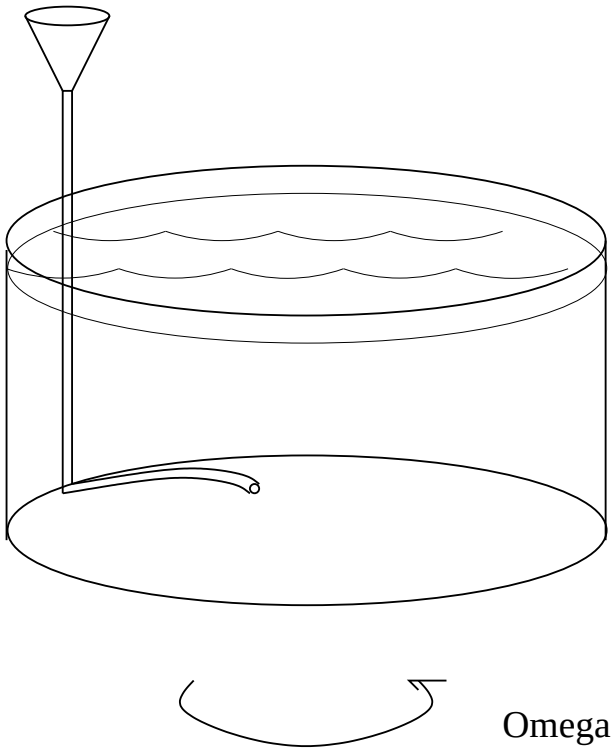
12.804 — Vortices in the lab

Setup

You can make vortices by forcing fluid into a rotating tank — the setup is shown here (c.f., Flierl, Stern, and Whitehead (1983), *Dyn. Atmos. and Oceans*, **7** 233-263).



Sketch of apparatus

After the tank is spun up, you pour on the order of 75 *ml* of dyed water into the funnel. You will generally get three vortices: one dipole with unequal partners and another individual vortex.

Things to do:

· Follow the motion of the dipole, measure the circulations of the individual vortices, and compare to model such as point vortices.

· How do the vortices depend on the amount of fluid injected?

· Study the collisions of the dipoles with the wall.

· Try to generate several vortices and see if you can observe merger.

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