**Proposed modelling chapters**

**Chapter One (Theoretical chapter)**

• Movement in the water column and how it affects dispersal.

Using the empirical data found for various fish species (perhaps choose the different strategies)

**Scope**

• Comparison of different movement behaviours. Diel, OVM, Vertical swimming ability, Horizontal swimming ability, salinity based movement, Temperature based movement.

• Comparison of different implementations of OVM. Does how you implement your solution affect the output?

**Questions**

How do different movements affect the connectivity (i.e. what has the most effect)?  
Can any one movement be substituted for the others?  
Is the answer in really understanding the fishes biology or will implementing diel vertical migration for example be enough to simulate movement?

**Chapter Two (Applied chapter)**

• Connectivity between marine estates in Australia

**Scope**

Look at the new Federal marine parks and the state marine parks on the east-Australian coast. Choosing the marine species will be key, but also interesting to see if how these areas connect to each other. Doesn’t necessarily all have to be representative of fish, can also include commercial invertebrate species such as mussels, abalone? Options are to look at at large area, or just focus on one state at a time and then compare between SA, VIC, NSW.

Implement the vertical migration of several species if we know it (or just use the general patterns that we found, with different PLDs). Therefore can cover a wide range of (generic) fish species.

**Questions**

Are they well connected for all species, or a subset of species?  
What species benefit from the current arrangements & what species do not?  
Are the marine parks well connected (e.g. number of isolated sites, sinks, sources).  
Aim is not to get political about it, just report on connectivity for a few species. Aim to use generic species to be cover a wide range.