

# Martin Solan

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<http://www.oceanlab.abdn.ac.uk/>

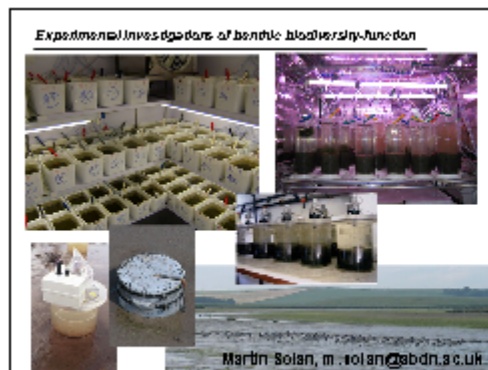
[m.solan@abdn.ac.uk](mailto:m.solan@abdn.ac.uk)

+ 44 1224 274409

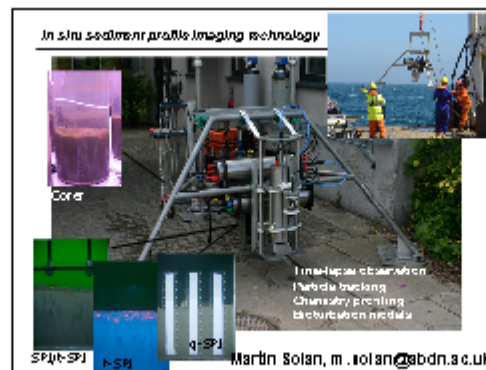
Interested in  
contributing to  
any topic

## Marine benthic ecologist - interested in joining a consortium

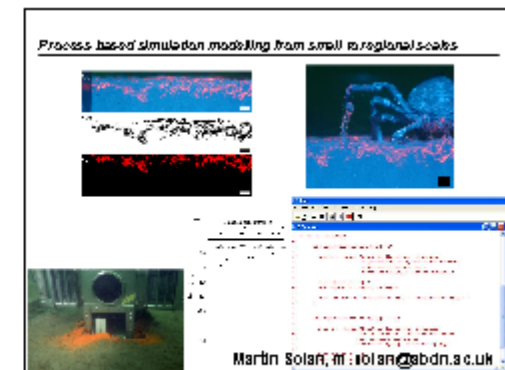
Key components of my research are the use of manipulative **laboratory and field experiments** (*slide 1*) to understand the functional role of species and the development of generic concepts of biodiversity-ecosystem functioning within the context of climate change, including ocean acidification. I also use of **imaging technology** (*slide 2*) to evaluate invertebrate activity and behaviour. I have developed techniques that can be applied *in situ* to **quantify faunal mediated sediment particle movement**, relate infaunal activity to **biogeochemical cycling** and **simulation models** (*slide 3*) of **bioturbation**.



1

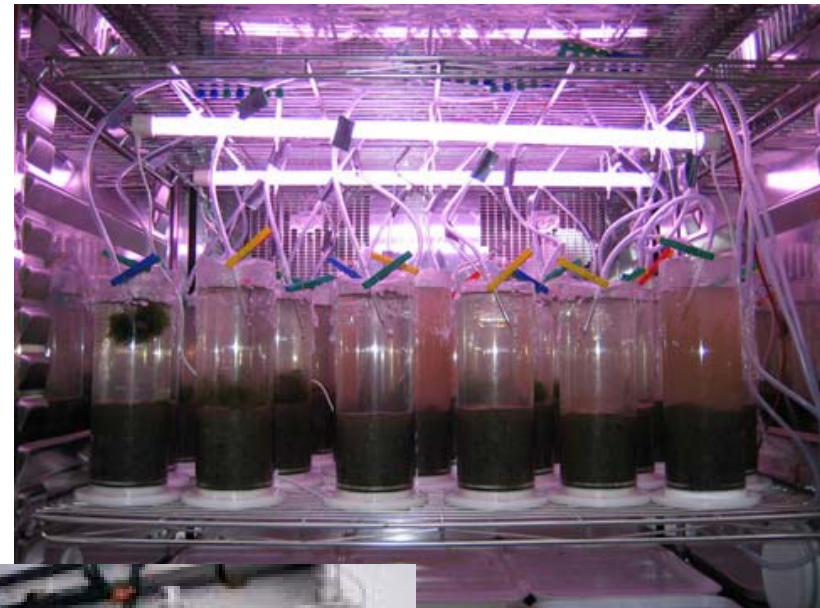
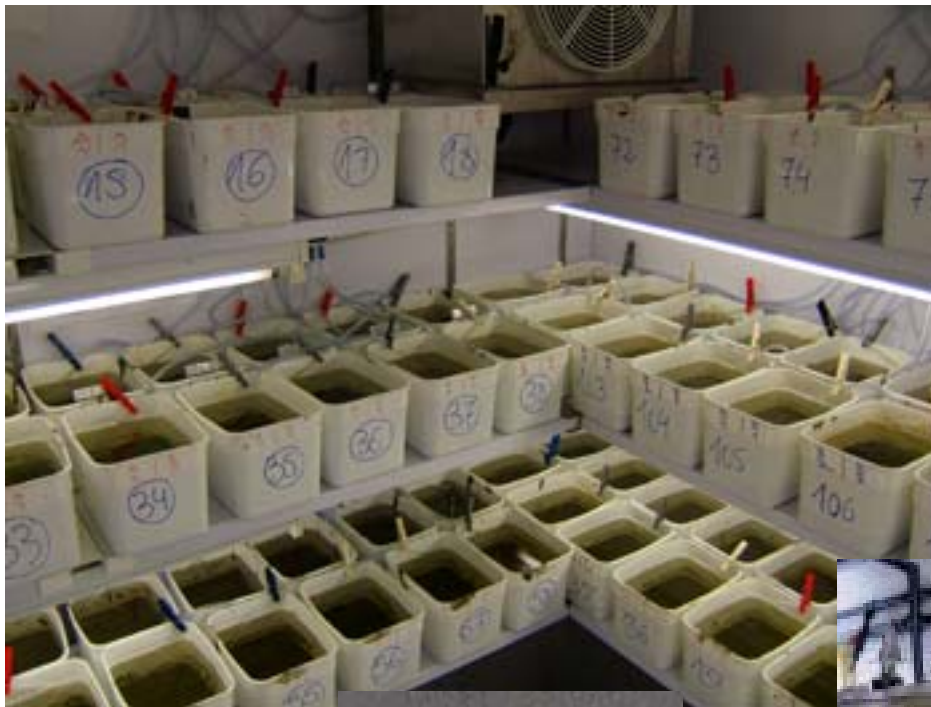


2



3

# *Experimental investigations of benthic biodiversity-function*



**Martin Solan, [m.solan@abdn.ac.uk](mailto:m.solan@abdn.ac.uk)**

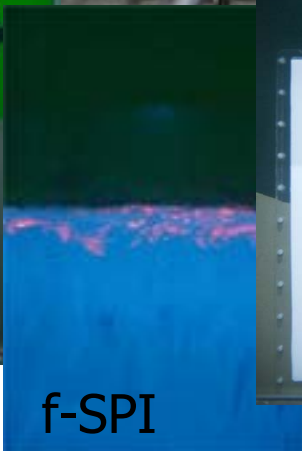
# *In situ sediment profile imaging technology*



Corer



SPI/t-SPI



f-SPI

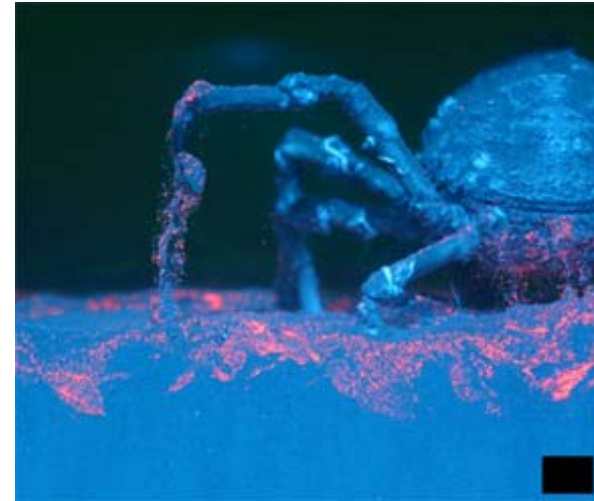
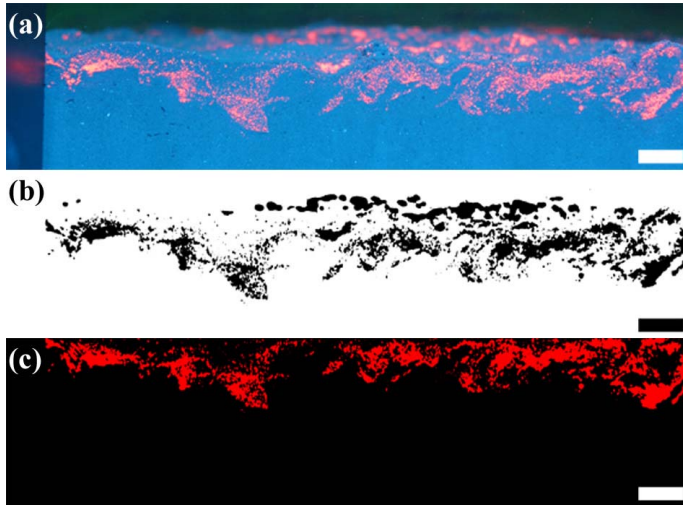


g-SPI

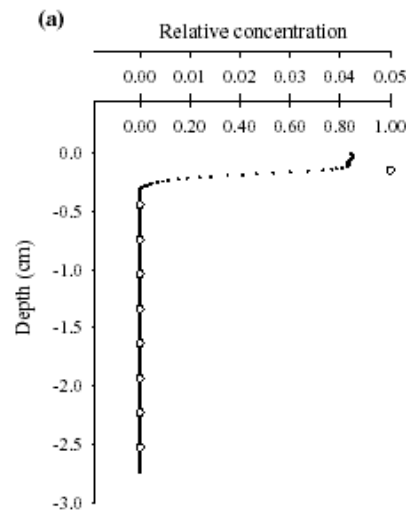
Time-lapse observation  
Particle tracking  
Chemistry profiling  
Bioturbation models

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# Process based simulation modelling from small to regional scales



```
RGui
File Edit View Misc Packages Windows Help
R Console
> for(d in 1:depth){
+   if(length(directions.m[[d]])>0){
+     dest.m <- mapply(function(directions, distances)
+       if(directions == 1) return(d+distances)
+       else return(d-distances),
+       directions.m[[d]], distances.m[[d]])
+     dest.m[dest.m < 1] <- 1
+     dest.m[dest.m > depth] <- depth
+     for(i in dest.m) temp.profile.m[i] <- temp.profile.m[i] + 1
+   }
+   if(length(directions.u[[d]]) > 0){
+     dest.u <- mapply(function(directions, distances)
+       if(directions == 1) return(d+distances)
+       else return(d-distances),
+       directions.u[[d]], distances.u[[d]])
+     dest.u[dest.u < 1] <- 1
+     dest.u[dest.u > depth] <- depth
+   }
+ }
```



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