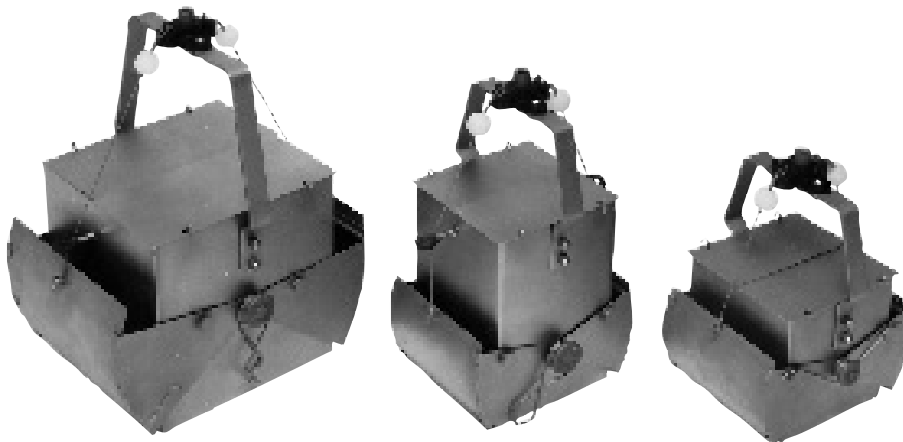
### 1. Be sure to keep the boat in proper balance at all times.

- Using the Ekman grab and washing those contents may require leaning over the side of the boat.
- Keep your balance!

### 2. Personal injury can be caused by the closing of the sharpened scoops.

- This can be caused by accidentally depressing the stainless steel strike pad or depressing its pins.
- Handle the Ekman Grab very carefully when the springs are set and the cable loops are hooked (armed) on the Twin Pin™ release mechanism. The Ekman spring-loaded jaws are potentially dangerous; extreme care must be exercised when setting the jaws.

### 3. To prevent injury and to extend the life of the springs, unhook (unload) both springs from their scoop buttons after each sampling session.



## Preparation:

### 1. Assemble your equipment

- Ekman Dredge**
- Line** We suggest 3/16-inch line such as Wildco® No. 62-C15.
- Sieve or Screen** A 500 micron mesh screen is most commonly recommended for benthic invertebrate sampling. The Wildco® Wash Frame (No. 188-E50) would work well with the Large Ekman. The Wildco® Wash Bucket (No. 190-E25) can be used with the standard & tall Ekmans.
- Large-size tubs or other containers are often helpful**
- Forms or notebooks for sampling records** You can purchase Rite in the Rain copy paper, note pads and pens from Wildco®.
- Wide-mouth sample bottles and marking pens** Wildco® has square, wide-mouth sample bottles that are less likely to roll around (No. 8900-E87)

- Light-duty crane or winch** The large Ekman can weigh over 80 pounds (35 kg) when full. The Wildco® Winch/Depth Meter would work well (No. 85-E20). You may also want to use one with the standard & tall Ekmans. The standard can weigh over 30lbs (15kg) and the tall can weigh over 40lbs (20kg).

### 2. Attach your line.

- Pass a line through the center hole of the stainless steel strike pad of the Twin-Pin™ release mechanism.
- Tie a large knot or a fasten a knot to a suitable washer to keep the line from pulling back through the center hole.

### 3. Protect your sampler from loss.

- Secure the free end of the line to the crane or boat.
- After fastening the line to both the Ekman grab and boat, make sure that the scoops open and close easily.
- Check your knots!**

## Operation:

### 1. Inspect the dredge for good working condition.

- Thread the messenger on the line, attach the line securely to the dredge

by passing the line through the trip mechanism and knotting it securely below the underlying plate.

- b. Tie the opposite end of the line to a crane or boat.

### 2. Set the springs.

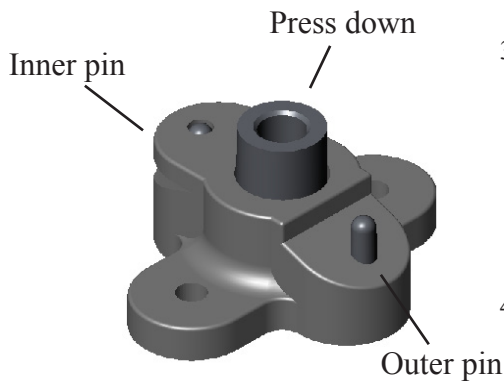
- a. When ready to sample, close the scoops
- b. Hook the end of one spring onto one scoop button
- c. Carefully stretch the spring to reach the second scoop button.
- d. Repeat with the second spring on the other side of the grab.

### 3. Arm the scoops

- a. Just before lowering the Ekman grab into the water, press down on the center of the trip mechanism and hook one cable loop to the inner pin.
- b. Carefully release the button and hook the second cable loop to the outer pin.
- c. Use the white ball on the cable for a hand grip.

### 4. Take your sample.

- a. Lower the sampler slowly so it will descend vertically. If it is dropped rapidly, it may tend to descend in a more diagonal direction.



- b. When the line goes slack, the Ekman has reached the bottom. Allow the dredge to settle.
- c. Holding the line with just enough tension to keep it straight, allow the messenger to slide down the line. The impact of the messenger will depress

the top of the trip mechanism. This will release the cables and allow the springs to close the scoops.

### 5. Retrieve your sample.

- a. Lift the dredge to the surface with moderate, steady speed.
- b. Deposit the sample into a container or sieve (such as the 188-E50 Wash Frame or the 190-E25 Wash Bucket) by pulling up on the cables one at a time.
- c. Save the sample in a labeled plastic bag or jar for later analysis, or use a sieve to rinse the sample with fresh water before storing.
- d. After completing the sampling session, unhook the springs for safety.

### Sampling Tips:

1. Leakage through the jaws can be caused by grit lodged between the side pieces of the jaws and the wall of the dredge body. Thoroughly cleaning the sampler before each use can help eliminate this problem.
2. It is generally a good idea to discard samples where a hard object is caught between the jaws, causing leakage. If this is a common problem at your sampling site, you may need a heavier sampler such as the PONAR® Dredge,
3. The samples may be screened on board boats at the time of sampling, but could result in less accuracy, especially when the water is rough. It may be more convenient and accurate to wash the samples on land using fresh water at an outdoor tap rather than lake water.
4. Sub-sampling can easily be done by keeping the scoops closed and opening the top lids. Clear plastic tubes are often used to push through the sample.
5. Take an extra messenger and set of cables with you.

### Maintenance:

1. Inspect the Ekman before each use. Carefully inspect all moving parts for cleanliness and ease of movement.

Clean and adjust as necessary. Replace or repair damaged parts.

2. Make sure the line is a single piece and is not frayed. This could interfere with the messenger.
3. After each sampling session, the Ekman should be rinsed thoroughly with fresh water and allowed to air dry completely before storing.
4. Avoid impacts with the survey vessel and other objects. This is a common problem in rough water.

### Warranty:

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.

### Parts & Accessories:

- **Messengers** *We recommend 45-B10 11 oz. split messenger*
- **Line** 100 feet, 62-C15
- **Cable Assembly** pack of 2, 197-G25 (large Ekman) 196-F70 (tall Ekman) 196-F35 (standard Ekman)
- **Spring Retainer Hub** pack of 2, 197-L25 (large Ekman) 196-L25 (standard & tall Ekman)
- **Jaw Springs** pack of 2, 197-B25 (large Ekman) 197-B15 (tall & standard Ekman)

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