Marine heatwaves disrupt ecosystem structure and function via altered food webs and energy flux

Nature Communications (2024)**15**:1988

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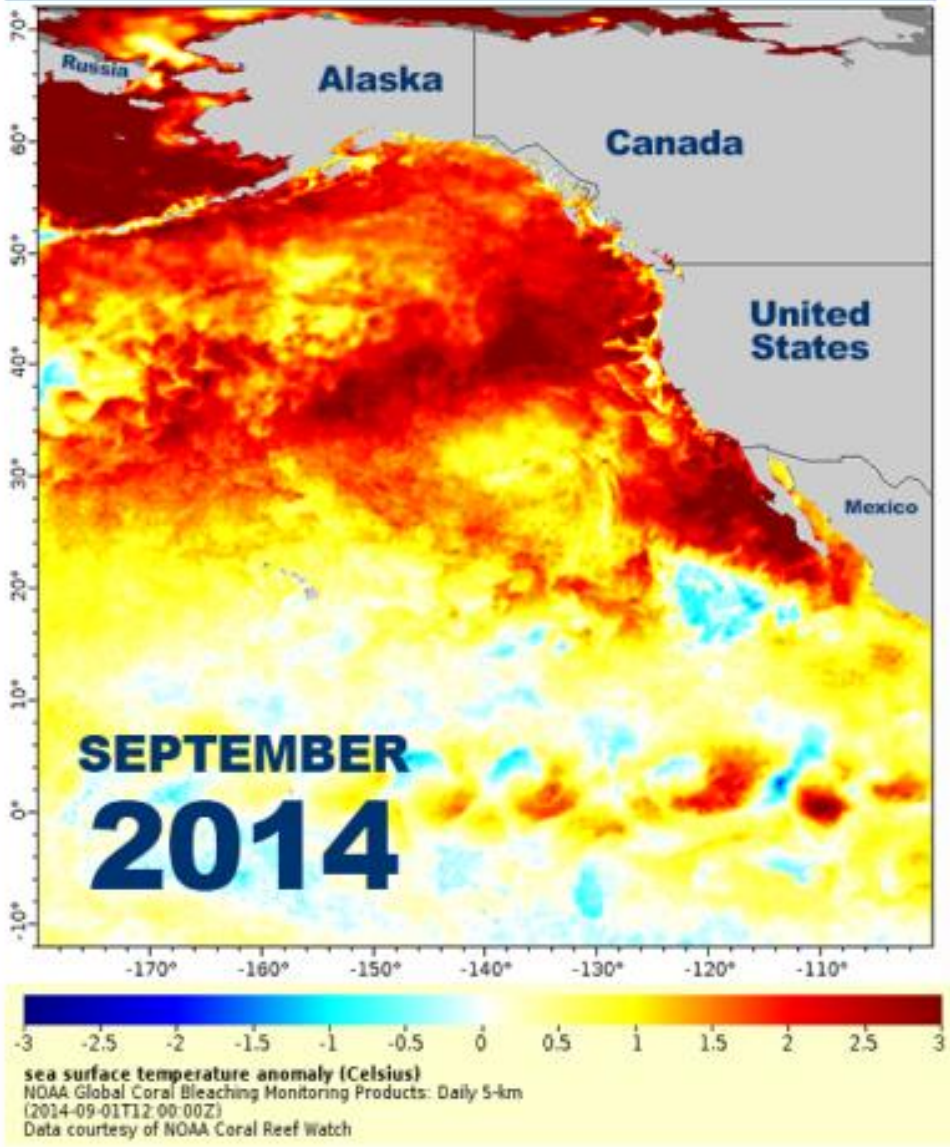
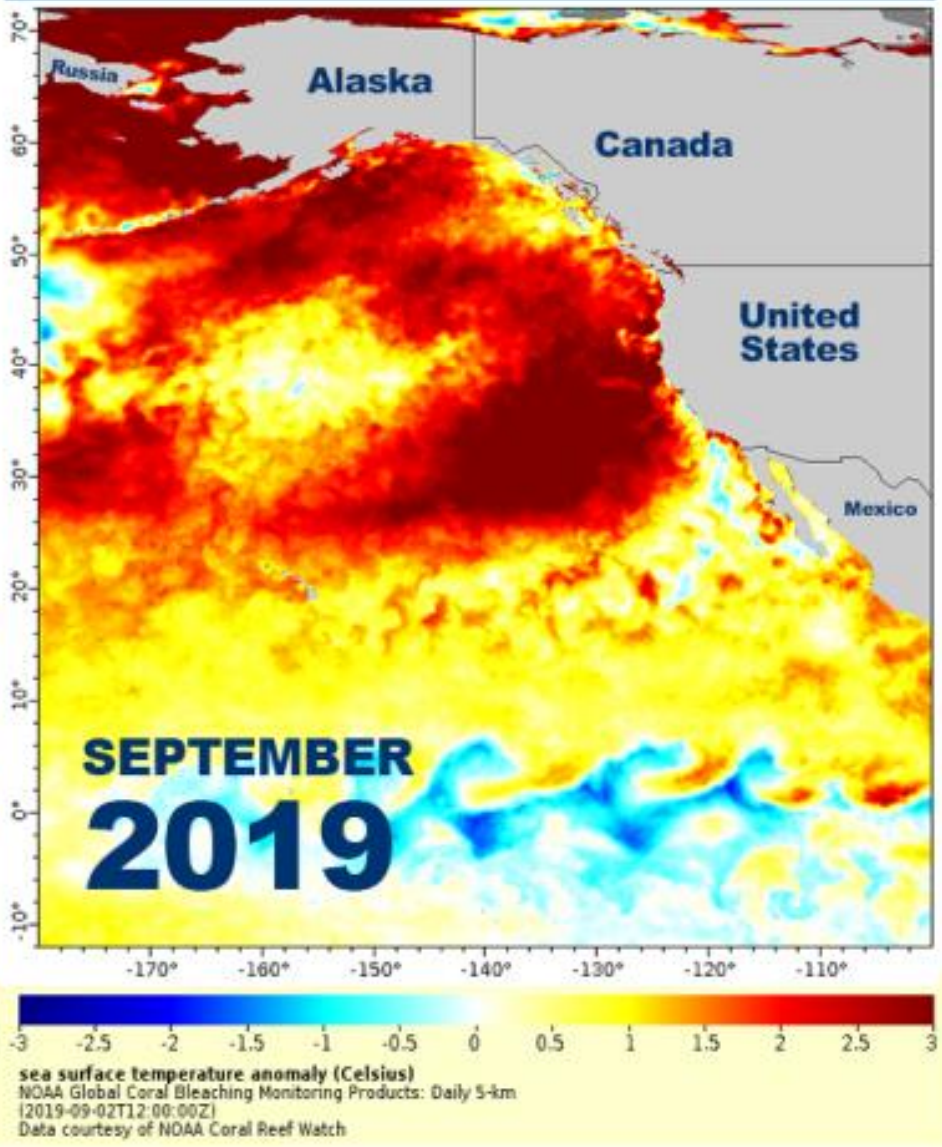
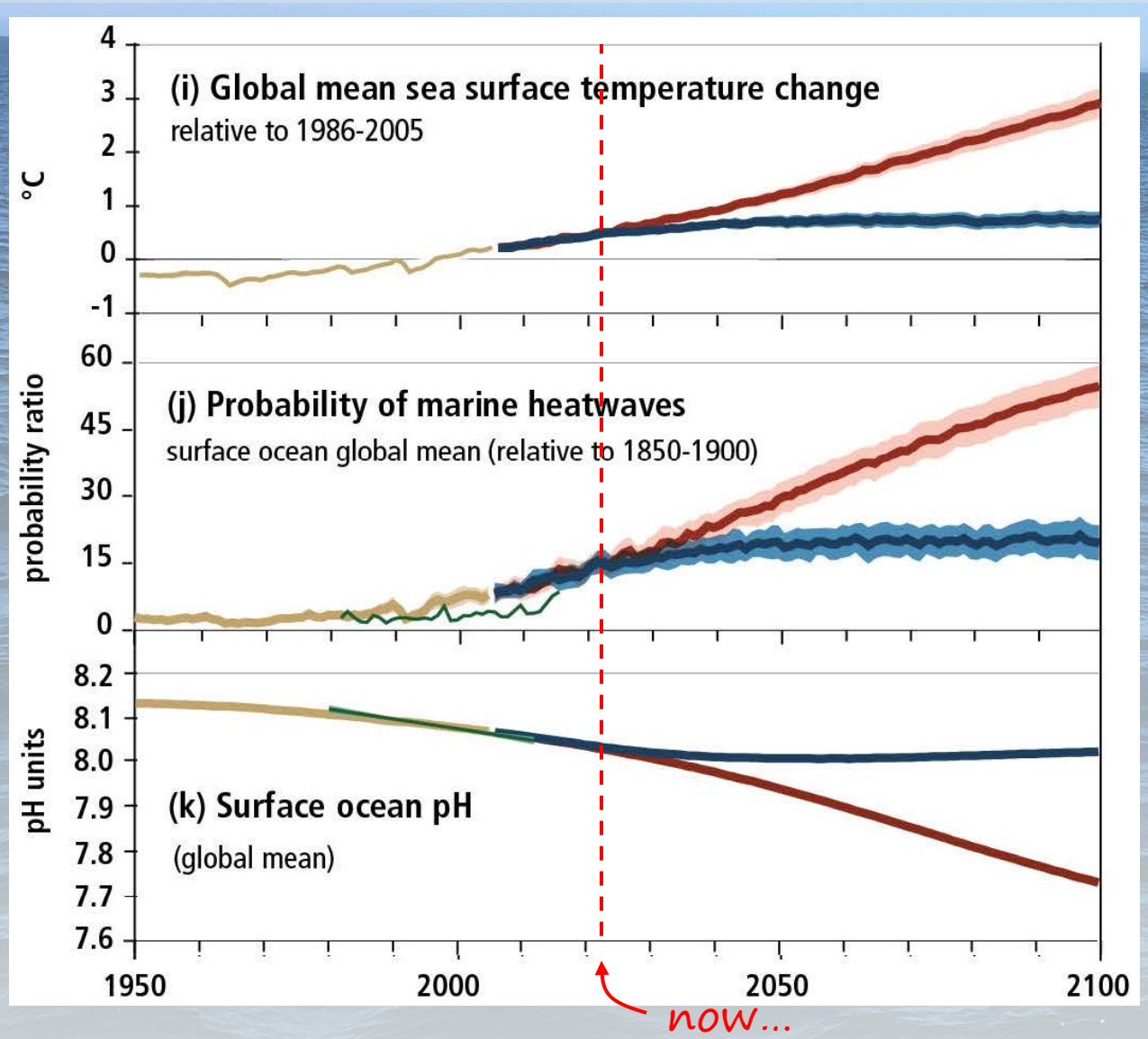
The blob

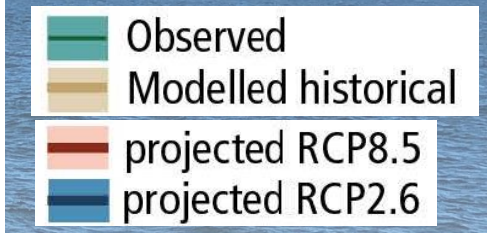


The blob 2.0

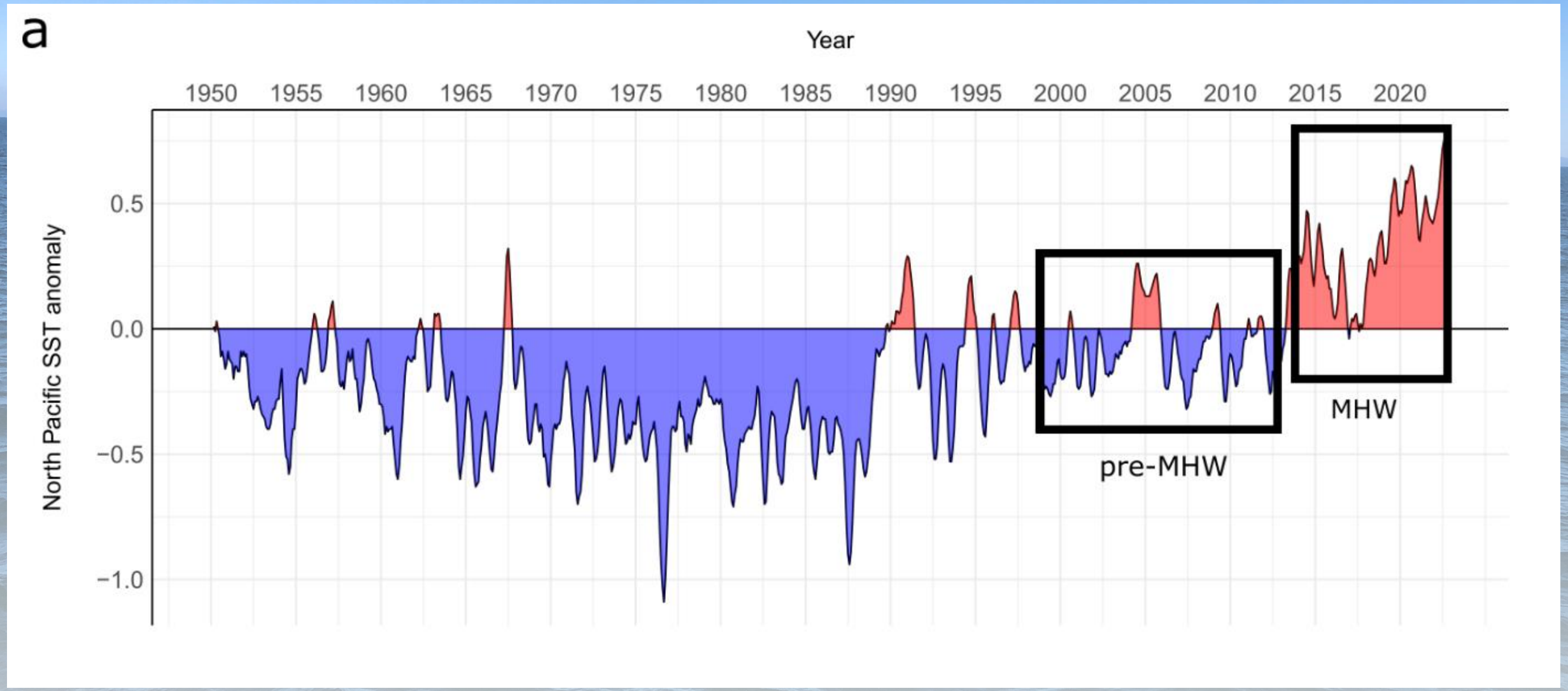


NE Pacific Marine Heatwaves are Increasing





IPCC 2019. The Ocean and Cryosphere in a Changing Climate, Fig SPM.1



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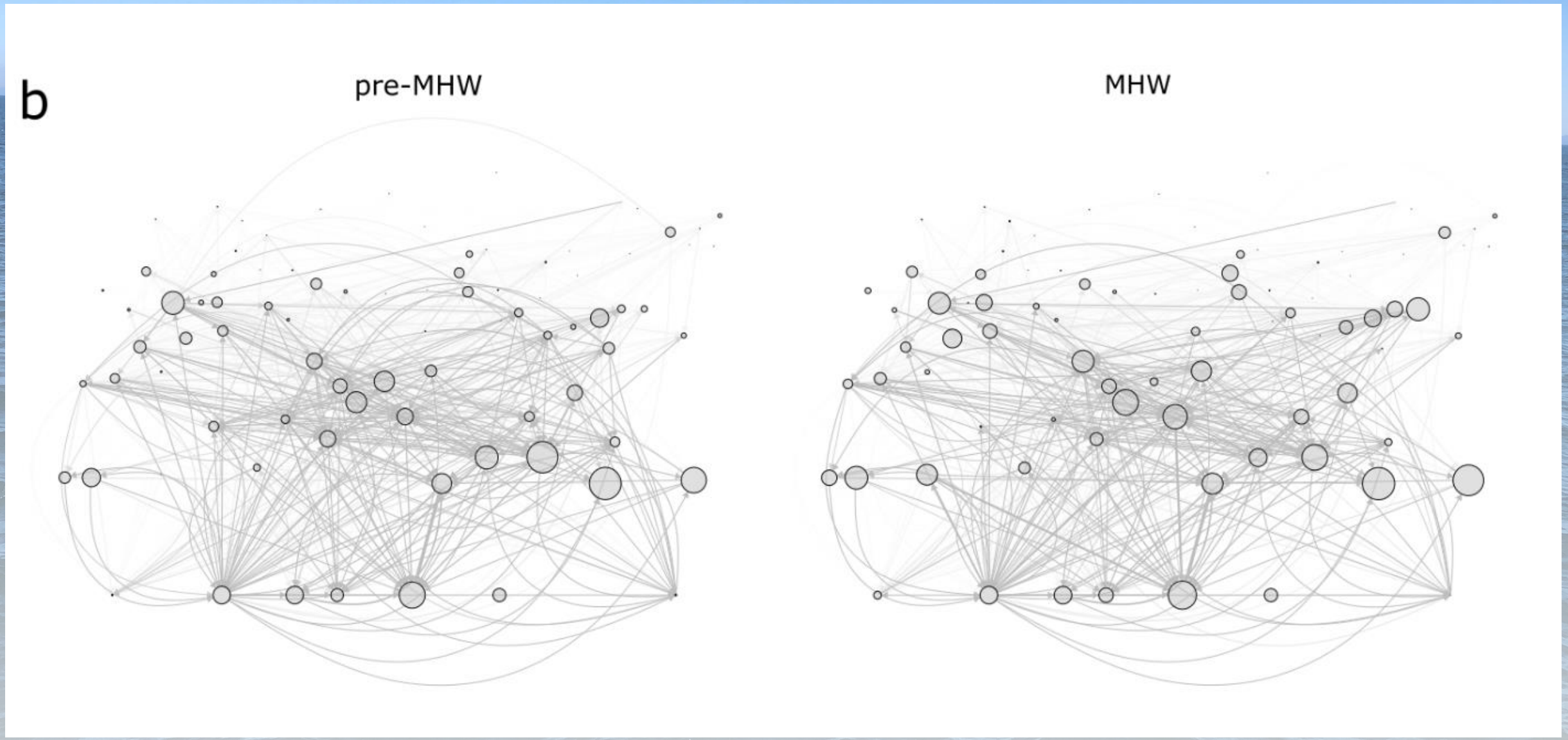

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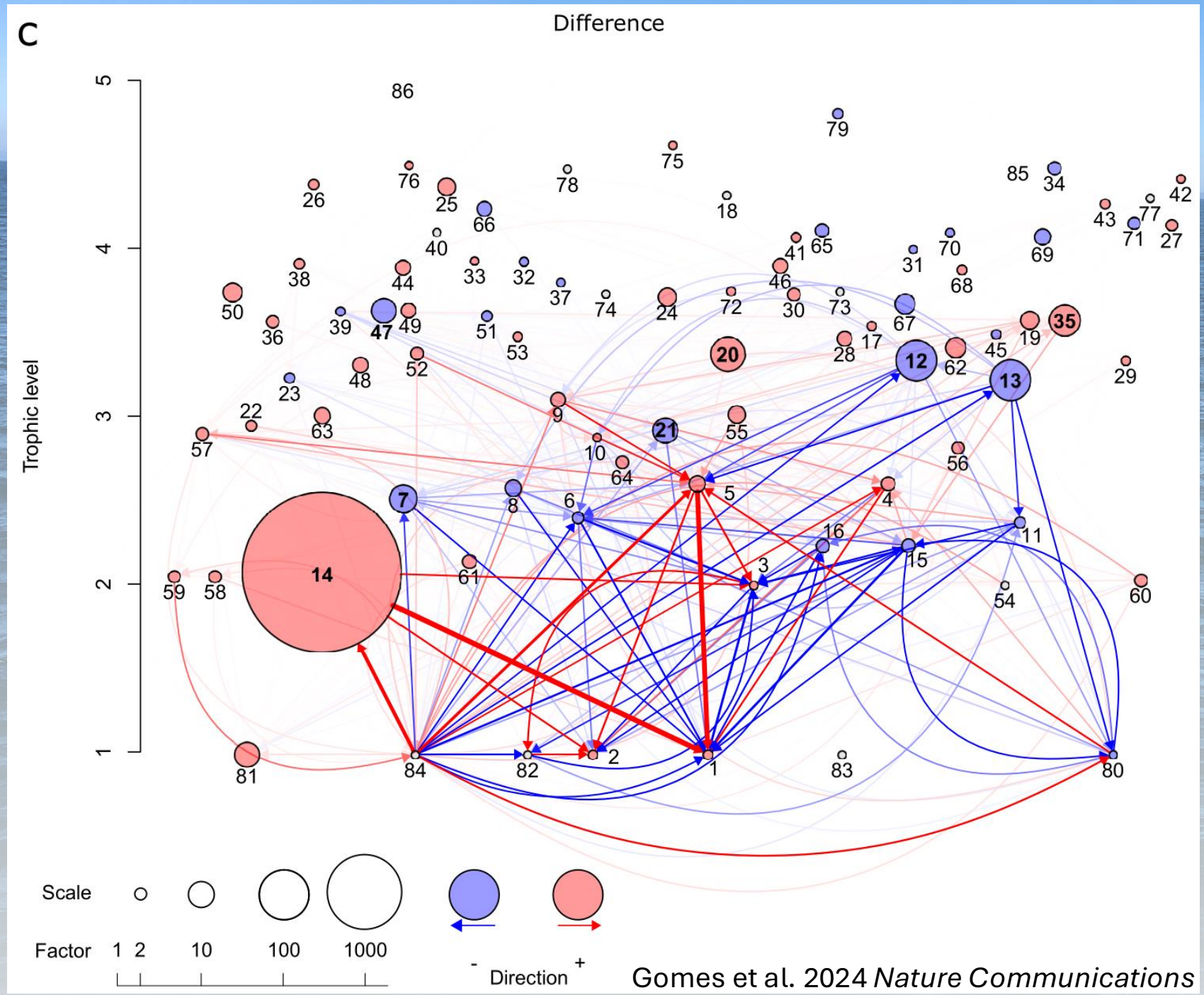
The Seattle Times

Blobby creatures washed up on West Coast beaches during marine warming, sucking up energy

March 18, 2024 at 6:00 am | *Updated March 18, 2024 at 6:00 am*

From Seattle Times, March 18, 2024. Photo: Mark Farley / Oregon State University



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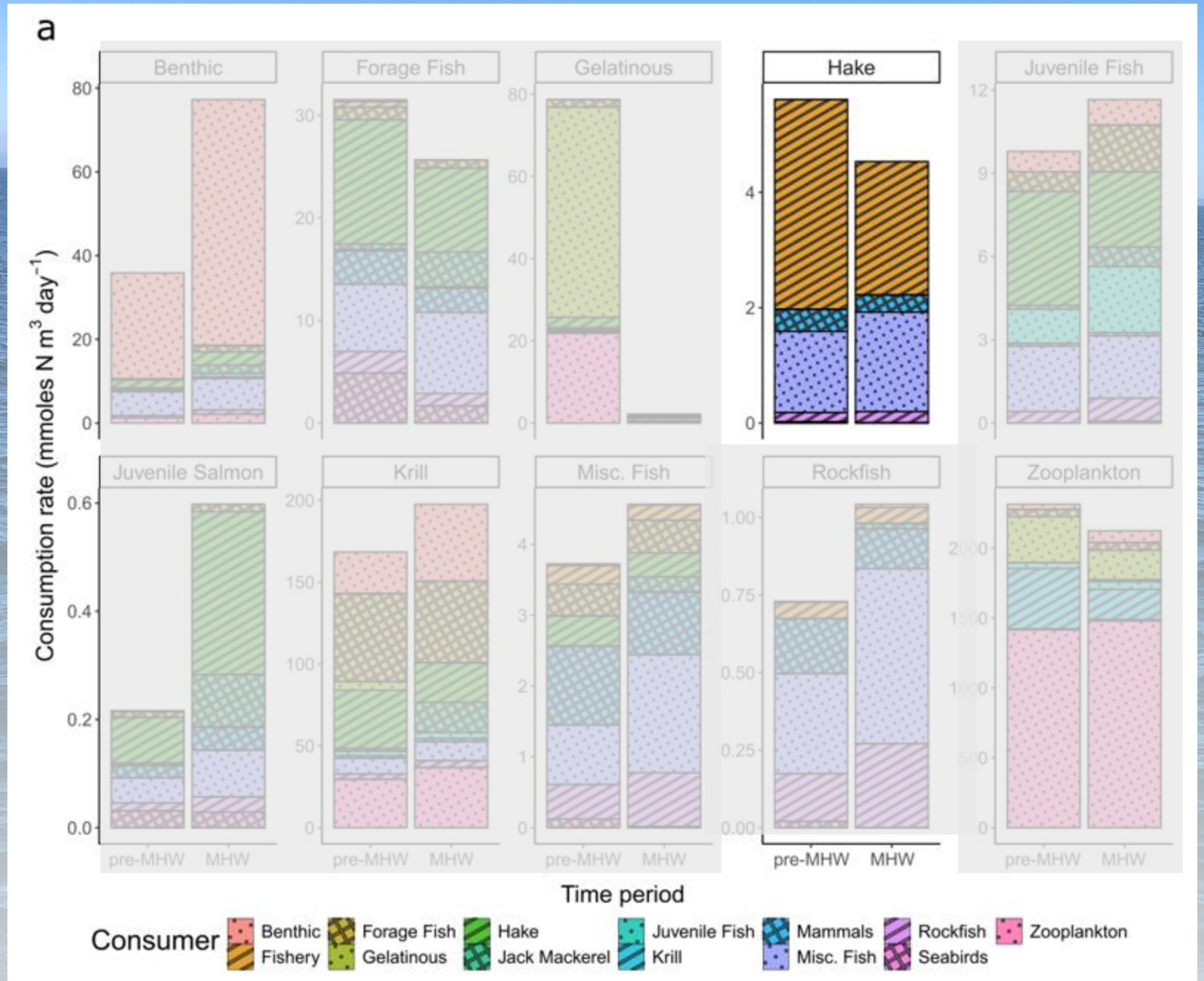
11	small jellyfish (net-feeders)
12	small jellyfish (carnivores)
13	large jellyfish
14	pyrosomes
15	krill (*E. pacifica*)
16	krill (*T. spinifera*)
17	market squid
18	cephalopod humboldt
19	smelt aggregate
20	shad
21	sardine
22	herring
23	anchovy
24	saury
25	coho yearling
26	Chinook yearling
27	Chinook subyearling
28	other juvenile salmon
29	mesopelagic fishes
30	planktivorous rockfish
31	adult coho
32	adult Chinook
33	other salmon aggregate
34	shark aggregate
35	jack mackerel



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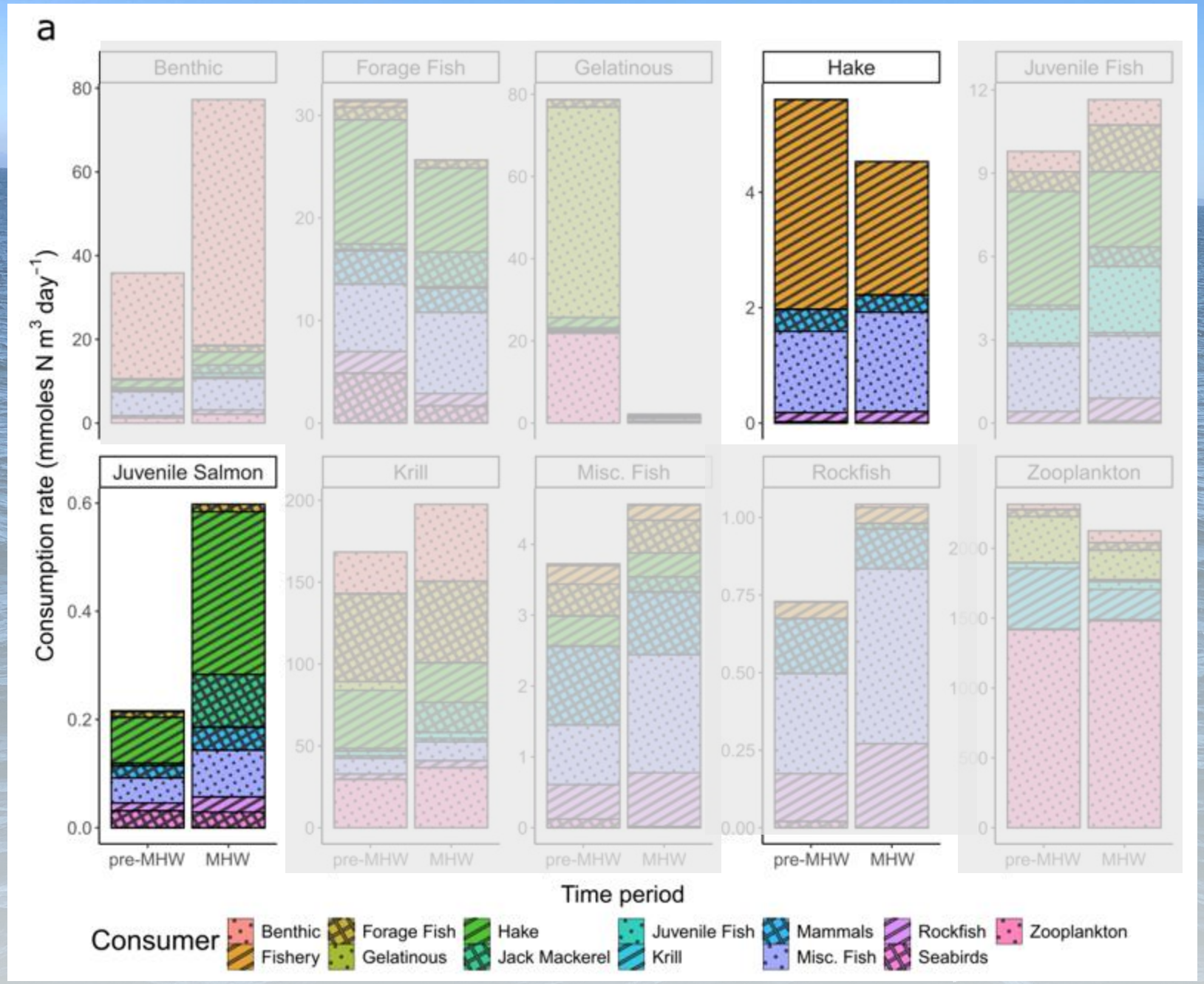

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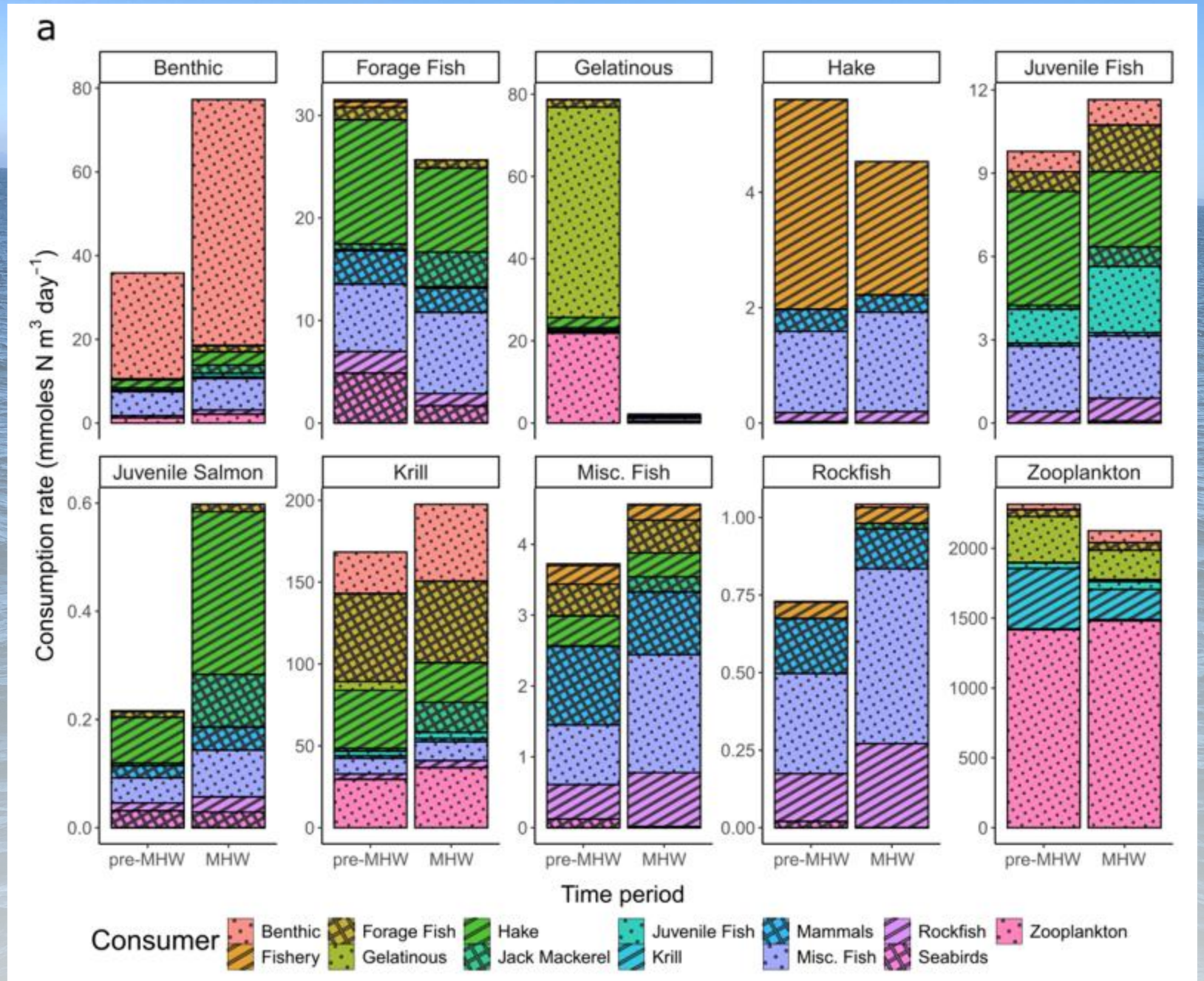

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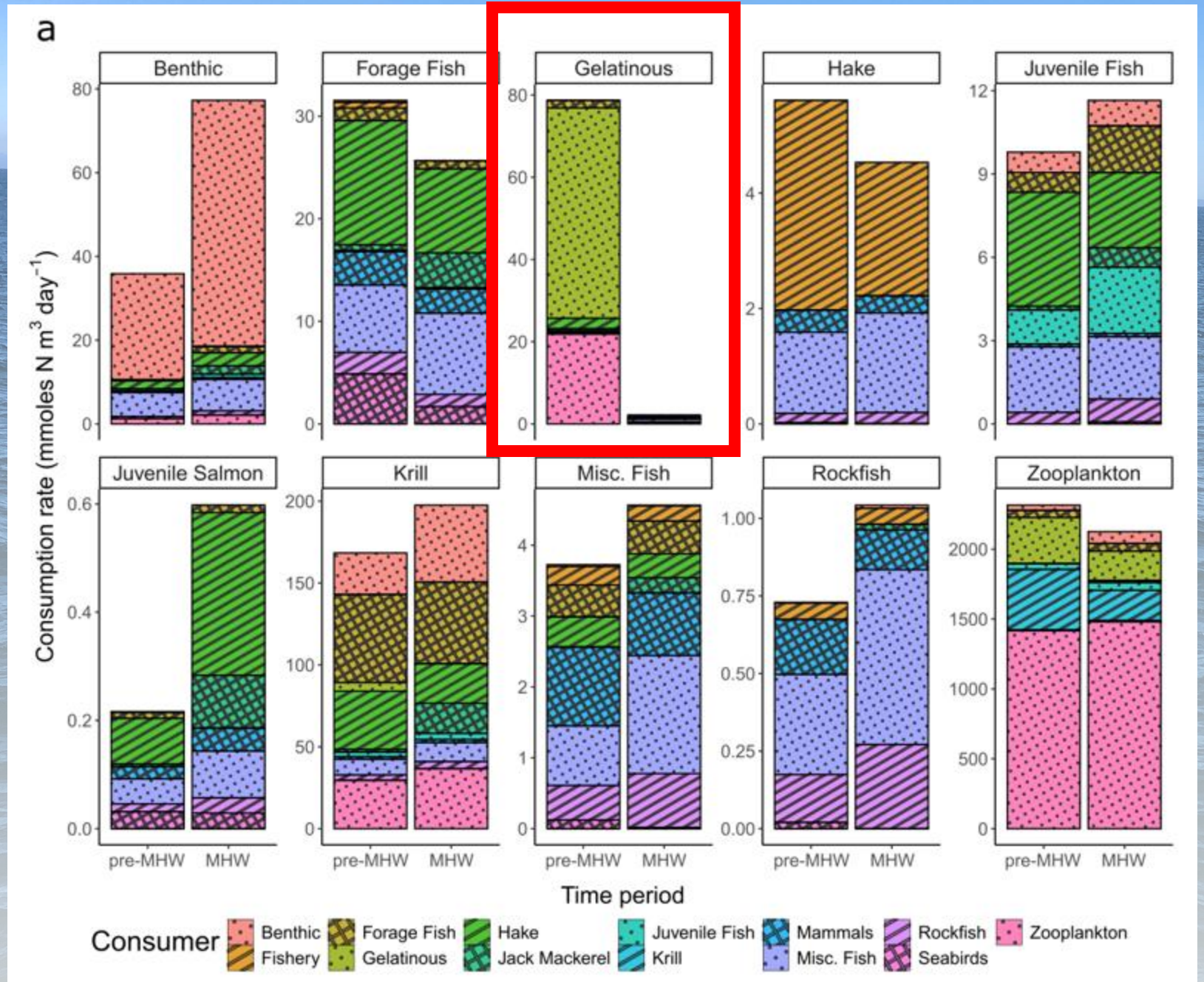

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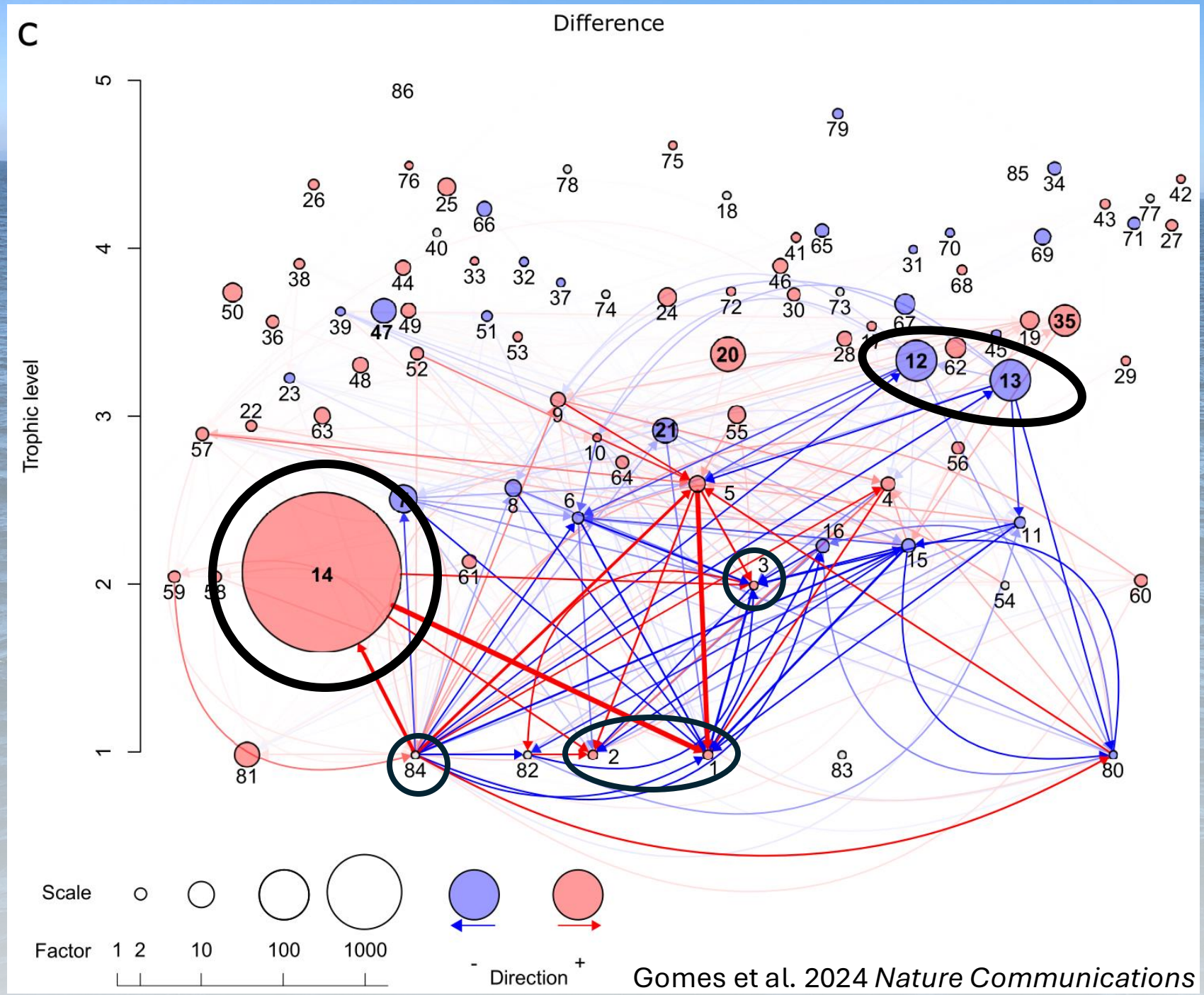

14. Pyrosomes
12. Small Jelly
13. Large Jelly

1. Large phyto
2. Small phyto
3. Micro-zoo

84. Benthic Detritus

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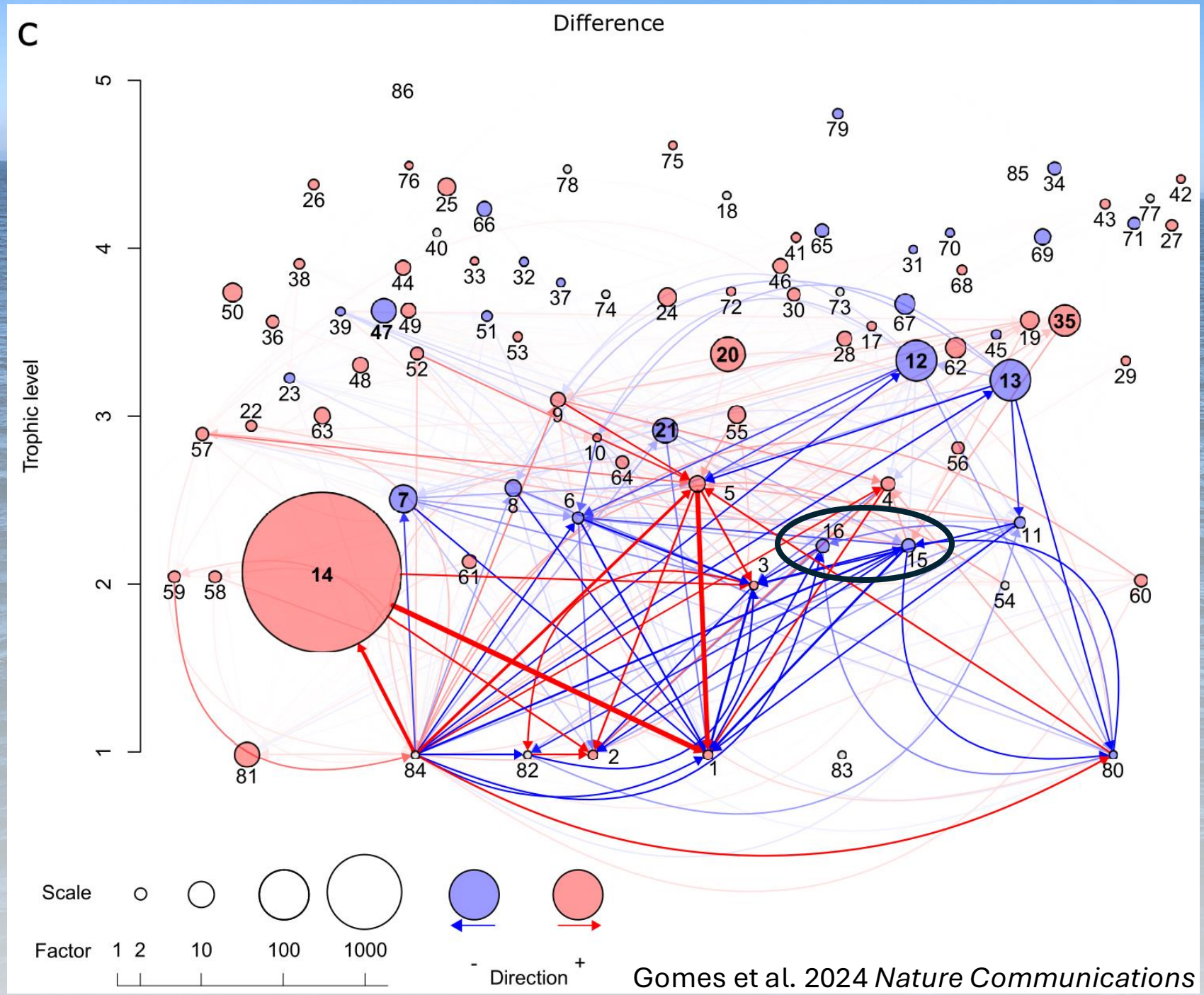

14. Pyrosomes
12. Small Jelly
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15 *E. pacifica*
16 *T. spinifera*

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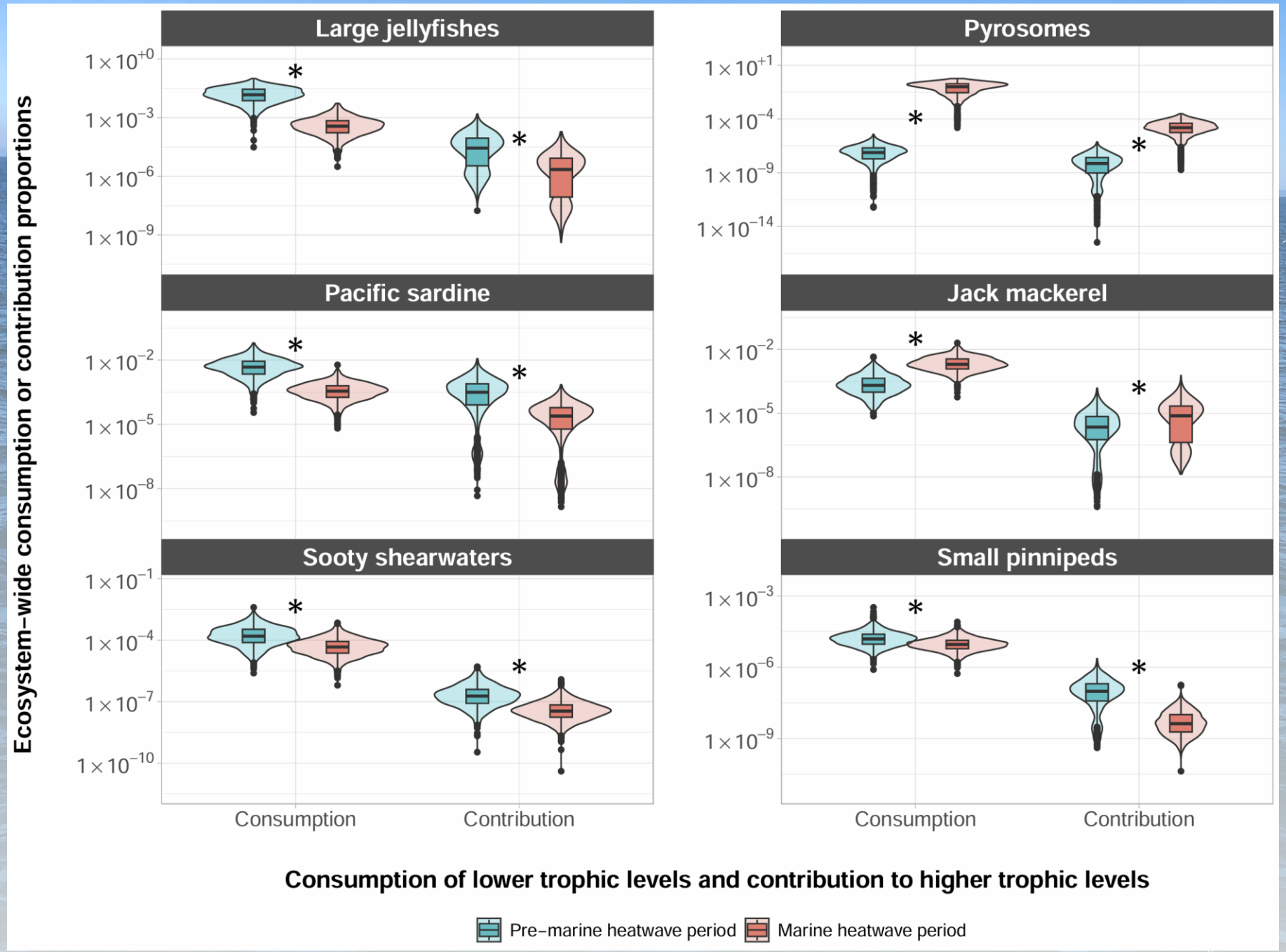

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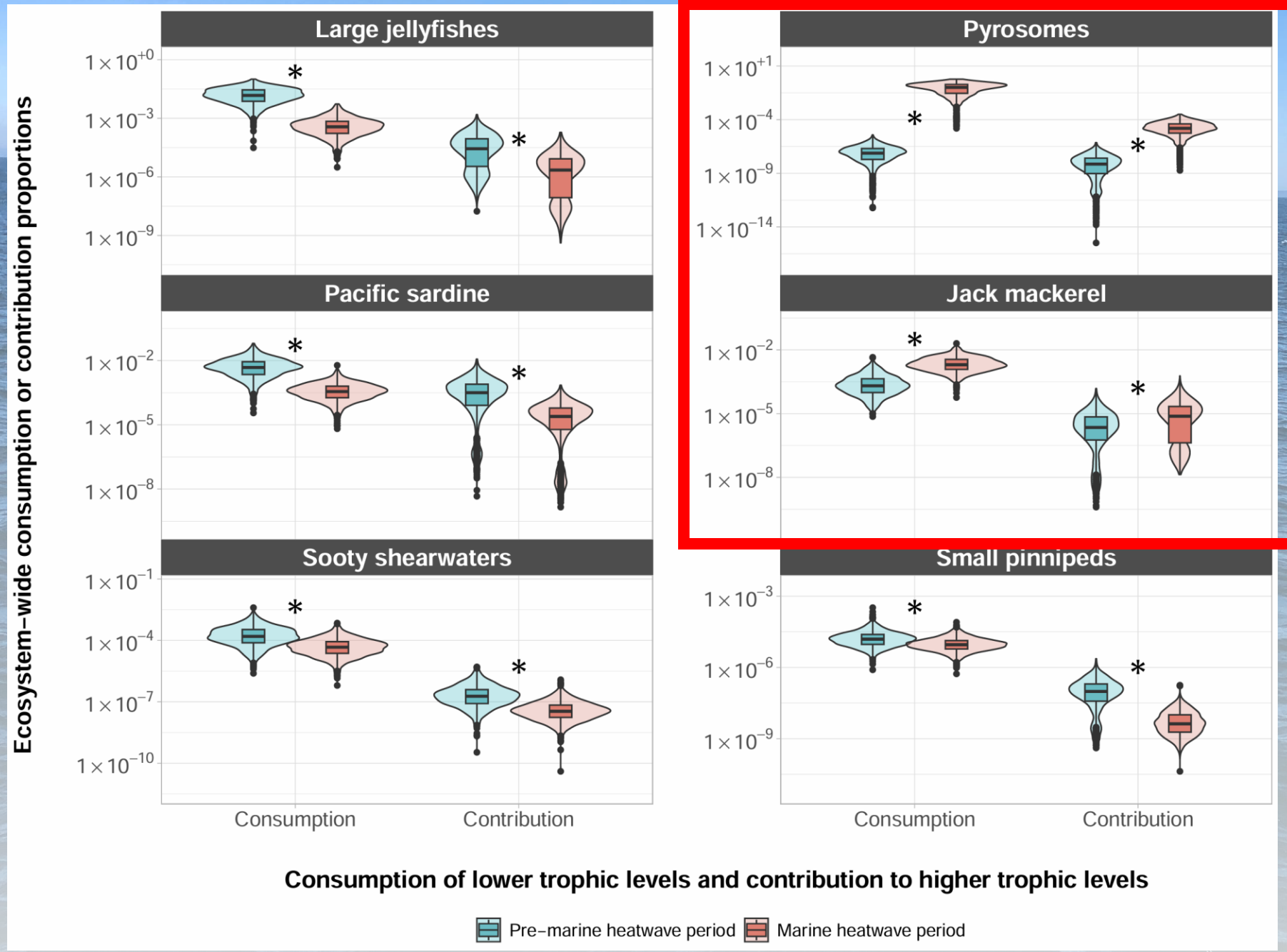

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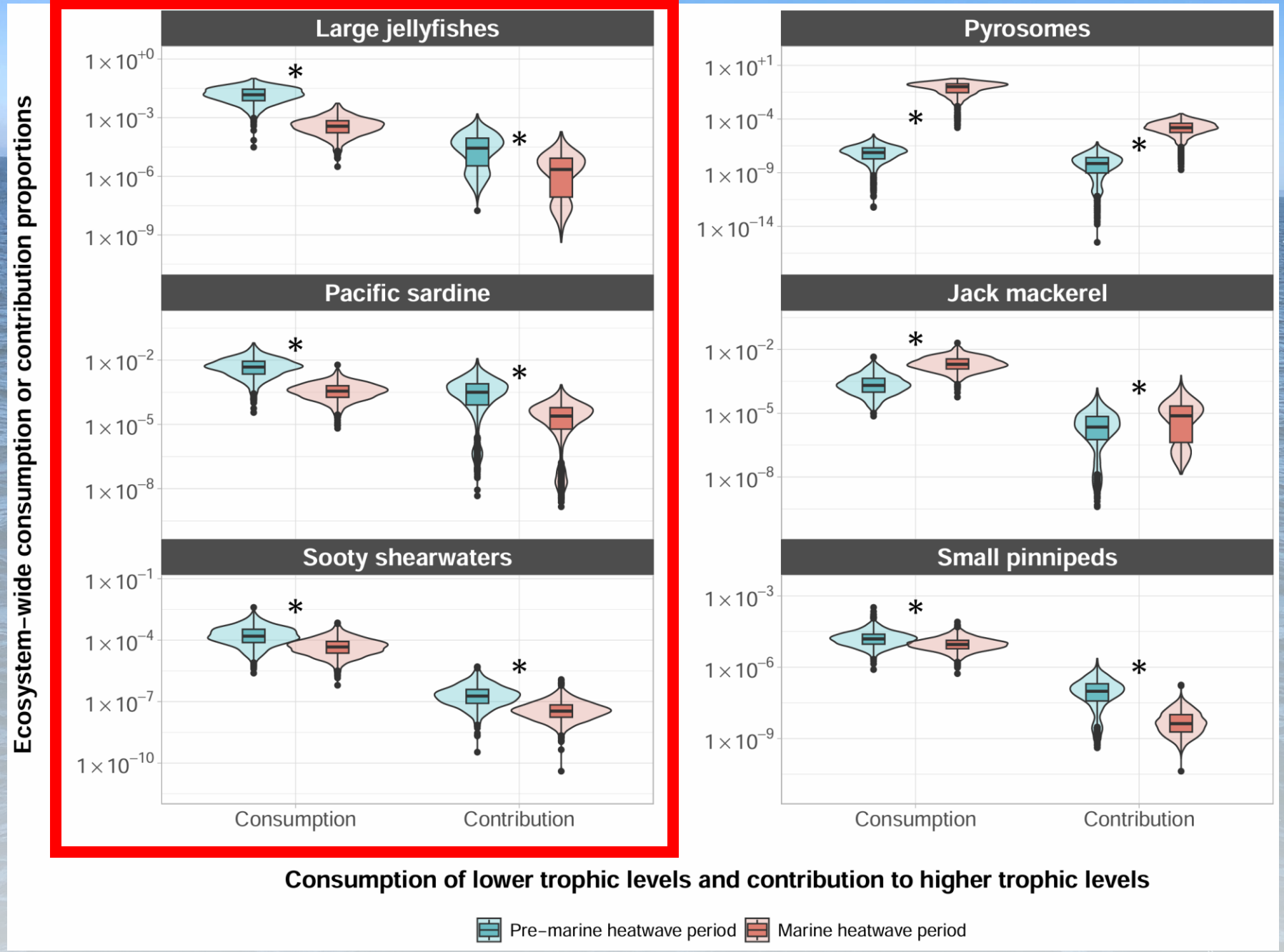

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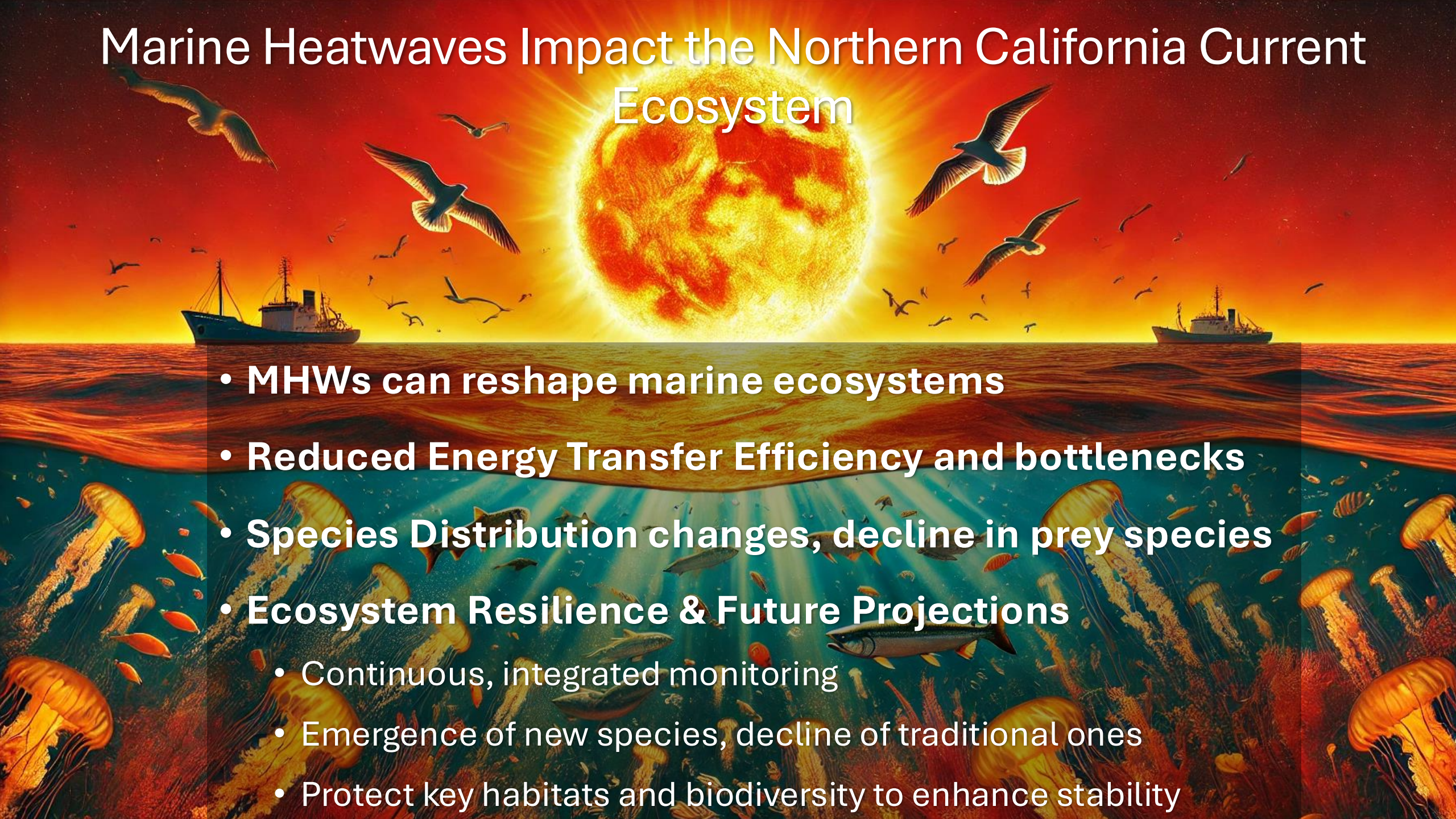
We shouldn’t assume that MHWs are responsible for all of the changes from one period to another…

Marine Heatwaves Impact the Northern California Current Ecosystem



- **MHWs can reshape marine ecosystems**
- **Reduced Energy Transfer Efficiency and bottlenecks**
- **Species Distribution changes, decline in prey species**
- **Ecosystem Resilience & Future Projections**
  - Continuous, integrated monitoring
  - Emergence of new species, decline of traditional ones
  - Protect key habitats and biodiversity to enhance stability

Acknowledgements

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