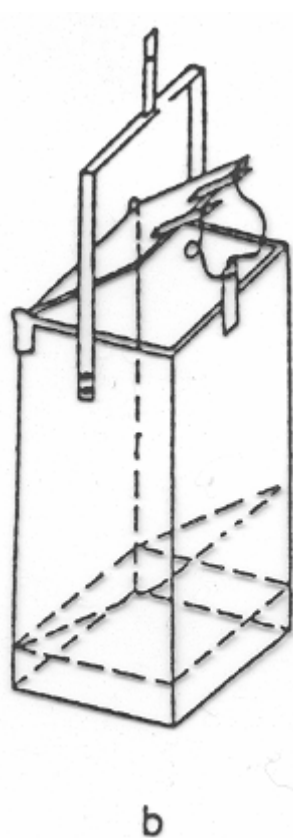
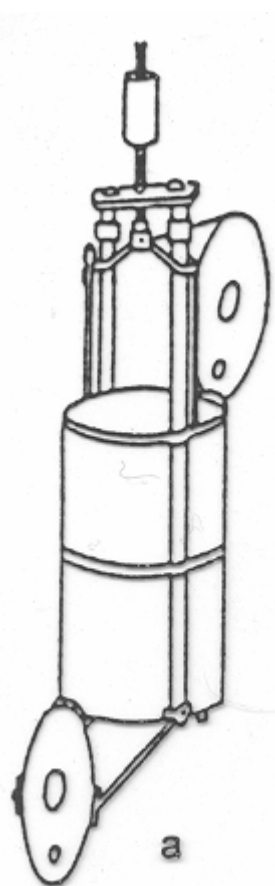


Vzorkování planktonu

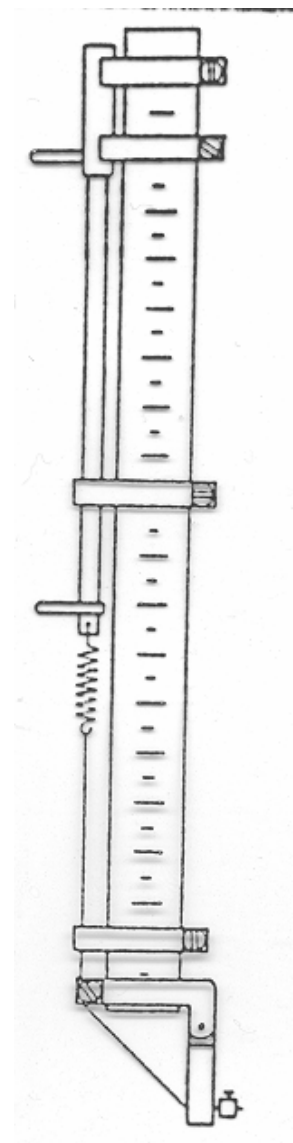
- Přesná definice vzorku
 - » Hloubka,
 - » lokalizace horizontální
 - » Čas – migrace planktonu

a – Friedingerův sběrač, b – Patalasův sběrač, c – planktonní síť s výpustným zařízením

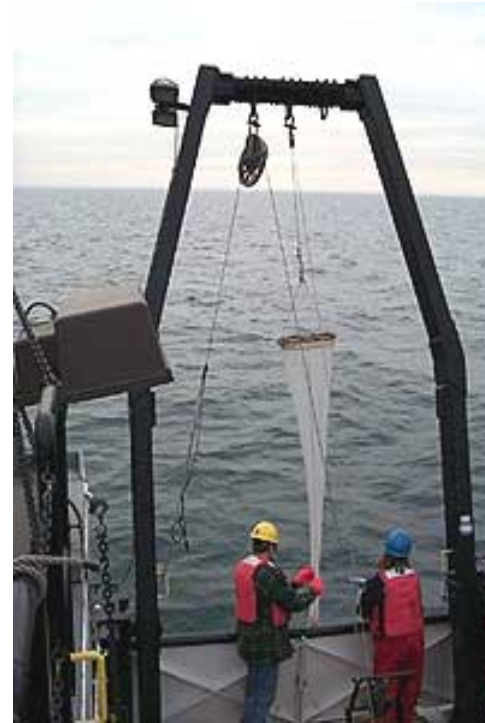


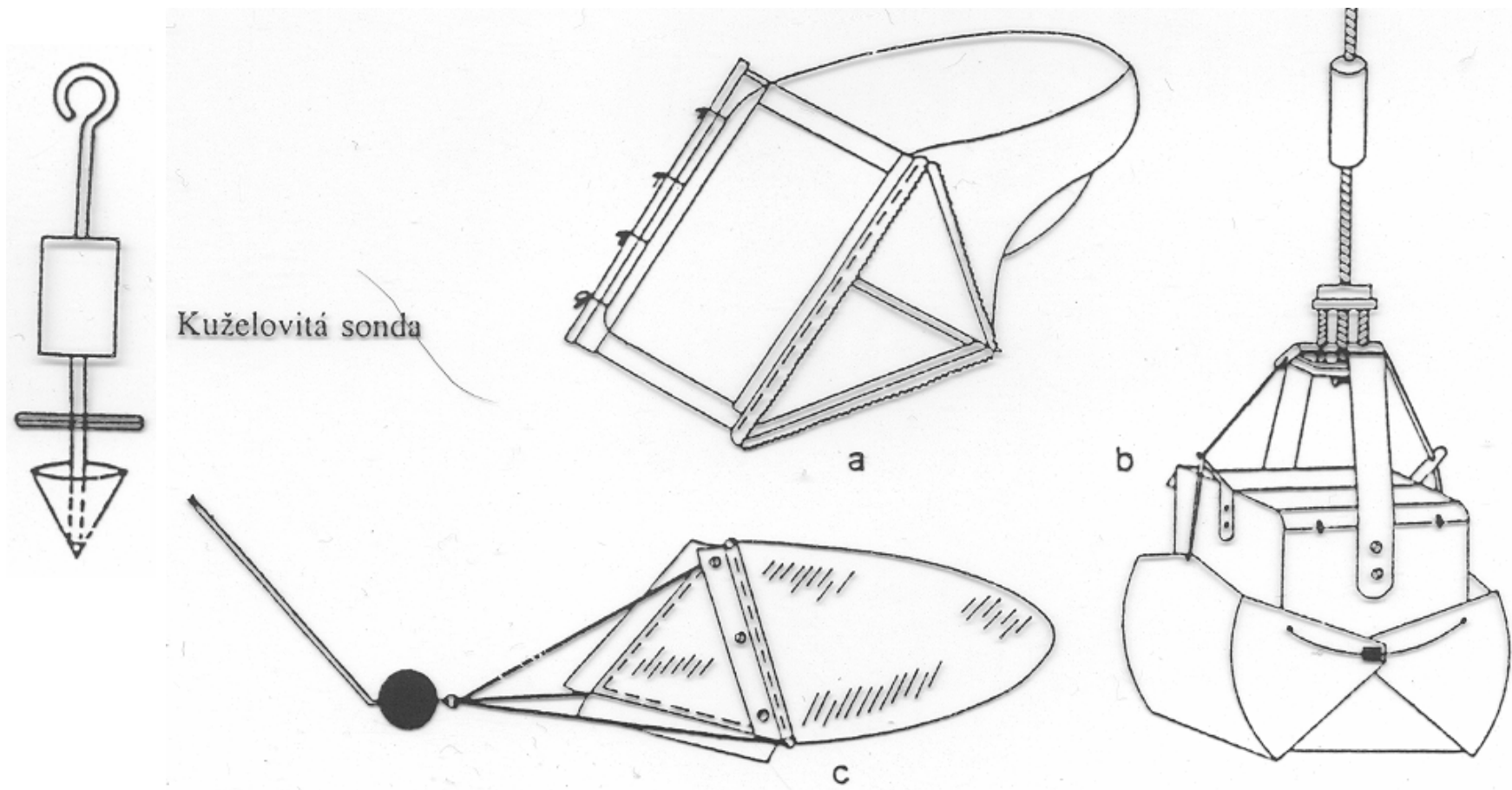
Vzorkování planktonu

Uzavíratelná planktonní trubice podle Janečka a Kreuze



Na velkých nádržích





Pomůcky pro **odběr zoobentosu**

a - Kubíčkův bentometr při pohledu zespodu. b - drapák typu Ekman-Birge v otevřené poloze, c - dredž

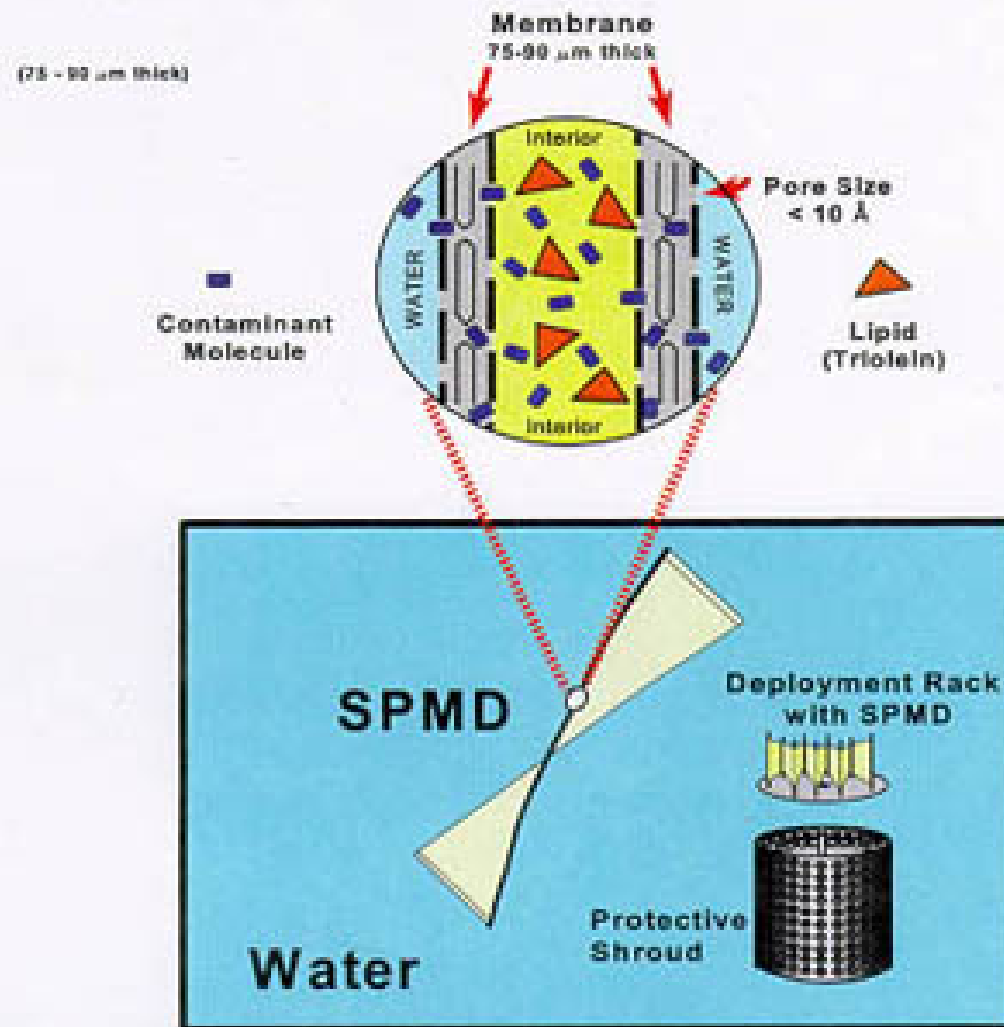
SPMD.... hmmm... !!!

- SPMD - semipermeable membrane device; zvaný také "fatbag." je zařízení, které modeluje příjem - biodostupnost toxických látek
- SPMDs jsou používány jako pasívní vzorkovací zařízení pro monitoring vody a vzduchu
- náplní je triolein - a neutral lipid (fat) found in aquatic organisms and used in SPMDs
- SPMD naplněné trioleinem jsou vhodné pro monitoring POPs (především PCDDF, OCP, PCB a PAU)

Why don't we just collect some water and analyze it for contaminants? There are several reasons:

- Often it is hard to detect the contaminants in the water through normal chemical procedures because they are present at such low concentrations.
- Because of bioconcentration factors, very low concentrations of contaminants may still be important in the environment.
- The concentrations of these chemicals in rivers can change daily or even hourly. To get a true picture of the amount of contaminants present, we would have to take many samples and analyze them all.
- The final reason concerns "bioavailability," the fraction of a chemical that an organism can absorb and incorporate. Sometimes hydrophobic contaminants are present in a water sample, for example, attached to pieces of dirt or other particles in the water. These contaminants are (1) less available to aquatic animals than contaminants that are free in the water and would therefore be (2) less available to the SPMDs. So by using SPMDs we get a clearer picture of whether the contaminants are present in a form that might cause problems in animals.

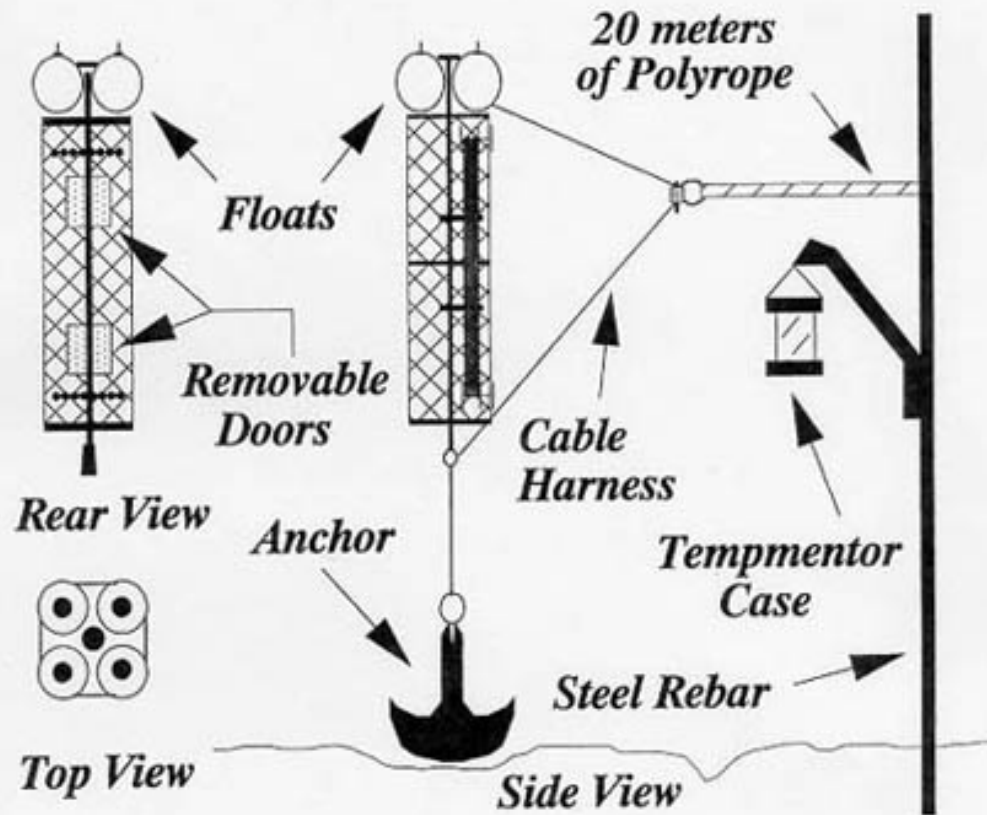
Semipermeable Membrane Device (SPMD)



The lipid containing semipermeable membrane device (SPMD) and a typical deployment apparatus.

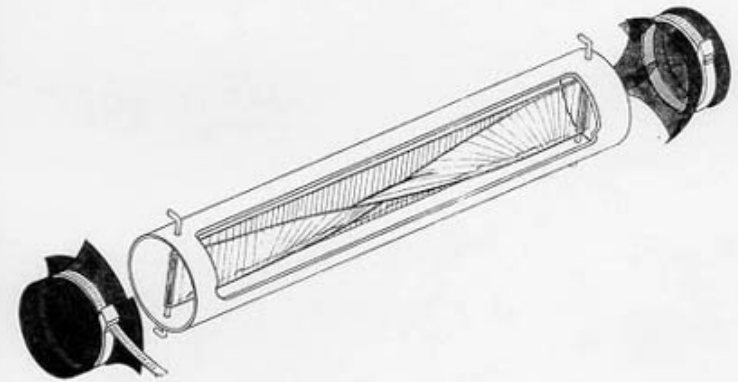
A VERTICAL DEPLOYMENT APPARATUS FOR SPMDs

Designed by Barry Poulton and Brad Mueller at CERC



A HORIZONTAL DEPLOYMENT APPARATUS FOR SPMDs

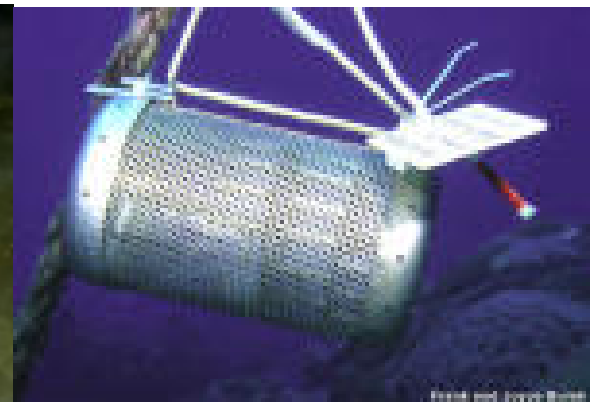
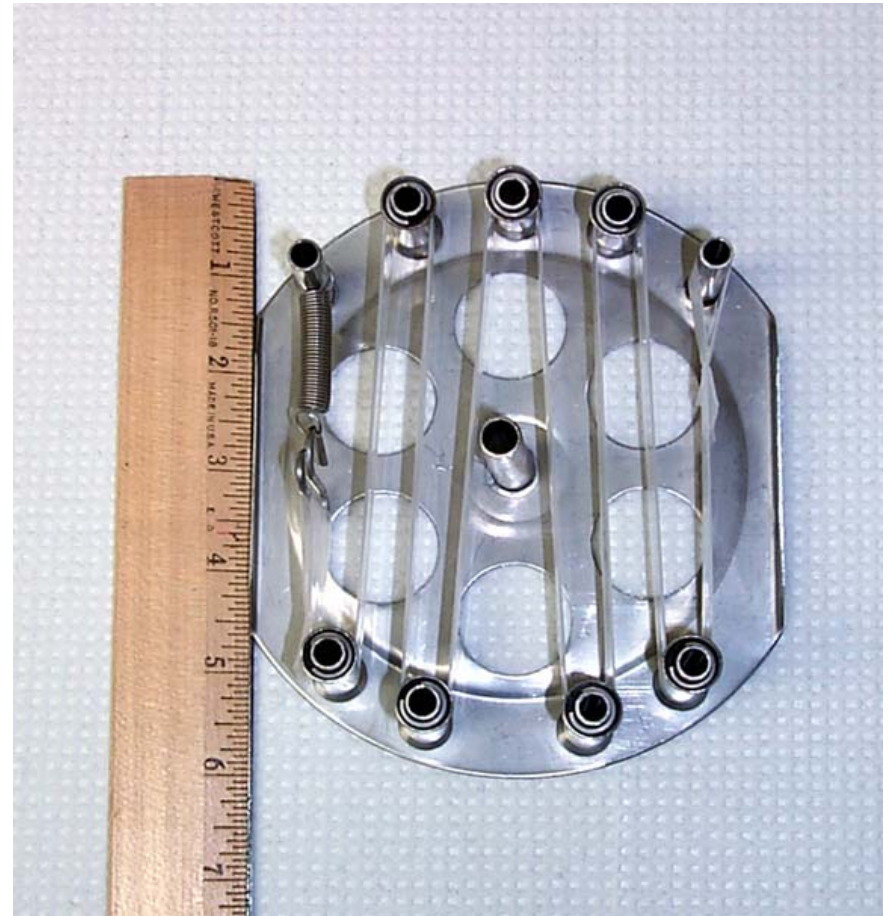
Designed by Jon Lebo, of CERC



Semipermeable Membrane Devices (SPMDs)

The Polar Organic Chemical Integrative Sampler (POCIS)





SPMD and Fishes....

- An SPMD is not a perfect model of a fish. Fish can depurate some contaminants and pick up other pollutants through their diet. Some of these contaminants reach their highest concentrations in animals that are high on the food chain. This is called "biomagnification." An SPMD cannot model biomagnification, but it can alert us to the presence of contaminants that can be biomagnified.
- An SPMD is a useful tool that assesses environmental contamination by hydrophobic chemicals. As a "virtual fish," the *semipermeable membrane device* provides reliable information that helps determine how much contamination is present in aquatic habitats. Everyone benefits from a cleaner environment!

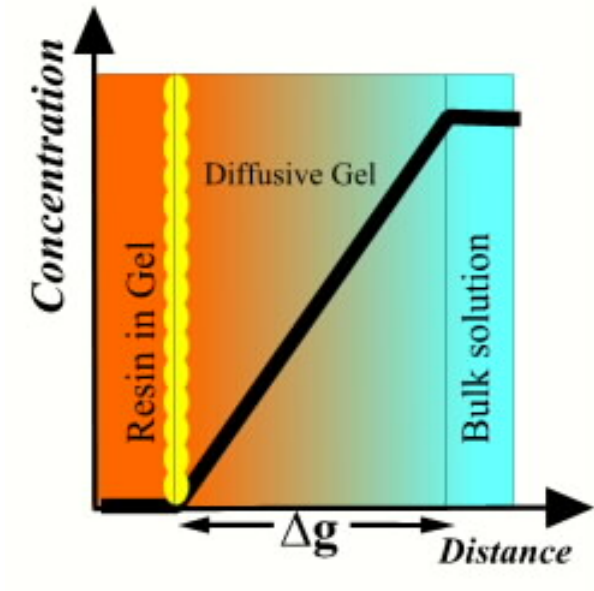
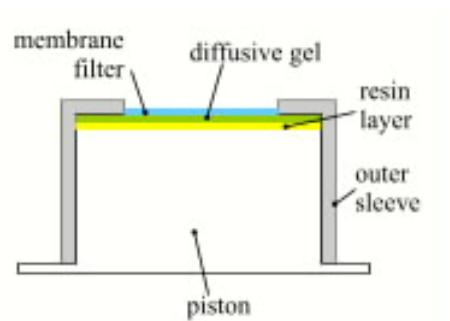
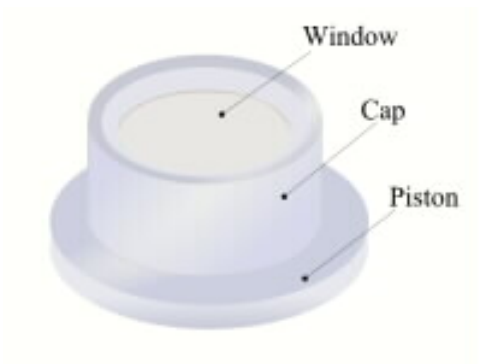
Vzorkovače s difúzní gelovou vrstvou-

- vhodné pro monitoring a vzorkování
znečištění KOVY - včetně radionuklidů

A new innovative passive sensor for in situ metals monitoring...

Diffusive Gradient Thin-films

DGT



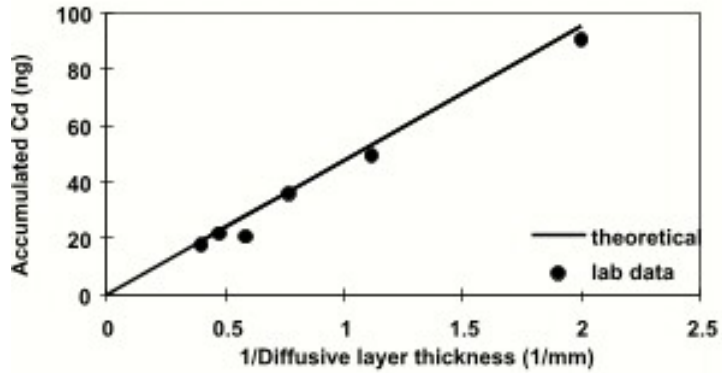


Figure 3a - Plot of accumulated mass of Cd versus time in a laboratory solution of lake water, showing good agreement with theory.

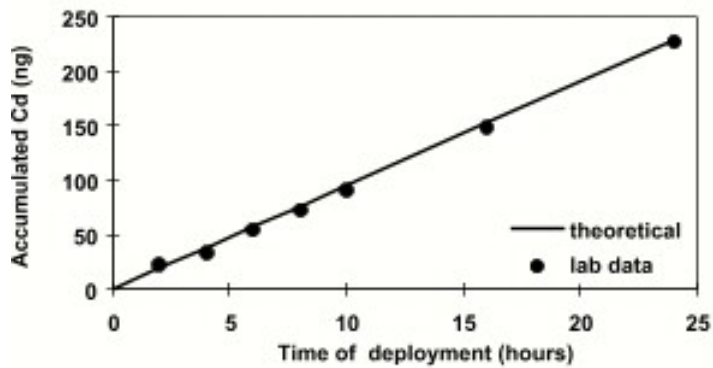


Figure 3b - Plot of accumulated mass of Cd versus $1/\Delta g$ in a laboratory solution of lake water, showing good agreement with theory.

- **Tyto vzorkovače jsou závislé na pH, iontové síle a intenzitě proudění, ač se lze dočíst na Windsor Scientific (UK), ...Independent of flow, pH and ionic strength**
- **Nejlépe sorbují v nízkých koncentracích kovů (Wide concentration range)**
- **mimořádně vhodné pro monitoring radionuklidů – i nad sedimenty nádrží...**

Vzorkovače s difúzní gelovou vrstvou- zhodnocení:

- Tyto vzorkovače jsou závislé na pH, iontové síle a intenzitě proudění,
- Použití od pH5 do 9, koncentrace od mM do 1M Cd.
- Nejlépe sorbují v nízkých koncentracích kovů (Wide concentration range) a ve vodních tocích.
- mimořádně vhodné pro monitoring radionuklidů
- Možnost volby síly pryskyřičné gelové membrány nad sedimenty nádrží...
- Nutno dobře ukotvit v terénu- velikost 2x4cm...