**PROTOCOL FOR ZooMSS CLIMATE CHANGE ANALYSIS**

**Aim**

Use ZooMSSv2 to assess the impacts of climate change on the structure of the global zooplankton community, and its role in mediating energy from phytoplankton to fish

**Data**

Two datasets, derived from IPSL CMIP5 outputs. Each dataset contains average sea surface temperature, chlorophyll, phytoplankton community slope, intercept and maximum size for a 5° grid of the global ocean. One dataset (ipsl\_hist\_1990-1999\_enviro.RDS) is the decadal average from 1990-1999, using historical climate forcings, the second dataset (ipsl\_rcp85\_2090-2099\_enviro.RDS) is the decadal average from 2090-2099, using rcp85 forcings.

**Required runs**

For each dataset, we need to complete these runs:

1. The standard model run, with all groups included
2. A run with salps and larvaceans removed (no filter feeders)
3. A run with carnivorous copepods, chaetognaths and jellyfish removed (no carnivores)
4. A run with omnivorous copepods and euphausiids removed (no omnivores)
5. A run with omnivorous copepods and carnivorous copepods removed (no copepods)
6. A run with a single zooplankton community, with a PPMR of 1000, carbon content of 0.1 and a feeding kernel width of 1.3

**Required outputs**

For each model run, we need to extract:

1. The abundance of each functional group in the model
2. The diet matrix

These are standard outputs from ZooMSS, and are reported as the average of the last 50% of the total time over which the model is run.

**Required figures**

To be discussed, but if Irene is keen I think it’d be good experience for her to handle the figures for the manuscript ☺.