

pacea

New information added to pacea since (and thanks to) last year's SOPO

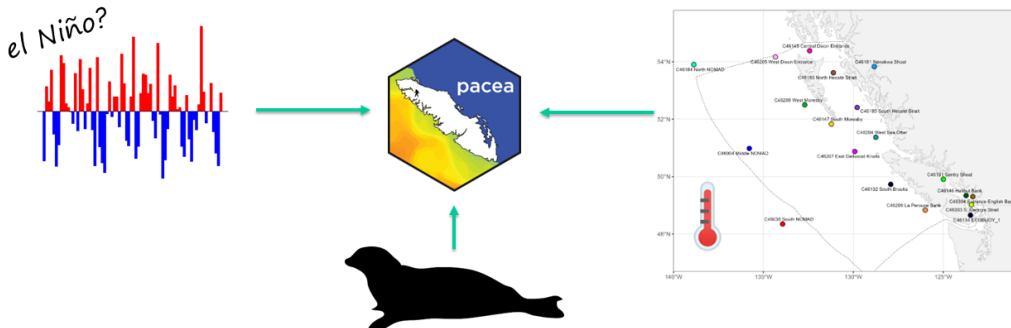
Andrew Edwards



New information added to pacea since (and thanks to)
last year's SOPO

Andrew Edwards

Pacific Biological Station, Fisheries and Oceans Canada, Nanaimo, BC.



State of the Pacific Ocean, Sidney, Mar 2025



Fisheries and Oceans Canada Pêches et Océans Canada

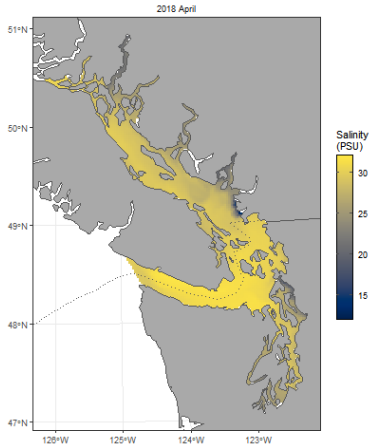
pacea

pacea: An R package of Pacific ecosystem information to help facilitate an ecosystem approach to fisheries management

Hindcast of the Salish Sea (HOTSSSea)

- physical ocean model from 1980 to 2018 (Oldford et al., 2025)
- e.g. max surface salinity in April 2018:

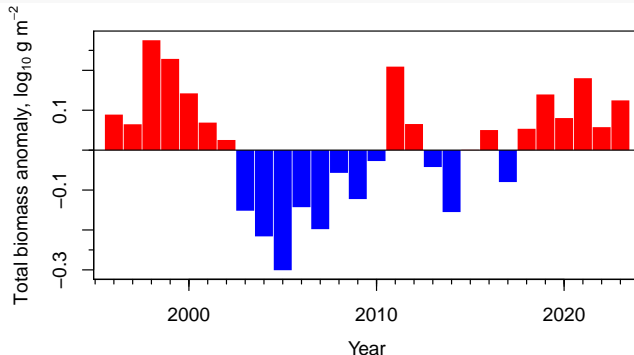
```
plot(hotssea_surface_salinity_max())
```



Zooplankton in the Strait of Georgia

- anomalies of zooplankton biomass since 1996 (Perry et al., 2021)
- extended by Kelly Young each year for SOPO; 25 species groups

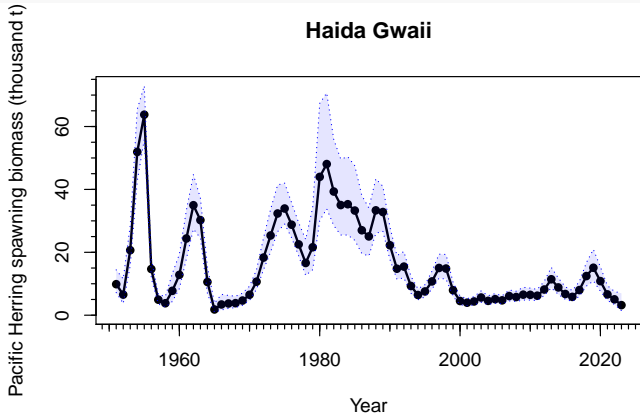
```
plot(zooplankton_sog)
```



Pacific Herring biomass (five stocks)

New and updating annually from stock assessments (Cleary et al.):

```
plot(herring_spawning_biomass,  
     region = "HG")
```



Climatic and oceanographic indices

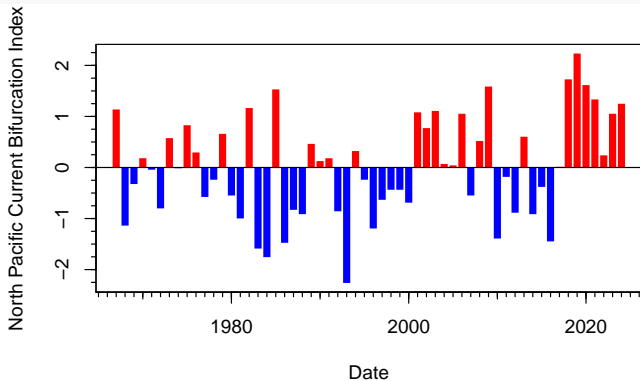
Various climate and oceanographic indices are currently included in pacea:

Object	Description	Resolution	Start year	End year
pdo	Pacific Decadal Oscillation	monthly	1854	2025
npi_monthly	North Pacific Index (monthly)	monthly	1899	2024
npi_annual	North Pacific Index (annual)	annual	1899	2024
alpi	Aleutian Low Pressure Index	annual	1900	2022
oni	Oceanic Niño Index	monthly	1950	2024
npgo	North Pacific Gyre Oscillation	monthly	1950	2024
ao	Arctic Oscillation	monthly	1950	2025
soi	Southern Oscillation Index	monthly	1951	2025
bi	North Pacific Bifurcation Index	annual	1967	2024
mei	Multivariate El Niño Southern Oscillation Index	monthly	1979	2025

New index

Now includes Mike Malick's North Pacific Current Bifurcation Index:

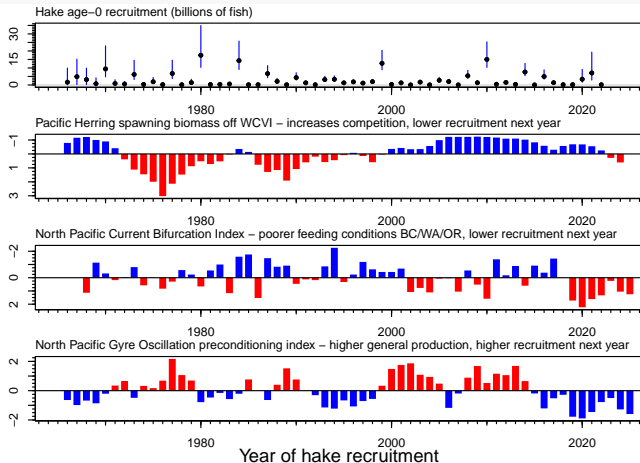
```
plot(bi, lwd = 6)
```



Ecosystem summaries

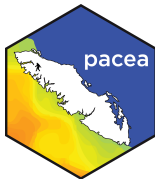
Stock-specific ecosystem summary (e.g., Johnson et al. 2025):

```
ecosystem_summary_hake()
```



Installation

- <https://github.com/pbs-assess/pacea>
- can read vignettes online



We wrangle the data so you don't have to

```
citation("pacea")
```

```
Edwards AM, Tai TC, Watson J, Peña MA, Hilborn A, Hannah CG, Rooper CN, Flynn  
KL, Oldford GL (2024). "pacea: An R package of Pacific ecosystem  
information to help facilitate an ecosystem approach to fisheries  
management."  
https://github.com/pbs-assess/pacea.
```