Bycatch Paper

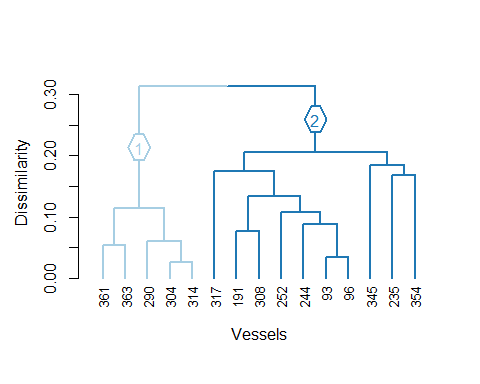
Natasha Besseling

2023-06-06

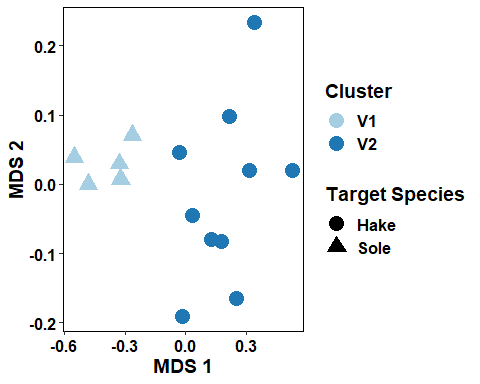
Table 1: Landed catch composition

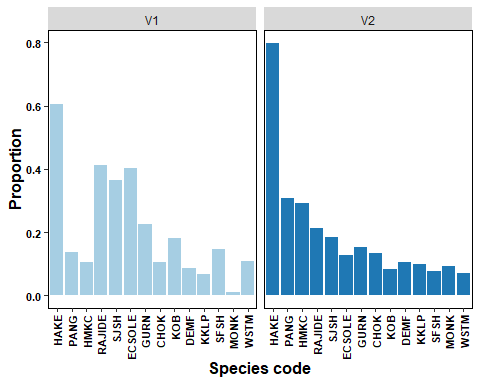
| **Scientific Name** | **Nominal Mass** | **Cumulative Sum** | **Cumulative Percentage** |
| --- | --- | --- | --- |
| Merluccius | 2625 | 2625 | 57.44 |
| Pterogymnus laniarius | 362 | 2987 | 65.36 |
| Trachurus capensis | 318 | 3306 | 72.34 |
| Rajiformes | 303 | 3608 | 78.94 |
| Callorhinchus capensis | 231 | 3839 | 84.00 |
| Austroglossus pectoralis | 191 | 4030 | 88.18 |
| Chelidonichthys | 127 | 4157 | 90.96 |
| Loligo vulgaris reynaudii | 76 | 4233 | 92.62 |
| Argyrosomus | 53 | 4285 | 93.76 |
| Demersal | 47 | 4333 | 94.81 |
| Genypterus capensis | 39 | 4372 | 95.66 |
| Galeorhinus galeus | 31 | 4404 | 96.36 |
| Lophius vomerinus | 31 | 4434 | 97.02 |
| Rhabdosargus globiceps | 28 | 4462 | 97.63 |

Cluster analysis of vessels

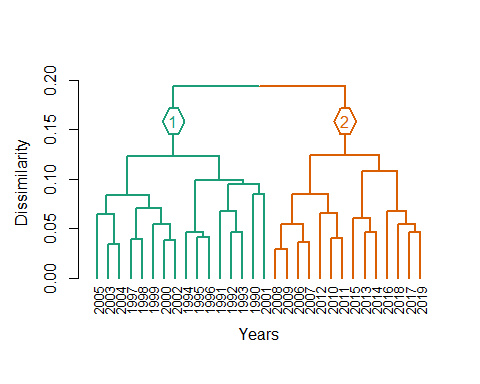


## Run 0 stress 0.01110173   
## Run 1 stress 0.01807489   
## Run 2 stress 0.01117297   
## ... Procrustes: rmse 0.0113493 max resid 0.03920496   
## Run 3 stress 0.01110184   
## ... Procrustes: rmse 0.0005724 max resid 0.001672704   
## ... Similar to previous best  
## Run 4 stress 0.01110307   
## ... Procrustes: rmse 0.0004962184 max resid 0.001600958   
## ... Similar to previous best  
## Run 5 stress 0.01119593   
## ... Procrustes: rmse 0.008377582 max resid 0.02848886   
## Run 6 stress 0.01110179   
## ... Procrustes: rmse 3.87216e-05 max resid 0.0001230709   
## ... Similar to previous best  
## Run 7 stress 0.02092178   
## Run 8 stress 0.01704152   
## Run 9 stress 0.01110221   
## ... Procrustes: rmse 0.0002451534 max resid 0.0008008385   
## ... Similar to previous best  
## Run 10 stress 0.01586525   
## Run 11 stress 0.01122623   
## ... Procrustes: rmse 0.009832814 max resid 0.03317306   
## Run 12 stress 0.02631659   
## Run 13 stress 0.01117695   
## ... Procrustes: rmse 0.01162512 max resid 0.03967006   
## Run 14 stress 0.01117294   
## ... Procrustes: rmse 0.01142075 max resid 0.03938943   
## Run 15 stress 0.01117296   
## ... Procrustes: rmse 0.01145634 max resid 0.03951447   
## \*\*\* Best solution repeated 4 times

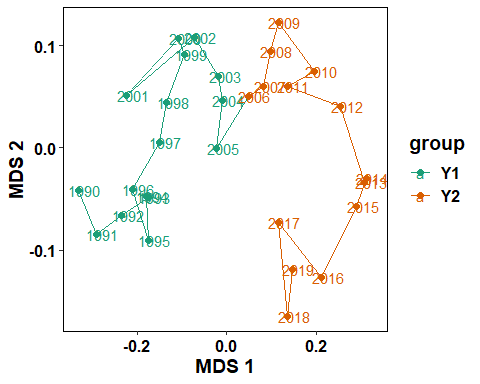


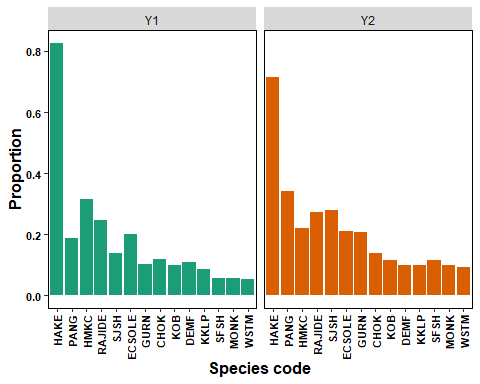


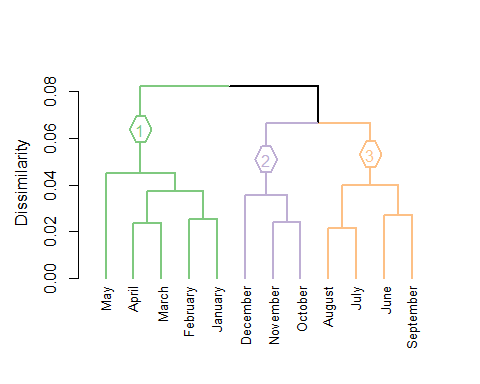
cluster analysis of year



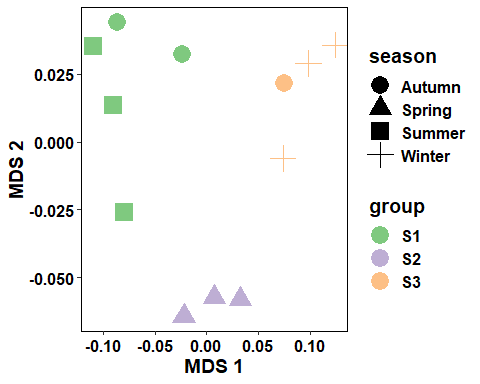
## Run 0 stress 0.03899816   
## Run 1 stress 0.03899818   
## ... Procrustes: rmse 4.530851e-05 max resid 0.0001609302   
## ... Similar to previous best  
## Run 2 stress 0.0389979   
## ... New best solution  
## ... Procrustes: rmse 0.0005042745 max resid 0.00178508   
## ... Similar to previous best  
## Run 3 stress 0.04063083   
## Run 4 stress 0.04063096   
## Run 5 stress 0.04063066   
## Run 6 stress 0.04063086   
## Run 7 stress 0.04645421   
## Run 8 stress 0.04710873   
## Run 9 stress 0.03899826   
## ... Procrustes: rmse 0.0005643993 max resid 0.00205304   
## ... Similar to previous best  
## Run 10 stress 0.03899795   
## ... Procrustes: rmse 6.155862e-05 max resid 0.0001735165   
## ... Similar to previous best  
## Run 11 stress 0.03899823   
## ... Procrustes: rmse 0.0005555583 max resid 0.002014863   
## ... Similar to previous best  
## Run 12 stress 0.04063042   
## Run 13 stress 0.03899822   
## ... Procrustes: rmse 0.0005514286 max resid 0.002002012   
## ... Similar to previous best  
## Run 14 stress 0.04606274   
## Run 15 stress 0.04606264   
## \*\*\* Best solution repeated 5 times

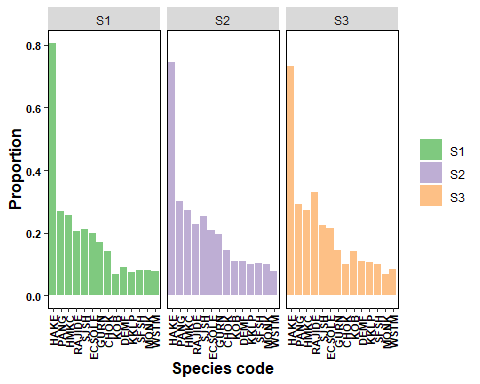




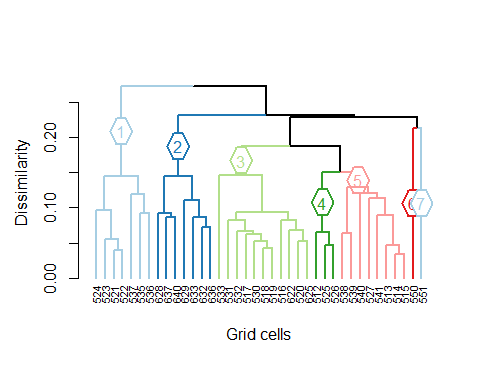
Cluster analysis of months 

## Run 0 stress 0.01088215   
## Run 1 stress 0.01469569   
## Run 2 stress 0.01154721   
## Run 3 stress 0.01165937   
## Run 4 stress 0.01370325   
## Run 5 stress 0.01089084   
## ... Procrustes: rmse 0.003339418 max resid 0.005101792   
## ... Similar to previous best  
## Run 6 stress 0.01161707   
## Run 7 stress 0.01417188   
## Run 8 stress 0.01090757   
## ... Procrustes: rmse 0.002509766 max resid 0.004929893   
## ... Similar to previous best  
## Run 9 stress 0.01154715   
## Run 10 stress 0.01390694   
## Run 11 stress 0.01469605   
## Run 12 stress 0.01172404   
## Run 13 stress 0.01088051   
## ... New best solution  
## ... Procrustes: rmse 0.001436676 max resid 0.002624799   
## ... Similar to previous best  
## Run 14 stress 0.01469578   
## Run 15 stress 0.01457328   
## \*\*\* Best solution repeated 1 times





cluster analysis of area



## Run 0 stress 0.06033144   
## Run 1 stress 0.06033144   
## ... Procrustes: rmse 7.208756e-05 max resid 0.0001869294   
## ... Similar to previous best  
## Run 2 stress 0.07596706   
## Run 3 stress 0.06033143   
## ... New best solution  
## ... Procrustes: rmse 2.527455e-05 max resid 6.95813e-05   
## ... Similar to previous best  
## Run 4 stress 0.06033145   
## ... Procrustes: rmse 2.59243e-05 max resid 7.244176e-05   
## ... Similar to previous best  
## Run 5 stress 0.06033144   
## ... Procrustes: rmse 8.968403e-05 max resid 0.000194704   
## ... Similar to previous best  
## Run 6 stress 0.06033142   
## ... New best solution  
## ... Procrustes: rmse 5.479996e-05 max resid 0.0001927075   
## ... Similar to previous best  
## Run 7 stress 0.06033141   
## ... New best solution  
## ... Procrustes: rmse 3.300397e-05 max resid 0.0001186944   
## ... Similar to previous best  
## Run 8 stress 0.06033143   
## ... Procrustes: rmse 1.143183e-05 max resid 2.926268e-05   
## ... Similar to previous best  
## Run 9 stress 0.06033145   
## ... Procrustes: rmse 7.335541e-05 max resid 0.0001950562   
## ... Similar to previous best  
## Run 10 stress 0.06033142   
## ... Procrustes: rmse 4.379703e-05 max resid 0.0001712736   
## ... Similar to previous best  
## Run 11 stress 0.06033143   
## ... Procrustes: rmse 2.799744e-05 max resid 6.149696e-05   
## ... Similar to previous best  
## Run 12 stress 0.06033144   
## ... Procrustes: rmse 3.868633e-05 max resid 0.0001334068   
## ... Similar to previous best  
## Run 13 stress 0.07661027   
## Run 14 stress 0.06033141   
## ... New best solution  
## ... Procrustes: rmse 2.503588e-05 max resid 6.097831e-05   
## ... Similar to previous best  
## Run 15 stress 0.07804933   
## \*\*\* Best solution repeated 1 times

