|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Drivers*** | ***Variables*** | ***Invoked Perturbation*** | ***Response Variables*** | | | | | |
| ***Survival*** | ***Abundance*** | ***Fitness*** | ***Size*** | ***Residence*** | ***Other Salmon*** |
| *Environmental* | Sunlight | ↑ |  |  |  |  |  |  |
|  | Winter Storms | ↑ |  |  |  |  |  |  |
|  | Precipitation | ↑ |  |  |  |  |  |  |
|  | Upwelling | ↓ |  |  |  |  |  |  |
|  | Stratification | ↑ |  |  |  |  |  |  |
|  | Temperature | ↑ |  |  |  |  |  |  |
|  | River Flow | ↑ |  |  |  |  |  |  |
|  | Turbidity | ↓ |  |  |  |  |  |  |
|  | Dissolved Oxygen | ↓ |  |  |  |  |  |  |
| *Production* | Nutrients | ↑ |  |  |  |  |  |  |
|  | Microplankton | ↑ |  |  |  |  |  |  |
|  | Microbial Detritivores | ↑ |  |  |  |  |  |  |
|  | Diatoms | ↓ |  |  |  |  |  |  |
| *Food web* | Zooplankton | ↓ |  |  |  |  |  |  |
|  | Gelatinous Zooplankton | ↑ |  |  |  |  |  |  |
|  | Forage Fish | ↓ |  |  |  |  |  |  |
|  | Ichthyoplankton | ↓ |  |  |  |  |  |  |
|  | Other Salmon | ↑ |  |  |  |  |  |  |
|  | Piscivorous Fish | ↓ |  |  |  |  |  |  |
|  | Piscivorous Birds | ↓ |  |  |  |  |  |  |
|  | Marine Mammals | ↑ |  |  |  |  |  |  |
| *Anthropogenic* | Hatcheries | ↑ |  |  |  |  |  |  |
|  | Harvest | ↑ |  |  |  |  |  |  |
|  | Habitat Loss | ↑ |  |  |  |  |  |  |
|  | CO2 | ↑ |  |  |  |  |  |  |
|  | Global Warming | ↑ |  |  |  |  |  |  |
|  | Contaminants | ↑ |  |  |  |  |  |  |
|  | Disease | ↑ |  |  |  |  |  |  |
| *Salmon Traits* | Residence | - | Strong Neg. Effect (>80% of runs negative) | | | | |  |
|  | Size | - | Weak Neg. Effect (60-80% of runs negative) | | | | |  |
|  | Fitness | - | Neutral (40-60% of runs positive/negative) | | | | |  |
|  | Abundance | - | Weak Pos. Effect (60-80% of runs positive) | | | | |  |
|  | Survival | - | Strong Pos. Effect (>80% of runs positive) | | | | |  |