

INTERNATIONAL PACIFIC



HALIBUT COMMISSION

# Space-time modelling of survey data

Agenda item: 5.1  
IPHC-2025-IM101-09 Rev\_1  
(R. A. Webster)



# Space-time model estimates of WPUE and NPUE

- Space-time modelling was used to estimate O32 and all sizes WPUE, and all sizes NPUE indices from 1993 onwards
  - For IPHC Regulatory Areas 4A and 4CDE, modelling uses data from the FISS and agency trawl surveys (NOAA, ADFG)
    - A calibration is used to convert trawl data to FISS equivalent
    - In 2025, the NOAA survey was undertaken while the ADFG survey of Norton Sound was not.
  - Other areas use FISS data only
  - Raw station data are adjusted for hook competition and timing of FISS relative to the fishery



# Space-time model estimates of WPUE and NPUE

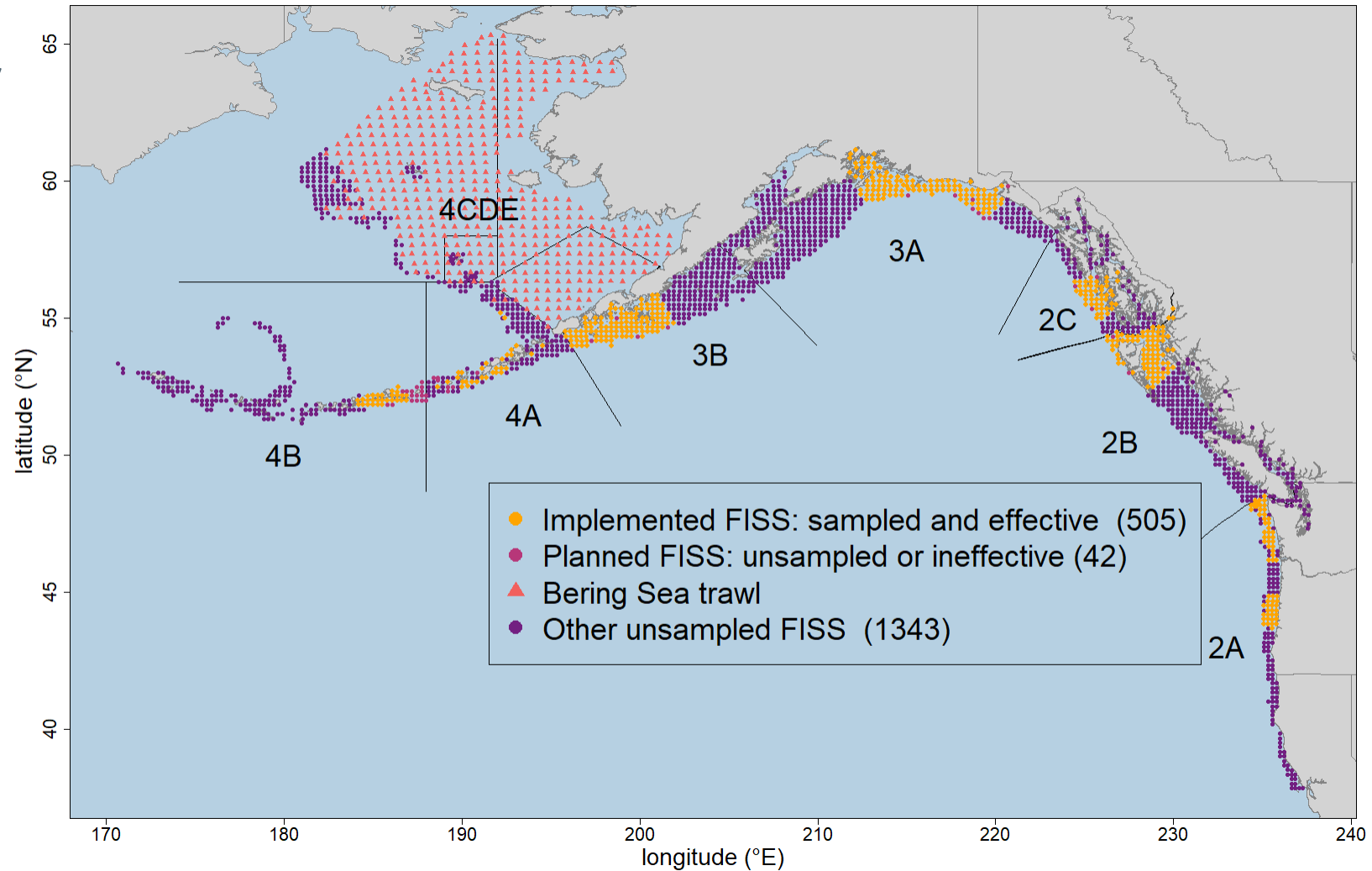
- The models predict WPUE and NPUE at all grid stations, whether they were surveyed in a given year or not
  - Estimates are calculated as averages across station predictions
  - Lack of sampling or reduced sampling is reflected in greater uncertainty (higher variances, CVs)
- Official estimates are computed for:
  - Biological Regions
  - IPHC Regulatory Areas
  - Coastwide IPHC Convention waters, from San Francisco Bay to Bering Strait
- Station-level output is supplied to the online IPHC Space-time Explorer tool available on the IPHC website



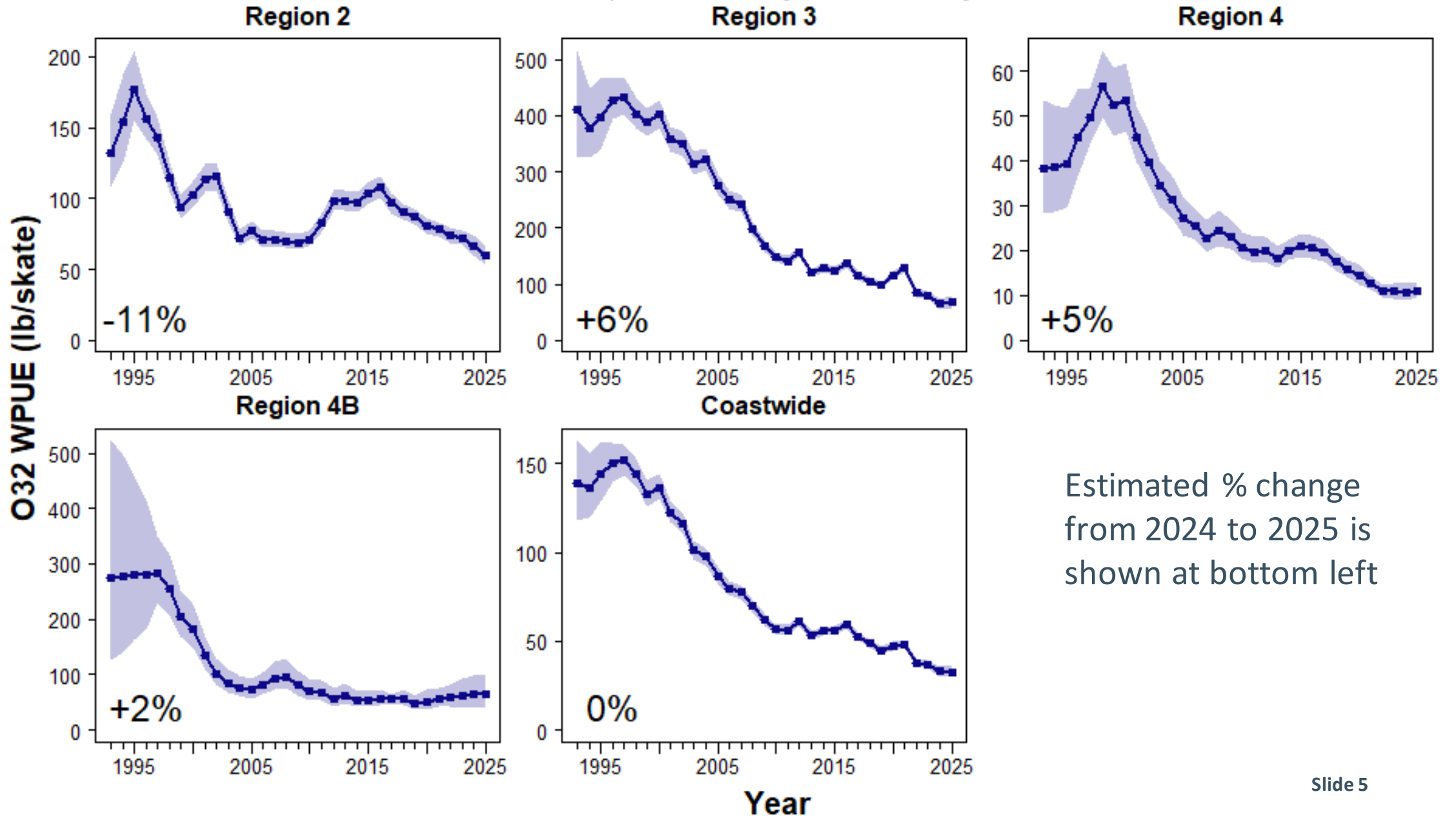
# 2025 data updates

Modelling included new survey data from two sources:

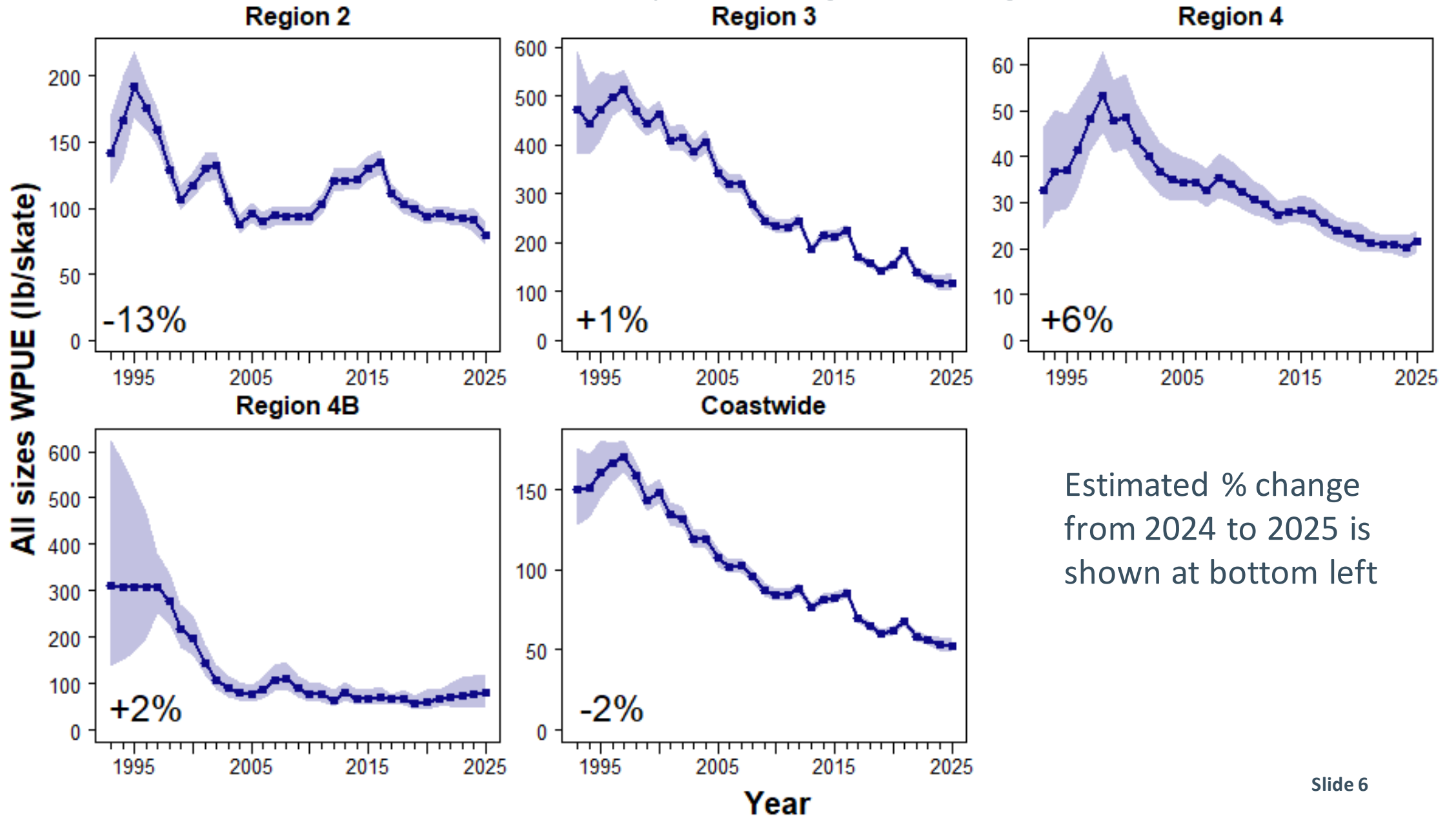
- FISS sampling in all IPHC Regulatory Areas except 4CDE
- NOAA trawl survey in the eastern Bering Sea, including the northern Bering Sea stations



# O32 WPUE by biological region

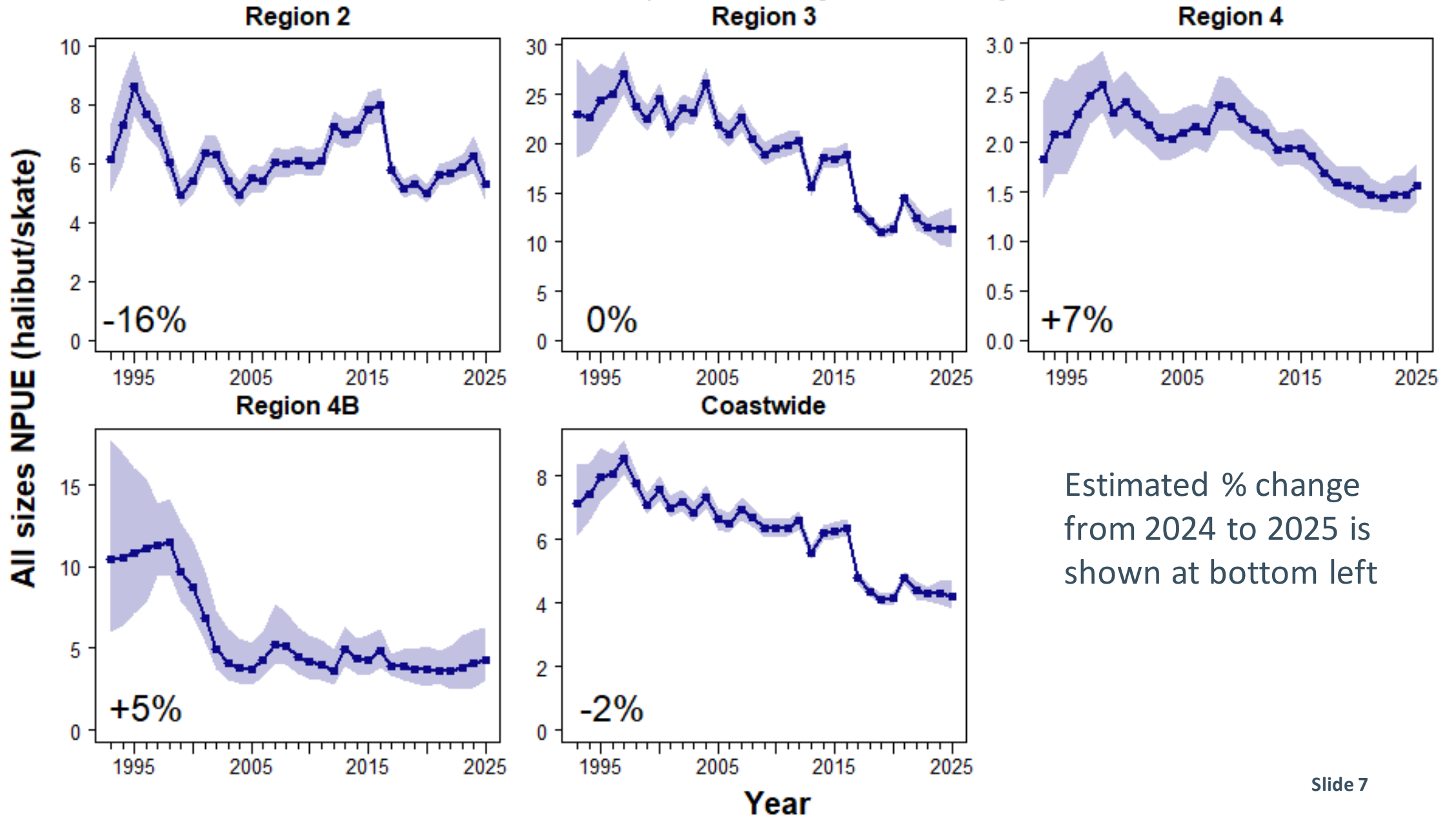


# All sizes WPUE by biological region



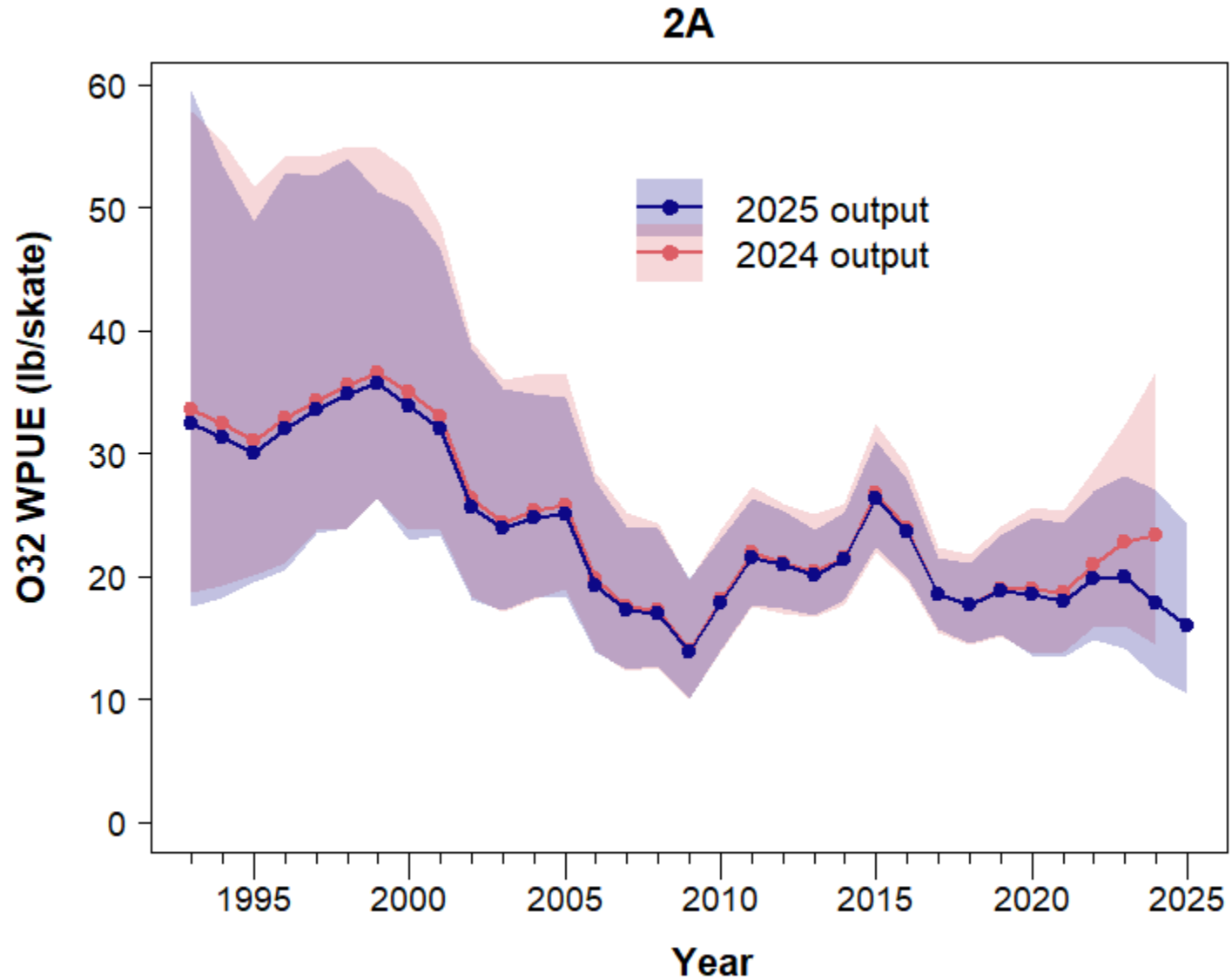
Estimated % change from 2024 to 2025 is shown at bottom left

# All sizes NPUE by biological region

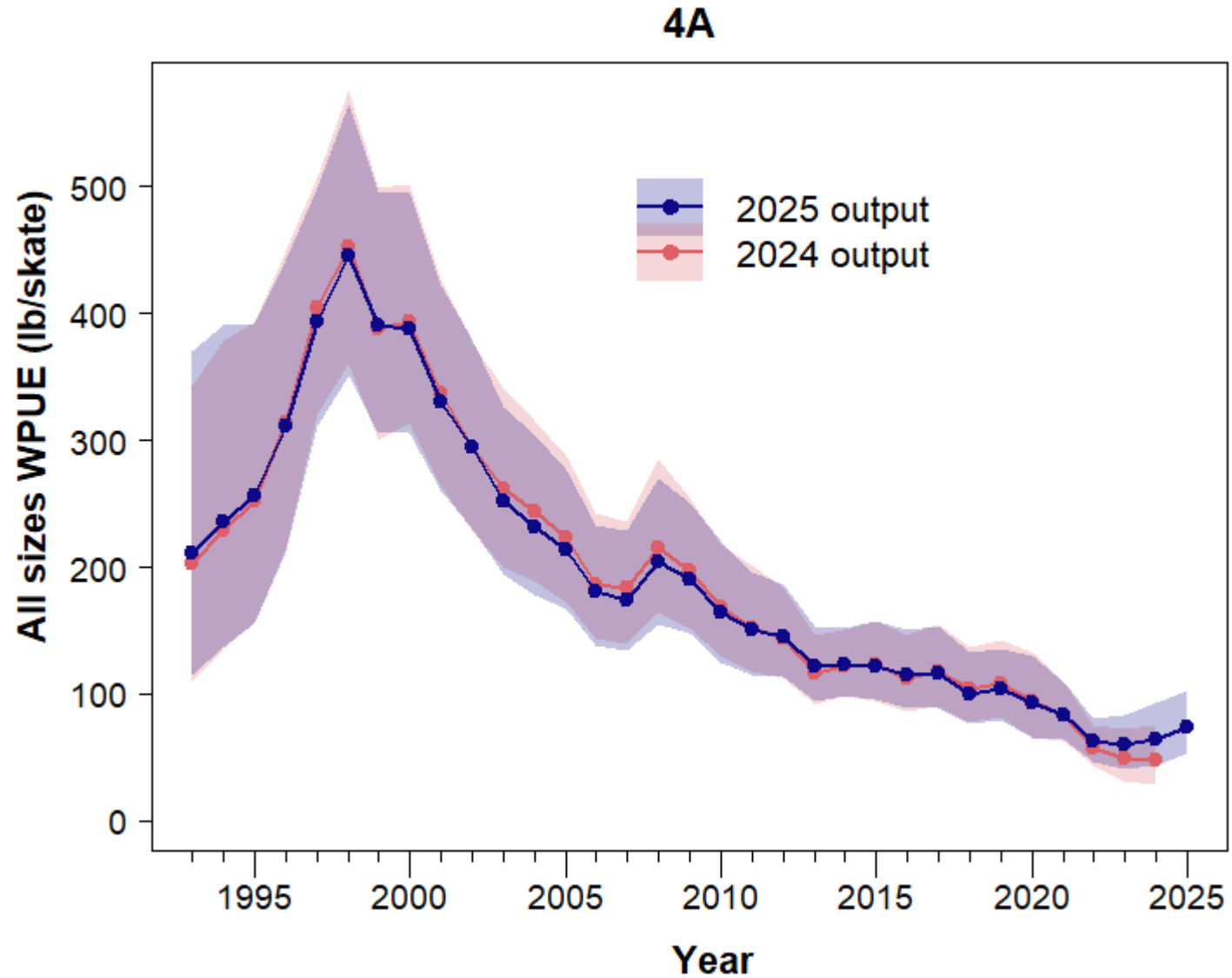


Estimated % change from 2024 to 2025 is shown at bottom left

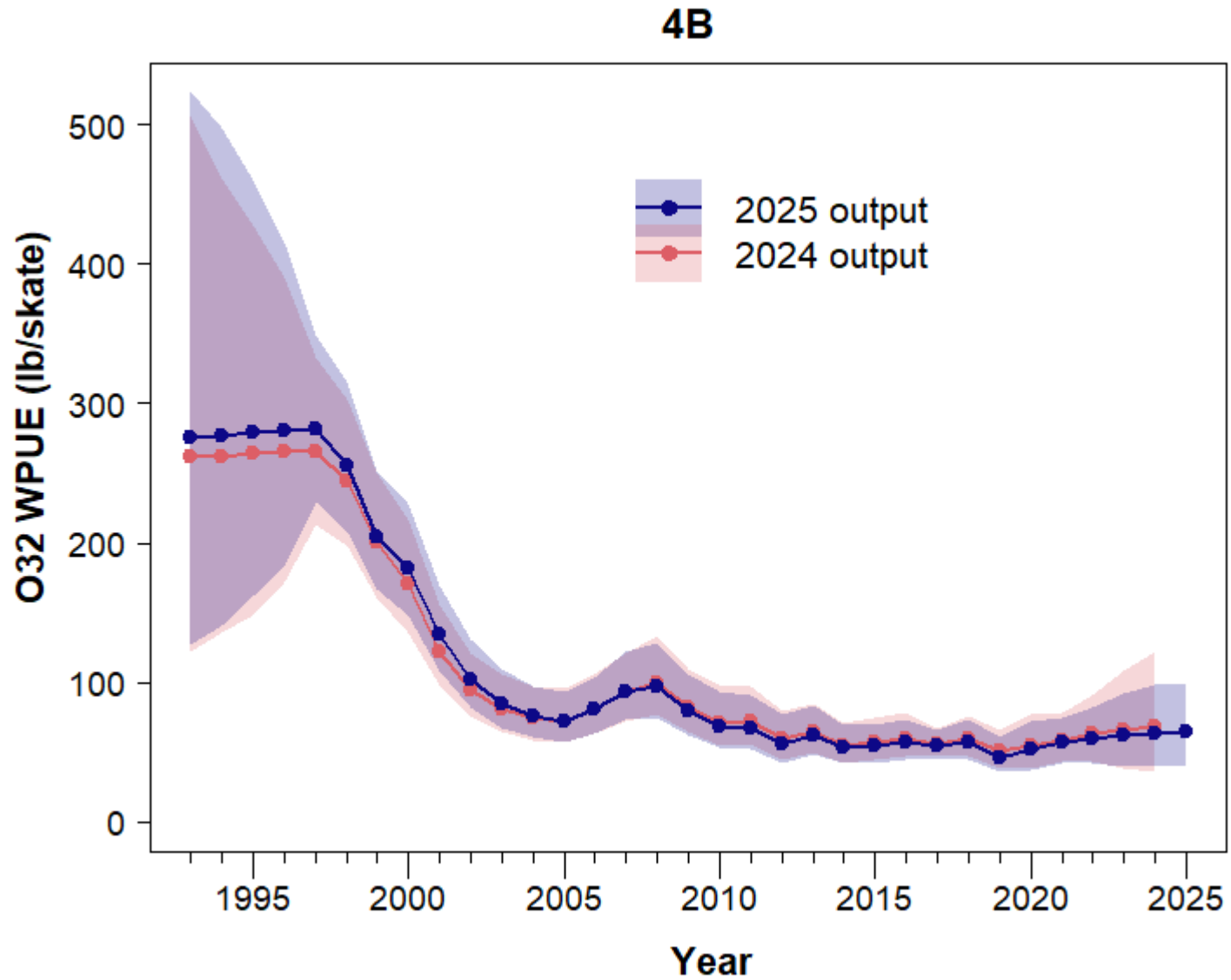
# Comparison with 2024 results: 2A



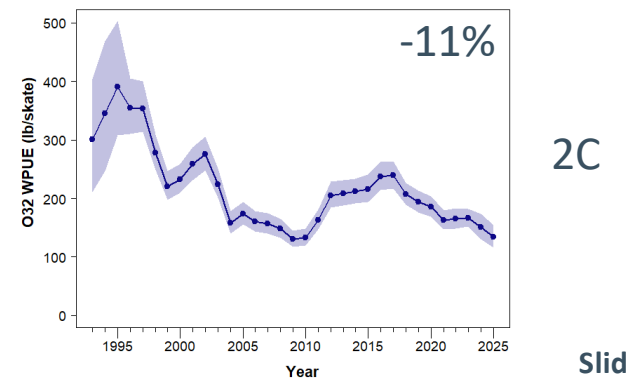
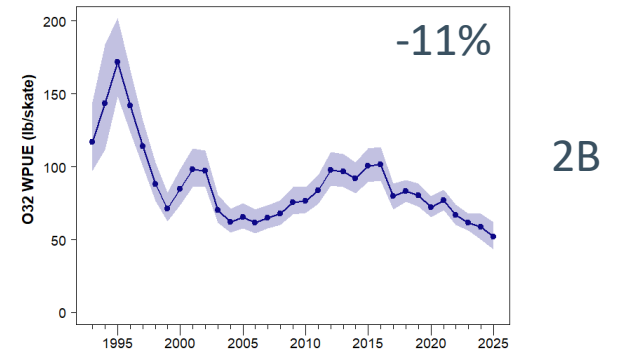
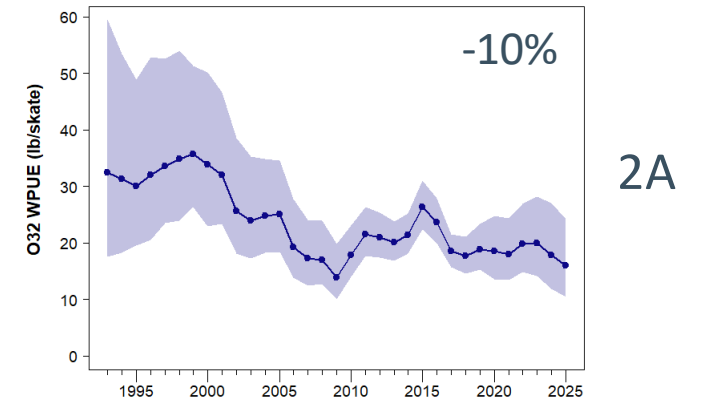
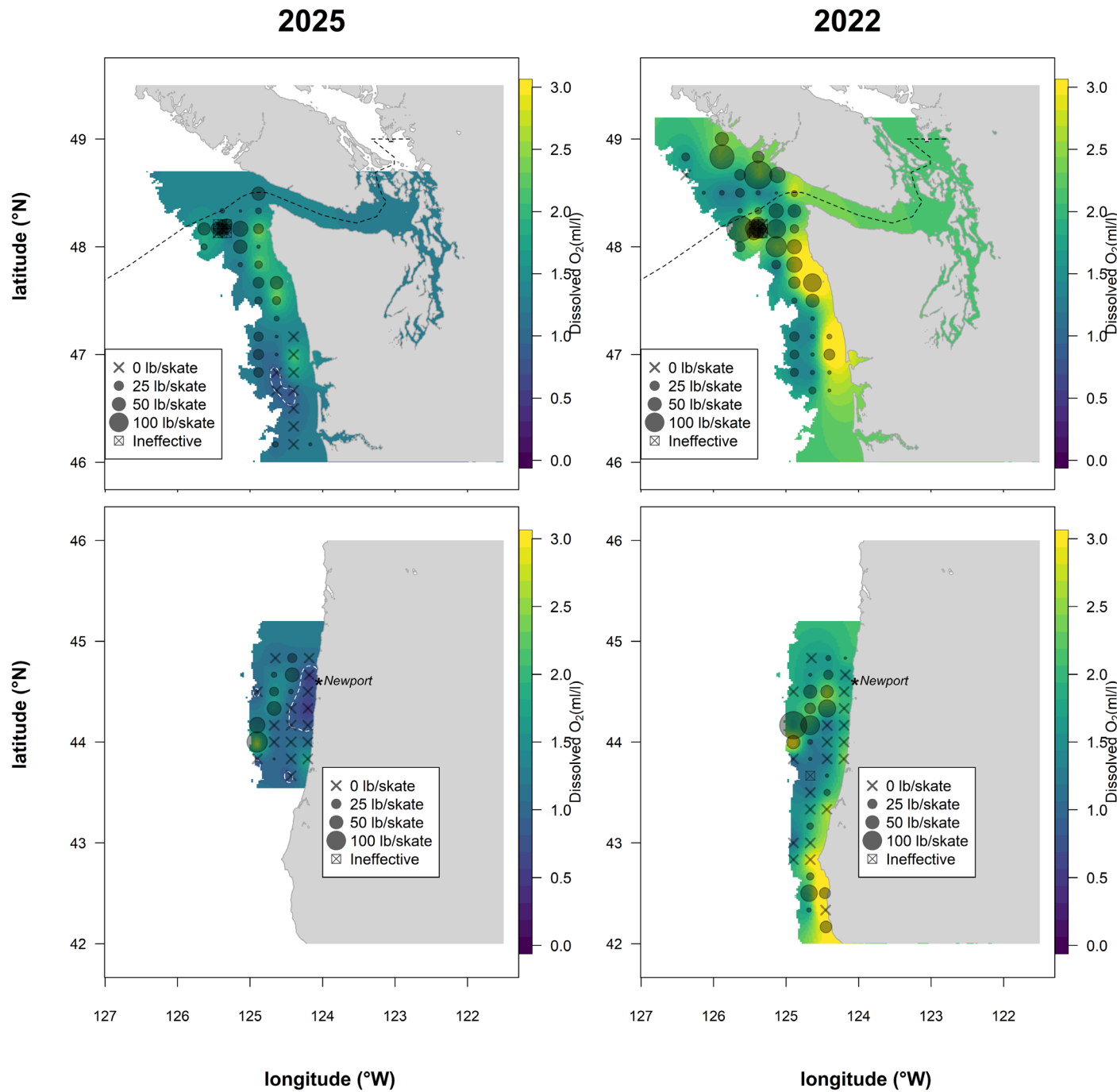
# Comparison with 2024 results: 4A



# Comparison with 2024 results: 4B



# Dissolved oxygen in 2A

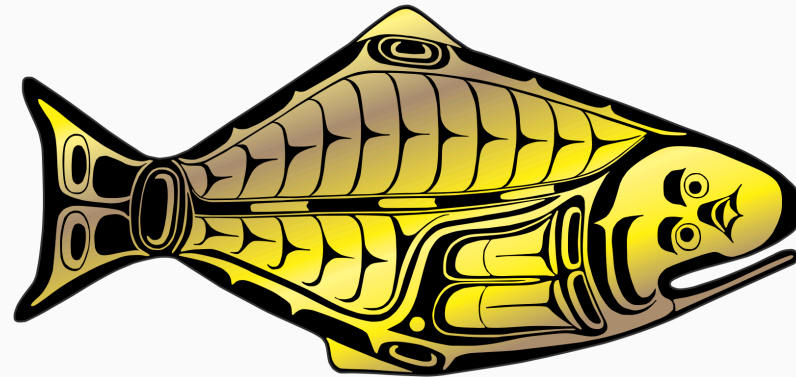


# Recommendation

That the Commission **NOTE** paper IPHC-2025-IM101-09 Rev\_1 which provides results of the space-time modelling of Pacific halibut survey data for 1993-2025.



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