**Supplementary Table S3.3.PM-1.** Summary of performance metric 1 (average annual catch (1,000 mt)) across OMs for **Pollock**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 574 | 573 | 286 | 220 | 161 | 115 | 168 | 135 |
|  | *NPFMC Fix-M (Dynamic B0)* | 582 | 558 | 321 | 193 | 201 | 116 | 206 | 144 |
|  | *NPFMC Est-M* | 424 | 602 | 154 | 149 | 80 | 73 | 77 | 74 |
|  | *NPFMC Est-M (Dynamic B0)* | 444 | 634 | 181 | 171 | 110 | 93 | 106 | 92 |
|  | *MS-B40 iter* | 618 | 844 | 326 | 326 | 235 | 178 | 241 | 204 |
|  | *MS-B40 simul* | 916 | 240 | 524 | 164 | 350 | 163 | 359 | 179 |
|  | *MS-MSY* | 1,197 | 103 | 1,235 | 130 | 776 | 136 | 812 | 152 |
|  | *MS-cMSY* | 1,386 | 114 | 788 | 132 | 512 | 144 | 531 | 157 |
| *TRUE* | *NPFMC Fix-M* | 276 | 203 | 167 | 95 | 99 | 59 | 100 | 69 |
|  | *NPFMC Fix-M (Dynamic B0)* | 282 | 180 | 195 | 81 | 133 | 65 | 131 | 78 |
|  | *NPFMC Est-M* | 212 | 187 | 106 | 68 | 62 | 38 | 58 | 44 |
|  | *NPFMC Est-M (Dynamic B0)* | 219 | 187 | 111 | 68 | 79 | 45 | 75 | 52 |
|  | *MS-B40 iter* | 285 | 169 | 189 | 84 | 135 | 68 | 134 | 79 |
|  | *MS-B40 simul* | 297 | 132 | 240 | 74 | 169 | 70 | 166 | 81 |
|  | *MS-MSY* | 299 | 137 | 270 | 73 | 197 | 71 | 188 | 81 |
|  | *MS-cMSY* | 299 | 137 | 262 | 74 | 188 | 71 | 182 | 81 |

**Supplementary Table S3.3.PM-2.** Summary of performance metric 2 (average interannual variation in catch (IAV)) across OMs for **Pollock**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.29 | 0.29 | 0.57 | 0.53 | 0.67 | 0.67 | 0.65 | 0.64 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.29 | 0.29 | 0.49 | 0.46 | 0.5 | 0.59 | 0.53 | 0.57 |
|  | *NPFMC Est-M* | 0.25 | 0.26 | 0.48 | 0.44 | 0.55 | 0.5 | 0.51 | 0.49 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.24 | 0.26 | 0.4 | 0.39 | 0.39 | 0.38 | 0.4 | 0.4 |
|  | *MS-B40 iter* | 0.29 | 0.29 | 0.47 | 0.45 | 0.57 | 0.63 | 0.58 | 0.59 |
|  | *MS-B40 simul* | 0.4 | 0.84 | 0.65 | 1.01 | 0.77 | 1.24 | 0.78 | 1.15 |
|  | *MS-MSY* | 0.64 | 3.02 | 1.06 | 2.77 | 1.37 | 3.03 | 1.42 | 2.76 |
|  | *MS-cMSY* | 0.54 | 2.3 | 0.89 | 2.11 | 1.08 | 2.31 | 1.1 | 2.24 |
| *TRUE* | *NPFMC Fix-M* | 0.12 | 0.2 | 0.36 | 0.52 | 0.51 | 0.57 | 0.46 | 0.55 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.11 | 0.21 | 0.26 | 0.4 | 0.33 | 0.46 | 0.33 | 0.43 |
|  | *NPFMC Est-M* | 0.16 | 0.17 | 0.41 | 0.51 | 0.57 | 0.57 | 0.51 | 0.54 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.15 | 0.17 | 0.31 | 0.33 | 0.35 | 0.41 | 0.36 | 0.39 |
|  | *MS-B40 iter* | 0.12 | 0.24 | 0.28 | 0.44 | 0.33 | 0.47 | 0.33 | 0.44 |
|  | *MS-B40 simul* | 0.08 | 0.28 | 0.23 | 0.46 | 0.31 | 0.43 | 0.3 | 0.41 |
|  | *MS-MSY* | 0.08 | 0.29 | 0.2 | 0.46 | 0.34 | 0.44 | 0.33 | 0.42 |
|  | *MS-cMSY* | 0.08 | 0.29 | 0.21 | 0.46 | 0.32 | 0.43 | 0.3 | 0.41 |

**Supplementary Table S3.3.PM-3.** Summary of performance metric 3 (probability that the population is overfished as determined from the OM) across OMs for **Pollock**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0.09 | 0 | 0.15 |
|  | *NPFMC Est-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Est-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-B40 iter* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.06 |
|  | *MS-B40 simul* | 0.04 | 0.84 | 0.07 | 0.77 | 0.19 | 0.8 | 0.24 | 0.8 |
|  | *MS-MSY* | 0.91 | 0.94 | 0.72 | 0.92 | 0.78 | 0.93 | 0.82 | 0.92 |
|  | *MS-cMSY* | 0.67 | 0.92 | 0.66 | 0.9 | 0.71 | 0.9 | 0.75 | 0.9 |
| *TRUE* | *NPFMC Fix-M* | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0 | 0.37 | 0 | 0.49 | 0 | 0.55 | 0 | 0.49 |
|  | *NPFMC Est-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Est-M (Dynamic B0)* | 0 | 0.02 | 0 | 0.01 | 0 | 0.03 | 0 | 0.02 |
|  | *MS-B40 iter* | 0 | 0.44 | 0 | 0.39 | 0 | 0.55 | 0 | 0.47 |
|  | *MS-B40 simul* | 0 | 0.61 | 0.03 | 0.74 | 0.16 | 0.74 | 0.19 | 0.71 |
|  | *MS-MSY* | 0.01 | 0.59 | 0.31 | 0.77 | 0.58 | 0.76 | 0.56 | 0.75 |
|  | *MS-cMSY* | 0.01 | 0.59 | 0.27 | 0.77 | 0.51 | 0.76 | 0.5 | 0.74 |

**Supplementary Table S3.3.PM-4.** Summary of performance metric 4 (terminal spawning stock biomass (1,000 mt)) across OMs for **Pollock**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 702 | 715 | 351 | 266 | 206 | 38 | 217 | 13 |
|  | *NPFMC Fix-M (Dynamic B0)* | 691 | 644 | 296 | 143 | 138 | 1 | 166 | 0 |
|  | *NPFMC Est-M* | 875 | 1,066 | 493 | 507 | 215 | 61 | 222 | 22 |
|  | *NPFMC Est-M (Dynamic B0)* | 853 | 1,071 | 475 | 489 | 170 | 24 | 195 | 9 |
|  | *MS-B40 iter* | 904 | 1,385 | 424 | 458 | 149 | 7 | 171 | 0 |
|  | *MS-B40 simul* | 380 | 41 | 154 | 3 | 81 | 0 | 121 | 0 |
|  | *MS-MSY* | 79 | 0 | 42 | 0 | 27 | 0 | 54 | 0 |
|  | *MS-cMSY* | 161 | 0 | 38 | 0 | 30 | 0 | 57 | 0 |
| *TRUE* | *NPFMC Fix-M* | 795 | 404 | 337 | 147 | 207 | 12 | 220 | 6 |
|  | *NPFMC Fix-M (Dynamic B0)* | 786 | 161 | 294 | 13 | 145 | 0 | 177 | 0 |
|  | *NPFMC Est-M* | 854 | 652 | 386 | 195 | 210 | 13 | 224 | 7 |
|  | *NPFMC Est-M (Dynamic B0)* | 847 | 561 | 402 | 182 | 173 | 3 | 206 | 2 |
|  | *MS-B40 iter* | 771 | 153 | 316 | 30 | 141 | 0 | 178 | 0 |
|  | *MS-B40 simul* | 748 | 22 | 222 | 0 | 98 | 0 | 144 | 0 |
|  | *MS-MSY* | 776 | 32 | 181 | 0 | 52 | 0 | 93 | 0 |
|  | *MS-cMSY* | 770 | 31 | 192 | 0 | 69 | 0 | 111 | 0 |

**Supplementary Table S3.3.PM-5.** Summary of performance metric 5 (terminal spawning stock biomass depletion relative to dynamic SB0) across OMs for **Pollock**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.69 | 0.74 | 0.85 | 1.85 | 1.31 | 23.85 | 1.15 | 11.85 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.68 | 0.64 | 0.66 | 0.61 | 0.82 | 0.18 | 0.85 | 0.11 |
|  | *NPFMC Est-M* | 0.87 | 1.16 | 1.19 | 3.69 | 1.35 | 39.18 | 1.18 | 20.11 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.84 | 1.14 | 1.09 | 3.35 | 1.02 | 12.61 | 1 | 6.58 |
|  | *MS-B40 iter* | 0.89 | 1.51 | 0.98 | 2.9 | 0.89 | 1.87 | 0.86 | 0.16 |
|  | *MS-B40 simul* | 0.37 | 0.04 | 0.34 | 0.01 | 0.48 | 0 | 0.59 | 0 |
|  | *MS-MSY* | 0.08 | 0 | 0.1 | 0 | 0.17 | 0 | 0.24 | 0 |
|  | *MS-cMSY* | 0.16 | 0 | 0.09 | 0 | 0.18 | 0 | 0.25 | 0 |
| *TRUE* | *NPFMC Fix-M* | 0.74 | 0.39 | 0.75 | 0.96 | 1.29 | 5.06 | 1.17 | 4.44 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.72 | 0.14 | 0.6 | 0.04 | 0.85 | 0.01 | 0.88 | 0.01 |
|  | *NPFMC Est-M* | 0.82 | 0.65 | 0.88 | 1.21 | 1.31 | 5.57 | 1.19 | 5.5 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.81 | 0.54 | 0.89 | 0.88 | 1.04 | 0.85 | 1.07 | 1.14 |
|  | *MS-B40 iter* | 0.71 | 0.14 | 0.67 | 0.12 | 0.82 | 0 | 0.88 | 0 |
|  | *MS-B40 simul* | 0.68 | 0.02 | 0.4 | 0 | 0.51 | 0 | 0.65 | 0 |
|  | *MS-MSY* | 0.7 | 0.03 | 0.26 | 0 | 0.17 | 0 | 0.28 | 0 |
|  | *MS-cMSY* | 0.69 | 0.03 | 0.29 | 0 | 0.28 | 0 | 0.42 | 0 |

**Supplementary Table S3.3.PM-6.** Summary of performance metric 6 (terminal dynamic SB0 (1,000 mt)) across OMs for **Pollock**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *NPFMC Fix-M (Dynamic B0)* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *NPFMC Est-M* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *NPFMC Est-M (Dynamic B0)* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *MS-B40 iter* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *MS-B40 simul* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *MS-MSY* | 1,017 | 972 | 438 | 207 | 164 | 3 | 193 | 1 |
|  | *MS-cMSY* | 1,014 | 974 | 439 | 206 | 165 | 3 | 191 | 1 |
| *TRUE* | *NPFMC Fix-M* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *NPFMC Fix-M (Dynamic B0)* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *NPFMC Est-M* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *NPFMC Est-M (Dynamic B0)* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *MS-B40 iter* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *MS-B40 simul* | 1,017 | 974 | 438 | 206 | 164 | 3 | 193 | 1 |
|  | *MS-MSY* | 1,017 | 974 | 438 | 206 | 164 | 3 | 189 | 1 |
|  | *MS-cMSY* | 1,019 | 974 | 439 | 206 | 166 | 3 | 187 | 1 |

**Supplementary Table S3.4.PM-1.** Summary of performance metric 1 (average annual catch (1,000 mt)) across OMs for **Cod**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 31 | 29 | 27 | 24 | 24 | 21 | 23 | 20 |
|  | *NPFMC Fix-M (Dynamic B0)* | 31 | 29 | 27 | 23 | 25 | 20 | 24 | 19 |
|  | *NPFMC Est-M* | 19 | 20 | 17 | 17 | 15 | 16 | 14 | 15 |
|  | *NPFMC Est-M (Dynamic B0)* | 19 | 20 | 17 | 17 | 15 | 16 | 14 | 15 |
|  | *MS-B40 iter* | 22 | 24 | 19 | 21 | 18 | 19 | 17 | 18 |
|  | *MS-B40 simul* | 22 | 23 | 19 | 20 | 17 | 19 | 17 | 18 |
|  | *MS-MSY* | 37 | 23 | 39 | 17 | 35 | 15 | 34 | 15 |
|  | *MS-cMSY* | 35 | 27 | 32 | 21 | 29 | 18 | 28 | 17 |
| *TRUE* | *NPFMC Fix-M* | 30 | 27 | 26 | 22 | 24 | 20 | 23 | 19 |
|  | *NPFMC Fix-M (Dynamic B0)* | 30 | 27 | 27 | 21 | 24 | 18 | 24 | 18 |
|  | *NPFMC Est-M* | 18 | 19 | 16 | 17 | 15 | 15 | 14 | 14 |
|  | *NPFMC Est-M (Dynamic B0)* | 18 | 19 | 16 | 16 | 15 | 15 | 14 | 15 |
|  | *MS-B40 iter* | 21 | 22 | 18 | 19 | 17 | 17 | 16 | 17 |
|  | *MS-B40 simul* | 21 | 22 | 18 | 18 | 17 | 17 | 16 | 17 |
|  | *MS-MSY* | 38 | 18 | 34 | 13 | 31 | 12 | 30 | 12 |
|  | *MS-cMSY* | 34 | 21 | 30 | 16 | 27 | 14 | 26 | 14 |

**Supplementary Table S3.4.PM-2.** Summary of performance metric 2 (average interannual variation in catch (IAV)) across OMs for **Cod**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.24 | 0.25 | 0.28 | 0.29 | 0.3 | 0.32 | 0.32 | 0.34 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.2 | 0.2 | 0.22 | 0.22 | 0.23 | 0.23 | 0.24 | 0.24 |
|  | *NPFMC Est-M* | 0.19 | 0.18 | 0.22 | 0.21 | 0.24 | 0.22 | 0.25 | 0.23 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.18 | 0.17 | 0.19 | 0.18 | 0.2 | 0.19 | 0.21 | 0.19 |
|  | *MS-B40 iter* | 0.15 | 0.15 | 0.16 | 0.16 | 0.17 | 0.16 | 0.17 | 0.17 |
|  | *MS-B40 simul* | 0.15 | 0.15 | 0.16 | 0.16 | 0.17 | 0.16 | 0.18 | 0.17 |
|  | *MS-MSY* | 0.39 | 0.53 | 0.52 | 0.66 | 0.57 | 0.78 | 0.59 | 0.78 |
|  | *MS-cMSY* | 0.33 | 0.28 | 0.36 | 0.33 | 0.37 | 0.37 | 0.41 | 0.39 |
| *TRUE* | *NPFMC Fix-M* | 0.25 | 0.26 | 0.28 | 0.31 | 0.3 | 0.34 | 0.32 | 0.35 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.2 | 0.21 | 0.22 | 0.23 | 0.23 | 0.24 | 0.24 | 0.24 |
|  | *NPFMC Est-M* | 0.19 | 0.19 | 0.22 | 0.21 | 0.24 | 0.23 | 0.26 | 0.24 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.18 | 0.17 | 0.19 | 0.19 | 0.21 | 0.2 | 0.21 | 0.2 |
|  | *MS-B40 iter* | 0.15 | 0.15 | 0.17 | 0.16 | 0.17 | 0.17 | 0.18 | 0.17 |
|  | *MS-B40 simul* | 0.15 | 0.15 | 0.17 | 0.16 | 0.17 | 0.17 | 0.18 | 0.17 |
|  | *MS-MSY* | 0.32 | 0.48 | 0.37 | 0.61 | 0.38 | 0.67 | 0.39 | 0.66 |
|  | *MS-cMSY* | 0.28 | 0.3 | 0.31 | 0.37 | 0.32 | 0.41 | 0.34 | 0.42 |

**Supplementary Table S3.4.PM-3.** Summary of performance metric 3 (probability that the population is overfished as determined from the OM) across OMs for **Cod**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.01 | 0.01 | 0.01 | 0.04 | 0.01 | 0.13 | 0.01 | 0.21 |
|  | *NPFMC Est-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Est-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-B40 iter* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-B40 simul* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-MSY* | 0.27 | 0.78 | 0.85 | 0.84 | 0.83 | 0.85 | 0.84 | 0.84 |
|  | *MS-cMSY* | 0.12 | 0.39 | 0.13 | 0.54 | 0.13 | 0.7 | 0.16 | 0.75 |
| *TRUE* | *NPFMC Fix-M* | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.03 | 0.02 | 0.03 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.01 | 0.03 | 0.01 | 0.14 | 0.01 | 0.31 | 0.02 | 0.34 |
|  | *NPFMC Est-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Est-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-B40 iter* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-B40 simul* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *MS-MSY* | 0.82 | 0.84 | 0.88 | 0.86 | 0.87 | 0.86 | 0.86 | 0.86 |
|  | *MS-cMSY* | 0.18 | 0.68 | 0.17 | 0.76 | 0.18 | 0.82 | 0.19 | 0.83 |

**Supplementary Table S3.4.PM-4.** Summary of performance metric 4 (terminal spawning stock biomass (1,000 mt)) across OMs for **Cod**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 157 | 152 | 128 | 118 | 134 | 108 | 138 | 95 |
|  | *NPFMC Fix-M (Dynamic B0)* | 153 | 146 | 123 | 107 | 124 | 72 | 125 | 48 |
|  | *NPFMC Est-M* | 269 | 288 | 223 | 238 | 204 | 218 | 193 | 197 |
|  | *NPFMC Est-M (Dynamic B0)* | 270 | 290 | 225 | 243 | 203 | 218 | 191 | 191 |
|  | *MS-B40 iter* | 251 | 275 | 210 | 229 | 190 | 199 | 179 | 168 |
|  | *MS-B40 simul* | 251 | 272 | 210 | 229 | 190 | 200 | 179 | 168 |
|  | *MS-MSY* | 101 | 52 | 43 | 26 | 49 | 10 | 54 | 4 |
|  | *MS-cMSY* | 136 | 117 | 106 | 84 | 106 | 47 | 109 | 23 |
| *TRUE* | *NPFMC Fix-M* | 152 | 140 | 124 | 107 | 134 | 102 | 139 | 93 |
|  | *NPFMC Fix-M (Dynamic B0)* | 148 | 130 | 119 | 91 | 124 | 60 | 125 | 44 |
|  | *NPFMC Est-M* | 260 | 271 | 214 | 221 | 204 | 208 | 193 | 194 |
|  | *NPFMC Est-M (Dynamic B0)* | 261 | 272 | 215 | 222 | 202 | 203 | 191 | 188 |
|  | *MS-B40 iter* | 239 | 246 | 200 | 203 | 189 | 184 | 179 | 162 |
|  | *MS-B40 simul* | 240 | 244 | 200 | 207 | 189 | 191 | 179 | 164 |
|  | *MS-MSY* | 58 | 28 | 40 | 11 | 49 | 4 | 56 | 2 |
|  | *MS-cMSY* | 120 | 79 | 96 | 59 | 105 | 35 | 107 | 18 |

**Supplementary Table S3.4.PM-5.** Summary of performance metric 5 (terminal spawning stock biomass depletion relative to dynamic SB0) across OMs for **Cod**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.37 | 0.39 | 0.37 | 0.36 | 0.46 | 0.34 | 0.53 | 0.32 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.36 | 0.37 | 0.35 | 0.33 | 0.42 | 0.23 | 0.47 | 0.16 |
|  | *NPFMC Est-M* | 0.64 | 0.74 | 0.65 | 0.73 | 0.7 | 0.69 | 0.74 | 0.67 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.65 | 0.74 | 0.65 | 0.74 | 0.69 | 0.69 | 0.73 | 0.65 |
|  | *MS-B40 iter* | 0.6 | 0.7 | 0.61 | 0.7 | 0.65 | 0.63 | 0.68 | 0.57 |
|  | *MS-B40 simul* | 0.6 | 0.69 | 0.61 | 0.7 | 0.65 | 0.63 | 0.68 | 0.57 |
|  | *MS-MSY* | 0.24 | 0.13 | 0.13 | 0.08 | 0.17 | 0.03 | 0.2 | 0.01 |
|  | *MS-cMSY* | 0.32 | 0.3 | 0.3 | 0.26 | 0.36 | 0.15 | 0.42 | 0.08 |
| *TRUE* | *NPFMC Fix-M* | 0.36 | 0.36 | 0.36 | 0.33 | 0.46 | 0.32 | 0.53 | 0.32 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.35 | 0.33 | 0.34 | 0.28 | 0.42 | 0.19 | 0.47 | 0.15 |
|  | *NPFMC Est-M* | 0.62 | 0.69 | 0.62 | 0.68 | 0.69 | 0.66 | 0.74 | 0.66 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.62 | 0.69 | 0.62 | 0.68 | 0.69 | 0.64 | 0.73 | 0.64 |
|  | *MS-B40 iter* | 0.57 | 0.63 | 0.58 | 0.62 | 0.64 | 0.58 | 0.68 | 0.55 |
|  | *MS-B40 simul* | 0.57 | 0.62 | 0.58 | 0.63 | 0.64 | 0.6 | 0.68 | 0.56 |
|  | *MS-MSY* | 0.14 | 0.07 | 0.12 | 0.03 | 0.17 | 0.01 | 0.21 | 0.01 |
|  | *MS-cMSY* | 0.28 | 0.2 | 0.28 | 0.18 | 0.35 | 0.11 | 0.41 | 0.06 |

**Supplementary Table S3.4.PM-6.** Summary of performance metric 6 (terminal dynamic SB0 (1,000 mt)) across OMs for **Cod**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *NPFMC Fix-M (Dynamic B0)* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *NPFMC Est-M* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *NPFMC Est-M (Dynamic B0)* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-B40 iter* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-B40 simul* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-MSY* | 417 | 389 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-cMSY* | 416 | 390 | 344 | 325 | 292 | 313 | 259 | 292 |
| *TRUE* | *NPFMC Fix-M* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *NPFMC Fix-M (Dynamic B0)* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *NPFMC Est-M* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *NPFMC Est-M (Dynamic B0)* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-B40 iter* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-B40 simul* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-MSY* | 417 | 390 | 344 | 325 | 292 | 313 | 260 | 292 |
|  | *MS-cMSY* | 418 | 390 | 345 | 325 | 292 | 313 | 260 | 292 |

**Supplementary Table S3.5.PM-1.** Summary of performance metric 1 (average annual catch (1,000 mt)) across OMs for **Arrowtooth flounder**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 98 | 89 | 77 | 77 | 63 | 63 | 54 | 54 |
|  | *NPFMC Fix-M (Dynamic B0)* | 99 | 89 | 78 | 78 | 66 | 65 | 57 | 56 |
|  | *NPFMC Est-M* | 111 | 90 | 86 | 80 | 70 | 65 | 60 | 57 |
|  | *NPFMC Est-M (Dynamic B0)* | 111 | 90 | 88 | 80 | 74 | 66 | 65 | 58 |
|  | *MS-B40 iter* | 122 | 88 | 98 | 79 | 82 | 64 | 72 | 58 |
|  | *MS-B40 simul* | 123 | 89 | 98 | 80 | 82 | 65 | 72 | 59 |
|  | *MS-MSY* | 133 | 87 | 155 | 80 | 123 | 65 | 102 | 59 |
|  | *MS-cMSY* | 168 | 87 | 134 | 80 | 111 | 65 | 97 | 59 |
| *TRUE* | *NPFMC Fix-M* | 36 | 36 | 35 | 36 | 34 | 35 | 31 | 31 |
|  | *NPFMC Fix-M (Dynamic B0)* | 36 | 36 | 35 | 36 | 35 | 35 | 33 | 33 |
|  | *NPFMC Est-M* | 36 | 36 | 35 | 36 | 35 | 35 | 32 | 32 |
|  | *NPFMC Est-M (Dynamic B0)* | 36 | 36 | 35 | 36 | 35 | 35 | 34 | 33 |
|  | *MS-B40 iter* | 36 | 36 | 35 | 36 | 35 | 35 | 34 | 33 |
|  | *MS-B40 simul* | 36 | 36 | 35 | 36 | 35 | 35 | 34 | 33 |
|  | *MS-MSY* | 36 | 36 | 35 | 36 | 35 | 35 | 35 | 33 |
|  | *MS-cMSY* | 36 | 36 | 35 | 36 | 35 | 35 | 35 | 33 |

**Supplementary Table S3.5.PM-2.** Summary of performance metric 2 (average interannual variation in catch (IAV)) across OMs for **Arrowtooth flounder**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.14 | 0.15 | 0.17 | 0.17 | 0.21 | 0.21 | 0.25 | 0.24 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.14 | 0.15 | 0.17 | 0.17 | 0.2 | 0.2 | 0.23 | 0.23 |
|  | *NPFMC Est-M* | 0.22 | 0.27 | 0.28 | 0.3 | 0.34 | 0.37 | 0.39 | 0.42 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.21 | 0.27 | 0.27 | 0.29 | 0.32 | 0.36 | 0.36 | 0.4 |
|  | *MS-B40 iter* | 0.26 | 0.37 | 0.33 | 0.41 | 0.38 | 0.5 | 0.44 | 0.55 |
|  | *MS-B40 simul* | 0.26 | 0.37 | 0.33 | 0.41 | 0.39 | 0.5 | 0.44 | 0.55 |
|  | *MS-MSY* | 0.33 | 0.49 | 0.94 | 0.5 | 1.15 | 0.62 | 1.42 | 0.68 |
|  | *MS-cMSY* | 0.4 | 0.5 | 0.5 | 0.5 | 0.59 | 0.62 | 0.68 | 0.68 |
| *TRUE* | *NPFMC Fix-M* | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.08 | 0.11 | 0.1 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.1 | 0.1 |
|  | *NPFMC Est-M* | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.08 | 0.11 | 0.1 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.1 | 0.1 |
|  | *MS-B40 iter* | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.1 | 0.1 |
|  | *MS-B40 simul* | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.1 | 0.1 |
|  | *MS-MSY* | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.1 |
|  | *MS-cMSY* | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.1 | 0.1 |

**Supplementary Table S3.5.PM-3.** Summary of performance metric 3 (probability that the population is overfished as determined from the OM) across OMs for **Arrowtooth flounder**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 |
|  | *NPFMC Est-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Est-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0.04 | 0.01 | 0.24 |
|  | *MS-B40 iter* | 0 | 0.03 | 0 | 0.02 | 0 | 0.29 | 0.04 | 0.37 |
|  | *MS-B40 simul* | 0 | 0.02 | 0 | 0.01 | 0 | 0.28 | 0.04 | 0.37 |
|  | *MS-MSY* | 0 | 0.23 | 0.95 | 0.08 | 0.95 | 0.38 | 0.95 | 0.4 |
|  | *MS-cMSY* | 0.38 | 0.23 | 0.4 | 0.08 | 0.55 | 0.38 | 0.6 | 0.4 |
| *TRUE* | *NPFMC Fix-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.05 |
|  | *NPFMC Est-M* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | *NPFMC Est-M (Dynamic B0)* | 0 | 0 | 0 | 0 | 0 | 0 | 0.03 | 0.08 |
|  | *MS-B40 iter* | 0 | 0 | 0 | 0 | 0 | 0 | 0.04 | 0.08 |
|  | *MS-B40 simul* | 0 | 0 | 0 | 0 | 0 | 0 | 0.04 | 0.08 |
|  | *MS-MSY* | 0 | 0 | 0 | 0 | 0 | 0 | 0.06 | 0.08 |
|  | *MS-cMSY* | 0 | 0 | 0 | 0 | 0 | 0 | 0.05 | 0.08 |

**Supplementary Table S3.5.PM-4.** Summary of performance metric 4 (terminal spawning stock biomass (1,000 mt)) across OMs for **Arrowtooth flounder**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 368 | 319 | 303 | 293 | 133 | 122 | 66 | 52 |
|  | *NPFMC Fix-M (Dynamic B0)* | 366 | 314 | 301 | 283 | 107 | 86 | 49 | 20 |
|  | *NPFMC Est-M* | 330 | 262 | 278 | 251 | 124 | 101 | 62 | 41 |
|  | *NPFMC Est-M (Dynamic B0)* | 327 | 246 | 273 | 226 | 95 | 58 | 44 | 10 |
|  | *MS-B40 iter* | 293 | 182 | 247 | 172 | 85 | 36 | 40 | 5 |
|  | *MS-B40 simul* | 298 | 186 | 251 | 173 | 86 | 36 | 40 | 6 |
|  | *MS-MSY* | 264 | 143 | 12 | 154 | 2 | 32 | 1 | 5 |
|  | *MS-cMSY* | 166 | 142 | 151 | 153 | 53 | 32 | 30 | 5 |
| *TRUE* | *NPFMC Fix-M* | 582 | 597 | 443 | 492 | 128 | 150 | 64 | 53 |
|  | *NPFMC Fix-M (Dynamic B0)* | 582 | 597 | 443 | 493 | 108 | 144 | 48 | 28 |
|  | *NPFMC Est-M* | 581 | 595 | 442 | 490 | 115 | 143 | 59 | 43 |
|  | *NPFMC Est-M (Dynamic B0)* | 581 | 595 | 442 | 490 | 99 | 142 | 42 | 19 |
|  | *MS-B40 iter* | 581 | 595 | 443 | 491 | 99 | 142 | 40 | 18 |
|  | *MS-B40 simul* | 581 | 587 | 443 | 489 | 99 | 142 | 39 | 18 |
|  | *MS-MSY* | 583 | 591 | 445 | 493 | 99 | 144 | 21 | 19 |
|  | *MS-cMSY* | 583 | 590 | 444 | 492 | 99 | 144 | 28 | 19 |

**Supplementary Table S3.5.PM-5.** Summary of performance metric 5 (terminal spawning stock biomass depletion relative to dynamic SB0) across OMs for **Arrowtooth flounder**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 0.52 | 0.45 | 0.54 | 0.49 | 0.62 | 0.43 | 0.61 | 0.37 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.52 | 0.44 | 0.54 | 0.47 | 0.5 | 0.3 | 0.45 | 0.14 |
|  | *NPFMC Est-M* | 0.47 | 0.37 | 0.5 | 0.42 | 0.58 | 0.35 | 0.57 | 0.29 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.46 | 0.35 | 0.49 | 0.37 | 0.44 | 0.2 | 0.4 | 0.07 |
|  | *MS-B40 iter* | 0.42 | 0.26 | 0.44 | 0.28 | 0.4 | 0.12 | 0.37 | 0.04 |
|  | *MS-B40 simul* | 0.42 | 0.26 | 0.45 | 0.29 | 0.4 | 0.13 | 0.37 | 0.04 |
|  | *MS-MSY* | 0.37 | 0.2 | 0.02 | 0.25 | 0.01 | 0.11 | 0.01 | 0.04 |
|  | *MS-cMSY* | 0.24 | 0.2 | 0.27 | 0.25 | 0.25 | 0.11 | 0.28 | 0.03 |
| *TRUE* | *NPFMC Fix-M* | 0.83 | 0.84 | 0.79 | 0.82 | 0.6 | 0.53 | 0.59 | 0.38 |
|  | *NPFMC Fix-M (Dynamic B0)* | 0.83 | 0.84 | 0.79 | 0.82 | 0.5 | 0.5 | 0.44 | 0.2 |
|  | *NPFMC Est-M* | 0.82 | 0.84 | 0.79 | 0.81 | 0.54 | 0.5 | 0.55 | 0.3 |
|  | *NPFMC Est-M (Dynamic B0)* | 0.82 | 0.84 | 0.79 | 0.81 | 0.46 | 0.5 | 0.38 | 0.14 |
|  | *MS-B40 iter* | 0.82 | 0.84 | 0.79 | 0.81 | 0.46 | 0.5 | 0.36 | 0.13 |
|  | *MS-B40 simul* | 0.83 | 0.83 | 0.79 | 0.81 | 0.46 | 0.5 | 0.36 | 0.13 |
|  | *MS-MSY* | 0.83 | 0.83 | 0.79 | 0.82 | 0.46 | 0.51 | 0.19 | 0.13 |
|  | *MS-cMSY* | 0.83 | 0.83 | 0.79 | 0.81 | 0.46 | 0.5 | 0.25 | 0.13 |

**Supplementary Table S3.5.PM-6.** Summary of performance metric 6 (terminal dynamic SB0 (1,000 mt)) across OMs for **Arrowtooth flounder**.

| **Cap** | **EM** | **1. No climate** | **2. w/ SRR** | **3. 1-2.6** | **4. w/ SRR** | **5. 2-4.5** | **6. w/ SRR** | **7. 5-8.5** | **8. w/ SRR** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *FALSE* | *NPFMC Fix-M* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *NPFMC Fix-M (Dynamic B0)* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *NPFMC Est-M* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *NPFMC Est-M (Dynamic B0)* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-B40 iter* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-B40 simul* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-MSY* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-cMSY* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
| *TRUE* | *NPFMC Fix-M* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *NPFMC Fix-M (Dynamic B0)* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *NPFMC Est-M* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *NPFMC Est-M (Dynamic B0)* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-B40 iter* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-B40 simul* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-MSY* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |
|  | *MS-cMSY* | 703 | 710 | 560 | 603 | 214 | 284 | 109 | 140 |