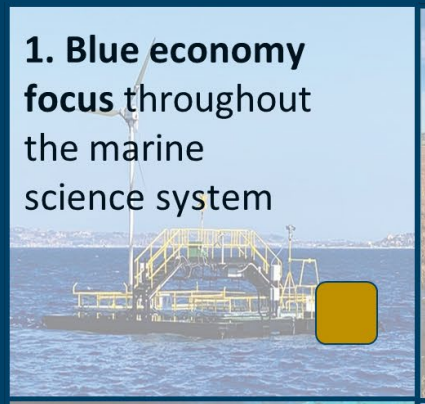
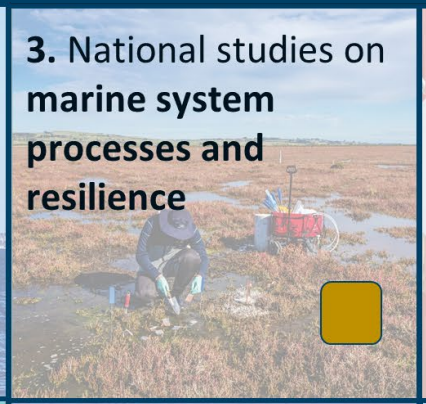
Oceans 11 (Recommendations)

1. Blue economy focus throughout the marine science system



3. National studies on **marine system processes and resilience**



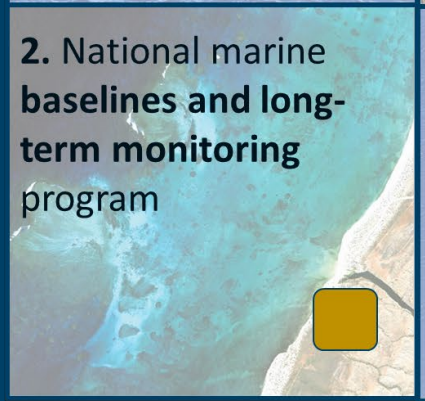
5. Coordinated science program to **support decision-making** by policymakers and industry

7. Marine research **training** focused on **industry and governments needs**

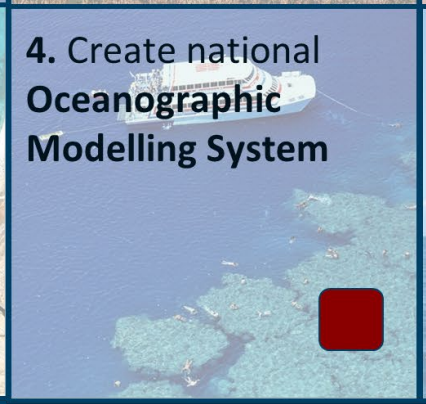
New

9. National approach to integrate the **knowledge, rights, capability and aspirations of Traditional Owners**

2. National marine **baselines and long-term monitoring** program



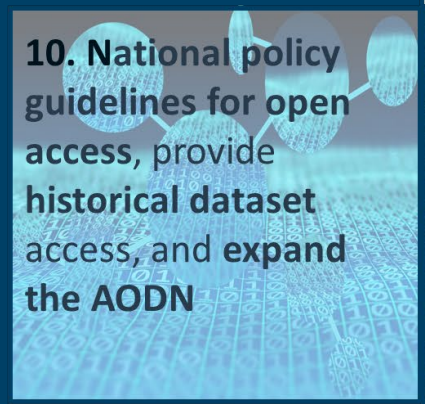
4. Create national **Oceanographic Modelling System**



6. Sustain & Expand the **Integrated Marine Observing System**

8. Fund **national research vessels** for full use

10. National policy guidelines for open access, provide **historical dataset** access, and **expand the AODN**



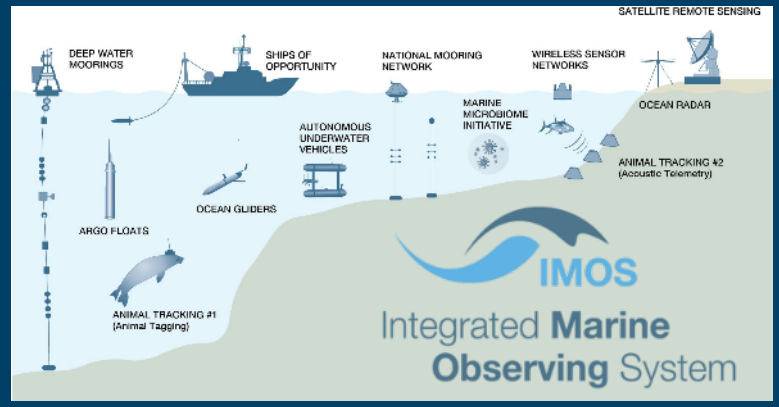
11. Coastal **resilience-building approach** firmly based in the proactive **use of our natural environment**

NATIONAL MARINE SCIENCE COMMITTEE

National Marine Science **Plan** 2015-2025:
The Midway Point

Early stage **Underway** **Mature**

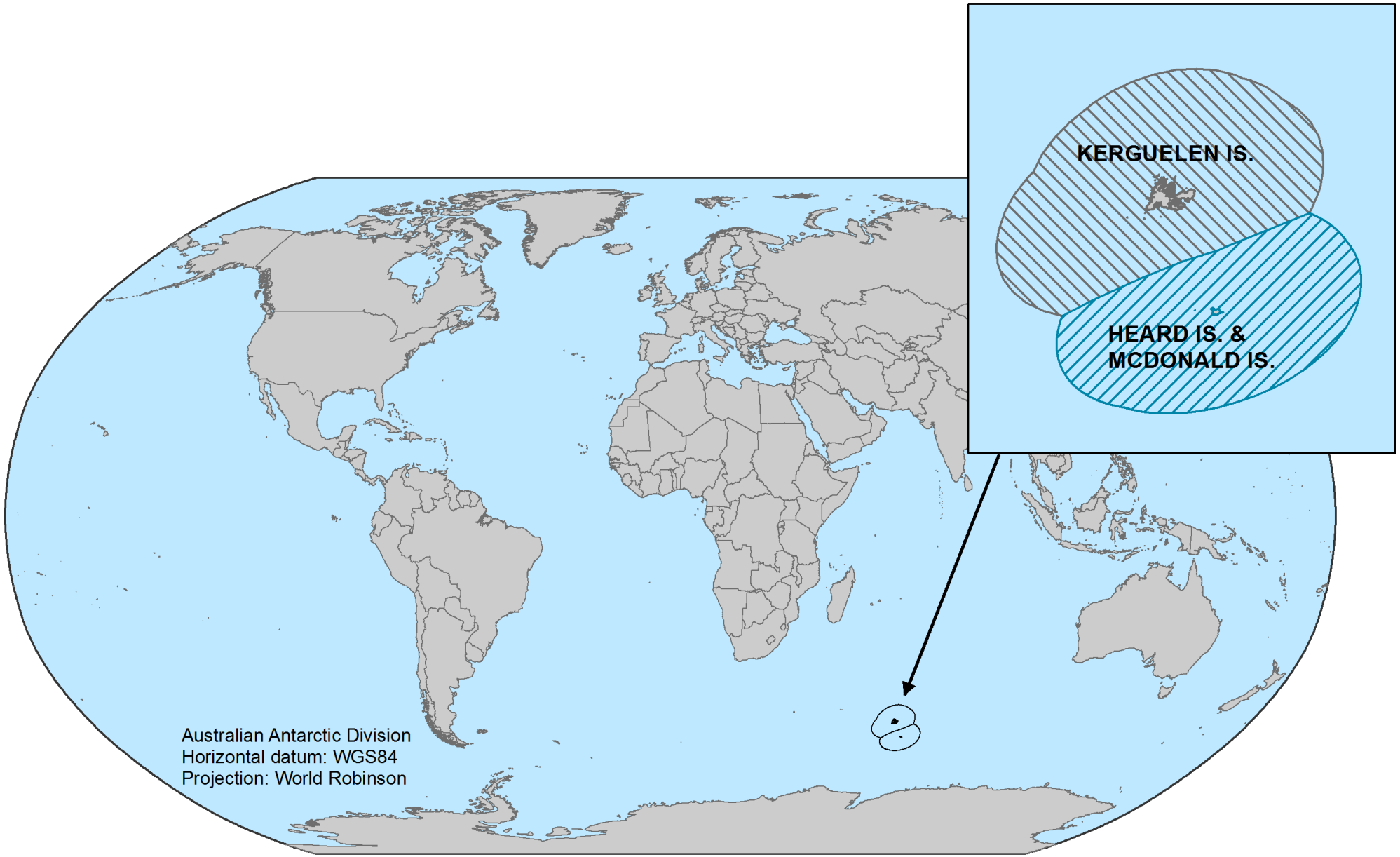
6. Sustain & Expand the **Integrated Marine Observing System**

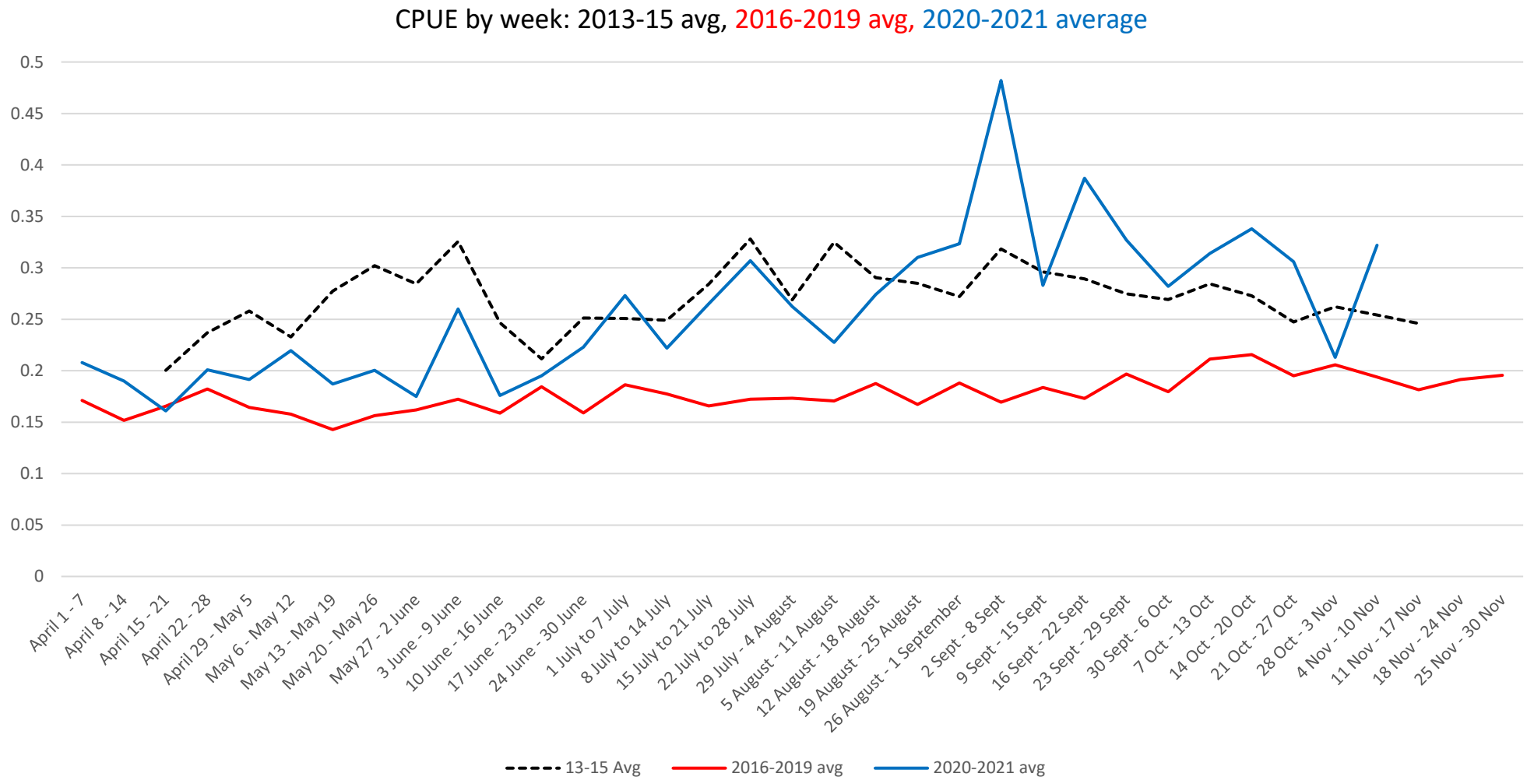


Key next steps

Expand IMOS into coastal and estuarine systems and ensure ongoing support beyond 2023

And….continue to expand ecological monitoring and exploration of new sensor technologies that lower the cost per observation.


KERGUELEN IS.
HEARD IS. &
MCDONALD IS.
Australian Antarctic Division
Horizontal datum: WGS84
Projection: World Robinson


CPUE by week: 2013-15 avg, 2016-2019 avg, 2020-2021 average
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
April 1 - 7
April 8 - 14
April 15 - 21
April 22 - 28
April 29 - May 5
May 6 - May 12
May 13 - May 19
May 20 - May 26
May 27 - 2 June
3 June - 9 June
10 June - 16 June
17 June - 23 June
24 June - 30 June
1 July to 7 July
8 July to 14 July
15 July to 21 July
22 July to 28 July
29 July - 4 August
5 August - 11 August
12 August - 18 August
19 August - 25 August
26 August - 1 September
2 Sept - 8 Sept
9 Sept - 15 Sept
16 Sept - 22 Sept
23 Sept - 29 Sept
30 Sept - 6 Oct
7 Oct - 13 Oct
14 Oct - 20 Oct
21 Oct - 27 Oct
28 Oct - 3 Nov
4 Nov - 10 Nov
11 Nov - 17 Nov
18 Nov - 24 Nov
25 Nov - 30 Nov
13-15 Avg
2016-2019 avg
2020-2021 avg

Southern Ocean IPA Projects

Science to support Australia's Southern Ocean fisheries: 2018-20; 2021-23	Heard Island Patagonian Toothfish Stock Assessment external review: 2019	Chemical profiling of Patagonian toothfish from the Heard Island fishery: 2019	Environmental and ecosystem drivers of catch efficiency within Australia's subantarctic Patagonian Toothfish fisheries: 2019-23	Investigating sources of variability in the Heard Island and McDonald Islands Toothfish fishery: 2020-24

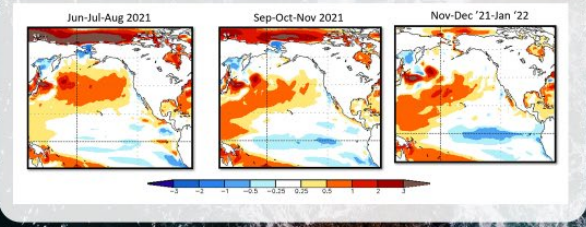
BASIN-SCALE EVENTS TO COASTAL IMPACTS: AN OCEAN INTELLIGENCE SYSTEM FOR A CHANGING WORLD

A UN Decade of Ocean Science Program Proposal by the North Pacific Marine Science Organization (PICES), the North Pacific Anadromous Fish Commission (NPAFC), and partners

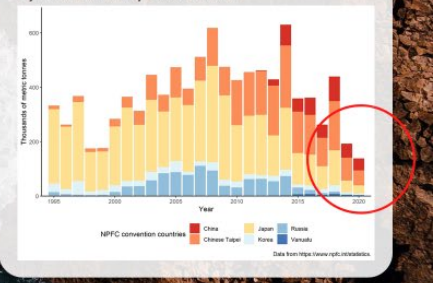
CHALLENGE

Changing climate and anomalous events, such as marine heat waves, are progressively exposing ecosystems of the North Pacific Ocean (NPO) to conditions outside past norms. For socially and economically important and iconic species like salmon and Pacific saury, critical research at the scale of whole basins and an understanding of the complete ecosystem/food web is urgent. Marine heatwaves in recent years (2014–2020) have imposed temperature extremes greater than El Niño phenomena which have represented past extremes. During 2019 and 2020, the Pacific saury fishery of the western NPO declined to record lows. In 2020 alone, the total catch of Pacific salmon across the NPO crashed by 40%. While billions of dollars have been invested in conservation and restoration efforts, there continues to be insufficient investment to fully understand the impacts of climate change on the ocean, which is a crucial habitat for many fishery resources that Indigenous Peoples and coastal communities depend on. Further, we lack the institutional capacity required to study large marine ecosystems and provide timely information and advice to decision-makers. To avoid blindly reacting to change in an increasingly volatile environment, we must invest in developing an integrated and intelligence-based approach to rapidly understand and adapt our management regimes to changes occurring in climate, oceans, and fishery resources across basins.

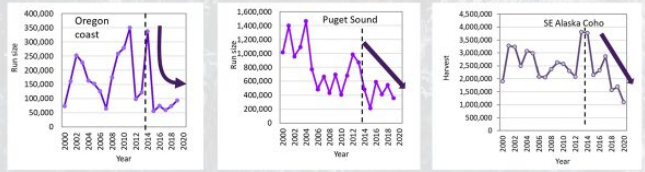
A) Predicted Sea Surface Temperature Anomalies



B) Pacific Saury Total Catch



C) Harvest and Run Size of Coho Salmon in the Northeast Pacific



(A) Predicted sea surface temperature anomalies for the North Pacific Ocean from the NOAA CFSv2 model [https://www.cpc.ncep.noaa.gov/products/people/wwang/cfsv2fcst/]. (B) The total Pacific saury catch reported by the North Pacific Fisheries Commission member countries. (C) Coho salmon run size in Oregon and Puget Sound and harvest of coho in Southeast Alaska.