

GOA Skate Stock Complex Update

Lee Cronin-Fine



November, 2023, Presentation to the GOA Groundfish Plan
Team



Assessment Groups

Longnose Skate



Big Skate



Other Skates

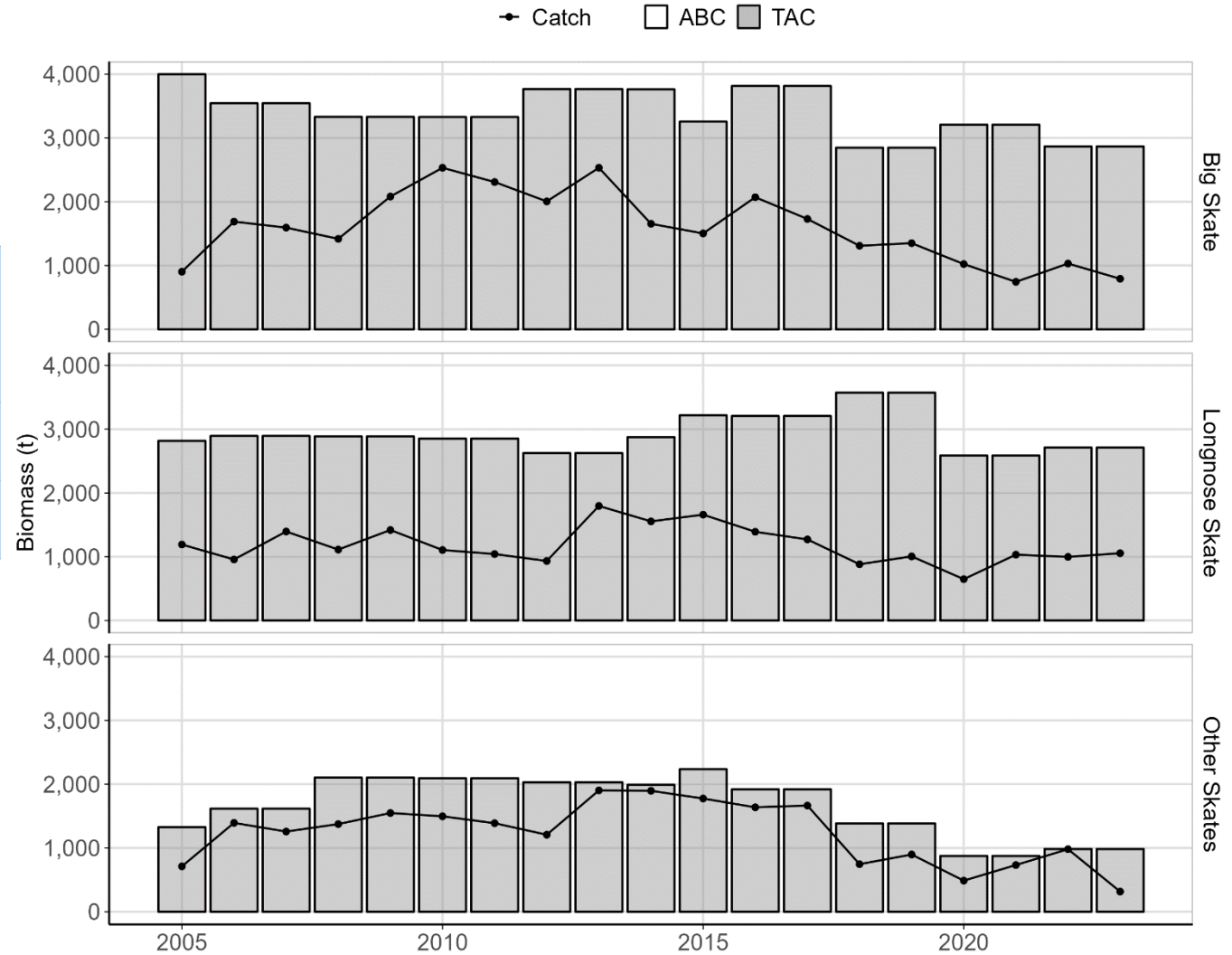


Stock Complex Overview

• Tier 5

| Group | OFL (t) | ABC (t) | Catch (t)* |
|----------|---------|---------|------------|
| Big | 3,822 | 2,867 | 792 |
| Longnose | 3,616 | 2,712 | 1,055 |
| Other | 1,311 | 984 | 316 |

*As of October 16th, 2023

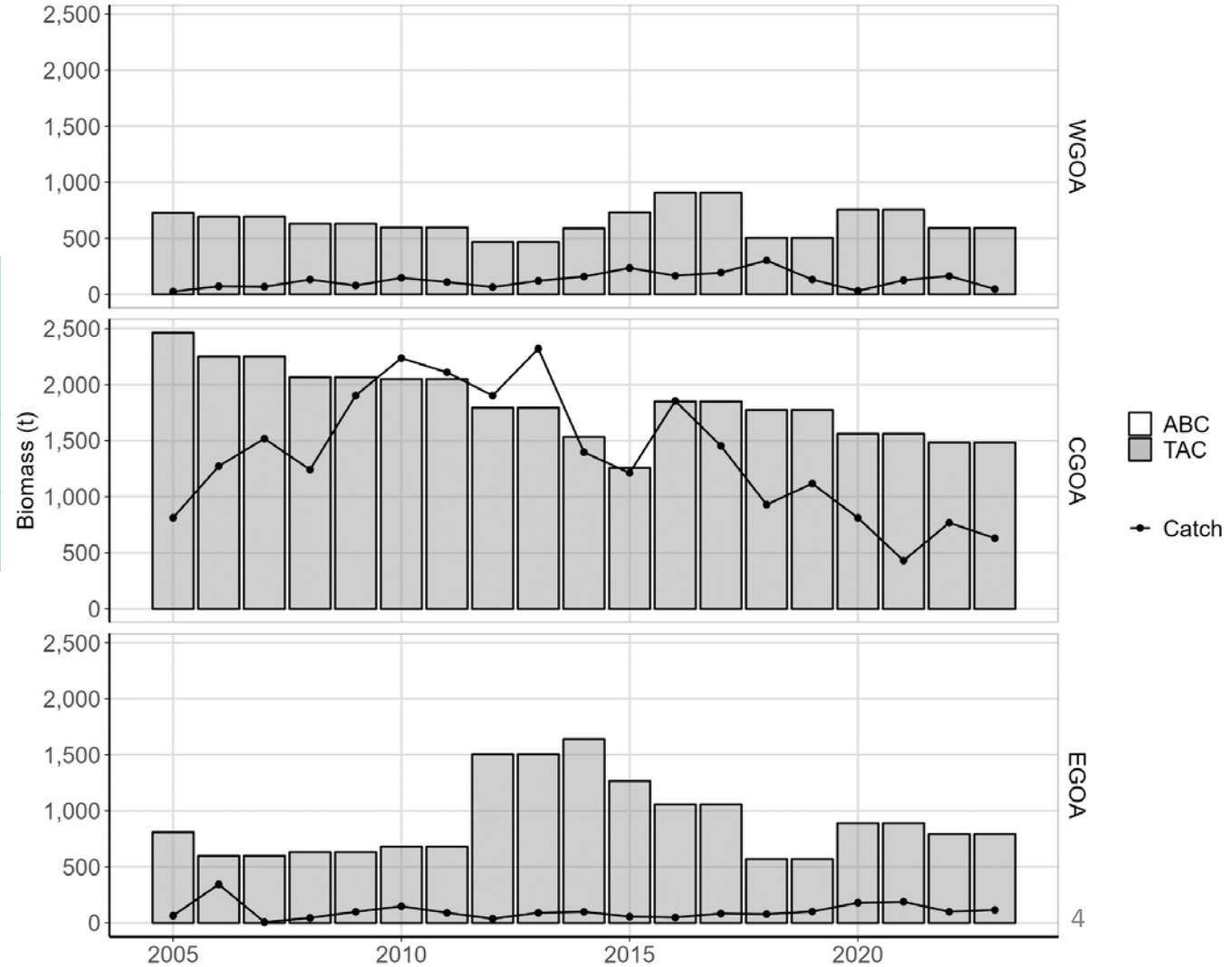


Big Skate Area Overview

• Tier 5

| Area | ABC (t) | TAC (t) | Catch (t)* |
|-------|---------|---------|------------|
| WGOA | 591 | 591 | 47 |
| CGOAA | 1,482 | 1,482 | 629 |
| EGOA | 794 | 794 | 116 |

*As of October 16th, 2023

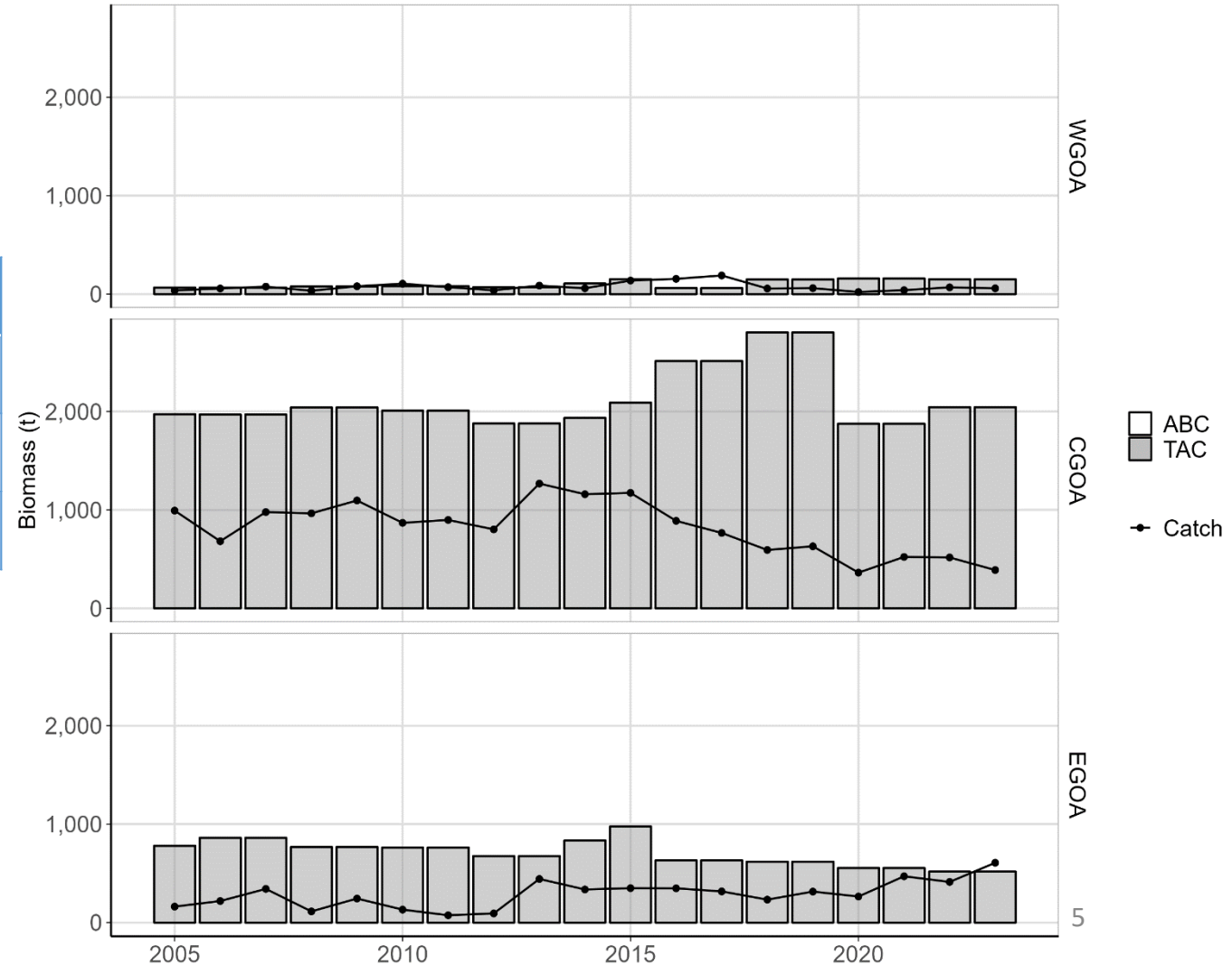


Longnose Skate Area Overview

• Tier 5

| Area | ABC (t) | TAC (t) | Catch (t)* |
|------|---------|---------|------------|
| WGOA | 151 | 151 | 59 |
| CGOA | 2,044 | 2,044 | 389 |
| EGOA | 517 | 517 | 607 |

*As of October 16th, 2023

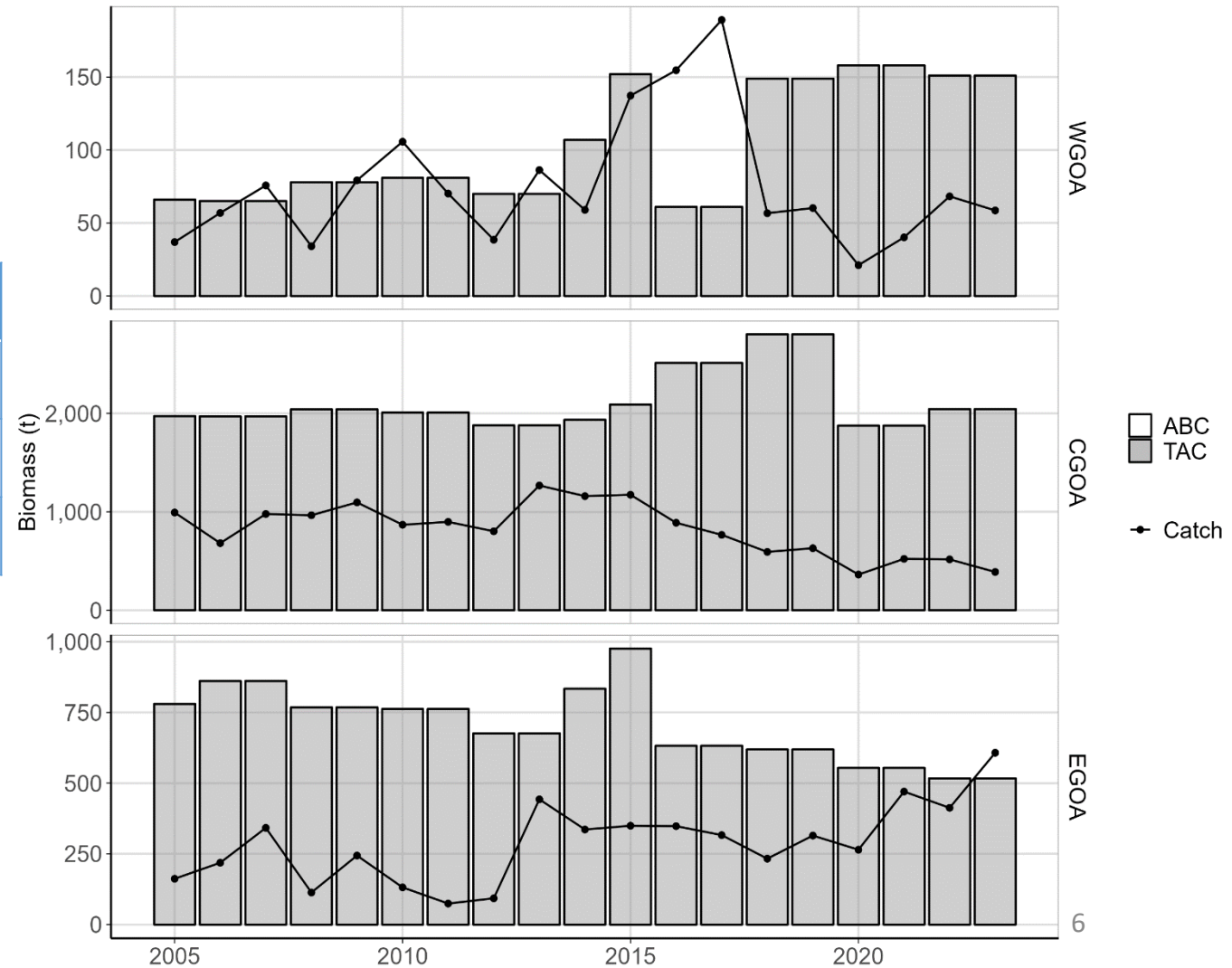


Longnose Skate Area Overview

• Tier 5

| Area | ABC (t) | TAC (t) | Catch (t)* |
|-------|---------|---------|------------|
| WGOA | 151 | 151 | 59 |
| CGOAA | 2,044 | 2,044 | 389 |
| EGOA | 517 | 517 | 607 |

*As of October 16th, 2023

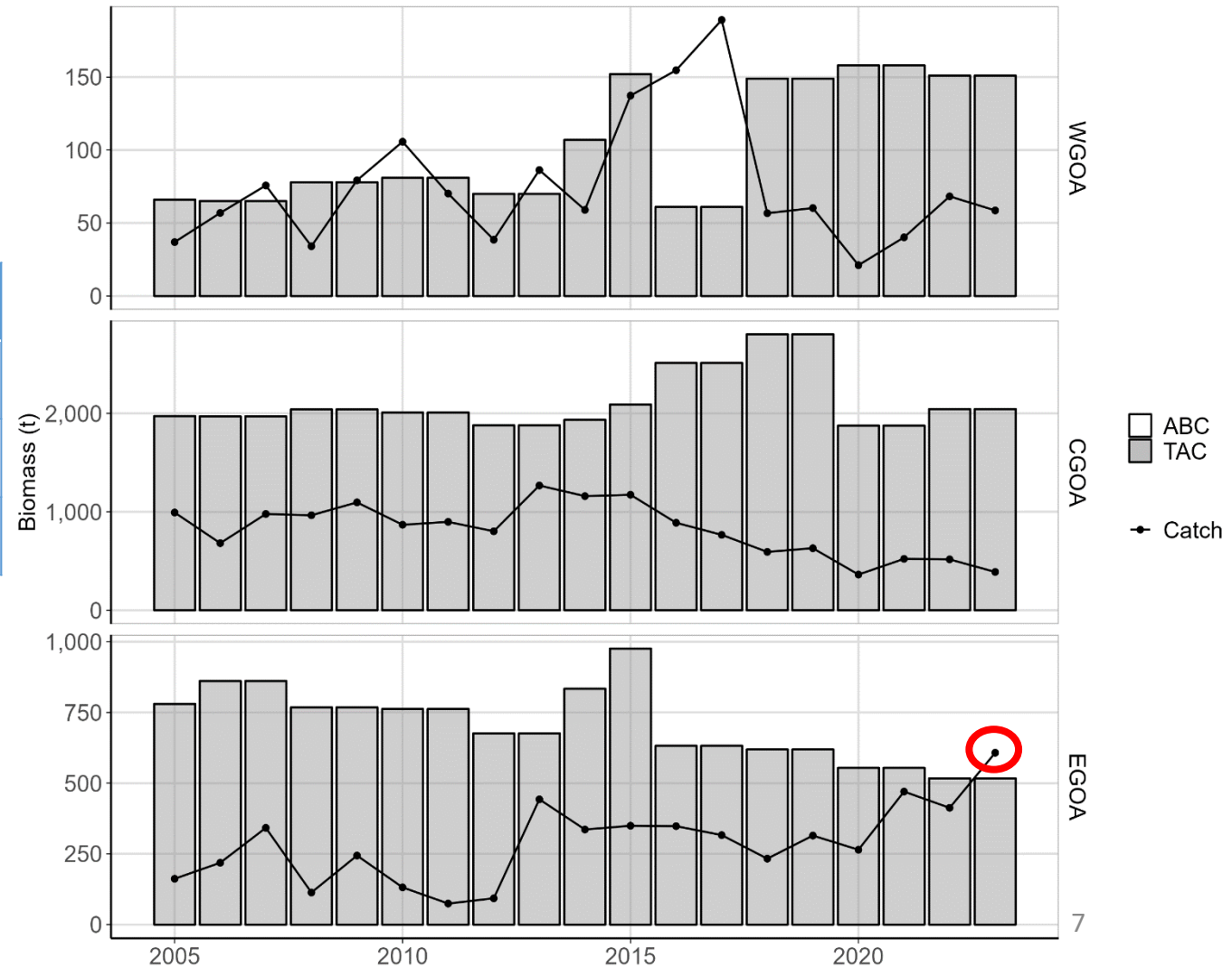


Longnose Skate Area Overview

• Tier 5

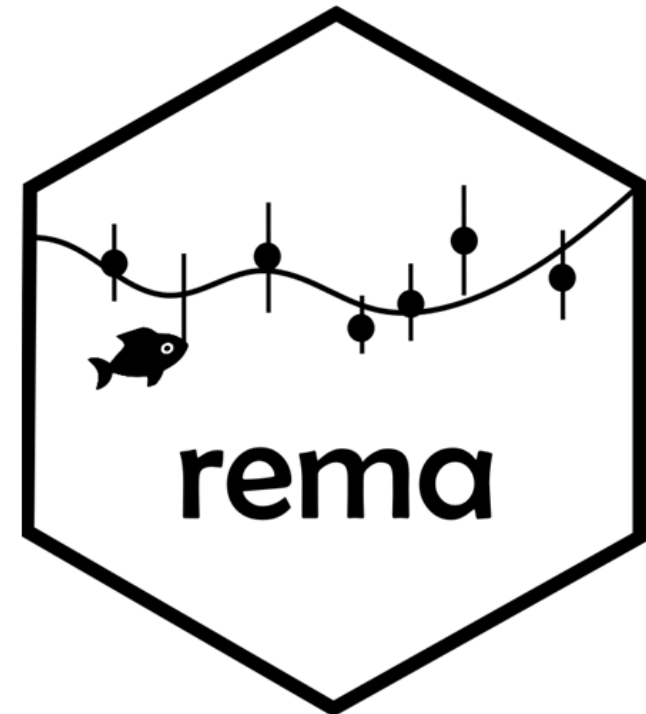
| Area | ABC (t) | TAC (t) | Catch (t)* |
|------|---------|---------|------------|
| WGOA | 151 | 151 | 59 |
| CGOA | 2,044 | 2,044 | 389 |
| EGOA | 517 | 517 | 607 |

*As of October 16th, 2023



Analytical Approach

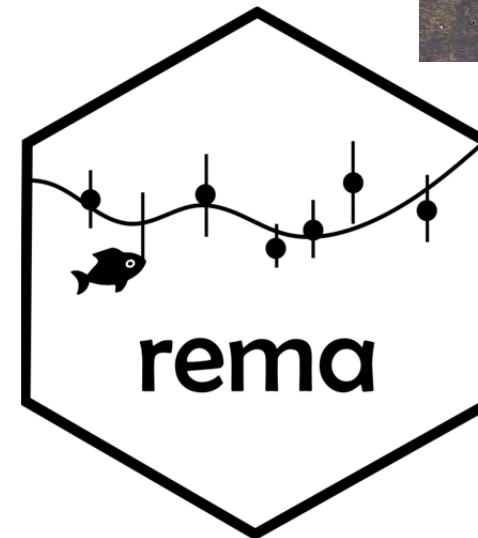
- Update Assessment
- Random Effects (RE) model
 - $M = 0.1$
- Updated Data
 - Catch (2022-2023 as of October 16th)
 - Survey Biomass Estimate from AFSC bottom trawl survey.



Analytical Approach

- Single Gulf wide RE model

Other Skates



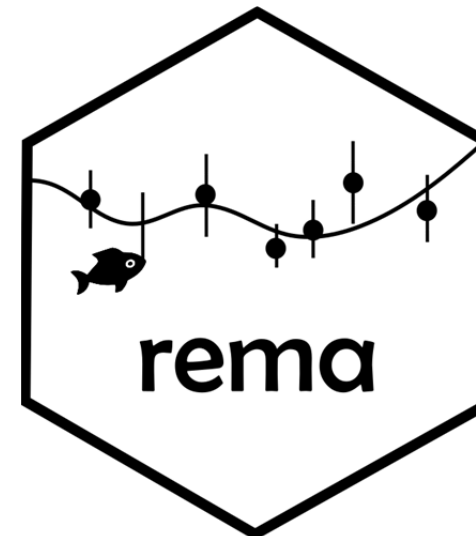
Analytical Approach

- Single Gulf wide RE model
 - Other Skates
- Two Models
 - Gulf wide RE model
 - Multivariate version of the RE model (REM)

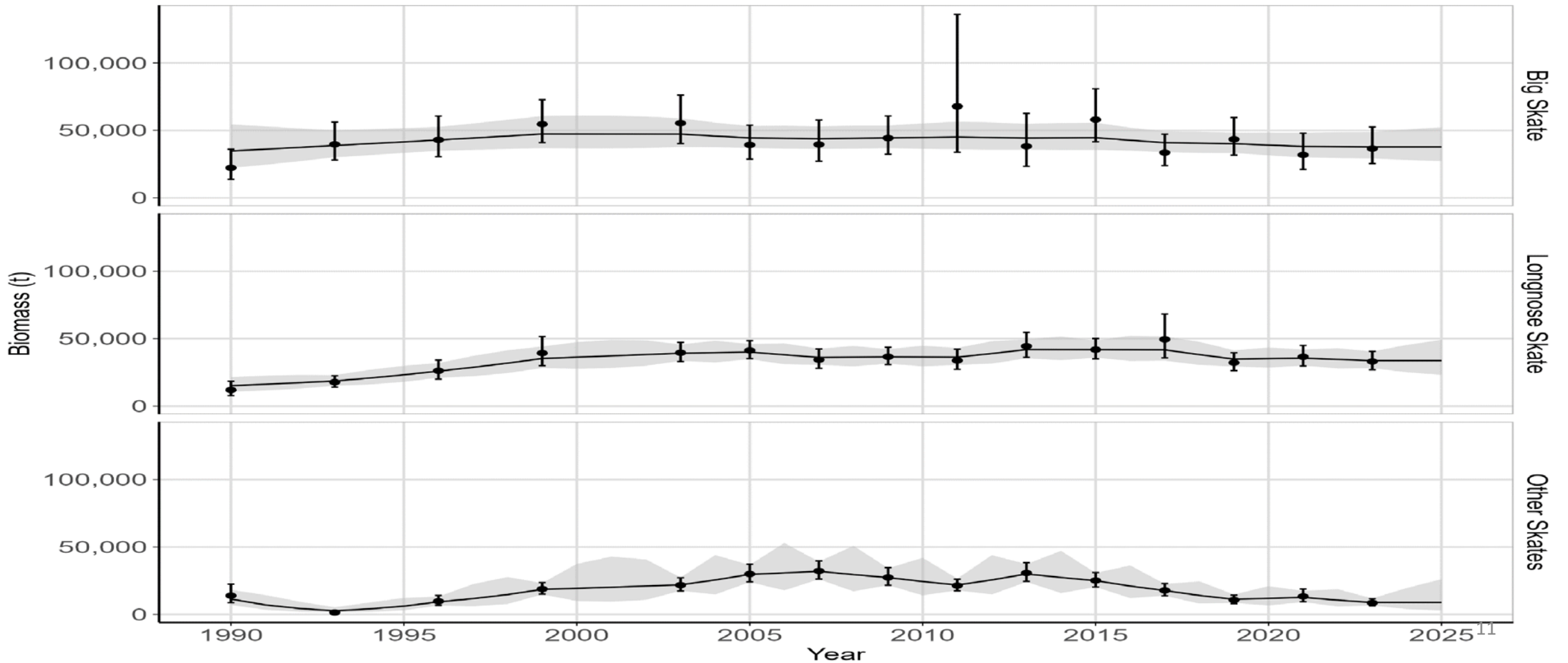
Big Skate



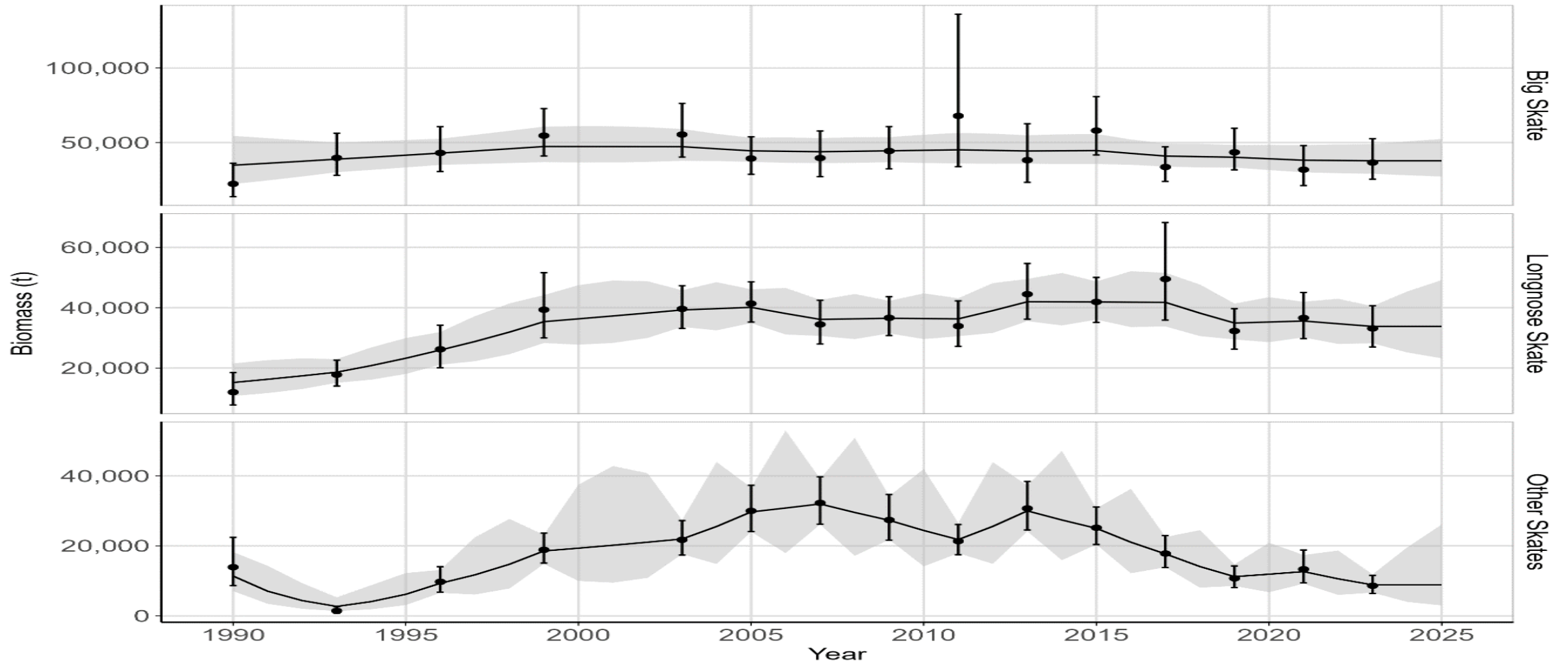
Longnose Skate



Gulf-wide RE model



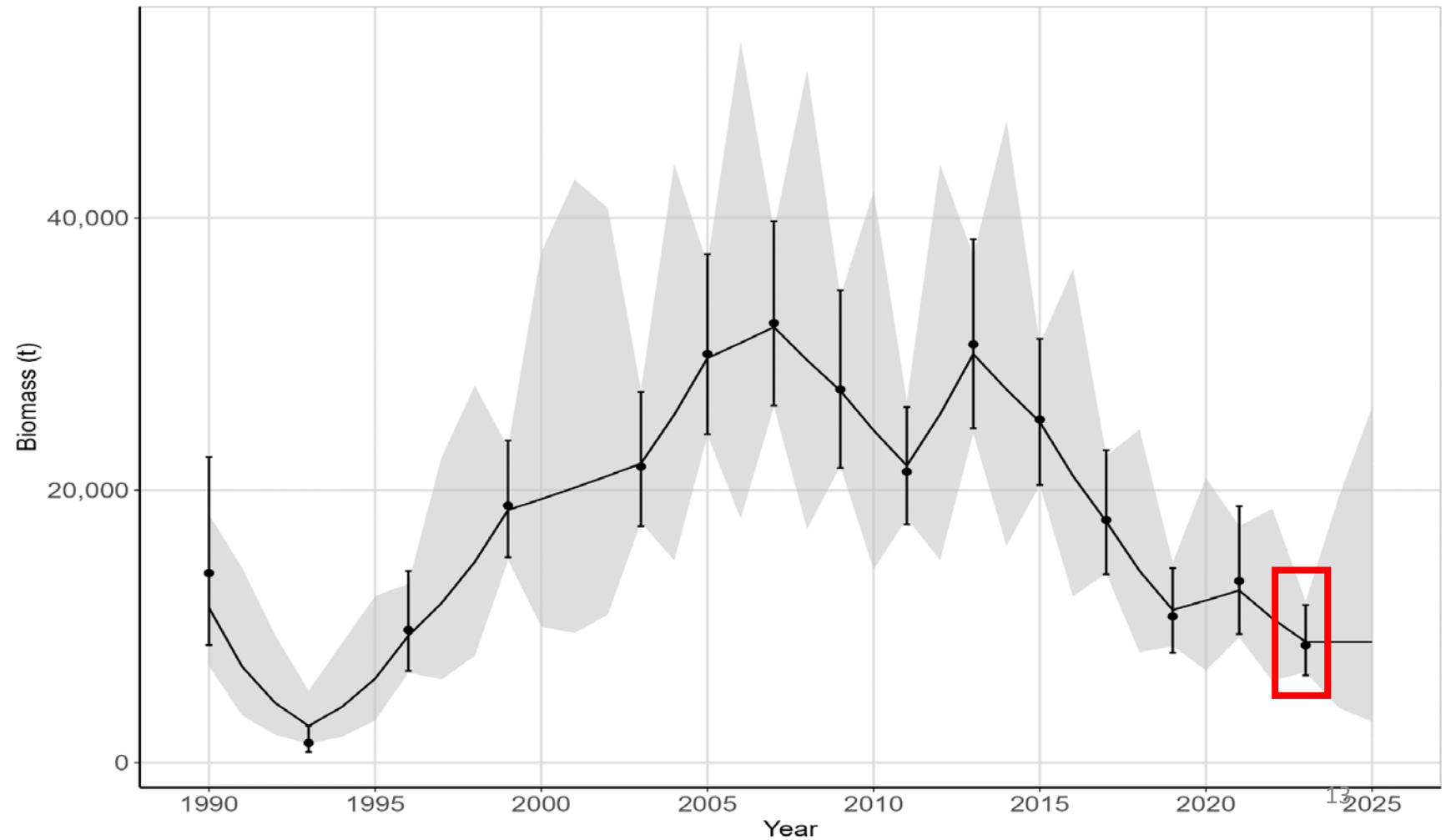
Gulf-wide RE model



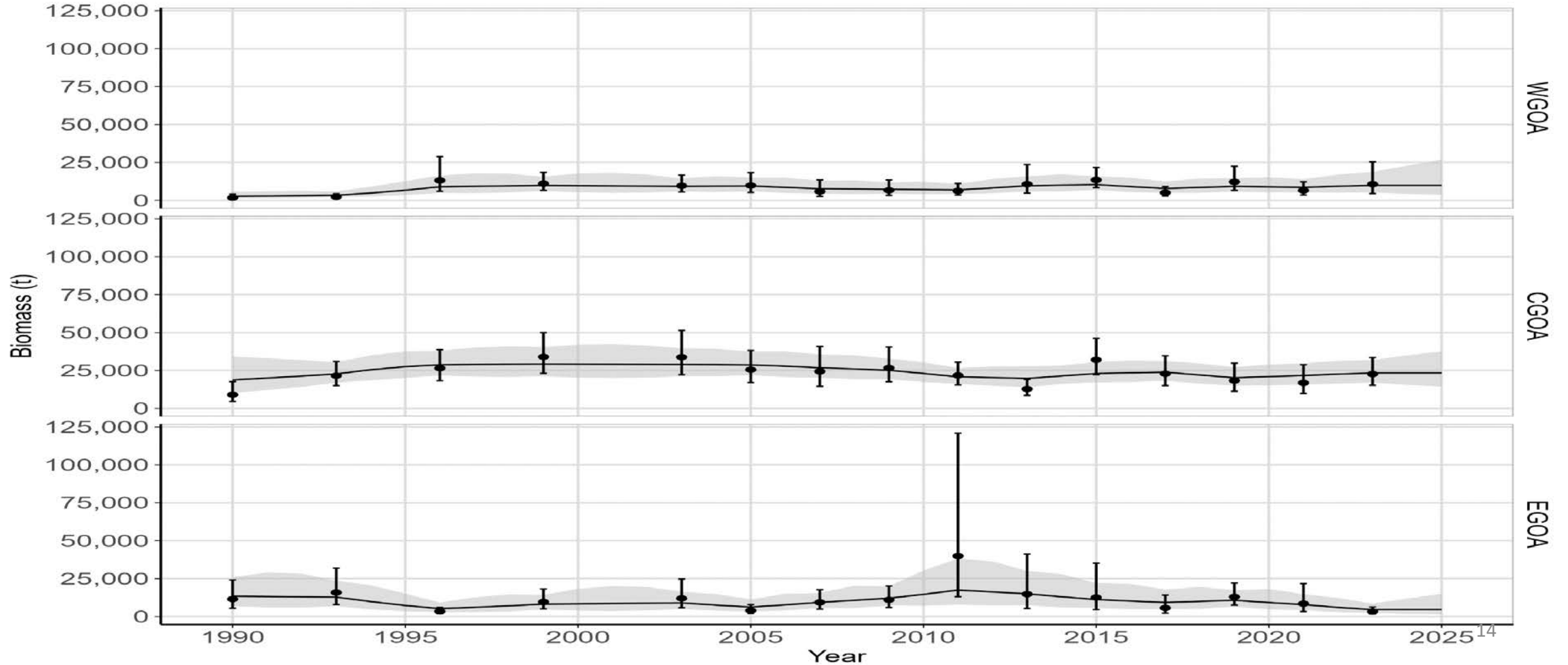
Gulf-wide RE model

Other Skates

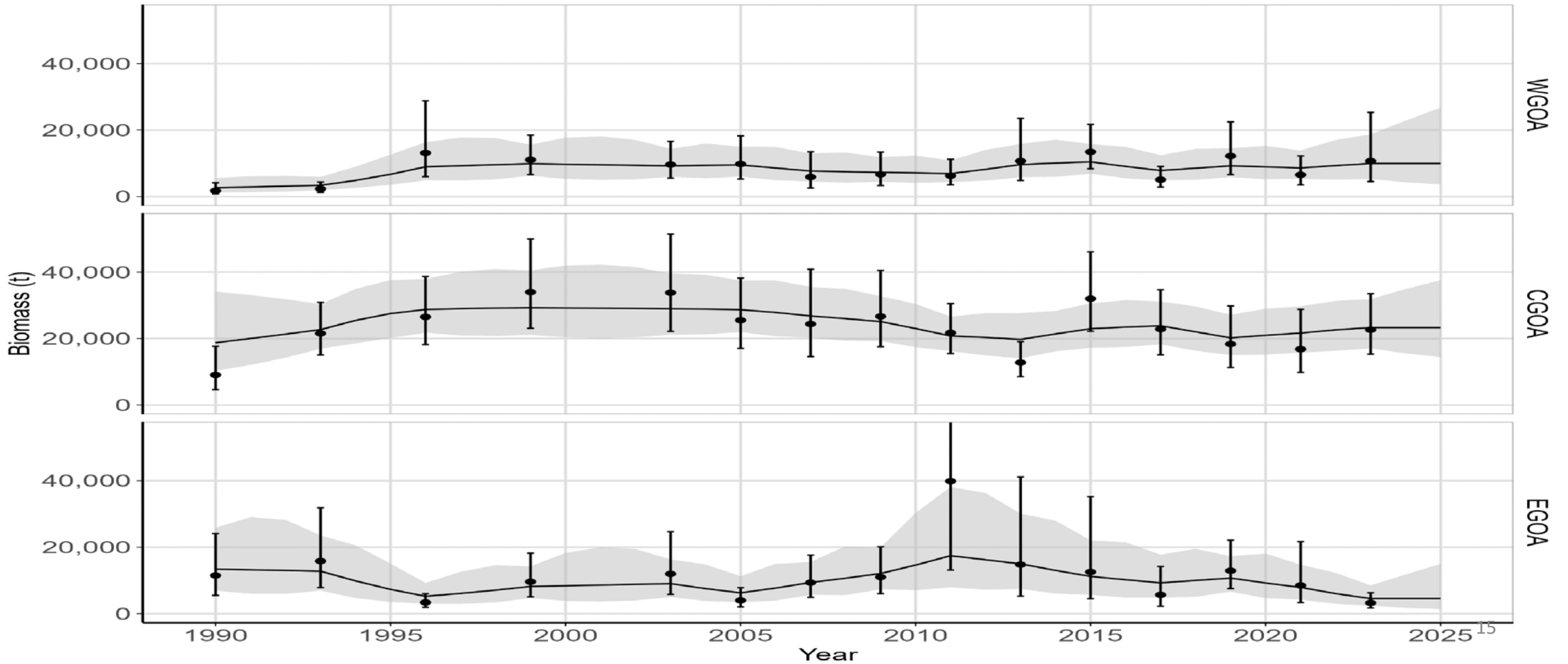
2023 is the Lowest
Estimated Biomass
(8,869 t) since 1996



Big Skate Area REM



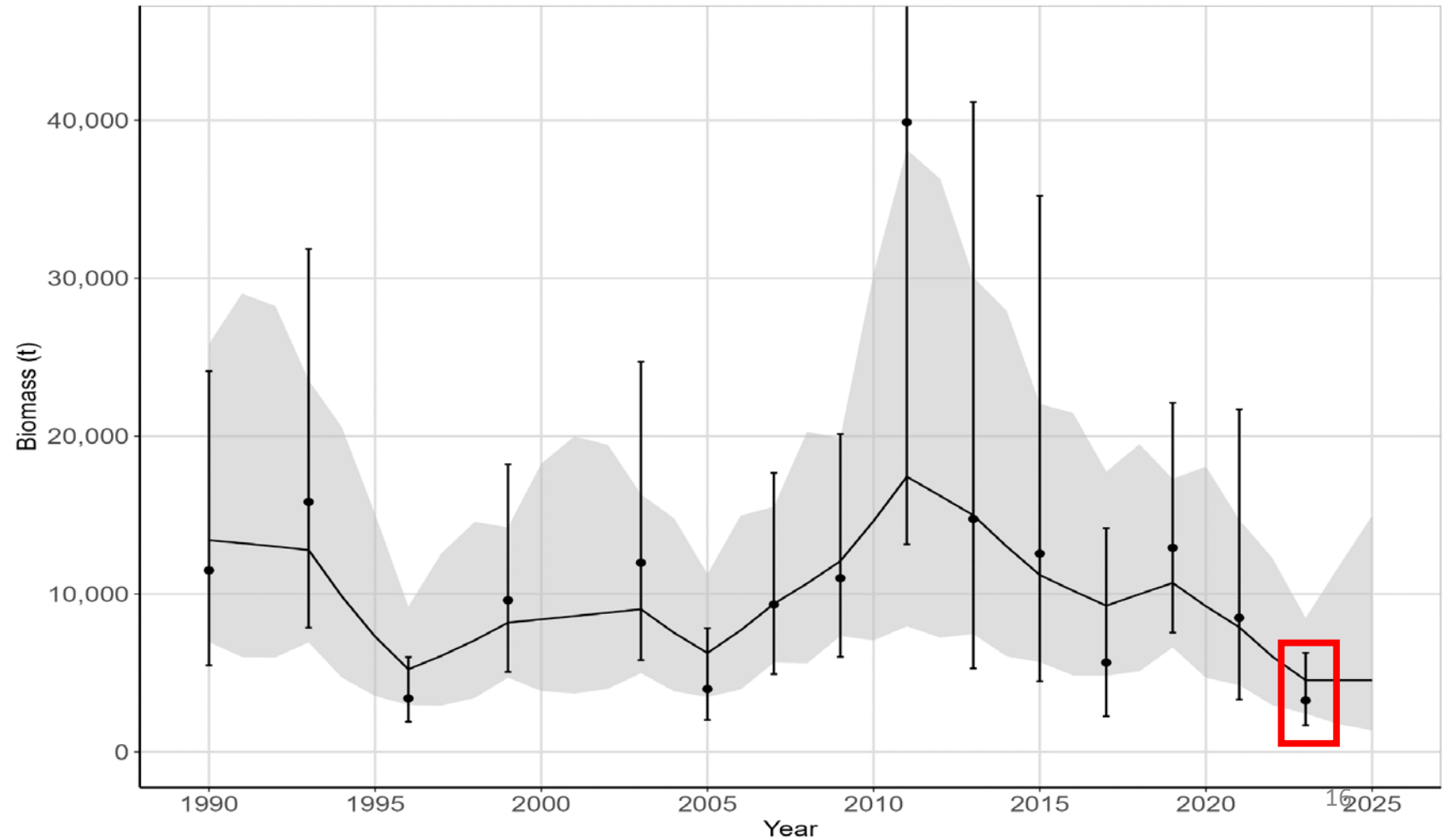
Big Skate Area REM



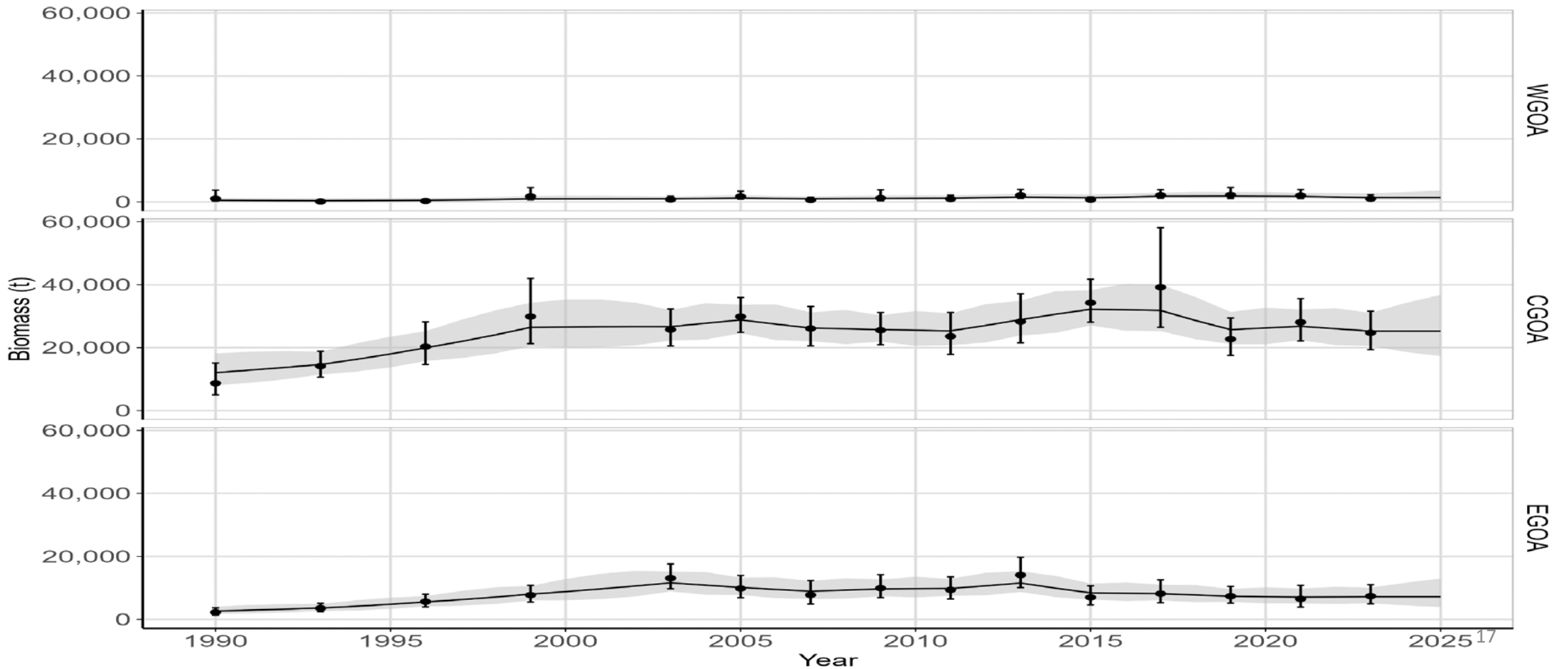
Big Skate Area REM

Big - EGOA

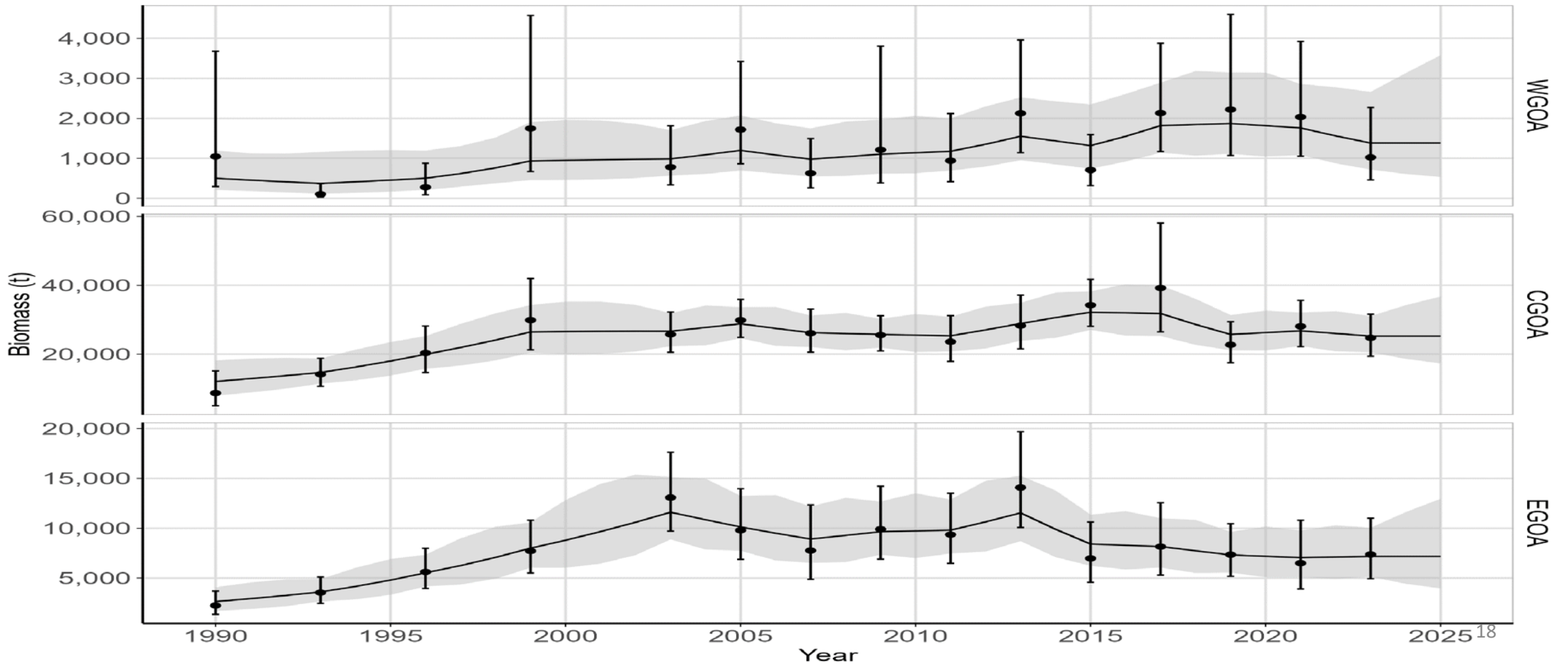
2023 is the Lowest
Estimated Biomass
(4,545 t)



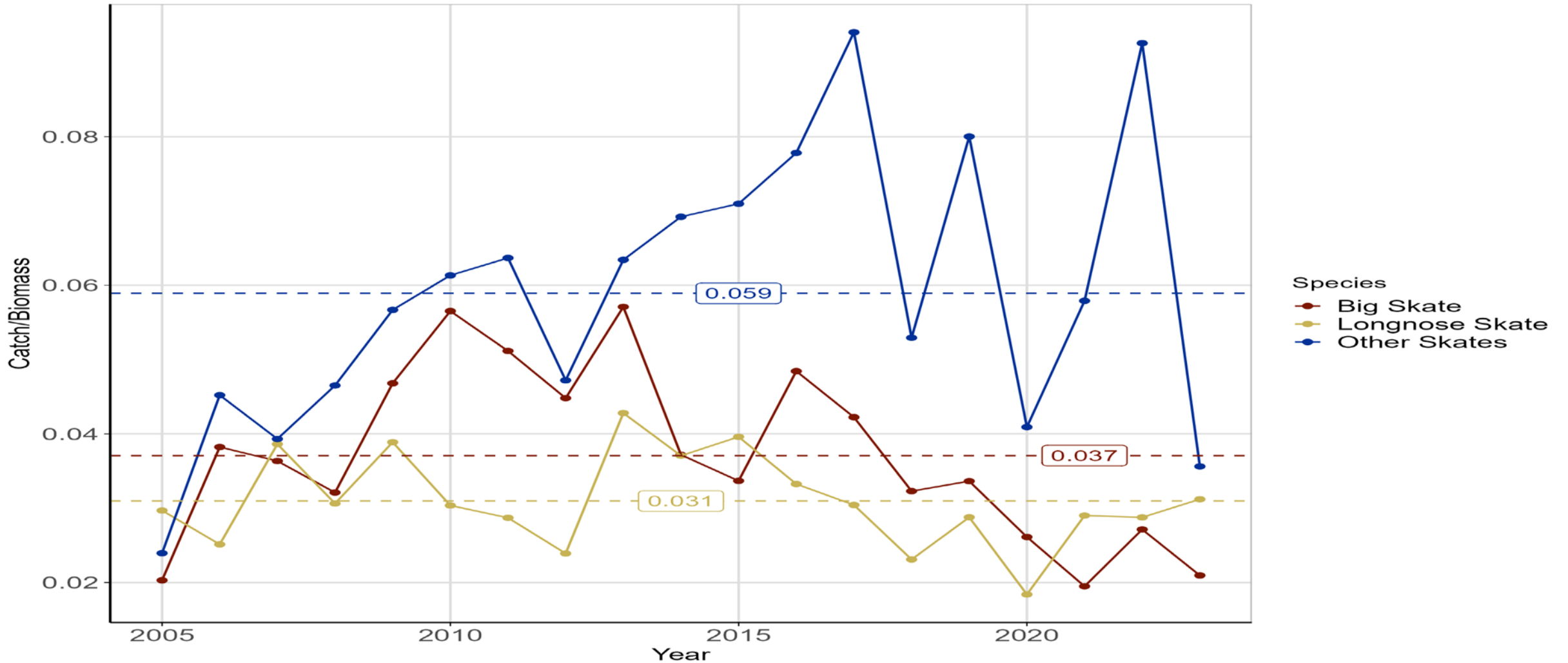
Longnose Skate Area REM



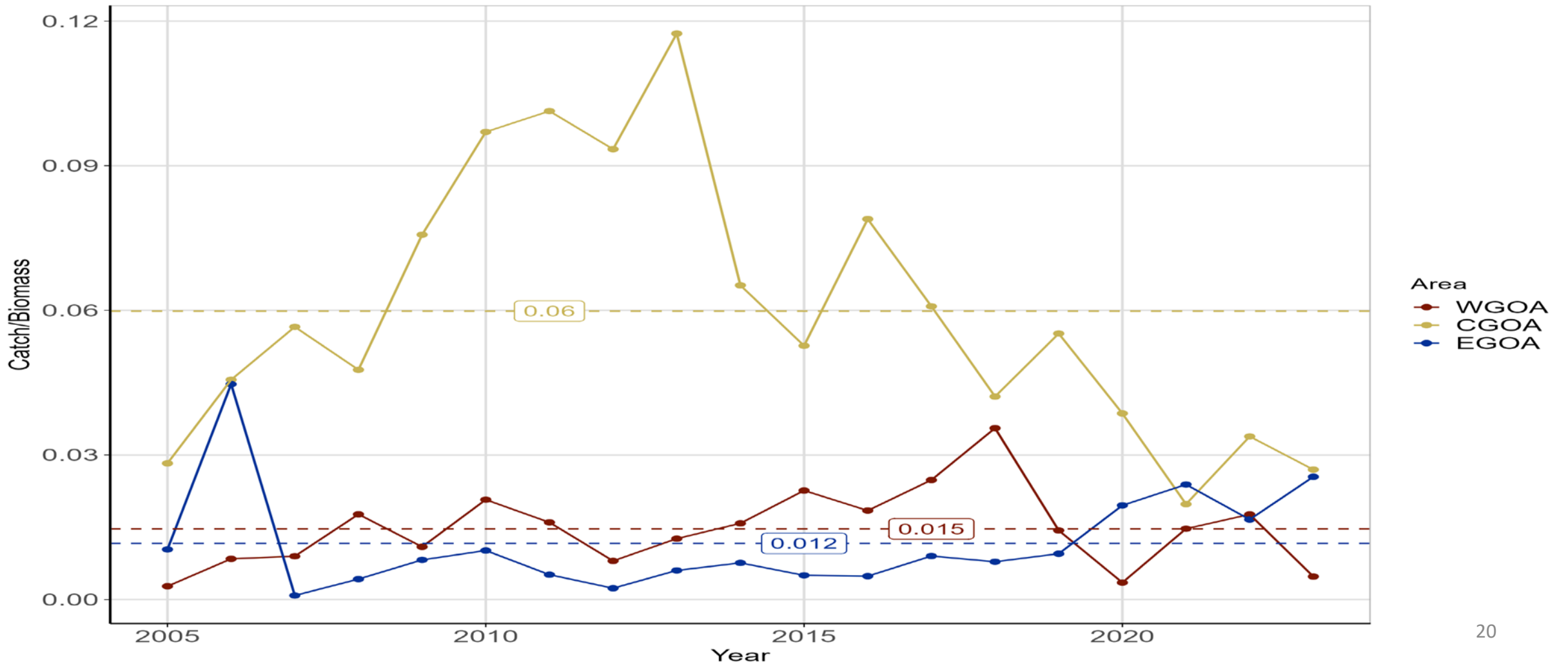
Longnose Skate Area REM



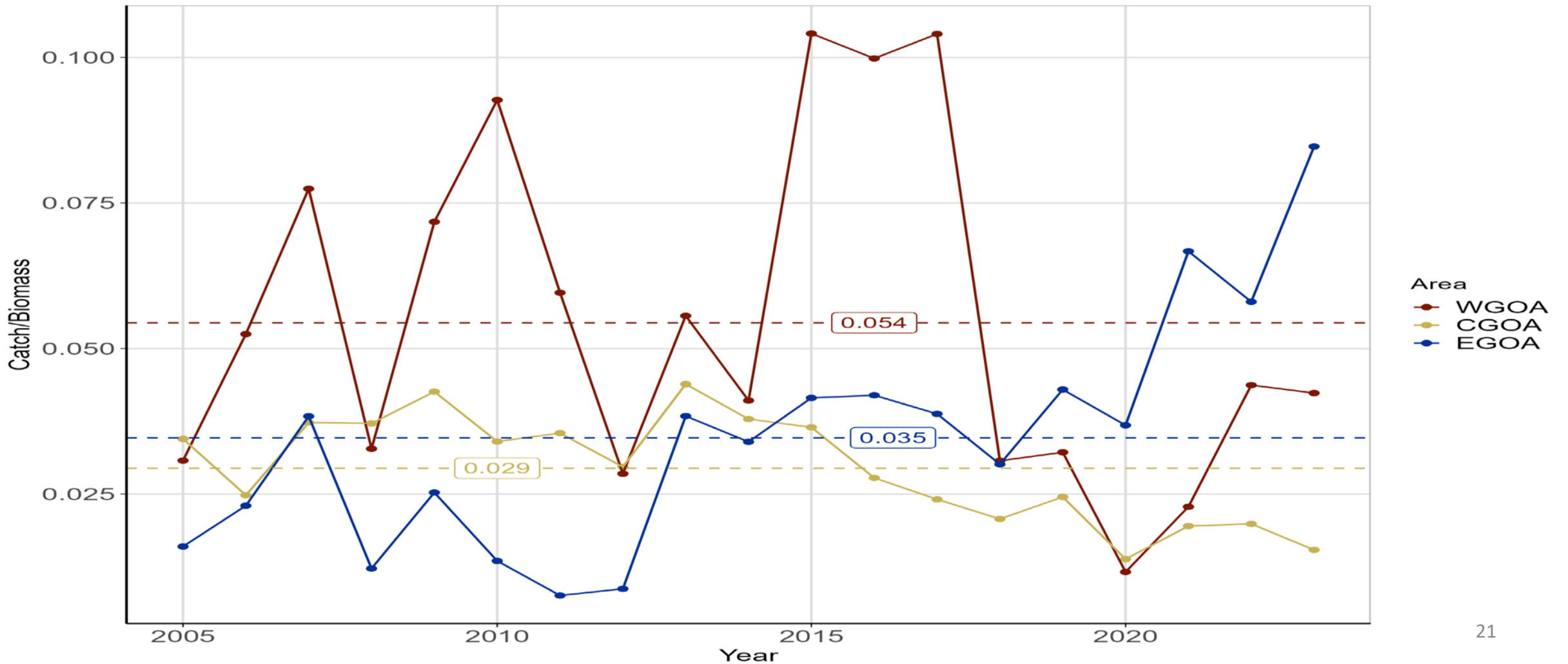
Gulf-wide Exploitation Rate (Catch/Biomass)



Big Skate Area Exploitation Rate (Catch/Biomass)



Longnose Skate Area Exploitation Rate (Catch/Biomass)



Risk Table Summary

| <i>Assessment-related considerations</i> | <i>Population dynamics considerations</i> | <i>Environmental/ecosystem considerations</i> | <i>Fishery Performance</i> |
|--|---|---|----------------------------|
| Level 1: No Concern | Level 1: No Concern | Level 1: No Concern | Level 1: No Concern |

Big Skate Harvest Recommendations

- Tier 5
- $M = 0.1$
- $F_{OFL} = M = 0.1$
- $maxF_{ABC} = 0.75 * M = 0.075$
- $F_{ABC} = 0.75 * M = 0.075$

| Big skate (<i>Beringraja binoculata</i>) | | | | | |
|--|----------|--|--------|--|--------|
| Quantity | | As estimated or specified last year for: | | As estimated or recommended this year for: | |
| | | 2023 | 2024 | 2024 | 2025 |
| Biomass (t) | W | 7,882 | 7,882 | 9,934 | 9,934 |
| | C | 19,756 | 19,756 | 23,326 | 23,326 |
| | E | 10,581 | 10,581 | 4,545 | 4,545 |
| | GOA Wide | 38,220 | 38,220 | 37,804 | 37,804 |
| OFL (t) | GOA Wide | 3,822 | 3,822 | 3,780 | 3,780 |
| <u>maxABC</u> (t) | W | 591 | 591 | 745 | 745 |
| | C | 1,482 | 1,482 | 1,749 | 1,749 |
| | E | 794 | 794 | 341 | 341 |
| ABC (t) | W | 591 | 591 | 745 | 745 |
| | C | 1,482 | 1,482 | 1,749 | 1,749 |
| | E | 794 | 794 | 341 | 341 |
| Status | | As determined last year for: | | As determined this year for: | |
| | | 2021 | 2022 | 2022 | 2023 |
| Overfishing? | | No | n/a | No | n/a |

Longnose Skate Harvest Recommendations

- Tier 5
- $M = 0.1$
- $F_{OFL} = M = 0.1$
- $maxF_{ABC} = 0.75 * M = 0.075$
- $F_{ABC} = 0.75 * M = 0.075$

| Longnose skate (<i>Raja rhina</i>) | | | | | |
|--------------------------------------|----------|--|--------|--|--------|
| Quantity | | As estimated or specified last year for: | | As estimated or recommended this year for: | |
| | | 2023 | 2024 | 2024 | 2025 |
| Biomass (t) | W | 2,013 | 2,013 | 1,384 | 1,384 |
| | C | 27,258 | 27,258 | 25,249 | 25,249 |
| | E | 6,890 | 6,890 | 7,172 | 7,172 |
| | GOA Wide | 36,162 | 36,162 | 33,804 | 33,804 |
| OFL (t) | GOA Wide | 3,616 | 3,616 | 3,380 | 3,380 |
| <u>maxABC</u> (t) | W | 151 | 151 | 104 | 104 |
| | C | 2,044 | 2,044 | 1,894 | 1,894 |
| | E | 517 | 517 | 538 | 538 |
| ABC (t) | W | 151 | 151 | 104 | 104 |
| | C | 2,044 | 2,044 | 1,894 | 1,894 |
| | E | 517 | 517 | 538 | 538 |
| Status | | As determined last year for: | | As determined this year for: | |
| | | 2021 | 2022 | 2022 | 2023 |
| Overfishing? | | No | n/a | No | n/a |

Other Skate Harvest Recommendations

- Tier 5
- $M = 0.1$
- $F_{OFL} = M = 0.1$
- $maxF_{ABC} = 0.75 * M = 0.075$
- $F_{ABC} = 0.75 * M = 0.075$

| Other skates (<i>Bathyraja</i>) | | | | |
|-----------------------------------|--|--------|--|-------|
| Quantity | As estimated or specified last year for: | | As estimated or recommended this year for: | |
| | 2023 | 2024 | 2024 | 2025 |
| Biomass (t) | 13,114 | 13,114 | 8,869 | 8,869 |
| OFL (t) | 1,311 | 1,311 | 887 | 887 |
| <u>maxABC</u> (t) | 984 | 984 | 665 | 665 |
| ABC (t) | 984 | 984 | 665 | 665 |
| Status | As determined last year for: | | As determined this year for: | |
| | 2021 | 2022 | 2022 | 2023 |
| Overfishing? | No | n/a | No | n/a |



QUESTIONS?

Contact:

LEE.CRONIN-FINE@NOAA.GOV

Gulf-wide Big Skate RE model

Big Skate

