

# South Africa Stocks

## v4.491 (Jan-06-2020)

Not present Present Preferred

| Stock  | B/Bmsy | Time Series Types |        |        |  |
|--|--------|-------------------|--------|--------|--|
|  |        | U/Umsy            | B/Bmgt | U/Umgt |  |
| 1. ANCHOSA [Anchovy South Africa]  | TB SSB | ER F              | TB SSB | ER F   |  |
| 2. CHAKESA [Shallow water cape hake South Africa]  | TB SSB | ER F              | TB SSB | ER F   |  |
| 3. CHSQUIDSA [Cape Hope squid South Africa]  | TB SSB | ER F              | TB SSB | ER F   |  |
| 4. CRLOBSTERSA12 [West coast rock lobster South Africa Areas 1-2]                        | TB SSB | ER F              | TB SSB | ER F   |  |
| 5. CRLOBSTERSA34 [West coast rock lobster South Africa Areas 3-4]                        | TB SSB | ER F              | TB SSB | ER F   |  |
| 6. CRLOBSTERSA56 [West coast rock lobster South Africa Areas 5-6]                        | TB SSB | ER F              | TB SSB | ER F   |  |
| 7. CRLOBSTERSA7 [West coast rock lobster South Africa Area 7]                            | TB SSB | ER F              | TB SSB | ER F   |  |
| 8. CRLOBSTERSA8 [West coast rock lobster South Africa Area 8]                            | TB SSB | ER F              | TB SSB | ER F   |  |
| 9. CTRACSA [Cape horse mackerel South Africa South coast]                                | TB SSB | ER F              | TB SSB | ER F   |  |
| 10. DEEPCHAKESA [Deep water cape hake South Africa]                                      | TB SSB | ER F              | TB SSB | ER F   |  |
| 11. KINGKLIPSA [Kingklip South Africa]   | TB SSB | ER F              | TB SSB | ER F   |  |
| 12. PTOOTHFISHPEI [Patagonian toothfish South Africa Subantarctic Prince Edward Islands] | TB SSB | ER F              | TB SSB | ER F   |  |
| 13. SAABALONESA [South African abalone South Africa]                                     | TB SSB | ER F              | TB SSB | ER F   |  |
| 14. SARDSA [Sardine South Africa]  | TB SSB | ER F              | TB SSB | ER F   |  |
| 15. SSLOBSTERSASC [Southern spiny lobster South Africa South coast]                      | TB SSB | ER F              | TB SSB | ER F   |  |

## Anchovy South Africa [ANCHOSA]

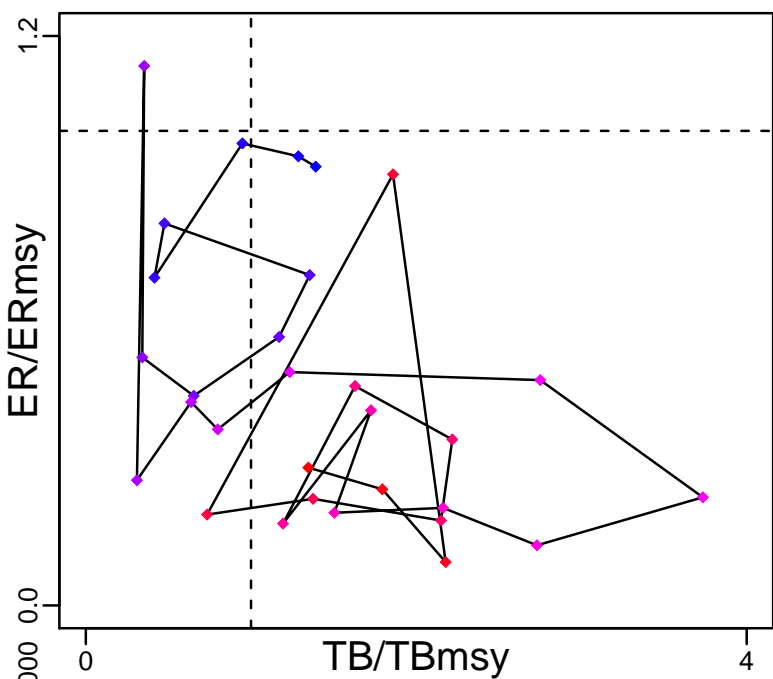
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Engraulis encrasicolus  |
| <b>Current Assess ID</b>    | MARAM-ANCHOSA-1949-2015-deMoor  |
| <b>Area</b>                 | South Africa  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2015, 2011  |

| Reference Points |                 |           |           |
|------------------|-----------------|-----------|-----------|
| Type             | ID              | Asmt Year | Value     |
| <b>TBmsy</b>     | TBmsy-est-MT    | 2015      | 2,479,412 |
| <b>SSBmsy</b>    | -               | -         | -         |
| <b>Fmsy</b>      | -               | -         | -         |
| <b>ERmsy</b>     | ERmsy-est-ratio | 2015      | 0.184     |
| <b>TBmgt</b>     | -               | -         | -         |
| <b>SSBmgt</b>    | -               | -         | -         |
| <b>Fmgt</b>      | -               | -         | -         |
| <b>ERmgt</b>     | -               | -         | -         |
| <b>TB0</b>       | TB0-MT          | 2015      | 5,261,270 |
| <b>SSB0</b>      | -               | -         | -         |
| <b>MSY</b>       | MSY-est-MT      | 2015      | 455,854   |
| <b>M</b>         | M-1/yr          | 2015      | 1.2       |
| <b>TBlim</b>     | TBlim-MT        | 2015      | 204,441   |
| <b>SSBlim</b>    | -               | -         | -         |
| <b>Flim</b>      | -               | -         | -         |
| <b>ERlim</b>     | -               | -         | -         |

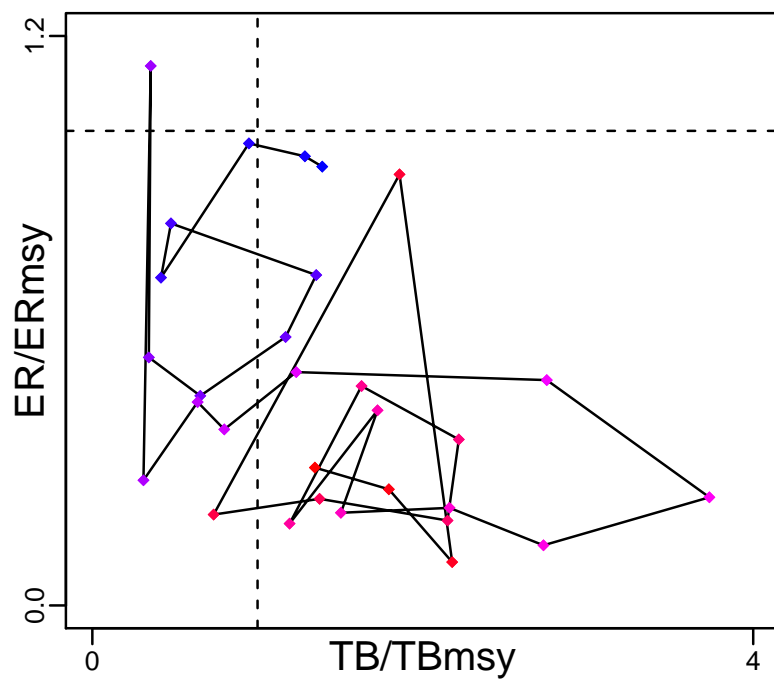
| Time Series       |                          |           |                       |      |     |
|-------------------|--------------------------|-----------|-----------------------|------|-----|
| Type              | ID                       | Asmt Year | Curr Value            | Sex  | Age |
| <b>TB</b>         | TB-MT                    | 2015      | 3,340,000             | Both | 0+  |
| <b>SSB</b>        | SSB-MT                   | 2015      | 2,020,000             | Both | 0+  |
| <b>TN</b>         | TN-E00                   | 2015      | $9.94 \times 10^{11}$ | Both | 0+  |
| <b>R</b>          | R-E00                    | 2015      | $6.41 \times 10^{11}$ | Both | -   |
| <b>F</b>          | -                        | -         | -                     | -    | -   |
| <b>ER</b>         | ER-ratio                 | 2015      | 0.053                 | Both | 0+  |
| <b>TC</b>         | TC-MT                    | 2015      | 238,000               |      |     |
| <b>TL</b>         | TL-MT                    | 2015      | 238,000               |      |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-est-MT       | 2015      | 1.347                 |      |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -                     |      |     |
| <b>F/Fmsy</b>     | -                        | -         | -                     |      |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-est-ratio | 2015      | 0.29                  |      |     |
| <b>TB/TBmgt</b>   | -                        | -         | -                     |      |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -                     |      |     |
| <b>F/Fmgt</b>     | -                        | -         | -                     |      |     |
| <b>ER/ERmgt</b>   | -                        | -         | -                     |      |     |

# Anchovy South Africa [ANCHOSA]

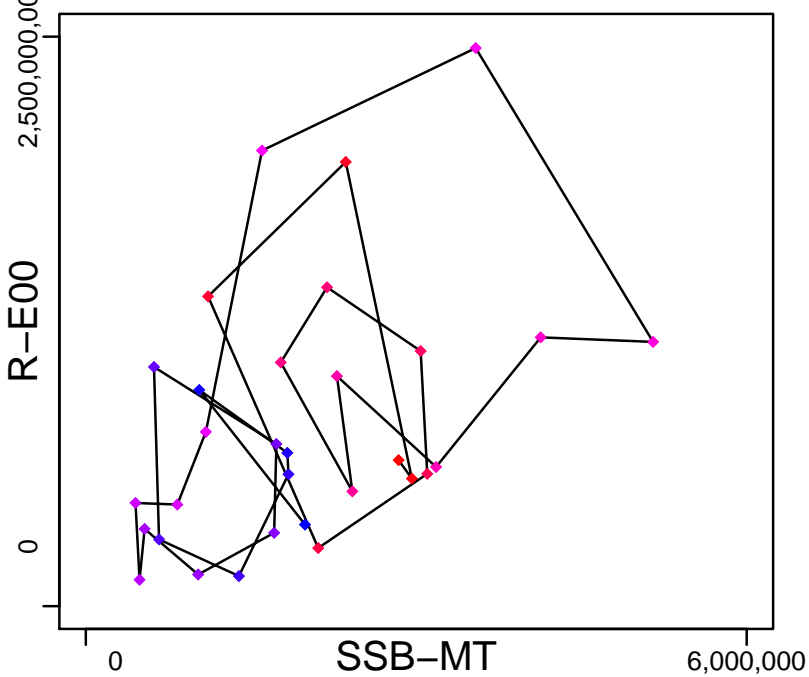
Kobe MSYpref (1949–2015–deMoor)



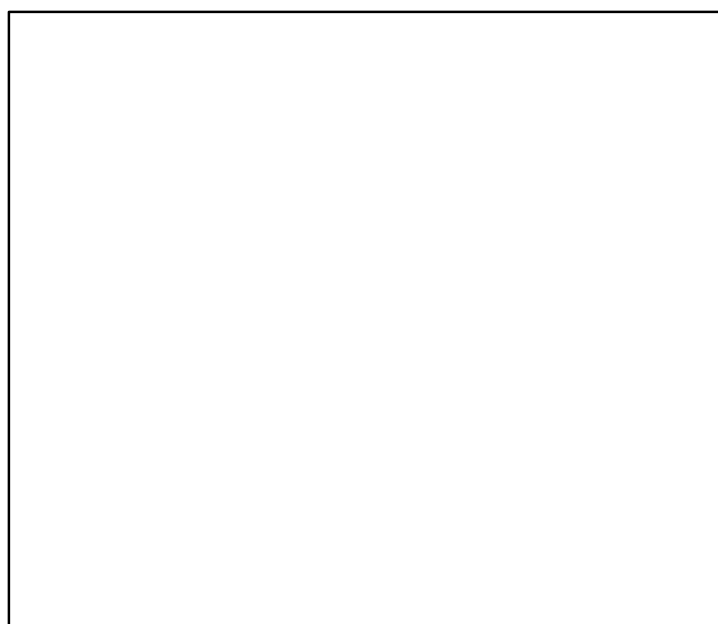
Kobe MGTpref (1949–2015–deMoor)



Spawner Recruit (1949–2015–deMoor)

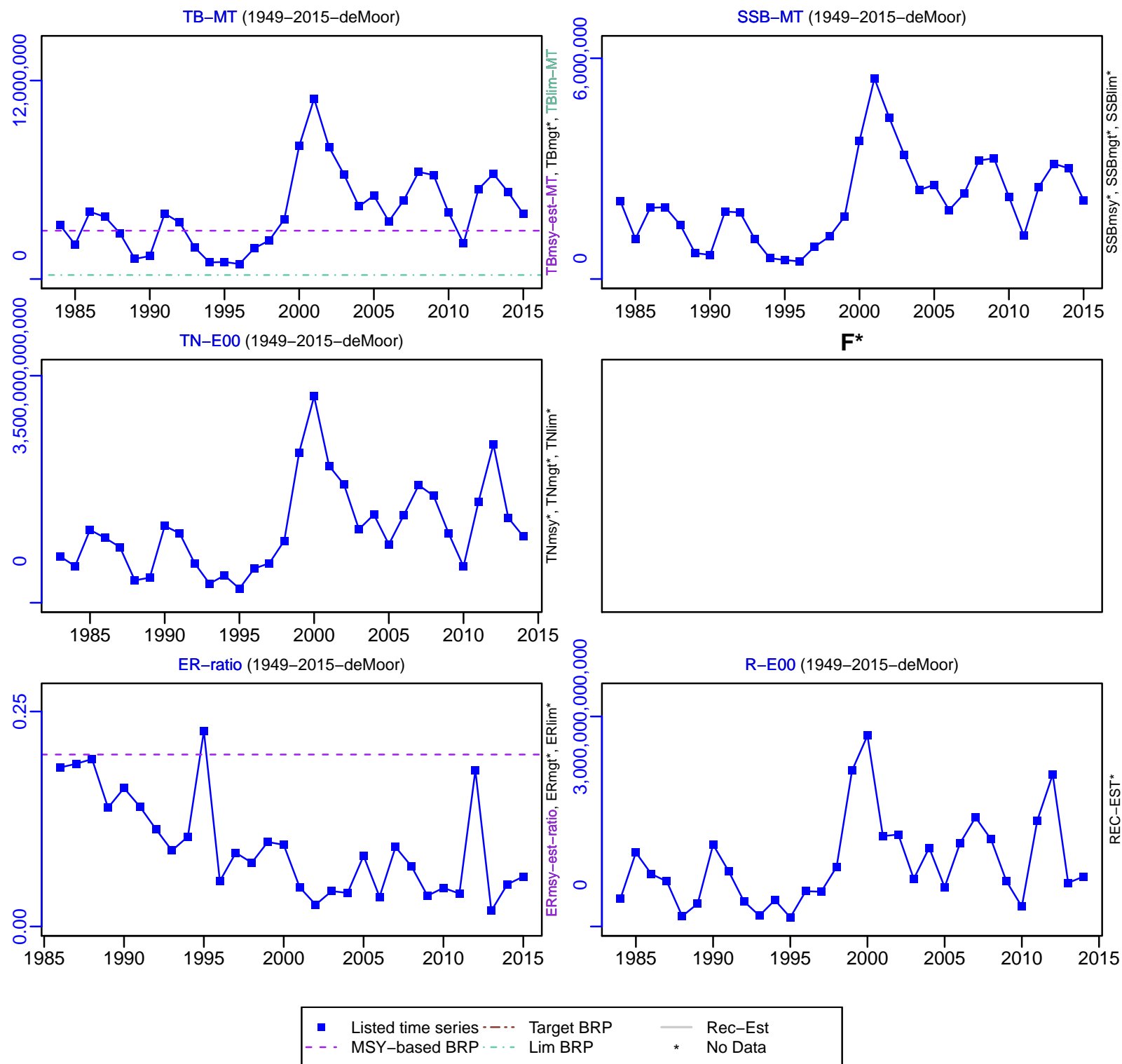


Production\*



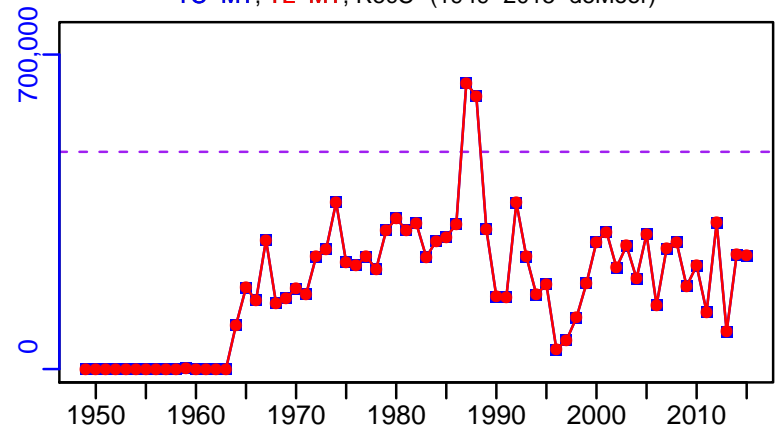
◆ Start Year ◆ End Year \* No Data

# Anchovy South Africa [ANCHOSA]

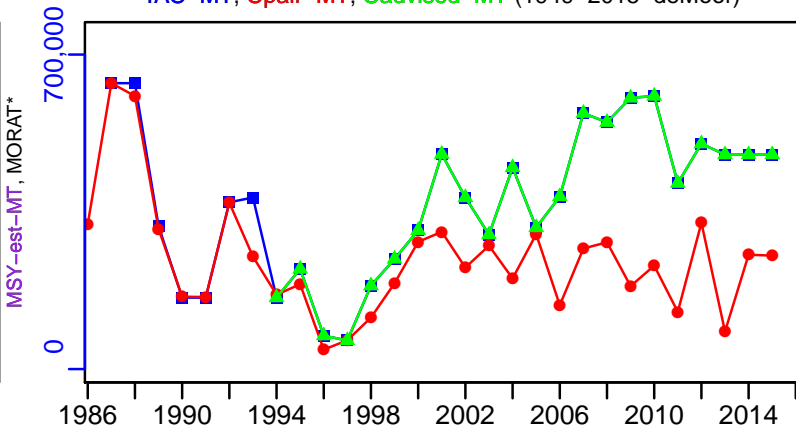


# Anchovy South Africa [ANCHOSA]

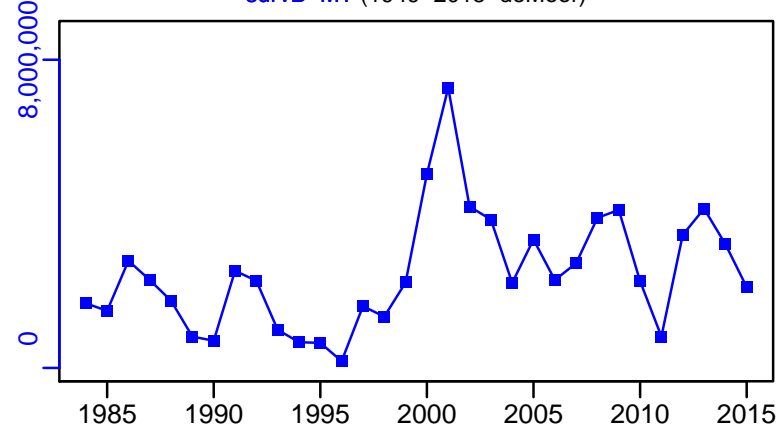
TC-MT, TL-MT, RecC\* (1949–2015–deMoor)



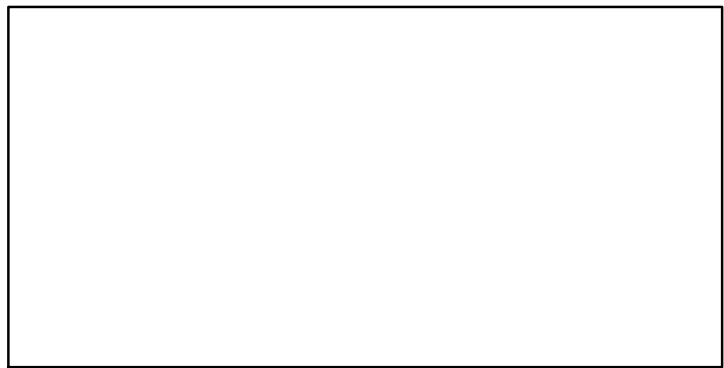
TAC-MT, Cpair-MT, Cadvised-MT (1949–2015–deMoor)



survB-MT (1949–2015–deMoor)



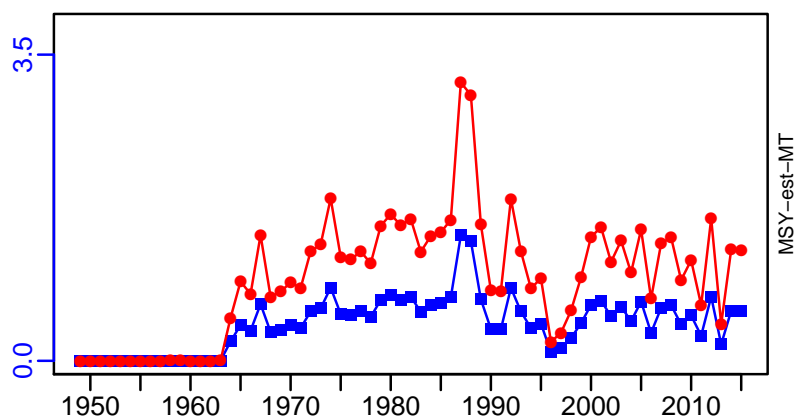
EFFORT\*



CPUE\*



TC-MT/MSY-est-MT, CdivMEANC-ratio, (1949–2015–deMoor)



■ 1st listed time series    ▲ 3rd listed time series    — MORAT  
● 2nd listed time series    - - - MSY    \* No Data

## Shallow water cape hake South Africa [CHAKESA]

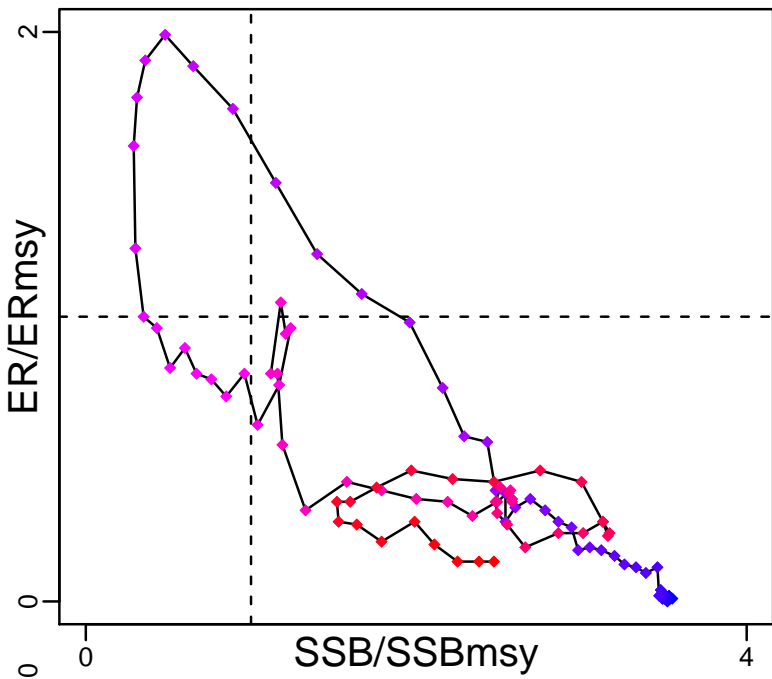
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Merluccius capensis   |
| <b>Current Assess ID</b>    | MARAM-CHAKESA-1917-2015-Rademeyer   |
| <b>Area</b>                 | South Africa  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2013, 2015  |

| Reference Points |             |           |         |
|------------------|-------------|-----------|---------|
| Type             | ID          | Asmt Year | Value   |
| <b>TBmsy</b>     | -           | -         | -       |
| <b>SSBmsy</b>    | SSBmsy-MT   | 2015      | 63,100  |
| <b>Fmsy</b>      | Fmsy-1/yr   | 2013      | 0.32    |
| <b>ERmsy</b>     | ERmsy-ratio | 2015      | 0.353   |
| <b>TBmgt</b>     | -           | -         | -       |
| <b>SSBmgt</b>    | SSBmgt-MT   | 2015      | 63,100  |
| <b>Fmgt</b>      | -           | -         | -       |
| <b>ERmgt</b>     | -           | -         | -       |
| <b>TB0</b>       | TB0-MT      | 2015      | 635,500 |
| <b>SSB0</b>      | SSB0-MT     | 2015      | 223,800 |
| <b>MSY</b>       | MSY-MT      | 2015      | 62,800  |
| <b>M</b>         | M-1/yr      | 2015      | 0.717   |
| <b>TBlim</b>     | TBlim-MT    | 2013      | 43,000  |
| <b>SSBlim</b>    | SSBlim-MT   | 2015      | 18,500  |
| <b>Flim</b>      | -           | -         | -       |
| <b>ERlim</b>     | -           | -         | -       |

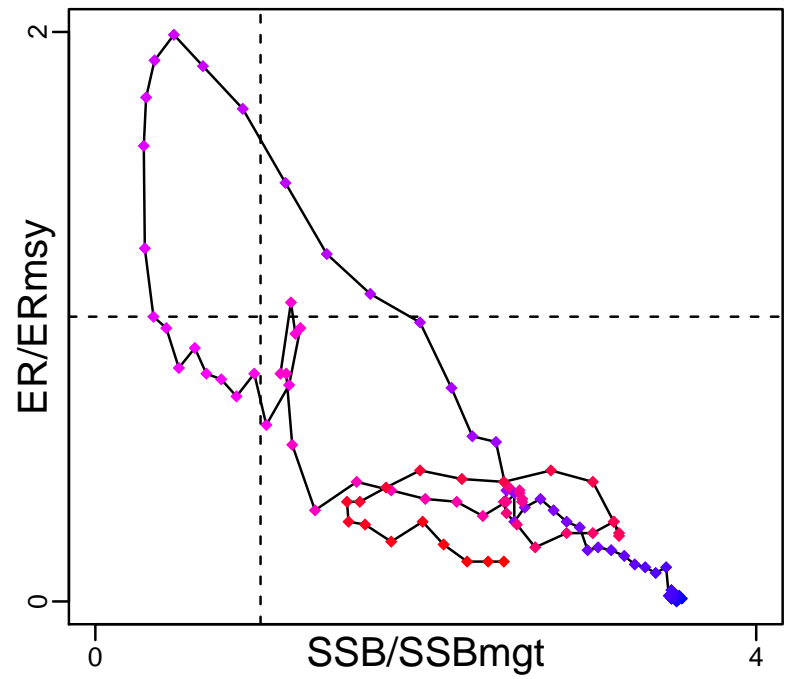
| Time Series       |                            |           |                    |         |     |
|-------------------|----------------------------|-----------|--------------------|---------|-----|
| Type              | ID                         | Asmt Year | Curr Value         | Sex     | Age |
| <b>TB</b>         | TB-MT                      | 2015      | 510,000            | -       | 0+  |
| <b>SSB</b>        | SSB-MT                     | 2015      | 156,000            | Females | 5   |
| <b>TN</b>         | -                          | -         | -                  | -       | -   |
| <b>R</b>          | R-E00                      | 2015      | $1.33 \times 10^9$ | -       | 0   |
| <b>F</b>          | -                          | -         | -                  | -       | -   |
| <b>ER</b>         | ER-ratio                   | 2015      | 0.05               | -       | -   |
| <b>TC</b>         | TC-MT                      | 2015      | 14,400             |         |     |
| <b>TL</b>         | TL-MT                      | 2015      | 14,400             |         |     |
| <b>TB/TBmsy</b>   | TB-MT/(TB0-MT*0.368)       | 2015      | 2.181              |         |     |
| <b>SSB/SSBmsy</b> | SSBdivSSBmsy-dimensionless | 2015      | 2.47               |         |     |
| <b>F/Fmsy</b>     | -                          | -         | -                  |         |     |
| <b>ER/ERmsy</b>   | ERdivERmsy-dimensionless   | 2015      | 0.14               |         |     |
| <b>TB/TBmgt</b>   | -                          | -         | -                  |         |     |
| <b>SSB/SSBmgt</b> | SSB-MT/SSBmgt-MT           | 2015      | 2.472              |         |     |
| <b>F/Fmgt</b>     | -                          | -         | -                  |         |     |
| <b>ER/ERmgt</b>   | -                          | -         | -                  |         |     |

# Shallow water cape hake South Africa [CHAKESA]

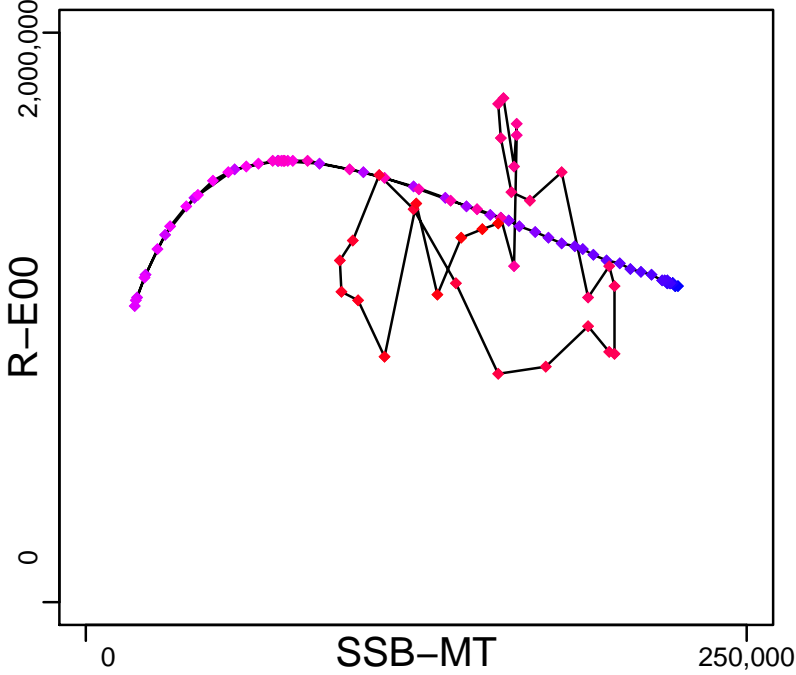
Kobe MSYpref (1917–2015–Rademeyer)



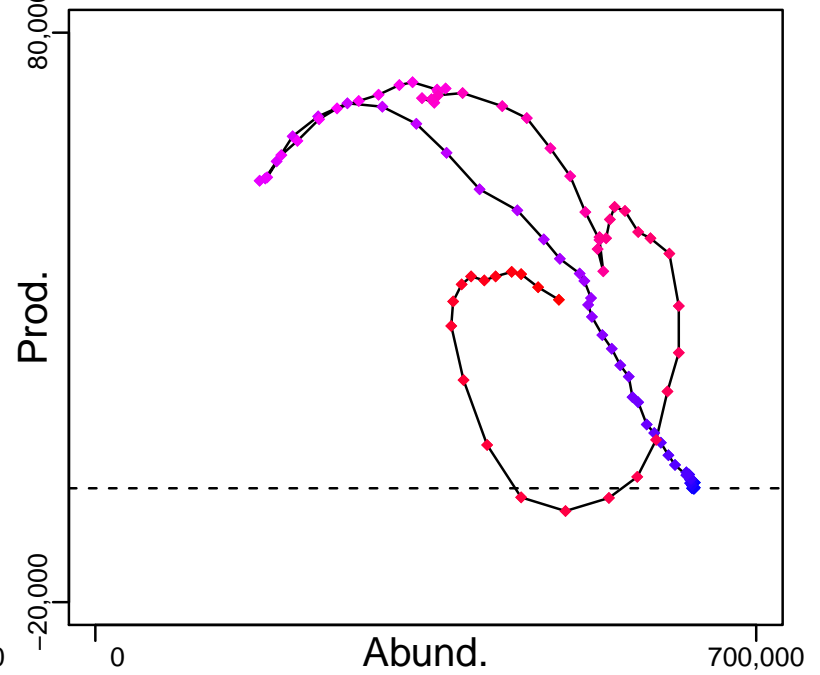
Kobe MGTpref (1917–2015–Rademeyer)



Spawner Recruit (1917–2015–Rademeyer)

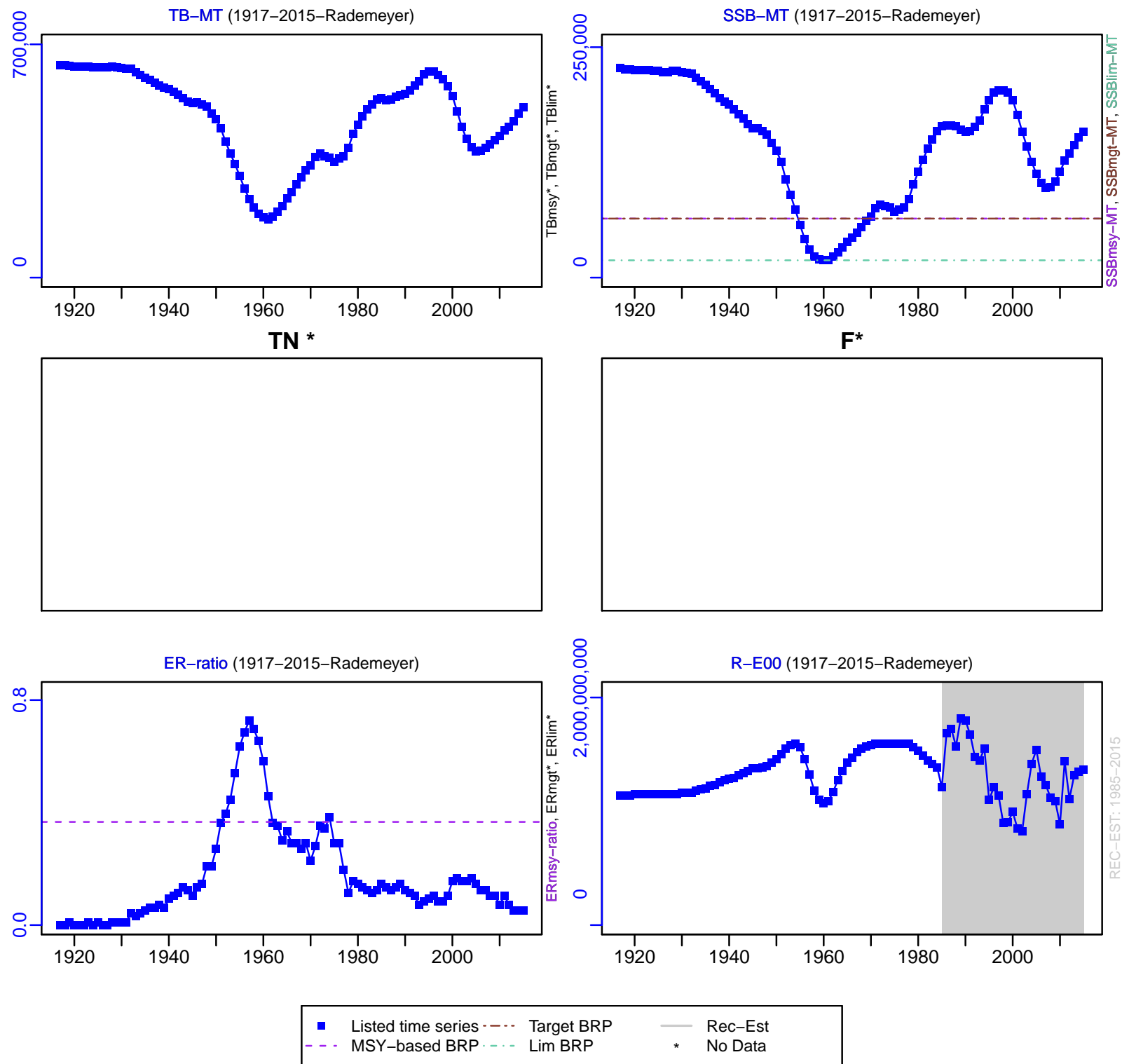


Production (1917–2015–Rademeyer)



◆ Start Year ◆ End Year \* No Data

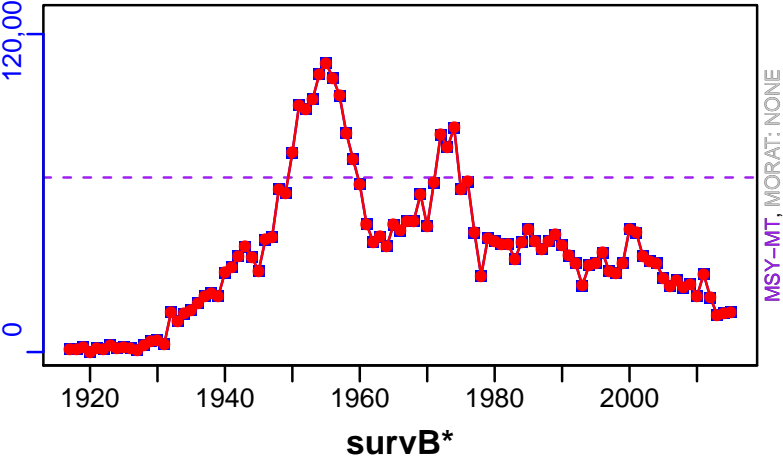
# Shallow water cape hake South Africa [CHAKESA]





Shallow water cape hake South Africa [CHAKESA]

TC-MT, TL-MT, RecC\* (1917-2015-Rademeyer)



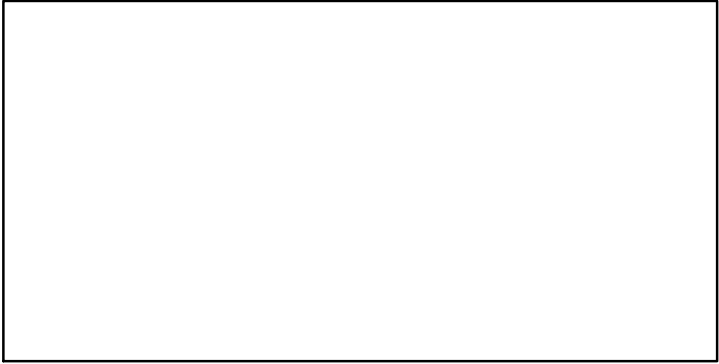
TAC\*, Cpair\*, Cadv\*



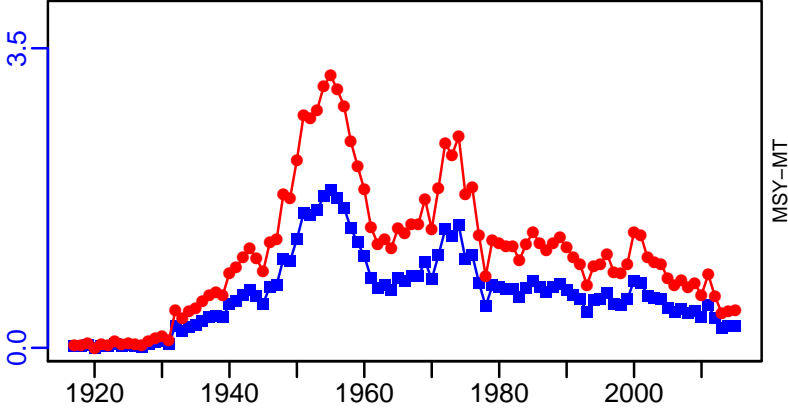
CPUE\*



EFFORT\*



TC-MT/MSY-MT, CdivMEANC-ratio, (1917-2015-Rademeyer)



## Cape Hope squid South Africa [CHSQUIDSA]

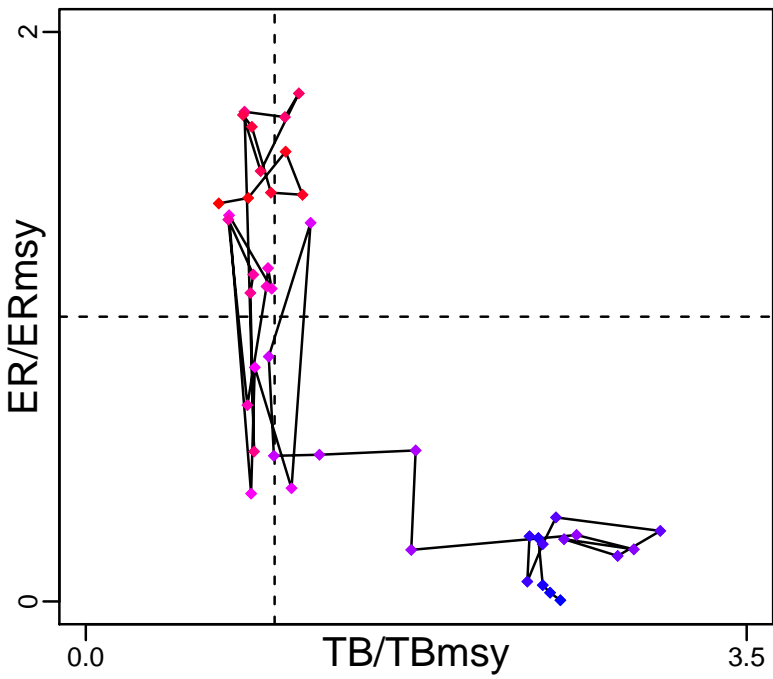
| Metadata                    |  |
|-----------------------------|--|
| <b>Scientific Name</b>      | Loligo reynaudii   |
| <b>Current Assess ID</b>    | FBDAFF-CHSQUIDSA-1971-2013-GLAZER  |
| <b>Area</b>                 | South Africa   |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries |
| <b>Assessor</b>             | Fisheries Branch of Department of Agriculture, Forestry and Fisheries                                    |
| <b>Asmts in RAM</b>         | 2013   |

| Reference Points |                 |           |        |
|------------------|-----------------|-----------|--------|
| Type             | ID              | Asmt Year | Value  |
| <b>TBmsy</b>     | TBmsy-pr-MT     | 2013      | 25,703 |
| <b>SSBmsy</b>    | -               | -         | -      |
| <b>Fmsy</b>      | -               | -         | -      |
| <b>ERmsy</b>     | ERmsy-est-ratio | 2013      | 0.264  |
| <b>TBmgt</b>     | -               | -         | -      |
| <b>SSBmgt</b>    | -               | -         | -      |
| <b>Fmgt</b>      | -               | -         | -      |
| <b>ERmgt</b>     | -               | -         | -      |
| <b>TB0</b>       | TB0-MT          | 2013      | 64,258 |
| <b>SSB0</b>      | -               | -         | -      |
| <b>MSY</b>       | MSY-est-MT      | 2013      | 6785   |
| <b>M</b>         | -               | -         | -      |
| <b>TBlim</b>     | -               | -         | -      |
| <b>SSBlim</b>    | -               | -         | -      |
| <b>Flim</b>      | -               | -         | -      |
| <b>ERlim</b>     | -               | -         | -      |

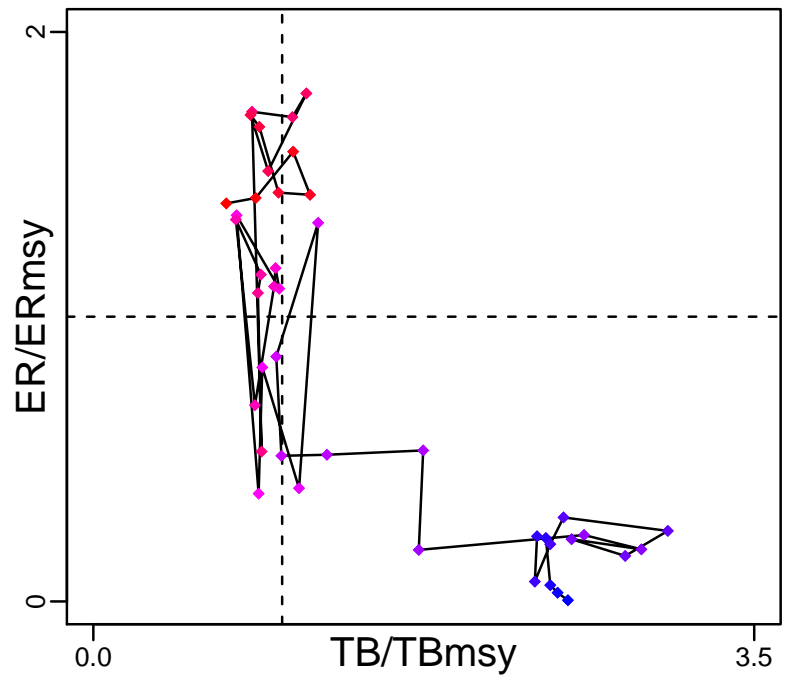
| Time Series       |                          |           |            |      |     |
|-------------------|--------------------------|-----------|------------|------|-----|
| Type              | ID                       | Asmt Year | Curr Value | Sex  | Age |
| <b>TB</b>         | TB-MT                    | 2013      | 18,700     | -    | -   |
| <b>SSB</b>        | SSB-MT                   | 2013      | 18,700     | Both | 1   |
| <b>TN</b>         | -                        | -         | -          | -    | -   |
| <b>R</b>          | R-MT                     | 2013      | 17,000     | -    | -   |
| <b>F</b>          | -                        | -         | -          | -    | -   |
| <b>ER</b>         | ER-ratio                 | 2013      | 0.369      | -    | -   |
| <b>TC</b>         | TC-MT                    | 2013      | 6690       |      |     |
| <b>TL</b>         | TL-MT                    | 2013      | 6690       |      |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-pr-MT        | 2013      | 0.728      |      |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -          |      |     |
| <b>F/Fmsy</b>     | -                        | -         | -          |      |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-est-ratio | 2013      | 1.398      |      |     |
| <b>TB/TBmgt</b>   | -                        | -         | -          |      |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -          |      |     |
| <b>F/Fmgt</b>     | -                        | -         | -          |      |     |
| <b>ER/ERmgt</b>   | -                        | -         | -          |      |     |

# Cape Hope squid South Africa [CHSQUIDSA]

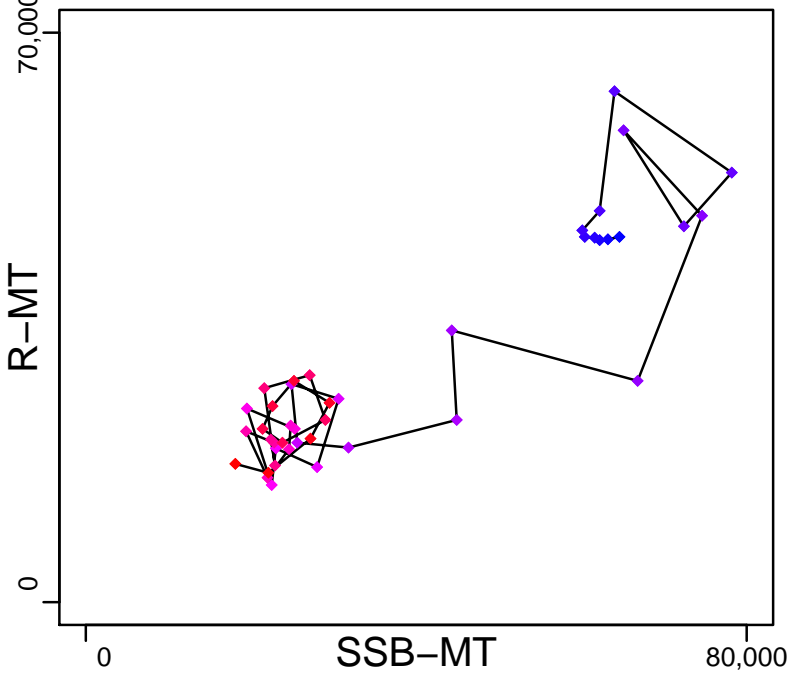
Kobe MSYpref (1971–2013–GLAZER)



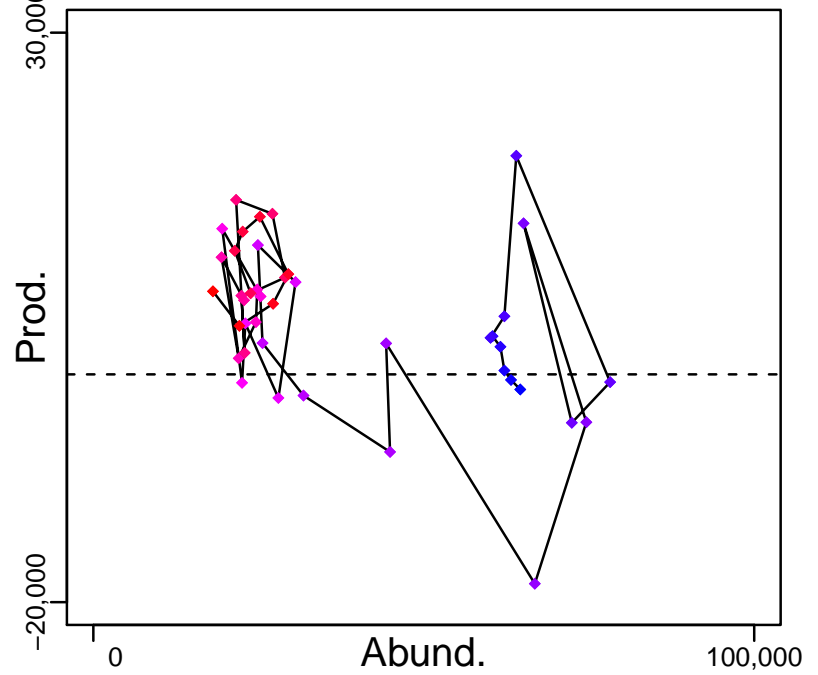
Kobe MGTpref (1971–2013–GLAZER)



Spawner Recruit (1971–2013–GLAZER)



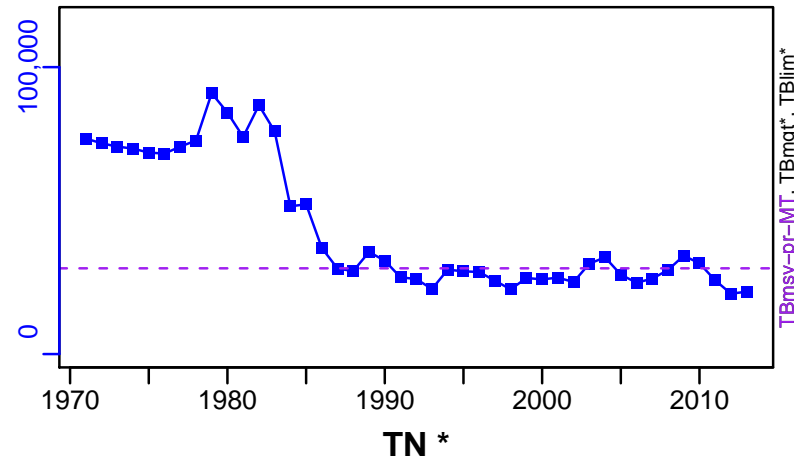
Production (1971–2013–GLAZER)



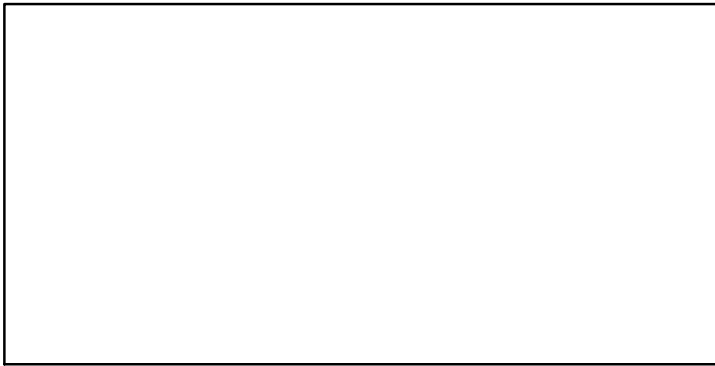
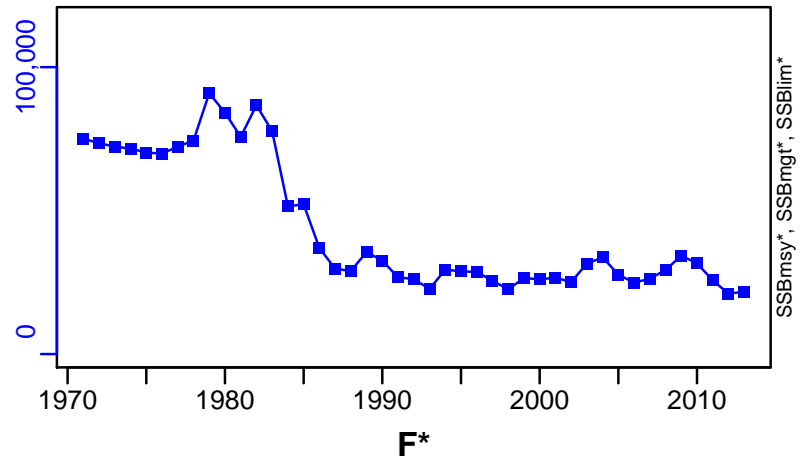
◆ Start Year ◆ End Year \* No Data

# Cape Hope squid South Africa [CHSQUIDSA]

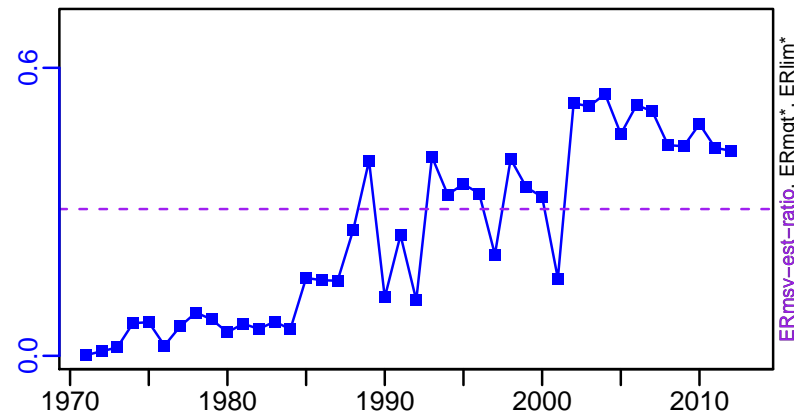
TB-MT (1971–2013–GLAZER)



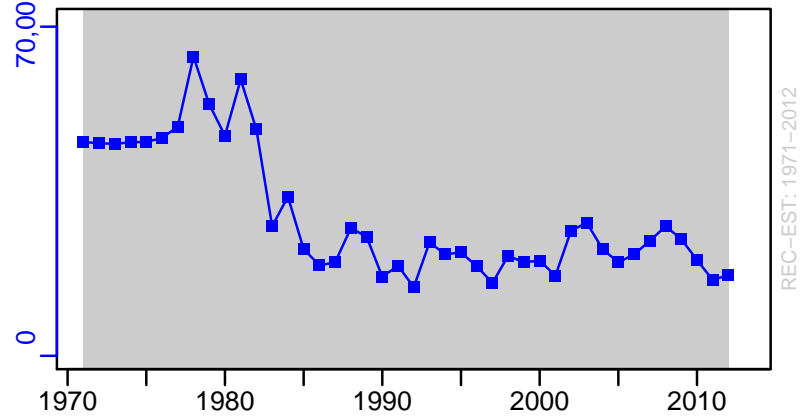
SSB-MT (1971–2013–GLAZER)



ER-ratio (1971–2013–GLAZER)

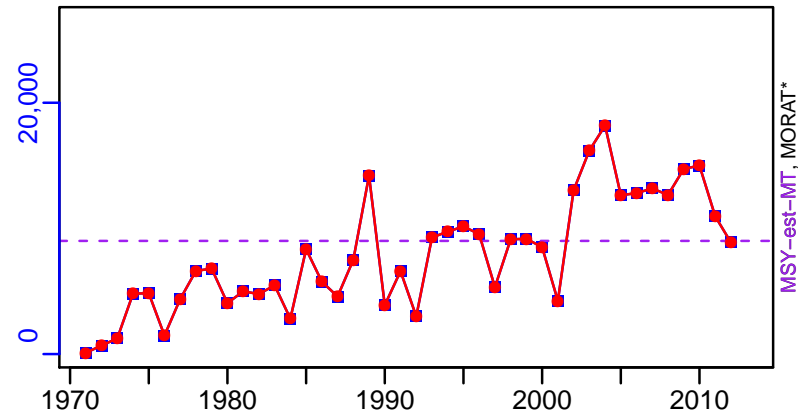


R-MT (1971–2013–GLAZER)



# Cape Hope squid South Africa [CHSQUIDSA]

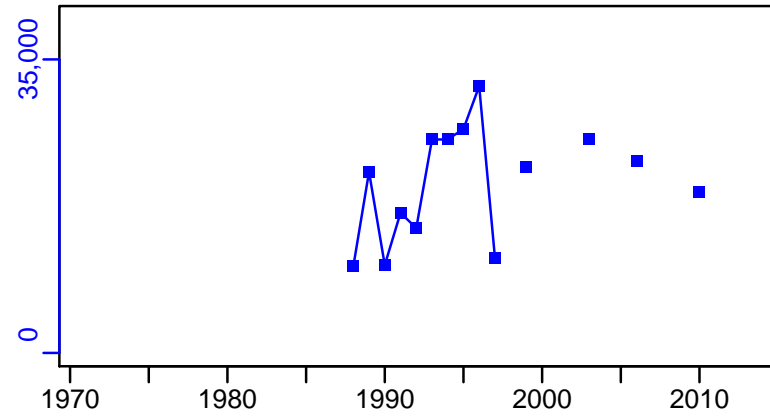
TC-MT, TL-MT, RecC\* (1971-2013-GLAZER)



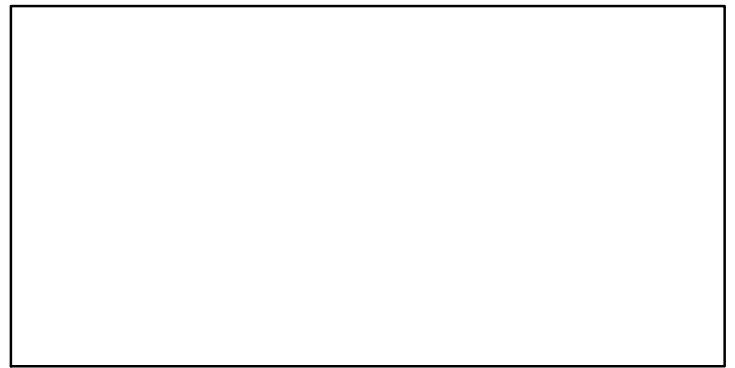
TAC\*, Cpair\*, Cadv\*



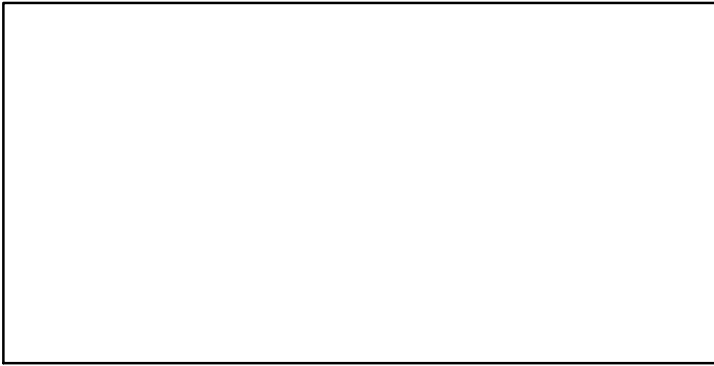
survB-1-MT (1971-2013-GLAZER)



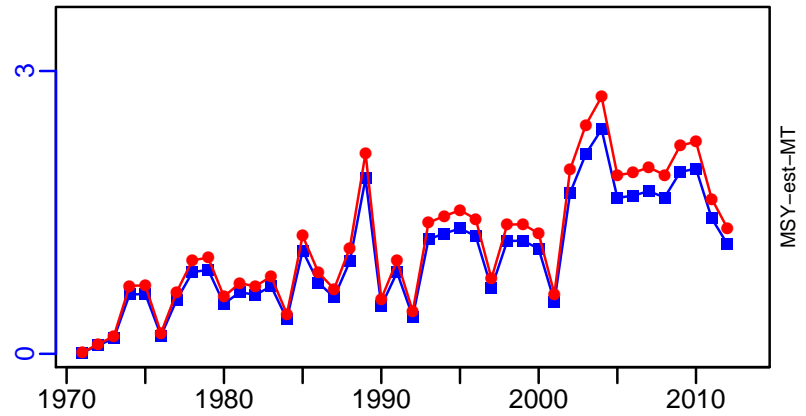
CPUE\*



EFFORT\*



TC-MT/MSY-est-MT, CdivMEANC-ratio, (1971-2013-GLAZER)



■ 1st listed time series    ▲ 3rd listed time series    — MORAT  
● 2nd listed time series    - - - MSY    \* No Data

## West coast rock lobster South Africa Areas 1-2 [CRLOBSTERSA12]

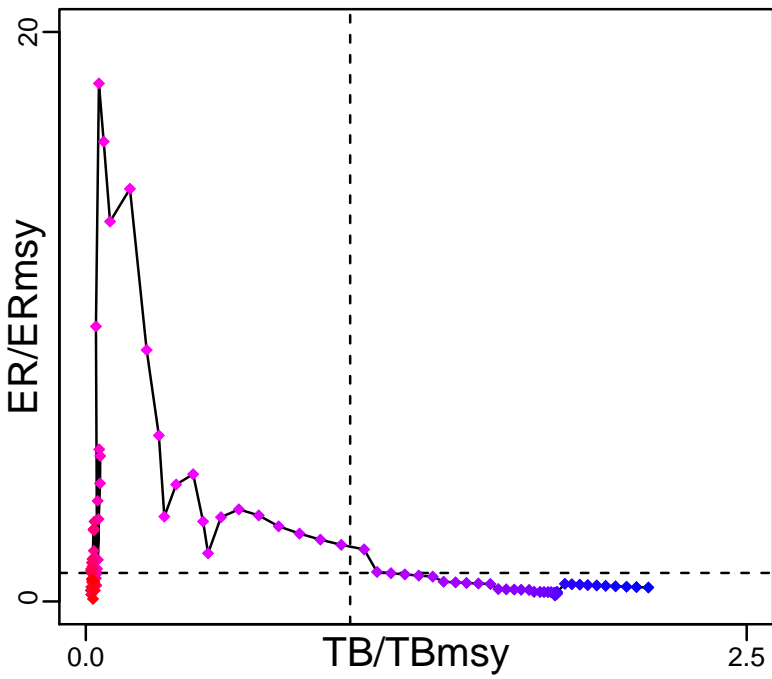
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Jasus lalandii  |
| <b>Current Assess ID</b>    | MARAM-CRLOBSTERSA12-1910-2014-Johnston  |
| <b>Area</b>                 | South Africa Areas 1-2  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012, 2014  |

| Reference Points |                 |           |        |
|------------------|-----------------|-----------|--------|
| Type             | ID              | Asmt Year | Value  |
| <b>TBmsy</b>     | TBmsy-calc-MT   | 2014      | 26,596 |
| <b>SSBmsy</b>    | SSBmsy-conv-MT  | 2014      | 13,068 |
| <b>Fmsy</b>      | -               | -         | -      |
| <b>ERmsy</b>     | ERmsy-mvo-ratio | 2014      | 0.047  |
| <b>TBmgt</b>     | -               | -         | -      |
| <b>SSBmgt</b>    | -               | -         | -      |
| <b>Fmgt</b>      | -               | -         | -      |
| <b>ERmgt</b>     | -               | -         | -      |
| <b>TB0</b>       | TB0-MT          | 2014      | 56,583 |
| <b>SSB0</b>      | -               | -         | -      |
| <b>MSY</b>       | MSY-mvo-MT      | 2014      | 1250   |
| <b>M</b>         | M-1/yr          | 2014      | 0.11   |
| <b>TBlim</b>     | -               | -         | -      |
| <b>SSBlim</b>    | -               | -         | -      |
| <b>Flim</b>      | -               | -         | -      |
| <b>ERlim</b>     | -               | -         | -      |

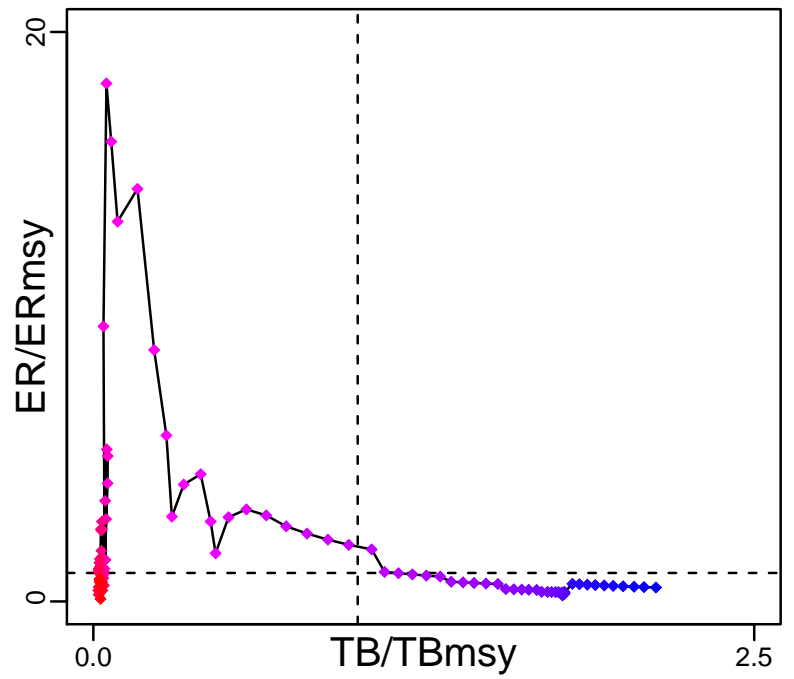
| Time Series       |                          |           |            |         |     |
|-------------------|--------------------------|-----------|------------|---------|-----|
| Type              | ID                       | Asmt Year | Curr Value | Sex     | Age |
| <b>TB</b>         | TB-MT                    | 2014      | 621        | Males   | -   |
| <b>SSB</b>        | SSB-relative             | 2014      | 0.015      | Females | -   |
| <b>TN</b>         | -                        | -         | -          | -       | -   |
| <b>R</b>          | R-E00                    | 2014      | 96,000     | -       | -   |
| <b>F</b>          | -                        | -         | -          | -       | -   |
| <b>ER</b>         | ER-ratio                 | 2014      | 0.037      | -       | -   |
| <b>TC</b>         | TC-MT                    | 2014      | 23         |         |     |
| <b>TL</b>         | TL-MT                    | 2014      | 23         |         |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-calc-MT      | 2014      | 0.023      |         |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -          |         |     |
| <b>F/Fmsy</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-mvo-ratio | 2014      | 0.789      |         |     |
| <b>TB/TBmgt</b>   | -                        | -         | -          |         |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -          |         |     |
| <b>F/Fmgt</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmgt</b>   | -                        | -         | -          |         |     |

# West coast rock lobster South Africa Areas 1-2 [CRLOBSTERSA12]

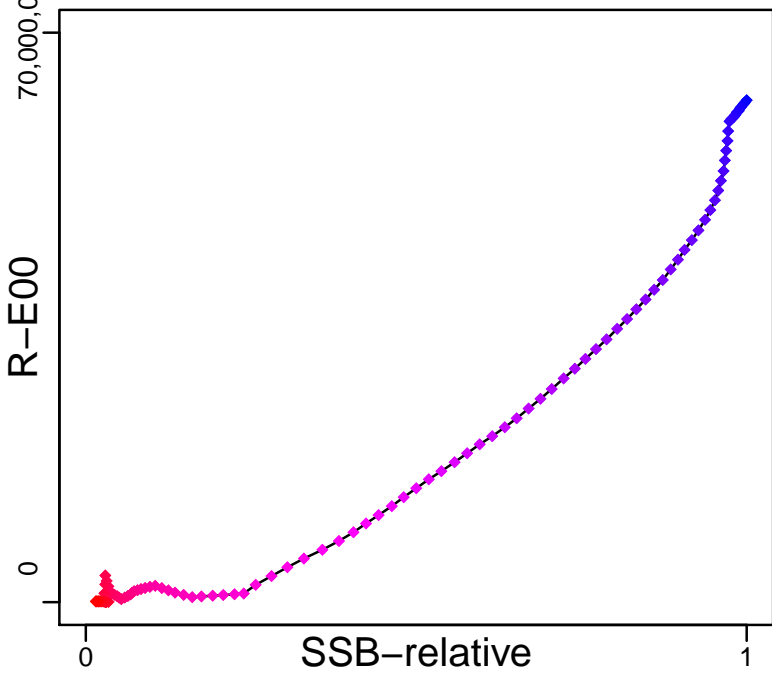
Kobe MSYpref (1910-2014-Johnston)



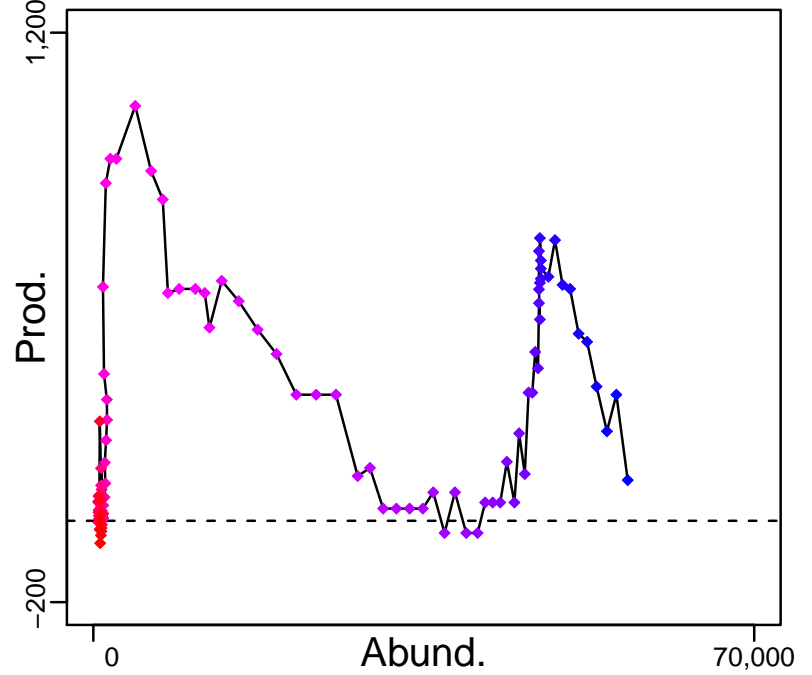
Kobe MGTpref (1910-2014-Johnston)



Spawner Recruit (1910-2014-Johnston)



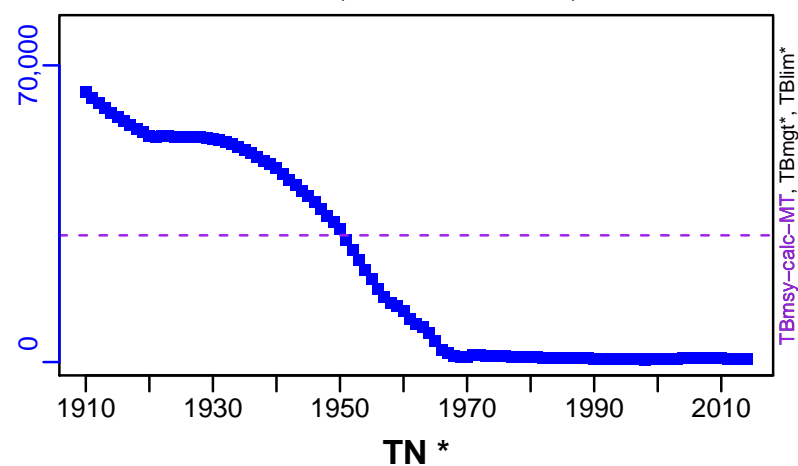
Production (1910-2014-Johnston)



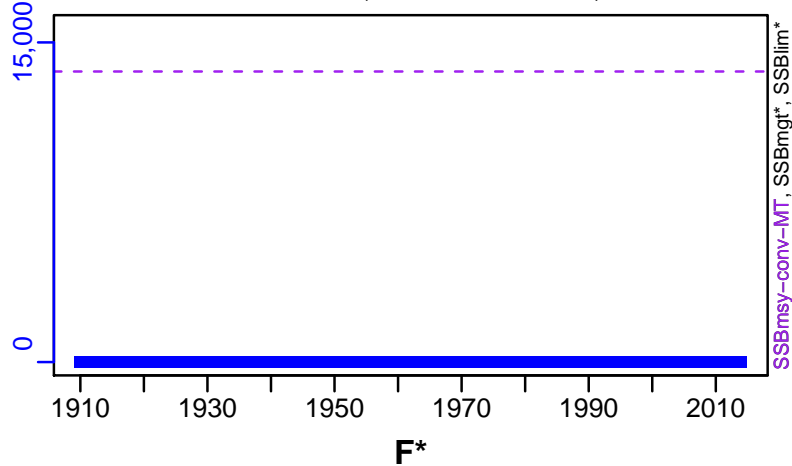
◆ Start Year ◆ End Year \* No Data

# West coast rock lobster South Africa Areas 1-2 [CRLOBSTERSA12]

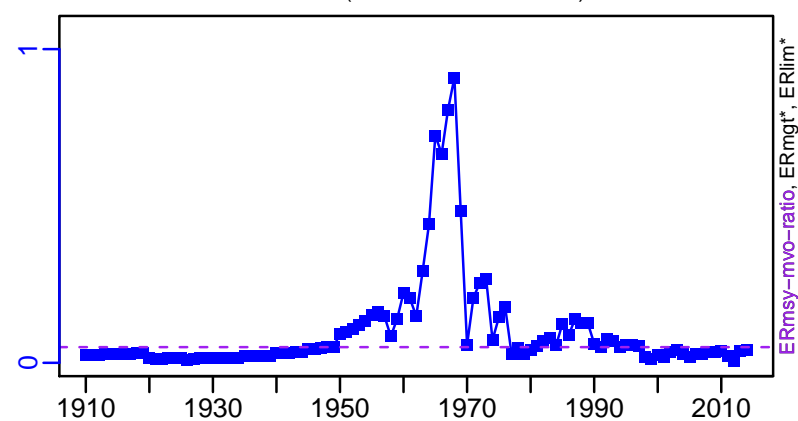
TB-MT (1910-2014-Johnston)



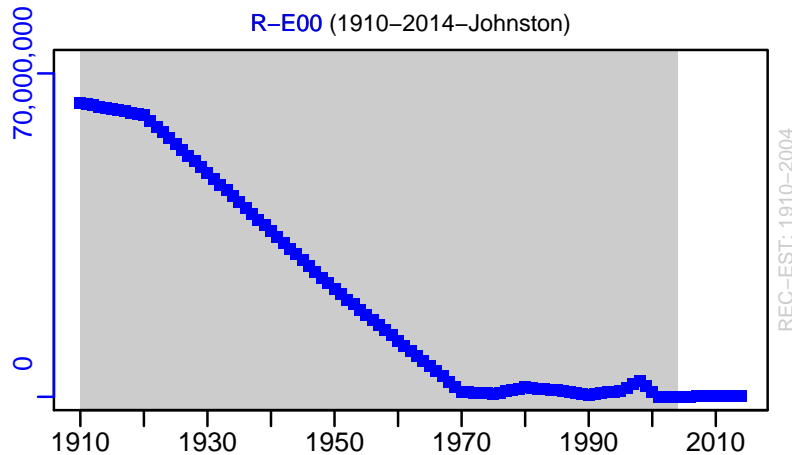
SSB-relative (1910-2014-Johnston)



ER-ratio (1910-2014-Johnston)



R-E00 (1910-2014-Johnston)

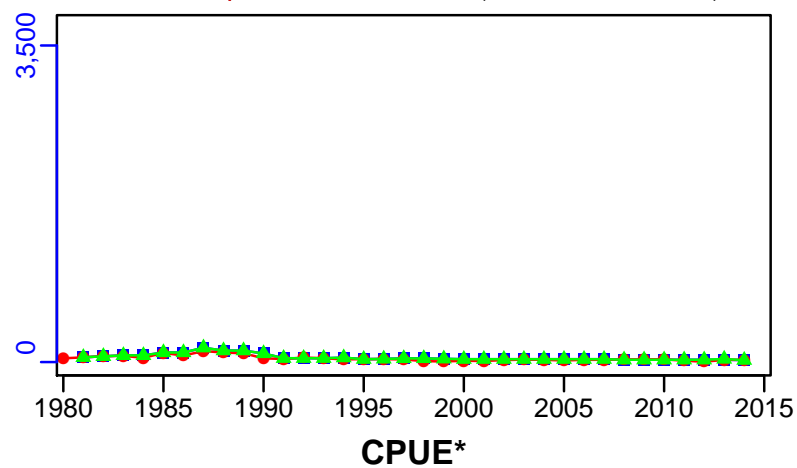
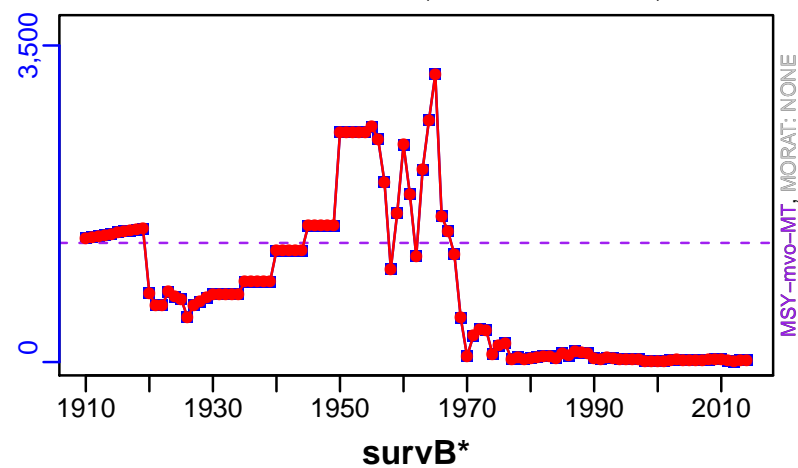




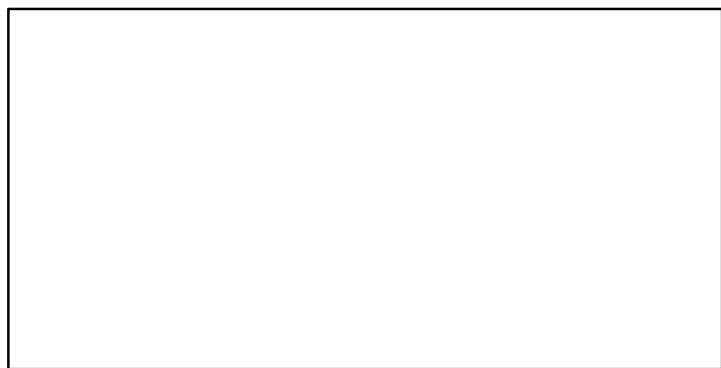
# West coast rock lobster South Africa Areas 1-2 [CRLOBSTERSA12]

TC-MT, TL-MT, RecC\* (1910-2014-Johnston)

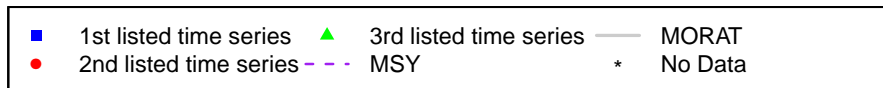
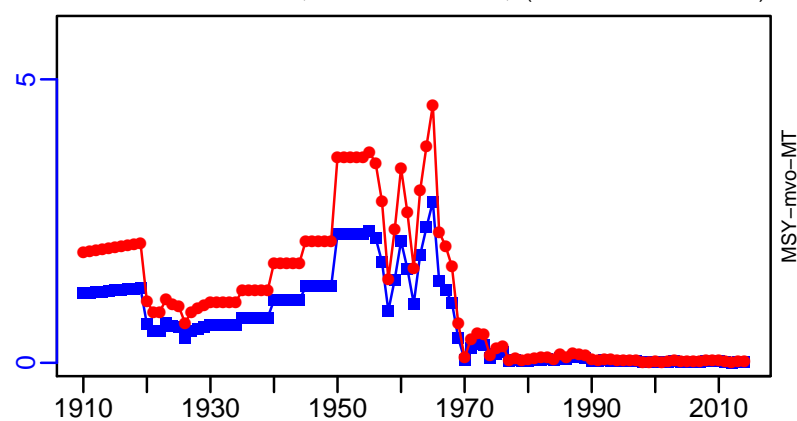
TAC-MT, Cpair-MT, Cadvised-MT (1910-2014-Johnston)



EFFORT\*



TC-MT/MSY-mvo-MT, CdivMEANC-ratio, (1910-2014-Johnston)



## West coast rock lobster South Africa Areas 3-4 [CRLOBSTERSA34]

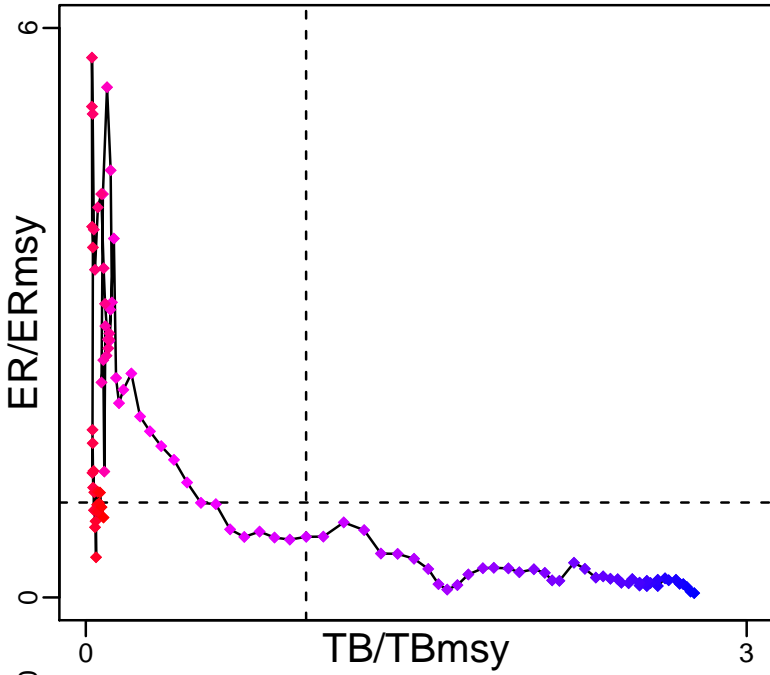
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Jasus lalandii  |
| <b>Current Assess ID</b>    | MARAM-CRLOBSTERSA34-1910-2014-Johnston  |
| <b>Area</b>                 | South Africa Areas 3-4  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012, 2014  |

| Reference Points |                 |           |         |
|------------------|-----------------|-----------|---------|
| Type             | ID              | Asmt Year | Value   |
| <b>TBmsy</b>     | TBmsy-calc-MT   | 2014      | 60,469  |
| <b>SSBmsy</b>    | SSBmsy-conv-MT  | 2014      | 29,921  |
| <b>Fmsy</b>      | -               | -         | -       |
| <b>ERmsy</b>     | ERmsy-mvo-ratio | 2014      | 0.064   |
| <b>TBmgt</b>     | -               | -         | -       |
| <b>SSBmgt</b>    | -               | -         | -       |
| <b>Fmgt</b>      | -               | -         | -       |
| <b>ERmgt</b>     | -               | -         | -       |
| <b>TB0</b>       | TB0-MT          | 2014      | 166,501 |
| <b>SSB0</b>      | -               | -         | -       |
| <b>MSY</b>       | MSY-mvo-MT      | 2014      | 3870    |
| <b>M</b>         | M-1/yr          | 2014      | 0.11    |
| <b>TBlim</b>     | -               | -         | -       |
| <b>SSBlim</b>    | -               | -         | -       |
| <b>Flim</b>      | -               | -         | -       |
| <b>ERlim</b>     | -               | -         | -       |

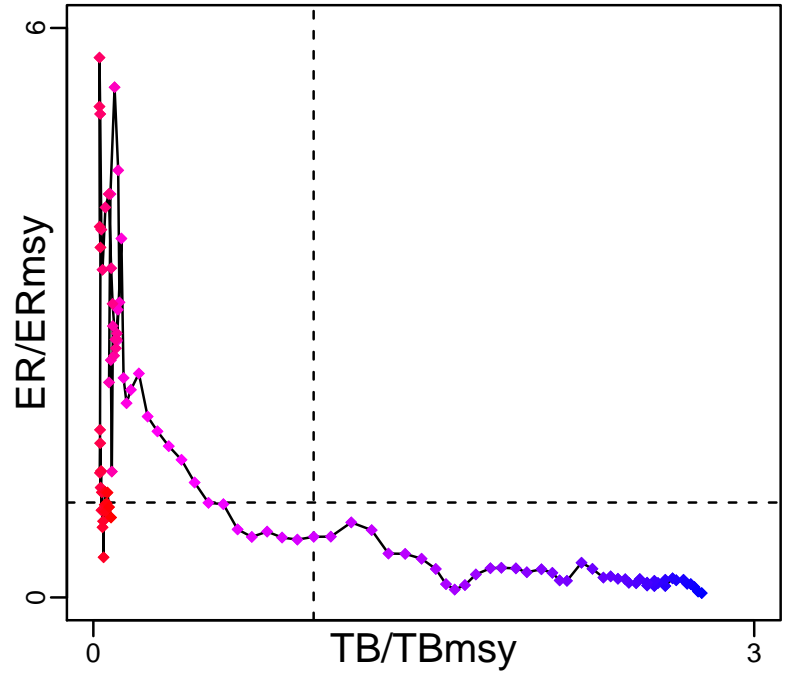
| Time Series       |                          |           |            |         |     |
|-------------------|--------------------------|-----------|------------|---------|-----|
| Type              | ID                       | Asmt Year | Curr Value | Sex     | Age |
| <b>TB</b>         | TB-MT                    | 2014      | 4860       | Males   | -   |
| <b>SSB</b>        | SSB-relative             | 2014      | 0.067      | Females | -   |
| <b>TN</b>         | -                        | -         | -          | -       | -   |
| <b>R</b>          | R-E00                    | 2014      | 31,200,000 | -       | -   |
| <b>F</b>          | -                        | -         | -          | -       | -   |
| <b>ER</b>         | ER-ratio                 | 2014      | 0.054      | -       | -   |
| <b>TC</b>         | TC-MT                    | 2014      | 262        |         |     |
| <b>TL</b>         | TL-MT                    | 2014      | 254        |         |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-calc-MT      | 2014      | 0.08       |         |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -          |         |     |
| <b>F/Fmsy</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-mvo-ratio | 2014      | 0.842      |         |     |
| <b>TB/TBmgt</b>   | -                        | -         | -          |         |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -          |         |     |
| <b>F/Fmgt</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmgt</b>   | -                        | -         | -          |         |     |

# West coast rock lobster South Africa Areas 3–4 [CRLOBSTERSA34]

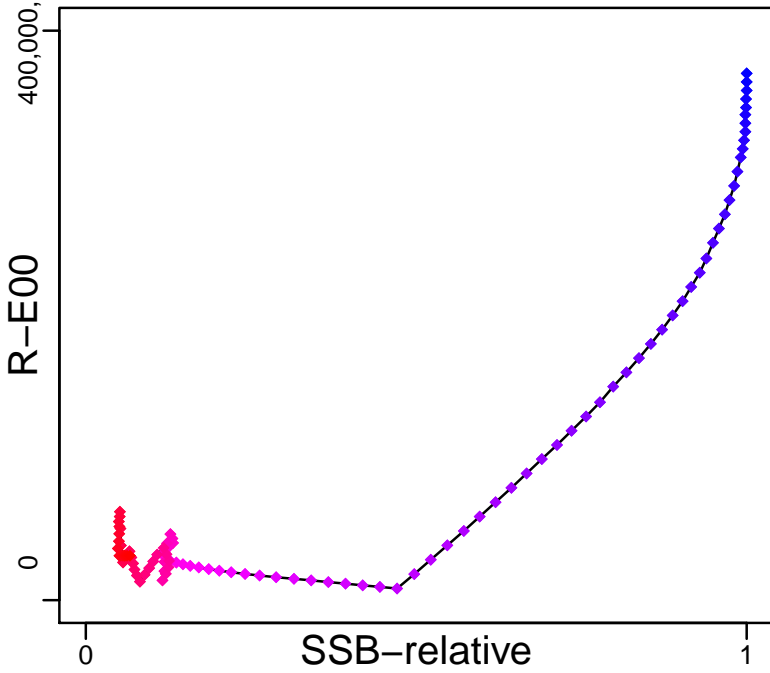
Kobe MSYpref (1910–2014–Johnston)



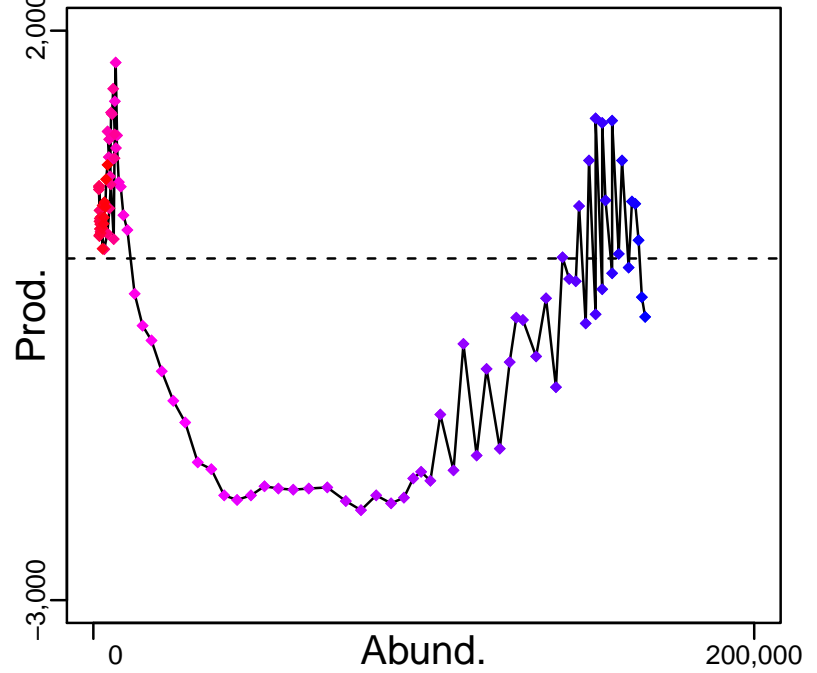
Kobe MGTpref (1910–2014–Johnston)



Spawner Recruit (1910–2014–Johnston)



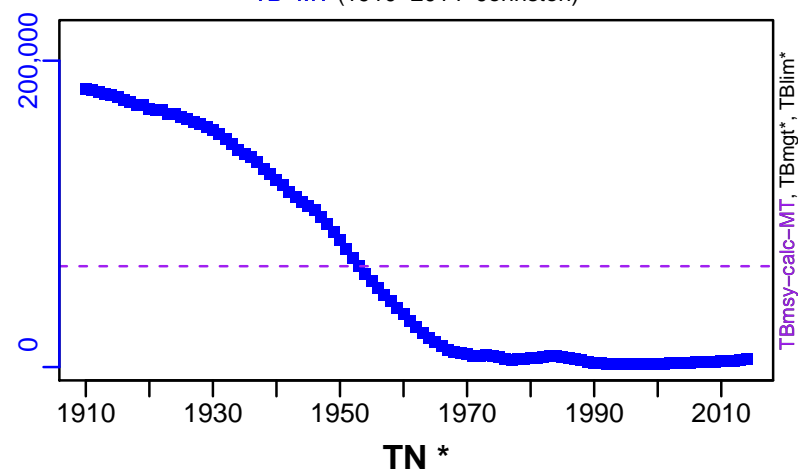
Production (1910–2014–Johnston)



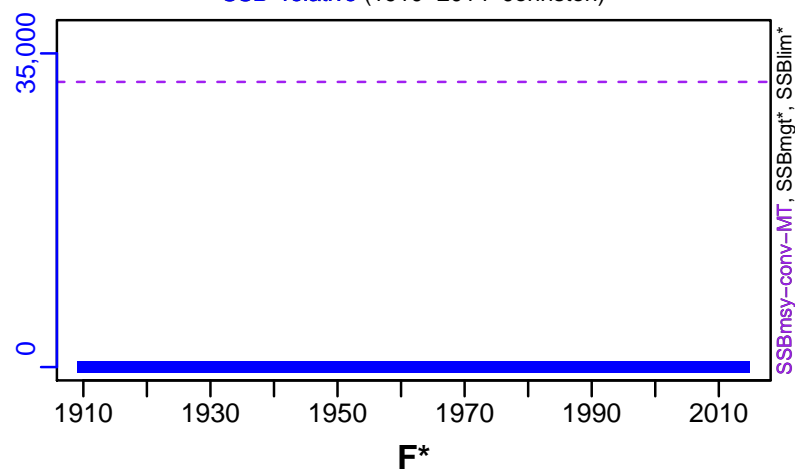
◆ Start Year ◆ End Year \* No Data

# West coast rock lobster South Africa Areas 3–4 [CRLOBSTERSA34]

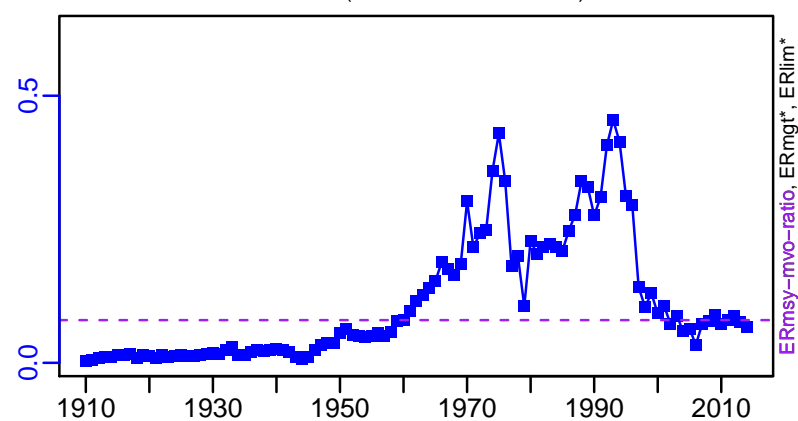
TB–MT (1910–2014–Johnston)



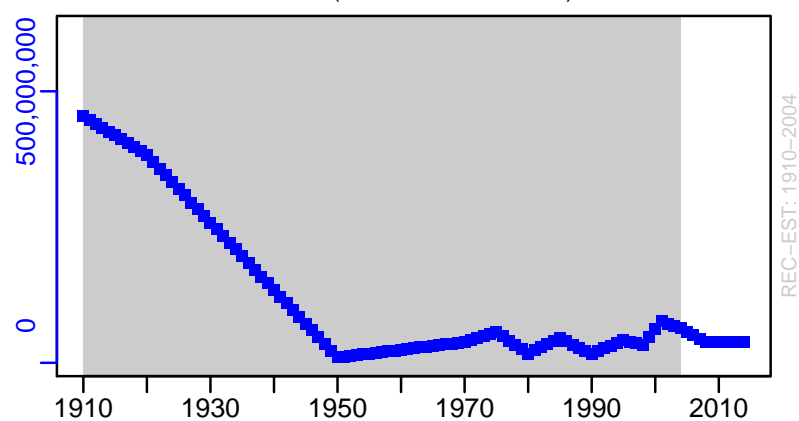
SSB–relative (1910–2014–Johnston)



ER–ratio (1910–2014–Johnston)



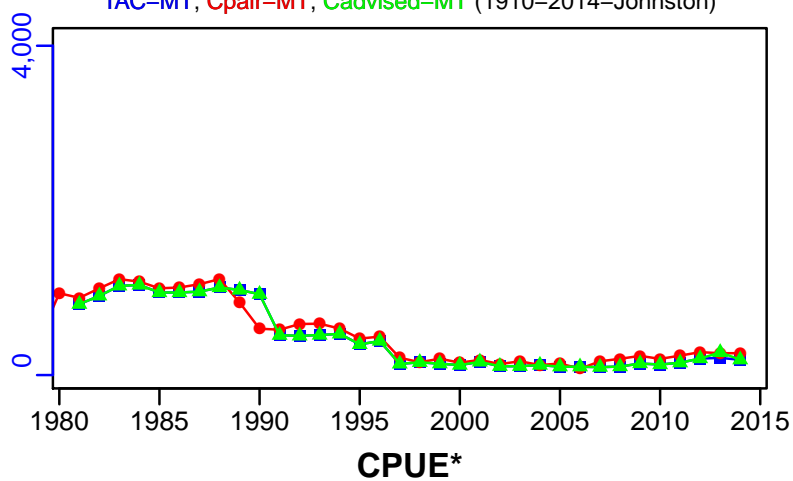
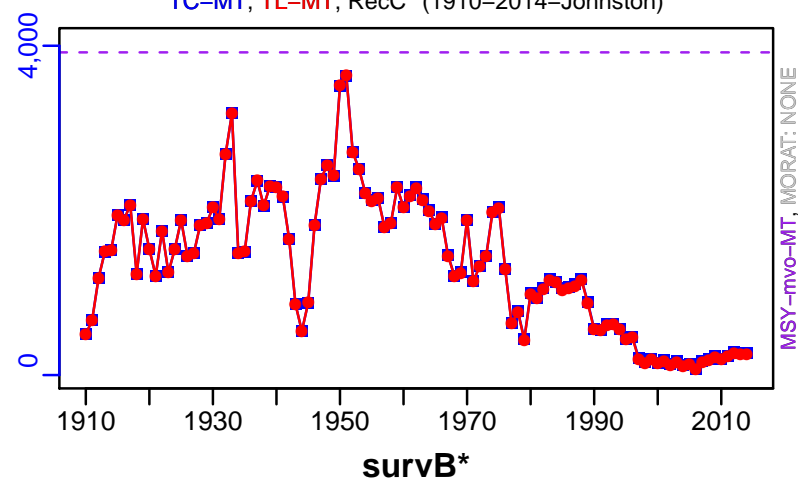
R–E00 (1910–2014–Johnston)



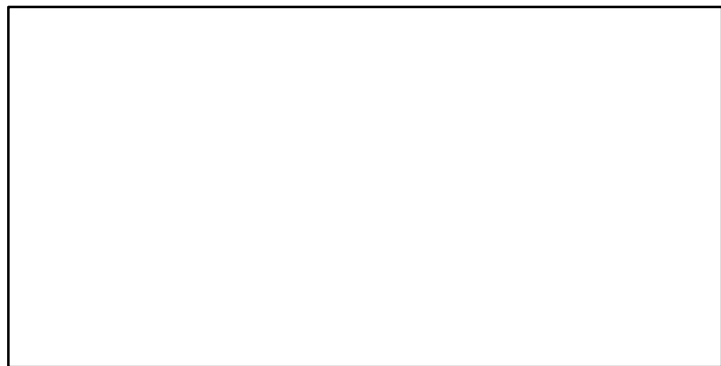
# West coast rock lobster South Africa Areas 3-4 [CRLOBSTERSA34]

TC-MT, TL-MT, RecC\* (1910-2014-Johnston)

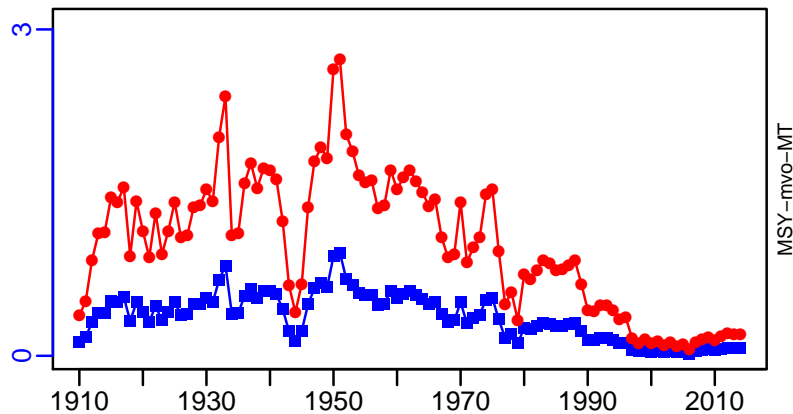
TAC-MT, Cpair-MT, Cadvised-MT (1910-2014-Johnston)



EFFORT\*



TC-MT/MSY-mvo-MT, CdivMEANC-ratio, (1910-2014-Johnston)



■ 1st listed time series    ▲ 3rd listed time series    — MORAT  
● 2nd listed time series    - - - MSY    \* No Data

## West coast rock lobster South Africa Areas 5-6 [CRLOBSTERSA56]

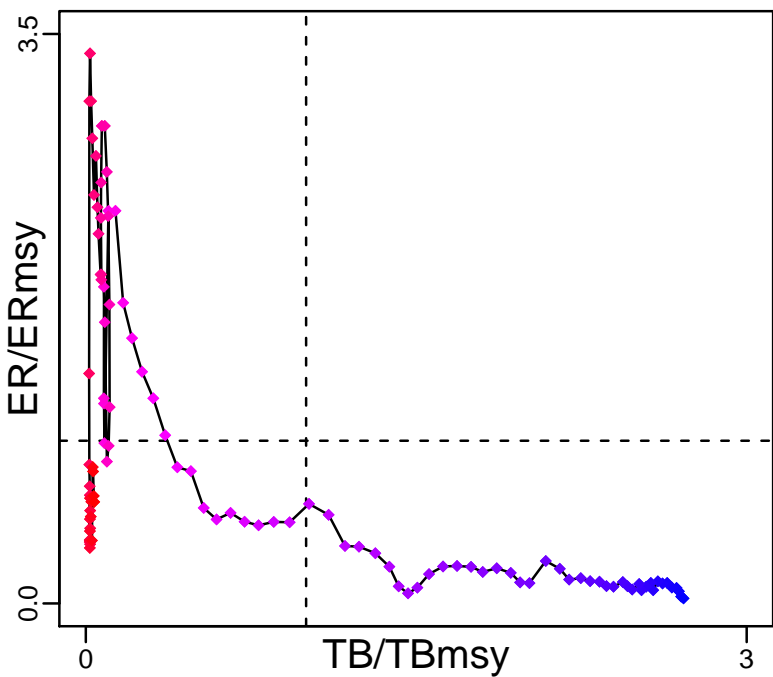
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Jasus lalandii  |
| <b>Current Assess ID</b>    | MARAM-CRLOBSTERSA56-1910-2014-Johnston  |
| <b>Area</b>                 | South Africa Areas 5-6  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012, 2014  |

| Reference Points |                 |           |         |
|------------------|-----------------|-----------|---------|
| Type             | ID              | Asmt Year | Value   |
| <b>TBmsy</b>     | TBmsy-calc-MT   | 2014      | 94,348  |
| <b>SSBmsy</b>    | SSBmsy-conv-MT  | 2014      | 46,693  |
| <b>Fmsy</b>      | -               | -         | -       |
| <b>ERmsy</b>     | ERmsy-mvo-ratio | 2014      | 0.092   |
| <b>TBmgt</b>     | -               | -         | -       |
| <b>SSBmgt</b>    | -               | -         | -       |
| <b>Fmgt</b>      | -               | -         | -       |
| <b>ERmgt</b>     | -               | -         | -       |
| <b>TB0</b>       | TB0-MT          | 2014      | 255,837 |
| <b>SSB0</b>      | -               | -         | -       |
| <b>MSY</b>       | MSY-mvo-MT      | 2014      | 8680    |
| <b>M</b>         | M-1/yr          | 2014      | 0.11    |
| <b>TBlim</b>     | -               | -         | -       |
| <b>SSBlim</b>    | -               | -         | -       |
| <b>Flim</b>      | -               | -         | -       |
| <b>ERlim</b>     | -               | -         | -       |

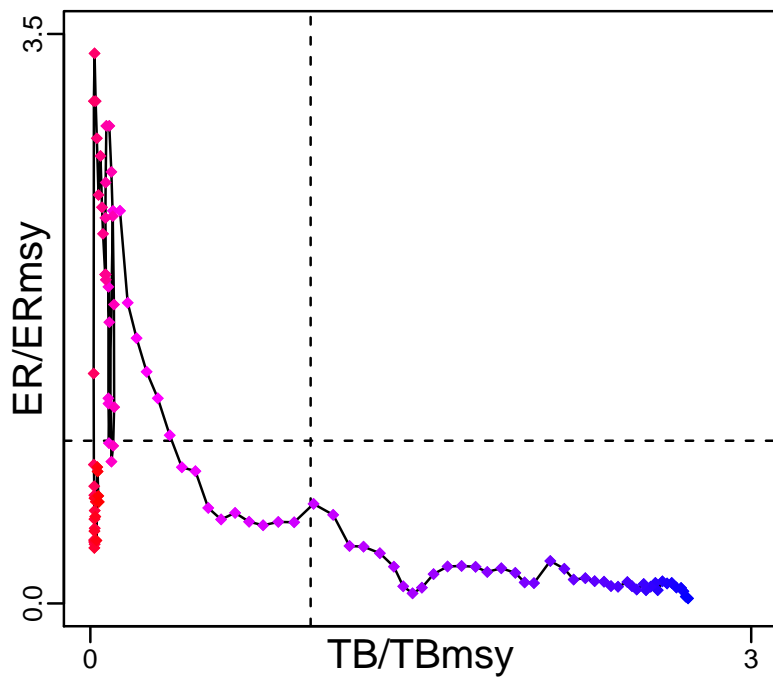
| Time Series       |                          |           |            |         |     |
|-------------------|--------------------------|-----------|------------|---------|-----|
| Type              | ID                       | Asmt Year | Curr Value | Sex     | Age |
| <b>TB</b>         | TB-MT                    | 2014      | 3590       | Males   | -   |
| <b>SSB</b>        | SSB-relative             | 2014      | 0.034      | Females | -   |
| <b>TN</b>         | -                        | -         | -          | -       | -   |
| <b>R</b>          | R-E00                    | 2014      | 16,200,000 | -       | -   |
| <b>F</b>          | -                        | -         | -          | -       | -   |
| <b>ER</b>         | ER-ratio                 | 2014      | 0.057      | -       | -   |
| <b>TC</b>         | TC-MT                    | 2014      | 206        |         |     |
| <b>TL</b>         | TL-MT                    | 2014      | 198        |         |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-calc-MT      | 2014      | 0.038      |         |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -          |         |     |
| <b>F/Fmsy</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-mvo-ratio | 2014      | 0.624      |         |     |
| <b>TB/TBmgt</b>   | -                        | -         | -          |         |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -          |         |     |
| <b>F/Fmgt</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmgt</b>   | -                        | -         | -          |         |     |

# West coast rock lobster South Africa Areas 5-6 [CRLOBSTERSA56]

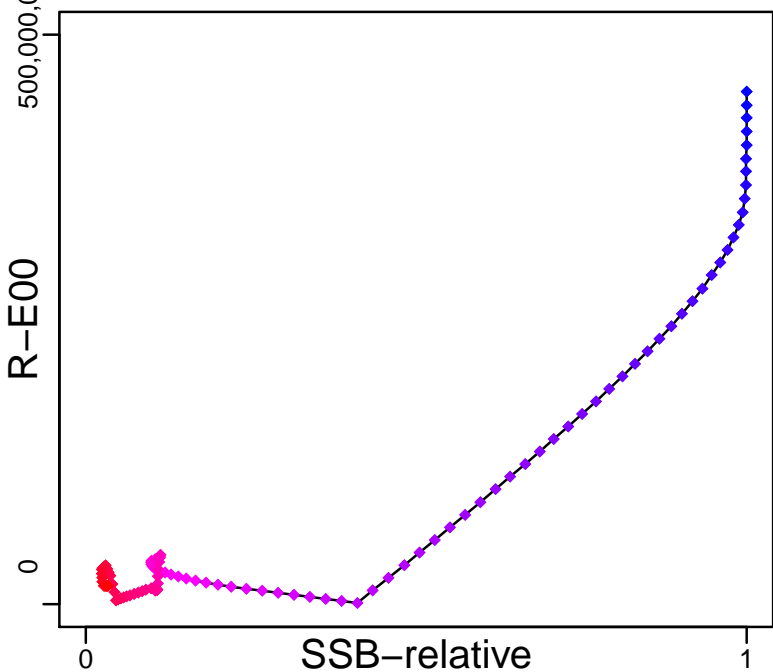
Kobe MSYpref (1910-2014-Johnston)



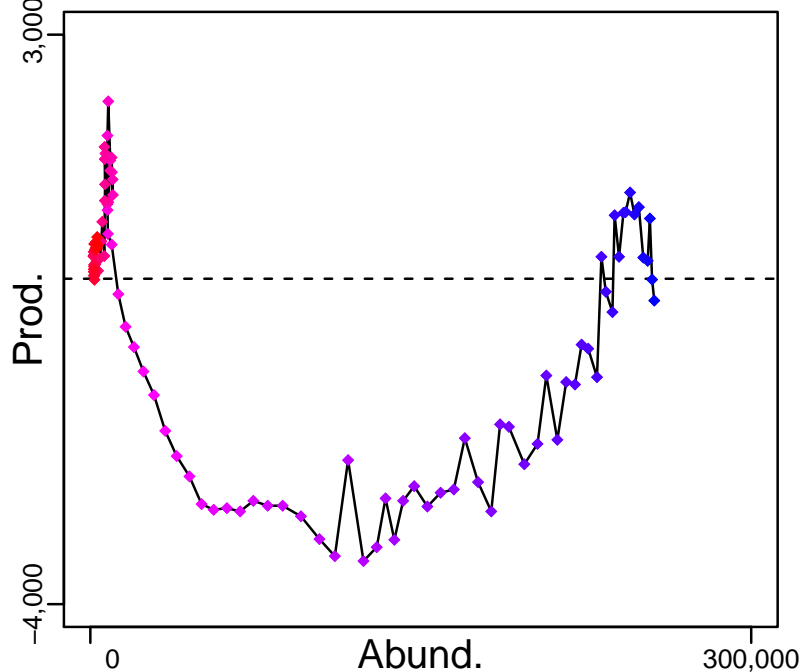
Kobe MGTpref (1910-2014-Johnston)



Spawner Recruit (1910-2014-Johnston)



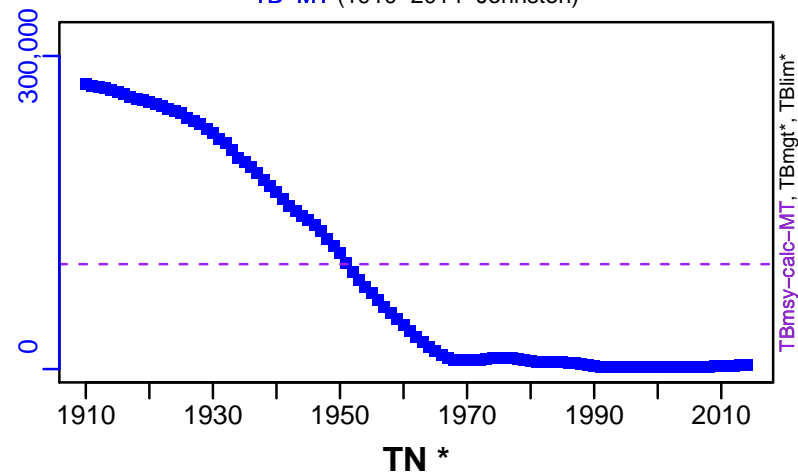
Production (1910-2014-Johnston)



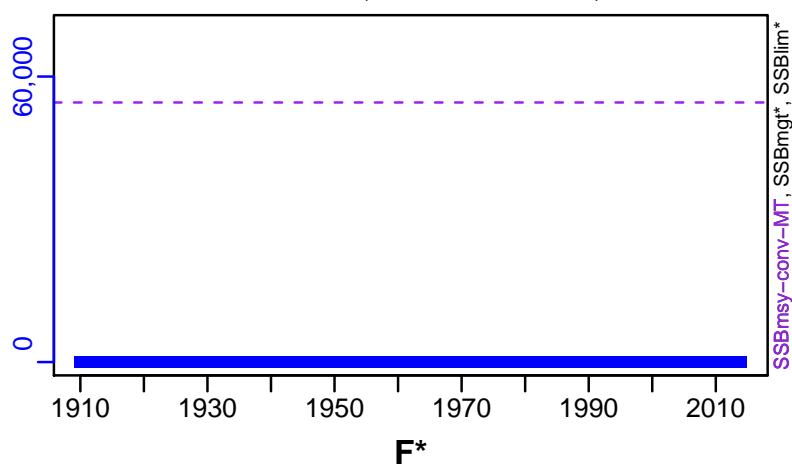
◆ Start Year ◆ End Year \* No Data

# West coast rock lobster South Africa Areas 5–6 [CRLOBSTERSA56]

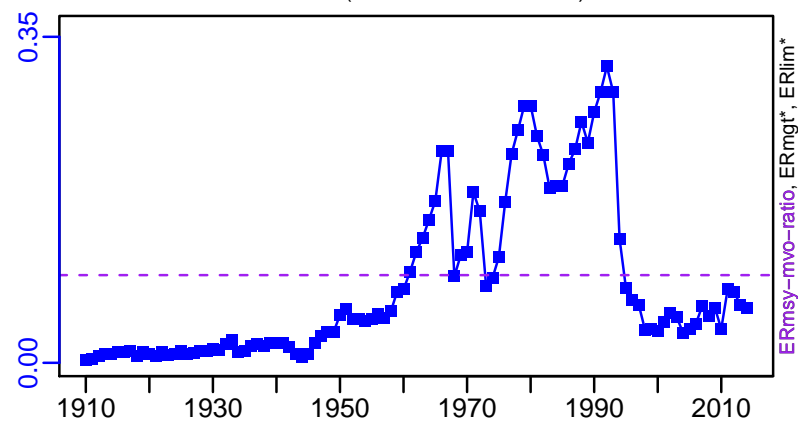
TB–MT (1910–2014–Johnston)



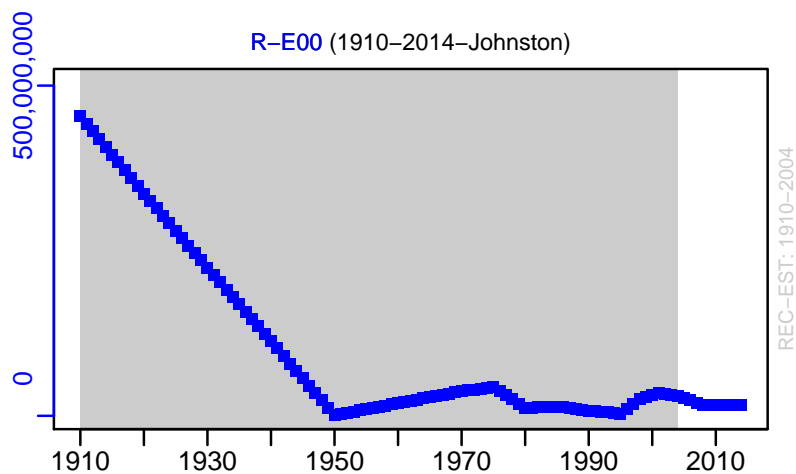
SSB–relative (1910–2014–Johnston)



ER–ratio (1910–2014–Johnston)



R–E00 (1910–2014–Johnston)

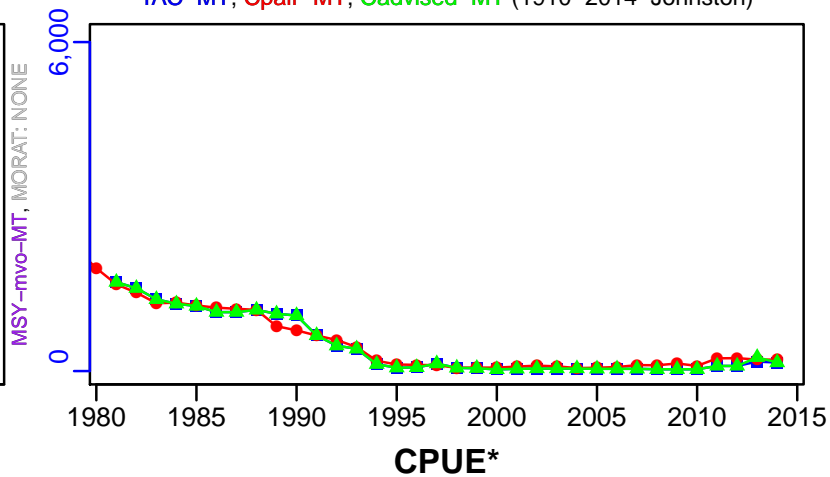
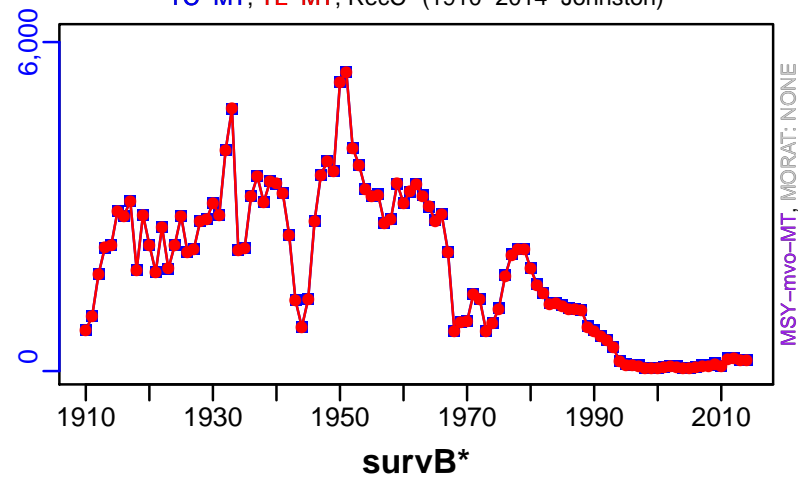




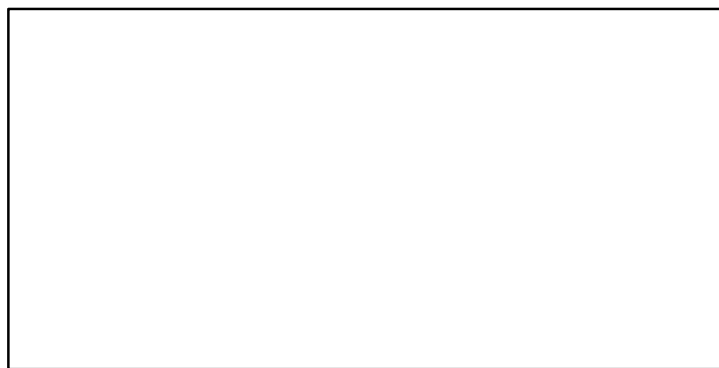
# West coast rock lobster South Africa Areas 5-6 [CRLOBSTERSA56]

TC-MT, TL-MT, RecC\* (1910-2014-Johnston)

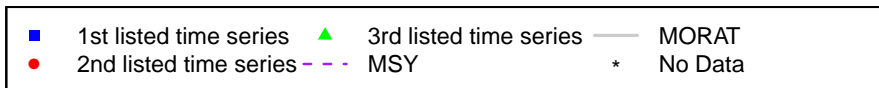
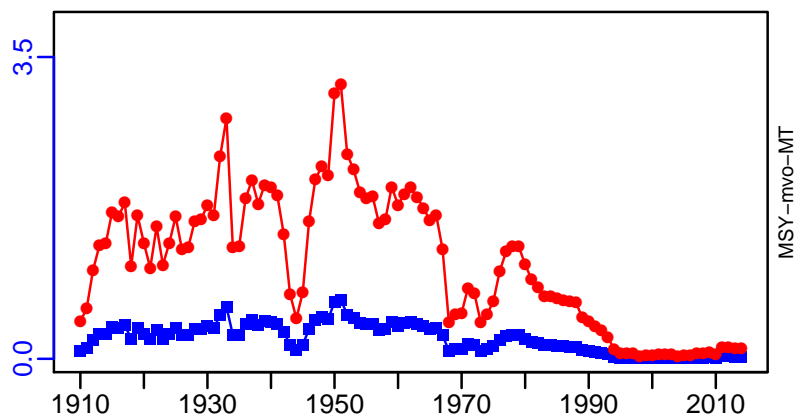
TAC-MT, Cpair-MT, Cadvised-MT (1910-2014-Johnston)



EFFORT\*



TC-MT/MSY-mvo-MT, CdivMEANC-ratio, (1910-2014-Johnston)



## West coast rock lobster South Africa Area 7 [CRLOBSTERSA7]

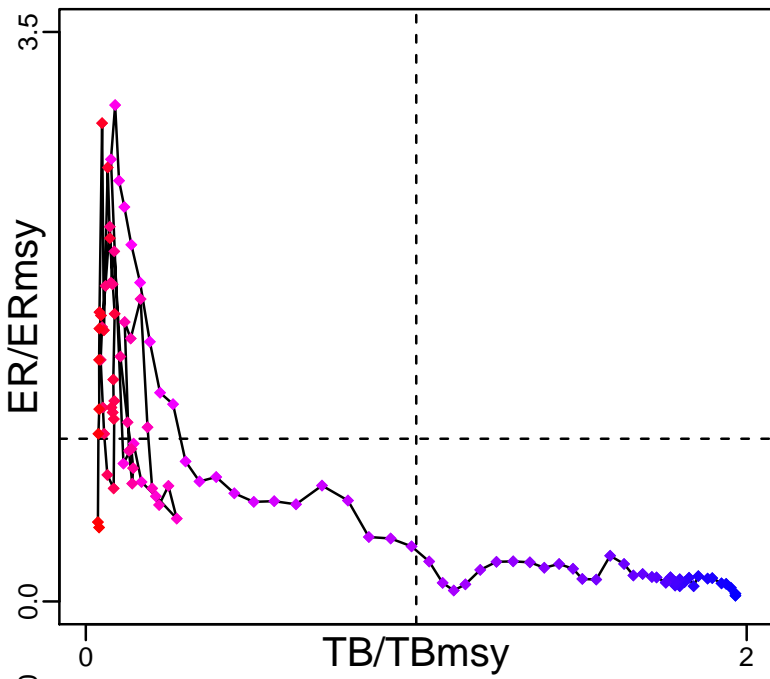
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Jasus lalandii  |
| <b>Current Assess ID</b>    | MARAM-CRLOBSTERSA7-1910-2014-Johnston   |
| <b>Area</b>                 | South Africa Area 7   |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012, 2014  |

| Reference Points |                 |           |         |
|------------------|-----------------|-----------|---------|
| Type             | ID              | Asmt Year | Value   |
| <b>TBmsy</b>     | TBmsy-calc-MT   | 2014      | 71,212  |
| <b>SSBmsy</b>    | SSBmsy-conv-MT  | 2014      | 35,278  |
| <b>Fmsy</b>      | -               | -         | -       |
| <b>ERmsy</b>     | ERmsy-mvo-ratio | 2014      | 0.099   |
| <b>TBmgt</b>     | -               | -         | -       |
| <b>SSBmgt</b>    | -               | -         | -       |
| <b>Fmgt</b>      | -               | -         | -       |
| <b>ERmgt</b>     | -               | -         | -       |
| <b>TB0</b>       | TB0-MT          | 2014      | 116,689 |
| <b>SSB0</b>      | -               | -         | -       |
| <b>MSY</b>       | MSY-mvo-MT      | 2014      | 7050    |
| <b>M</b>         | M-1/yr          | 2014      | 0.11    |
| <b>TBlim</b>     | -               | -         | -       |
| <b>SSBlim</b>    | -               | -         | -       |
| <b>Flim</b>      | -               | -         | -       |
| <b>ERlim</b>     | -               | -         | -       |

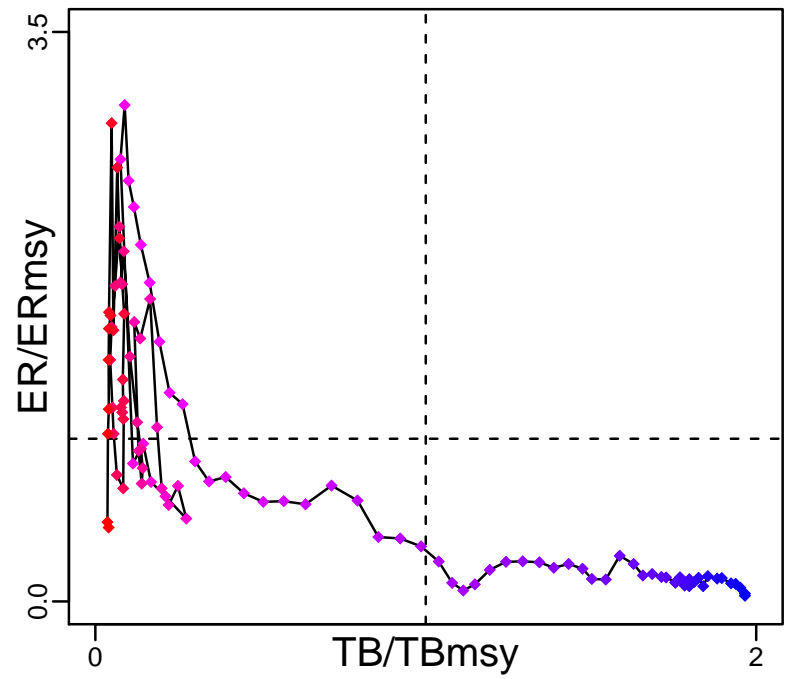
| Time Series       |                          |           |            |         |     |
|-------------------|--------------------------|-----------|------------|---------|-----|
| Type              | ID                       | Asmt Year | Curr Value | Sex     | Age |
| <b>TB</b>         | TB-MT                    | 2014      | 2860       | Males   | -   |
| <b>SSB</b>        | SSB-relative             | 2014      | 0.074      | Females | -   |
| <b>TN</b>         | -                        | -         | -          | -       | -   |
| <b>R</b>          | R-E00                    | 2014      | 4,590,000  | -       | -   |
| <b>F</b>          | -                        | -         | -          | -       | -   |
| <b>ER</b>         | ER-ratio                 | 2014      | 0.045      | -       | -   |
| <b>TC</b>         | TC-MT                    | 2014      | 129        |         |     |
| <b>TL</b>         | TL-MT                    | 2014      | 80         |         |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-calc-MT      | 2014      | 0.04       |         |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -          |         |     |
| <b>F/Fmsy</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-mvo-ratio | 2014      | 0.455      |         |     |
| <b>TB/TBmgt</b>   | -                        | -         | -          |         |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -          |         |     |
| <b>F/Fmgt</b>     | -                        | -         | -          |         |     |
| <b>ER/ERmgt</b>   | -                        | -         | -          |         |     |

# West coast rock lobster South Africa Area 7 [CRLOBSTERSA7]

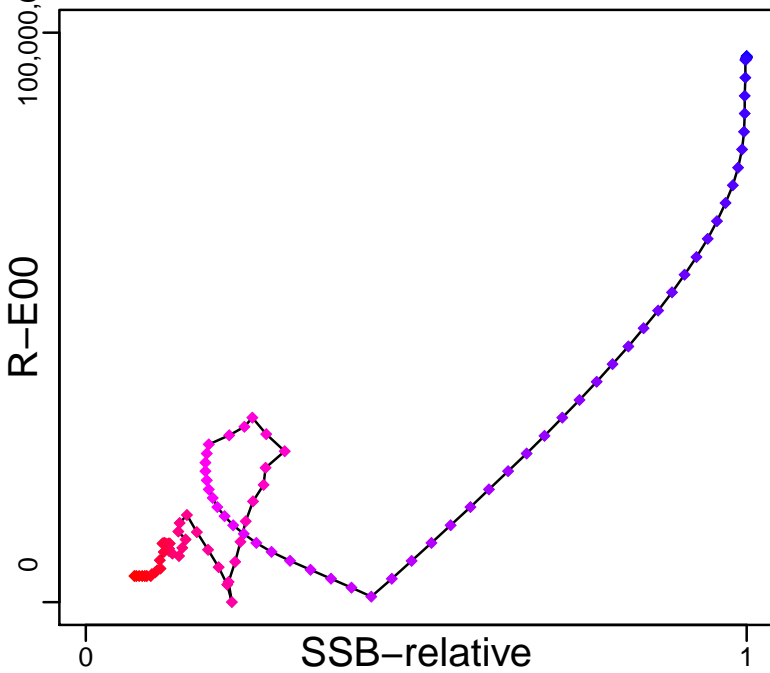
Kobe MSYpref (1910–2014–Johnston)



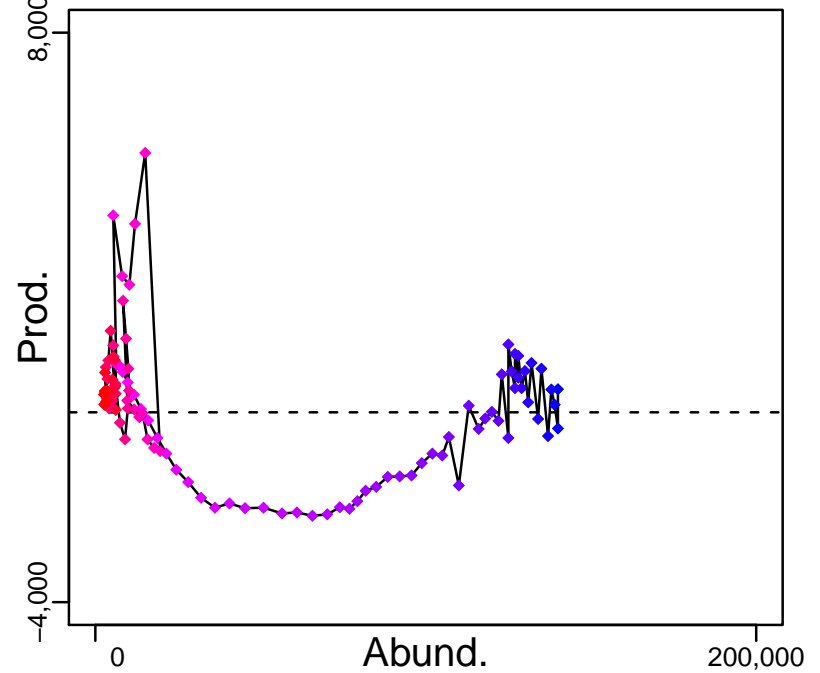
Kobe MGTpref (1910–2014–Johnston)



Spawner Recruit (1910–2014–Johnston)



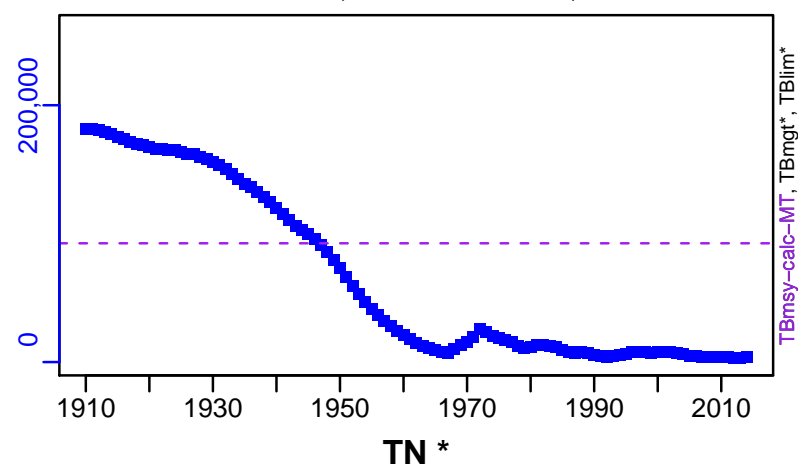
Production (1910–2014–Johnston)



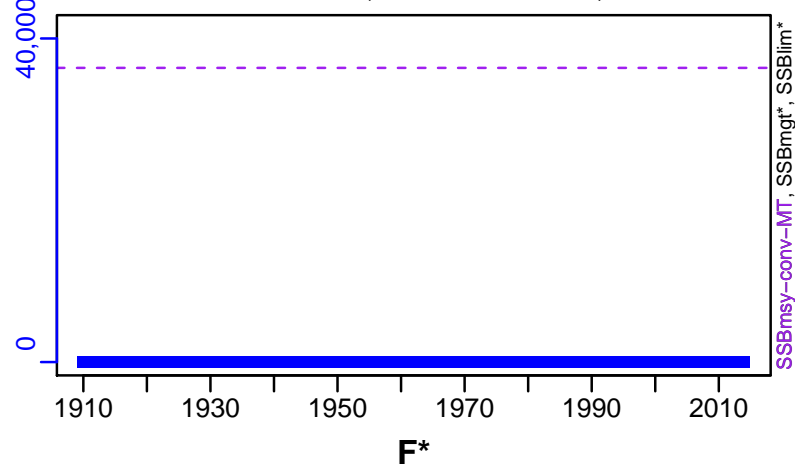
◆ Start Year ◆ End Year \* No Data

# West coast rock lobster South Africa Area 7 [CROBSTERSA7]

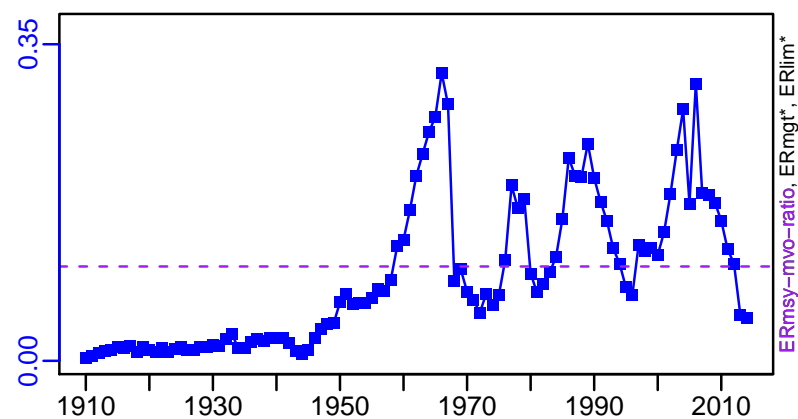
TB-MT (1910-2014-Johnston)



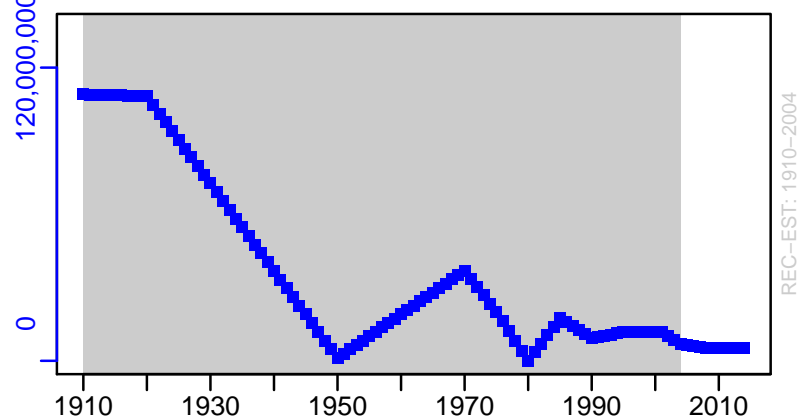
SSB-relative (1910-2014-Johnston)



ER-ratio (1910-2014-Johnston)

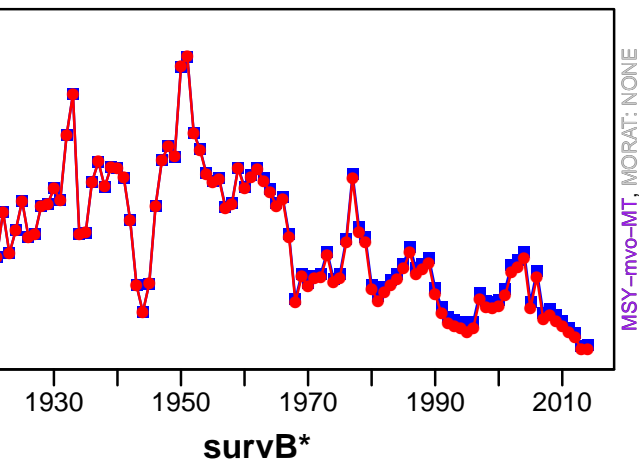


R-E00 (1910-2014-Johnston)

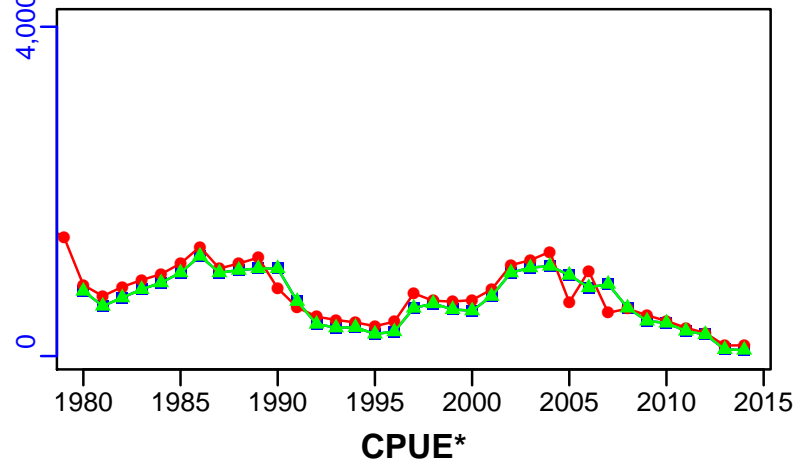


# West coast rock lobster South Africa Area 7 [CRLOBSTERSA7]

TC-MT, TL-MT, RecC\* (1910-2014-Johnston)



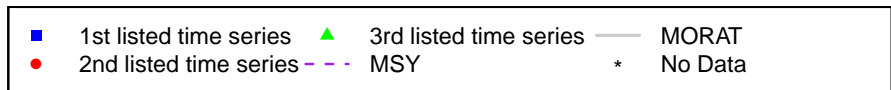
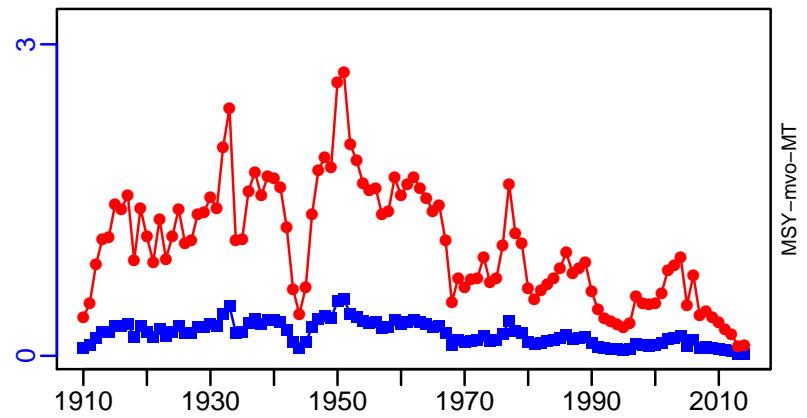
TAC-MT, Cpair-MT, Cadvised-MT (1910-2014-Johnston)



EFFORT\*



TC-MT/MSY-mvo-MT, CdivMEANC-ratio, (1910-2014-Johnston)



## West coast rock lobster South Africa Area 8 [CRLOBSTERSA8]

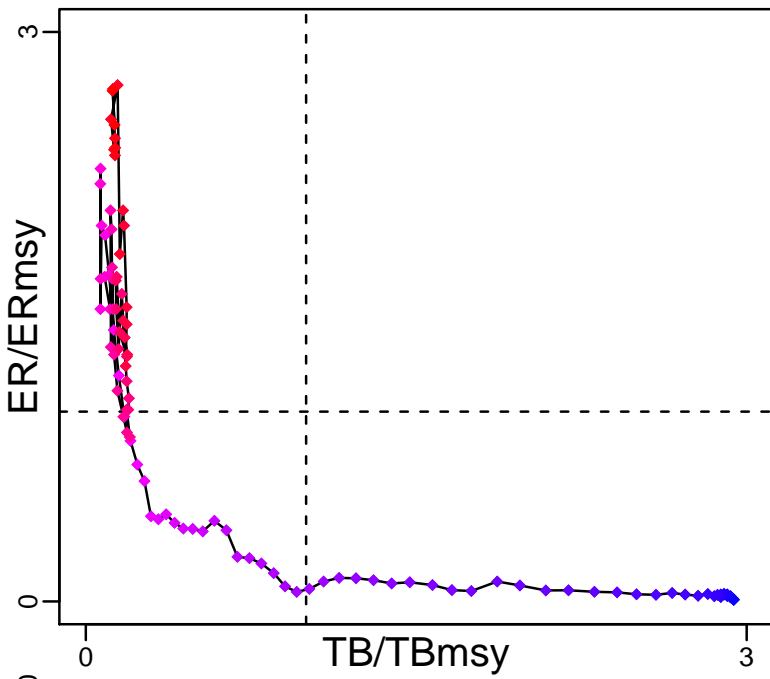
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Jasus lalandii  |
| <b>Current Assess ID</b>    | MARAM-CRLOBSTERSA8-1910-2014-Johnston   |
| <b>Area</b>                 | South Africa Area 8   |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012, 2014  |

| Reference Points |                 |           |         |
|------------------|-----------------|-----------|---------|
| Type             | ID              | Asmt Year | Value   |
| <b>TBmsy</b>     | TBmsy-calc-MT   | 2014      | 68,000  |
| <b>SSBmsy</b>    | SSBmsy-conv-MT  | 2014      | 33,840  |
| <b>Fmsy</b>      | -               | -         | -       |
| <b>ERmsy</b>     | ERmsy-mvo-ratio | 2014      | 0.1     |
| <b>TBmgt</b>     | -               | -         | -       |
| <b>SSBmgt</b>    | -               | -         | -       |
| <b>Fmgt</b>      | -               | -         | -       |
| <b>ERmgt</b>     | -               | -         | -       |
| <b>TB0</b>       | TB0-MT          | 2014      | 199,707 |
| <b>SSB0</b>      | -               | -         | -       |
| <b>MSY</b>       | MSY-mvo-MT      | 2014      | 6800    |
| <b>M</b>         | M-1/yr          | 2014      | 0.11    |
| <b>TBlim</b>     | -               | -         | -       |
| <b>SSBlim</b>    | -               | -         | -       |
| <b>Flim</b>      | -               | -         | -       |
| <b>ERlim</b>     | -               | -         | -       |

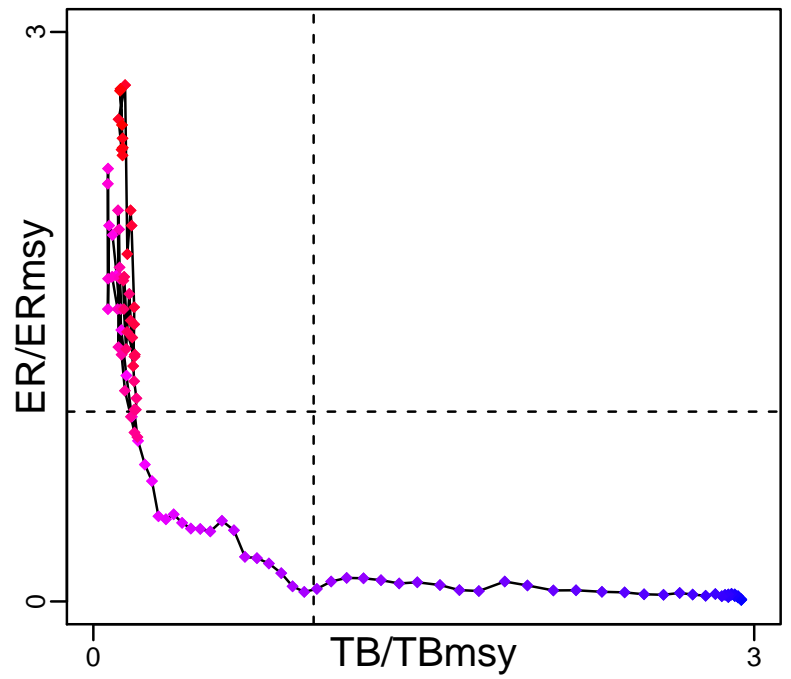
| Time Series       |                          |           |                    |         |     |
|-------------------|--------------------------|-----------|--------------------|---------|-----|
| Type              | ID                       | Asmt Year | Curr Value         | Sex     | Age |
| <b>TB</b>         | TB-MT                    | 2014      | 8860               | Males   | -   |
| <b>SSB</b>        | SSB-relative             | 2014      | 0.223              | Females | -   |
| <b>TN</b>         | -                        | -         | -                  | -       | -   |
| <b>R</b>          | R-E00                    | 2014      | $2.05 \times 10^8$ | -       | -   |
| <b>F</b>          | -                        | -         | -                  | -       | -   |
| <b>ER</b>         | ER-ratio                 | 2014      | 0.251              | -       | -   |
| <b>TC</b>         | TC-MT                    | 2014      | 2220               |         |     |
| <b>TL</b>         | TL-MT                    | 2014      | 1500               |         |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-calc-MT      | 2014      | 0.13               |         |     |
| <b>SSB/SSBmsy</b> | -                        | -         | -                  |         |     |
| <b>F/Fmsy</b>     | -                        | -         | -                  |         |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-mvo-ratio | 2014      | 2.51               |         |     |
| <b>TB/TBmgt</b>   | -                        | -         | -                  |         |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -                  |         |     |
| <b>F/Fmgt</b>     | -                        | -         | -                  |         |     |
| <b>ER/ERmgt</b>   | -                        | -         | -                  |         |     |

# West coast rock lobster South Africa Area 8 [CROBSTERSA8]

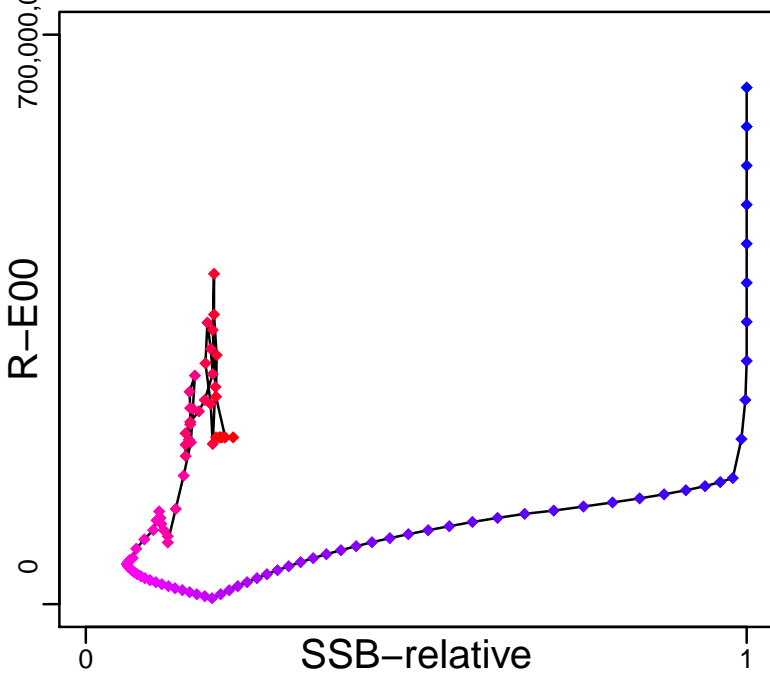
Kobe MSYpref (1910–2014–Johnston)



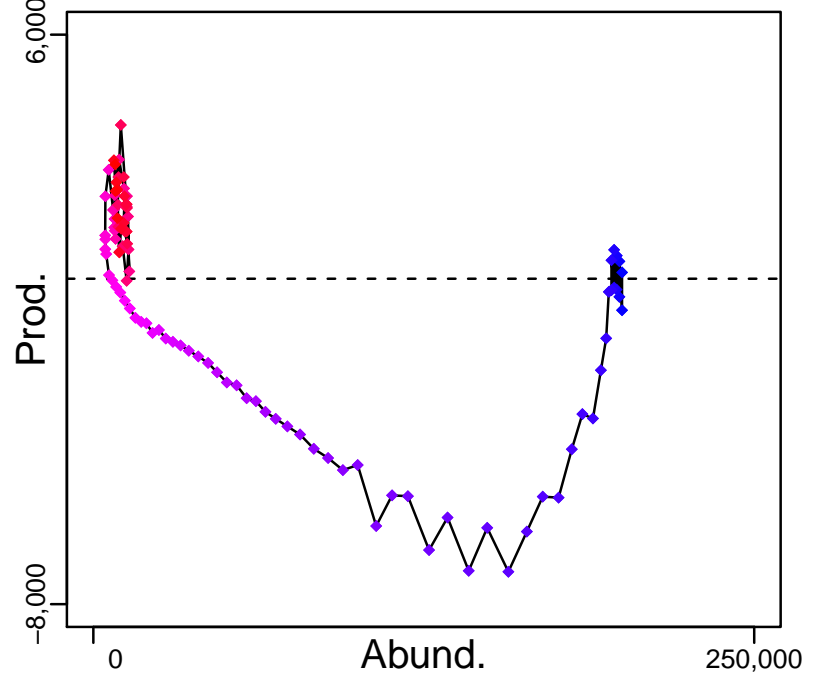
Kobe MGTpref (1910–2014–Johnston)



Spawner Recruit (1910–2014–Johnston)



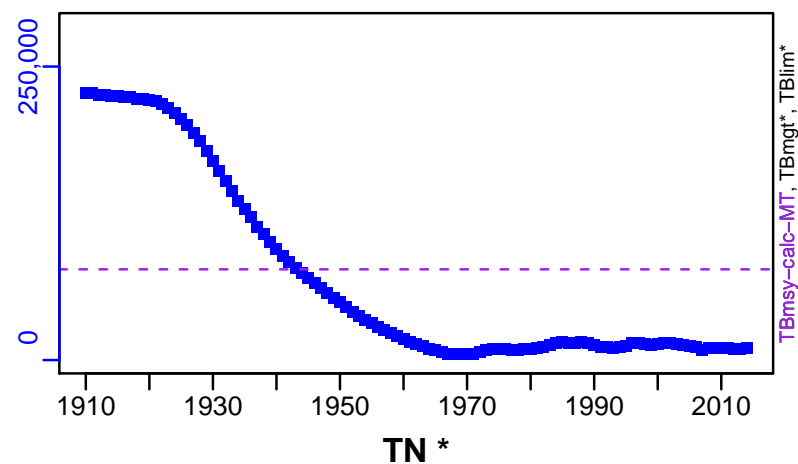
Production (1910–2014–Johnston)



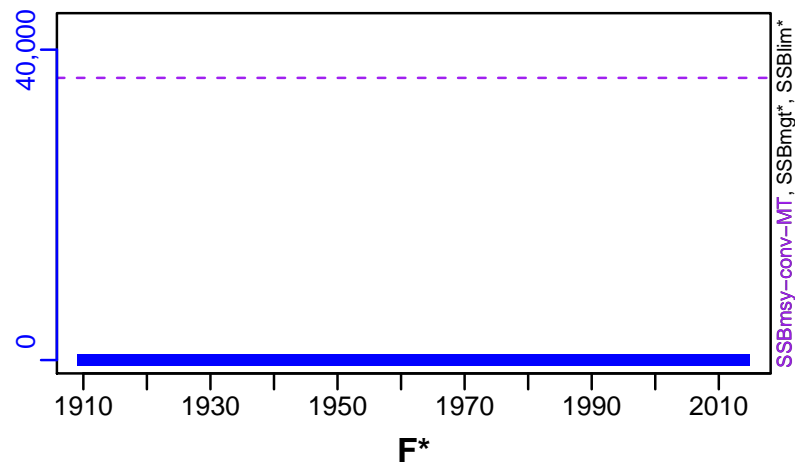
◆ Start Year ◆ End Year \* No Data

# West coast rock lobster South Africa Area 8 [CRLOBSTERSA8]

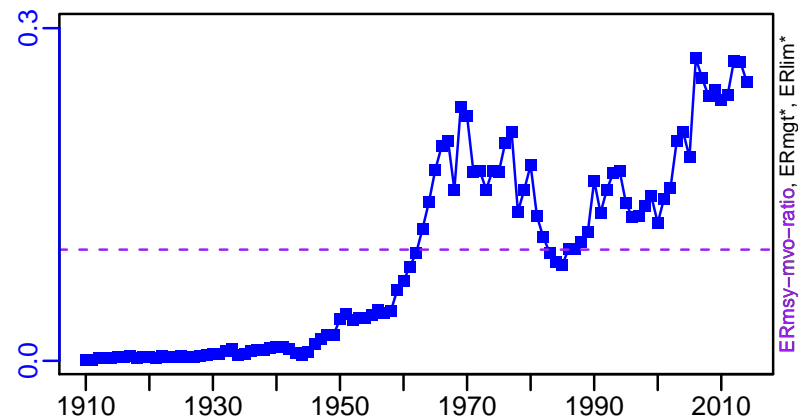
TB-MT (1910-2014-Johnston)



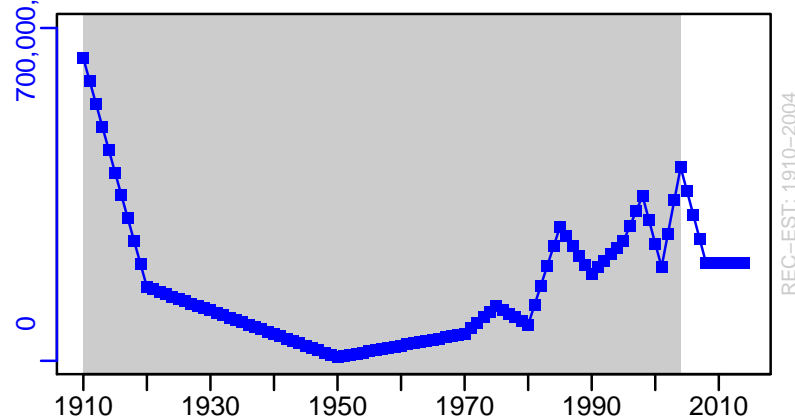
SSB-relative (1910-2014-Johnston)



ER-ratio (1910-2014-Johnston)



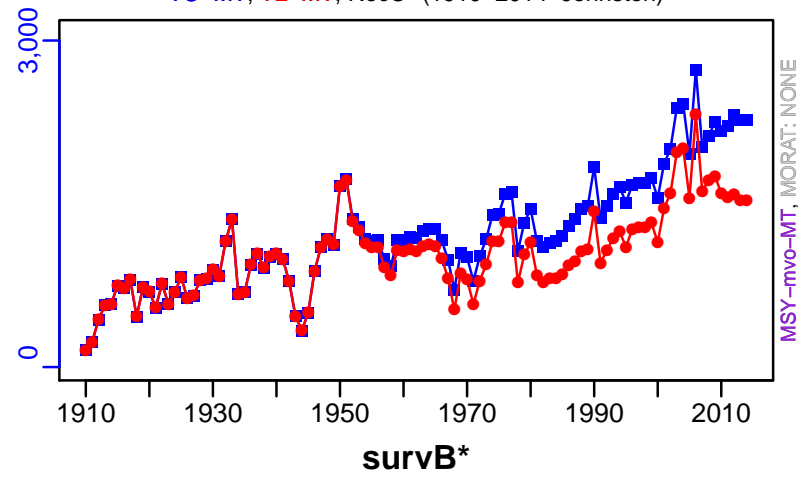
R-E00 (1910-2014-Johnston)



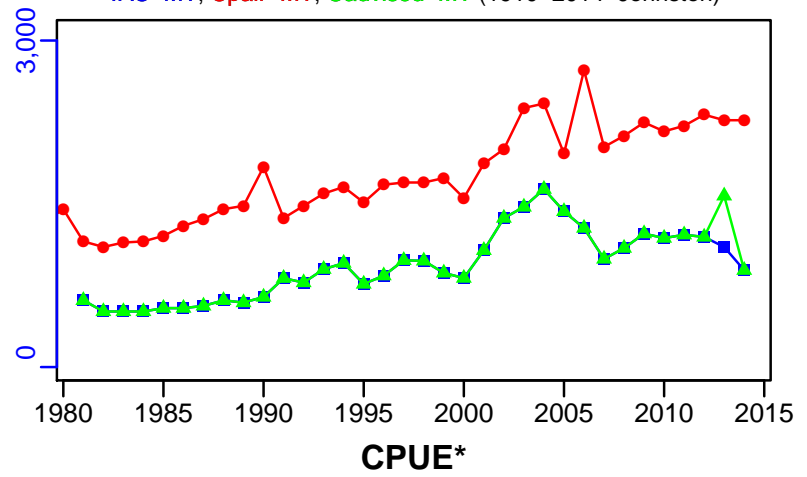


# West coast rock lobster South Africa Area 8 [CRLOBSTERSA8]

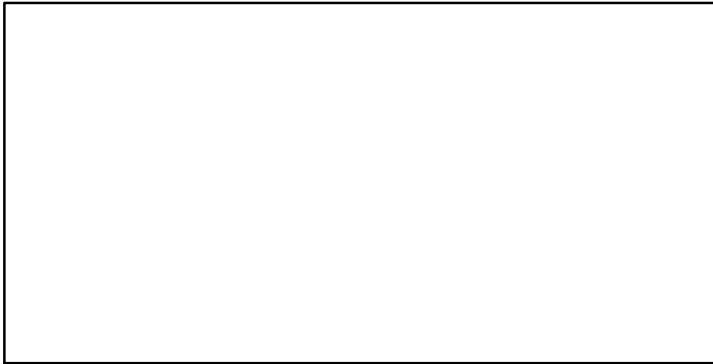
TC-MT, TL-MT, RecC\* (1910-2014-Johnston)



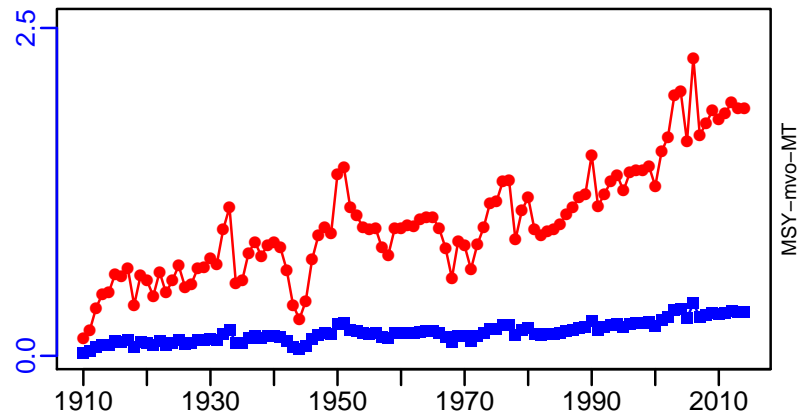
TAC-MT, Cpair-MT, Cadvised-MT (1910-2014-Johnston)



EFFORT\*



TC-MT/MSY-mvo-MT, CdivMEANC-ratio, (1910-2014-Johnston)



■ 1st listed time series    ▲ 3rd listed time series    — MORAT  
 ● 2nd listed time series    - - - MSY    \* No Data

## Cape horse mackerel South Africa South coast [CTRACSA]

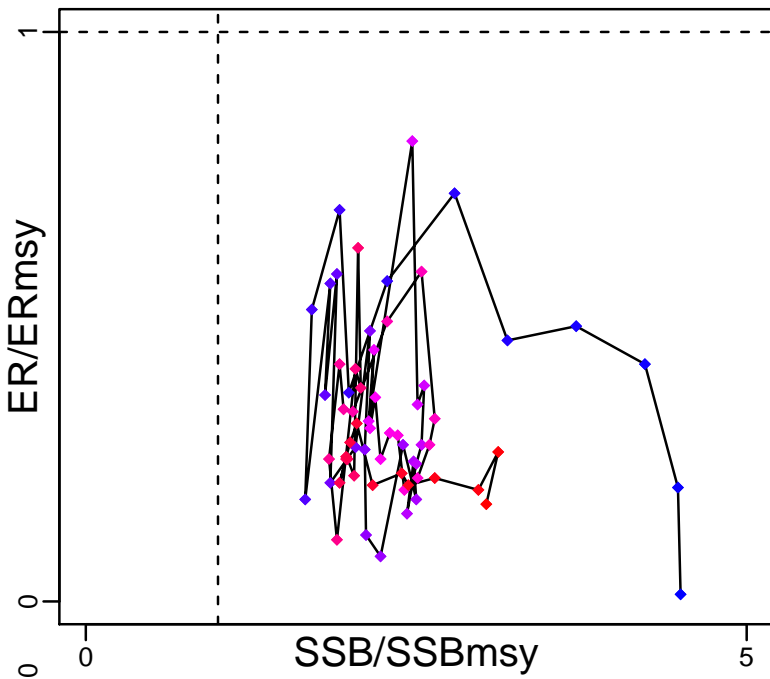
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Trachurus capensis  |
| <b>Current Assess ID</b>    | MARAM-CTRACSA-1949-2013-Furman  |
| <b>Area</b>                 | South Africa South coast  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2013  |

| Reference Points |             |           |           |
|------------------|-------------|-----------|-----------|
| Type             | ID          | Asmt Year | Value     |
| <b>TBmsy</b>     | TBmsy-MT    | 2013      | 307,654   |
| <b>SSBmsy</b>    | SSBmsy-MT   | 2013      | 234,635   |
| <b>Fmsy</b>      | Fmsy-1/yr   | 2013      | 0.19      |
| <b>ERmsy</b>     | ERmsy-ratio | 2013      | 0.24      |
| <b>TBmgt</b>     | -           | -         | -         |
| <b>SSBmgt</b>    | -           | -         | -         |
| <b>Fmgt</b>      | -           | -         | -         |
| <b>ERmgt</b>     | -           | -         | -         |
| <b>TB0</b>       | TB0-MT      | 2013      | 1,052,609 |
| <b>SSB0</b>      | SSB0-MT     | 2013      | 960,562   |
| <b>MSY</b>       | MSY-MT      | 2013      | 72,924    |
| <b>M</b>         | M-1/yr      | 2013      | 0.3       |
| <b>TBlim</b>     | TBlim-MT    | 2013      | 366,474   |
| <b>SSBlim</b>    | -           | -         | -         |
| <b>Flim</b>      | -           | -         | -         |
| <b>ERlim</b>     | -           | -         | -         |

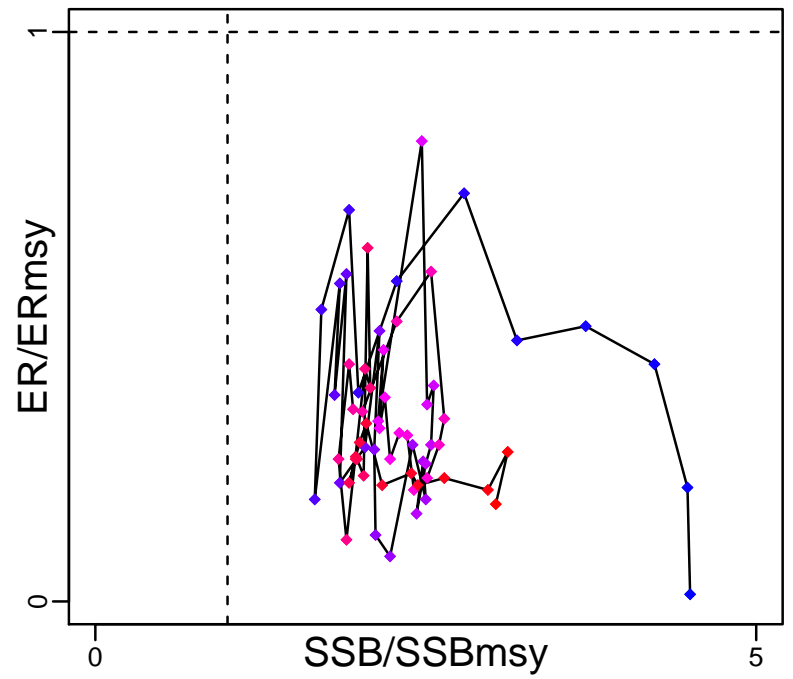
| Time Series       |                            |           |                    |      |     |
|-------------------|----------------------------|-----------|--------------------|------|-----|
| Type              | ID                         | Asmt Year | Curr Value         | Sex  | Age |
| <b>TB</b>         | TB-MT                      | 2013      | 731,000            | -    | 0+  |
| <b>SSB</b>        | SSB-MT                     | 2013      | 606,000            | Both | 3+  |
| <b>TN</b>         | -                          | -         | -                  | -    | -   |
| <b>R</b>          | R-E00                      | 2013      | $1.46 \times 10^9$ | -    | 0   |
| <b>F</b>          | -                          | -         | -                  | -    | -   |
| <b>ER</b>         | ER-ratio                   | 2013      | 0.041              | -    | -   |
| <b>TC</b>         | TC-MT                      | 2013      | 29,700             |      |     |
| <b>TL</b>         | TL-MT                      | 2013      | 29,700             |      |     |
| <b>TB/TBmsy</b>   | TBdivTBmsy-dimensionless   | 2013      | 2.48               |      |     |
| <b>SSB/SSBmsy</b> | SSBdivSSBmsy-dimensionless | 2013      | 2.85               |      |     |
| <b>F/Fmsy</b>     | -                          | -         | -                  |      |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-ratio       | 2013      | 0.171              |      |     |
| <b>TB/TBmgt</b>   | -                          | -         | -                  |      |     |
| <b>SSB/SSBmgt</b> | -                          | -         | -                  |      |     |
| <b>F/Fmgt</b>     | -                          | -         | -                  |      |     |
| <b>ER/ERmgt</b>   | -                          | -         | -                  |      |     |

# Cape horse mackerel South Africa South coast [CTRACSA]

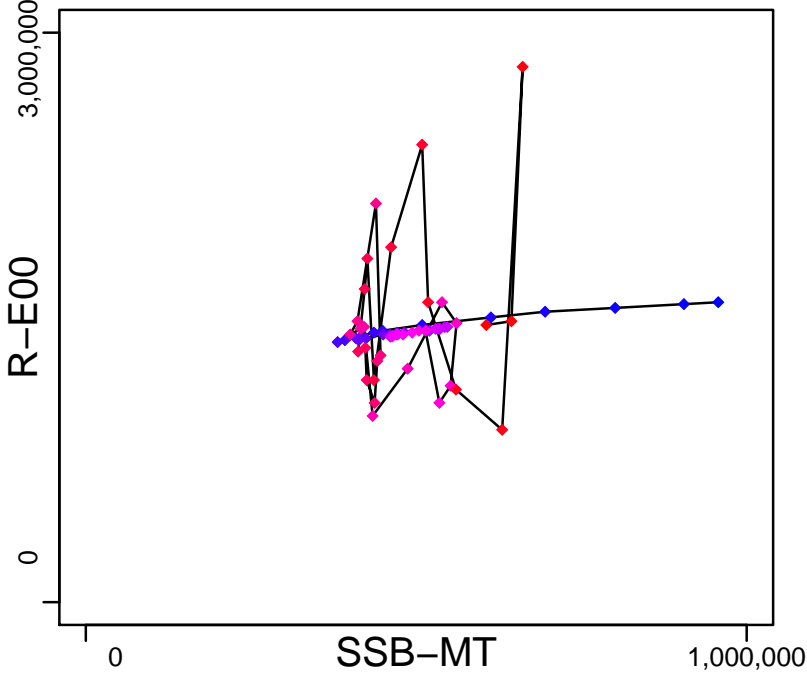
Kobe MSYpref (1949–2013–Furman)



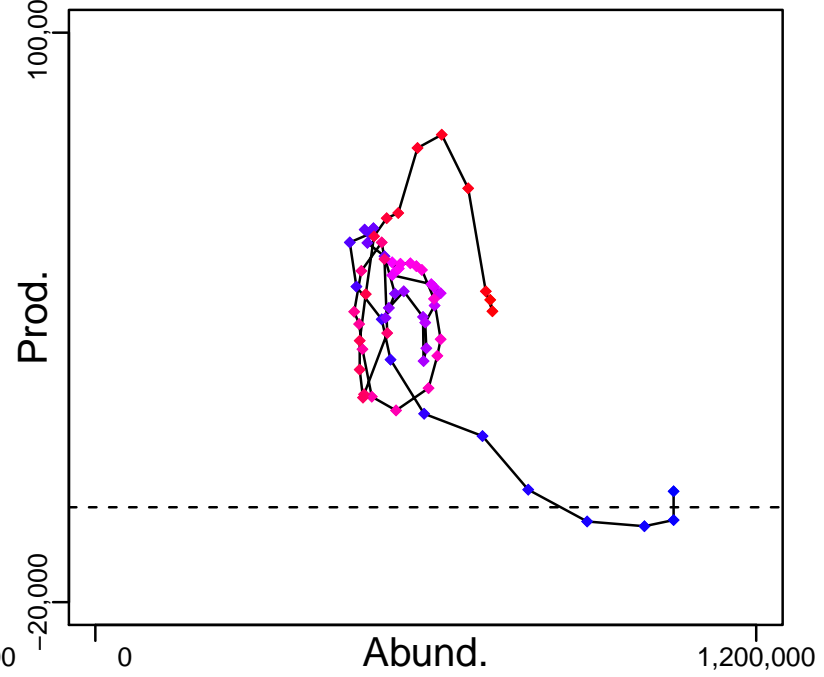
Kobe MGTpref (1949–2013–Furman)



Spawner Recruit (1949–2013–Furman)



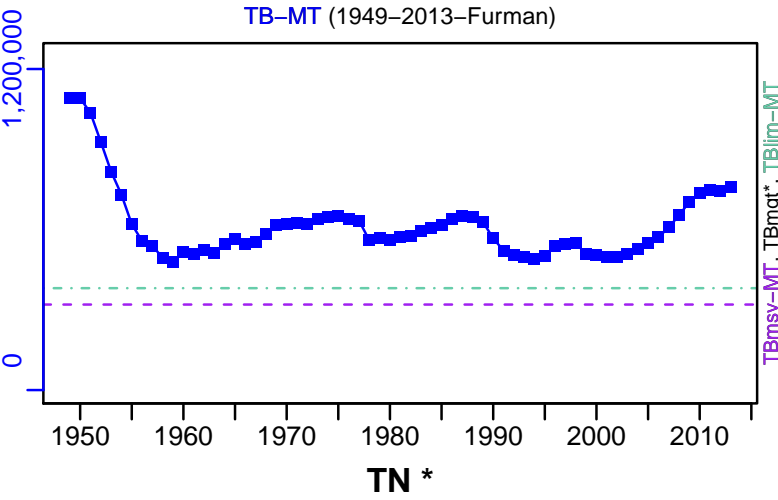
Production (1949–2013–Furman)



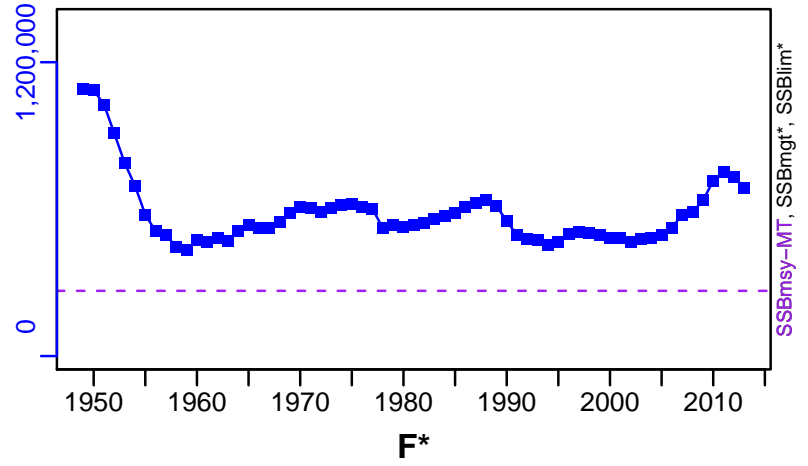
◆ Start Year ◆ End Year \* No Data

# Cape horse mackerel South Africa South coast [CTRACSA]

TB-MT (1949–2013–Furman)



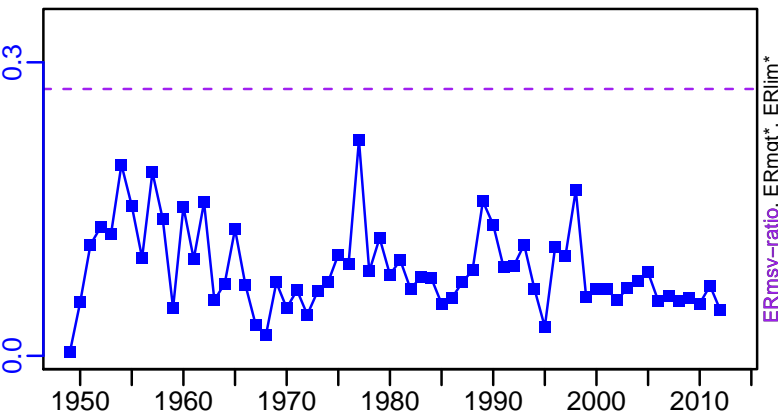
SSB-MT (1949–2013–Furman)



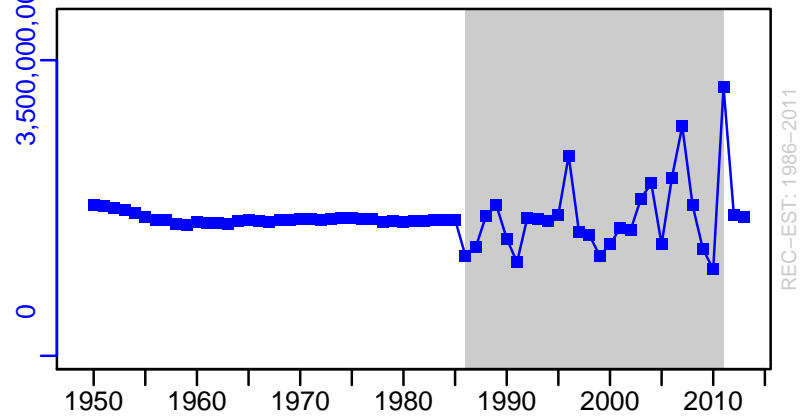
TN \*

F\*

ER-ratio (1949–2013–Furman)



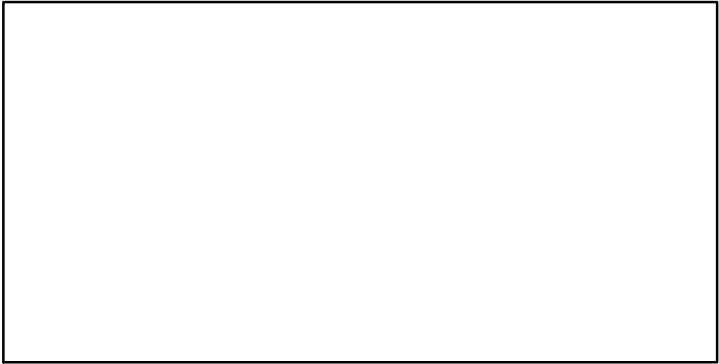
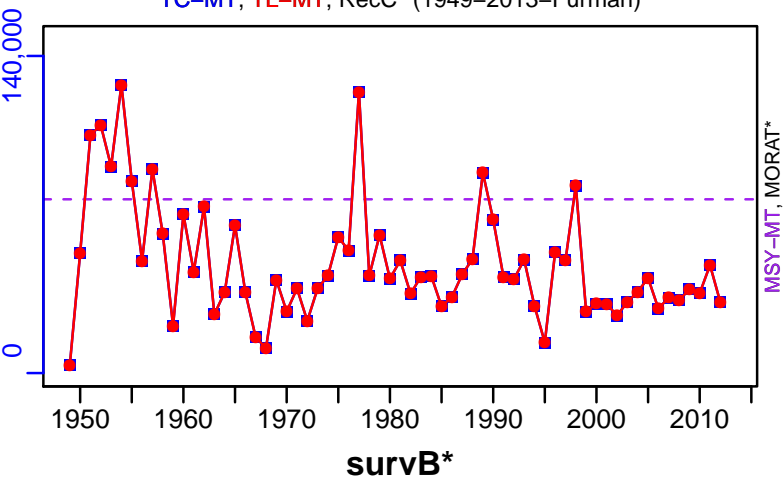
R-E00 (1949–2013–Furman)



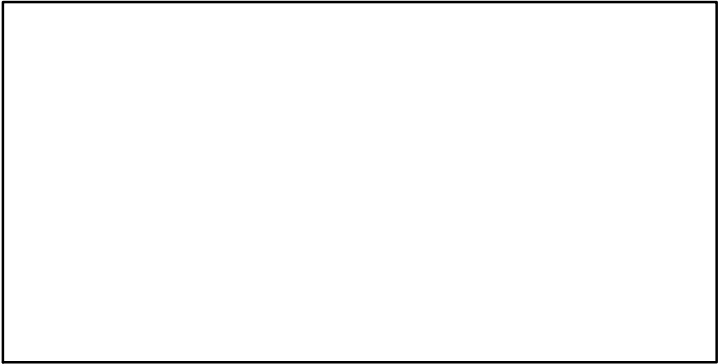
Cape horse mackerel South Africa South coast [CTRACSA]

TC-MT, TL-MT, RecC\* (1949–2013–Furman)

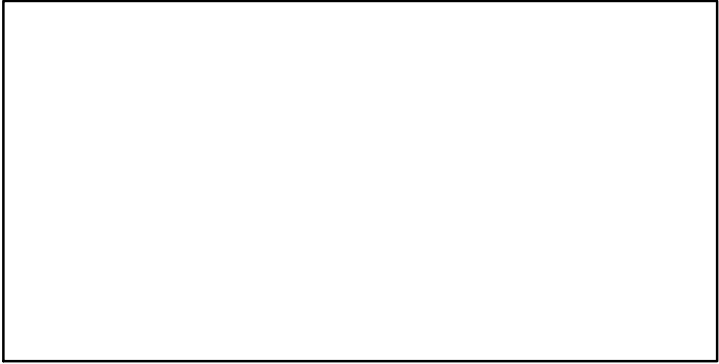
TAC\*, Cpair\*, Cadv\*



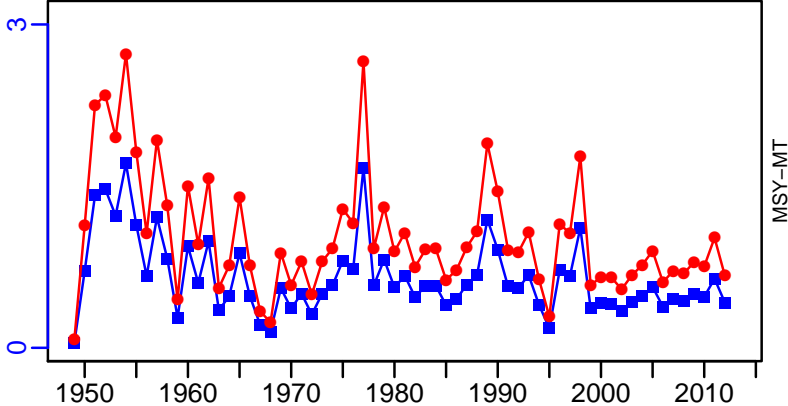
CPUE\*



EFFORT\*



TC-MT/MSY-MT, CdivMEANC-ratio, (1949–2013–Furman)



## Deep water cape hake South Africa [DEEPCHAKESA]

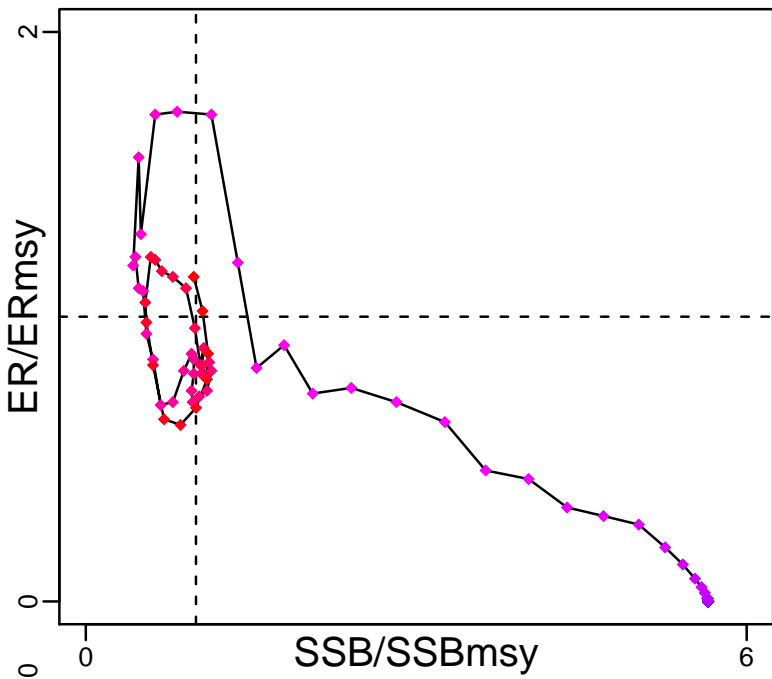
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Merluccius paradoxus  |
| <b>Current Assess ID</b>    | MARAM-DEEPCHAKESA-1917-2015-Rademeyer   |
| <b>Area</b>                 | South Africa  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2013, 2015  |

| Reference Points |             |           |           |
|------------------|-------------|-----------|-----------|
| Type             | ID          | Asmt Year | Value     |
| <b>TBmsy</b>     | -           | -         | -         |
| <b>SSBmsy</b>    | SSBmsy-MT   | 2015      | 181,000   |
| <b>Fmsy</b>      | -           | -         | -         |
| <b>ERmsy</b>     | ERmsy-ratio | 2015      | 0.41      |
| <b>TBmgt</b>     | -           | -         | -         |
| <b>SSBmgt</b>    | SSBmgt-MT   | 2015      | 181,000   |
| <b>Fmgt</b>      | -           | -         | -         |
| <b>ERmgt</b>     | -           | -         | -         |
| <b>TB0</b>       | TB0-MT      | 2015      | 2,256,000 |
| <b>SSB0</b>      | SSB0-MT     | 2015      | 1,023,000 |
| <b>MSY</b>       | MSY-MT      | 2015      | 118,900   |
| <b>M</b>         | M-1/yr      | 2015      | 0.717     |
| <b>TBlim</b>     | TBlim-MT    | 2013      | 60,000    |
| <b>SSBlim</b>    | SSBlim-MT   | 2015      | 77,200    |
| <b>Flim</b>      | -           | -         | -         |
| <b>ERlim</b>     | -           | -         | -         |

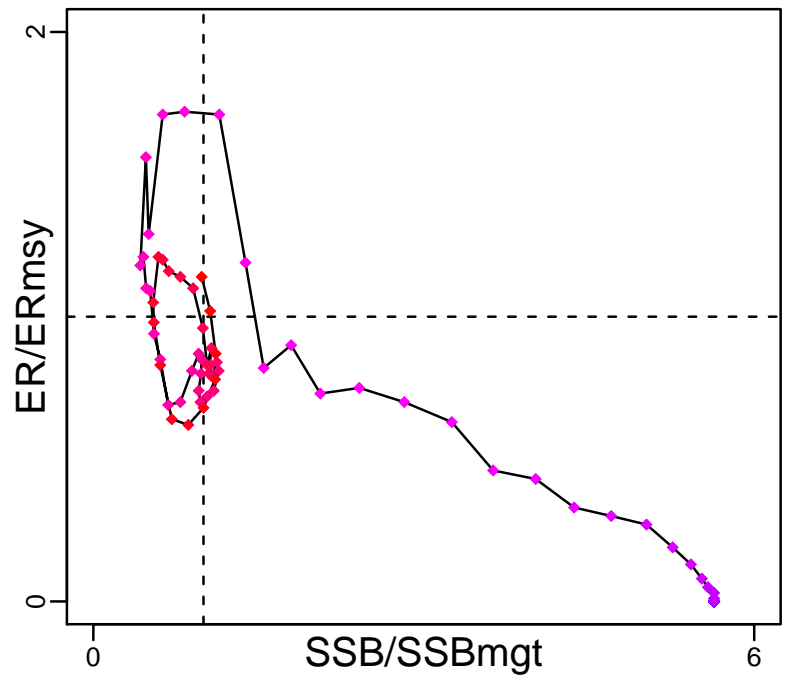
| Time Series       |                            |           |                    |         |     |
|-------------------|----------------------------|-----------|--------------------|---------|-----|
| Type              | ID                         | Asmt Year | Curr Value         | Sex     | Age |
| <b>TB</b>         | TB-MT                      | 2015      | 517,000            | -       | 0+  |
| <b>SSB</b>        | SSB-MT                     | 2015      | 178,000            | Females | 4   |
| <b>TN</b>         | -                          | -         | -                  | -       | -   |
| <b>R</b>          | R-E00                      | 2015      | $3.86 \times 10^9$ | -       | 0   |
| <b>F</b>          | -                          | -         | -                  | -       | -   |
| <b>ER</b>         | ER-ratio                   | 2015      | 0.47               | -       | -   |
| <b>TC</b>         | TC-MT                      | 2015      | 133,000            |         |     |
| <b>TL</b>         | TL-MT                      | 2015      | 133,000            |         |     |
| <b>TB/TBmsy</b>   | TB-MT/(TB0-MT*0.368)       | 2015      | 0.623              |         |     |
| <b>SSB/SSBmsy</b> | SSBdivSSBmsy-dimensionless | 2015      | 0.98               |         |     |
| <b>F/Fmsy</b>     | -                          | -         | -                  |         |     |
| <b>ER/ERmsy</b>   | ERdivERmsy-dimensionless   | 2015      | 1.14               |         |     |
| <b>TB/TBmgt</b>   | -                          | -         | -                  |         |     |
| <b>SSB/SSBmgt</b> | SSB-MT/SSBmgt-MT           | 2015      | 0.983              |         |     |
| <b>F/Fmgt</b>     | -                          | -         | -                  |         |     |
| <b>ER/ERmgt</b>   | -                          | -         | -                  |         |     |

# Deep water cape hake South Africa [DEEPCHAKESA]

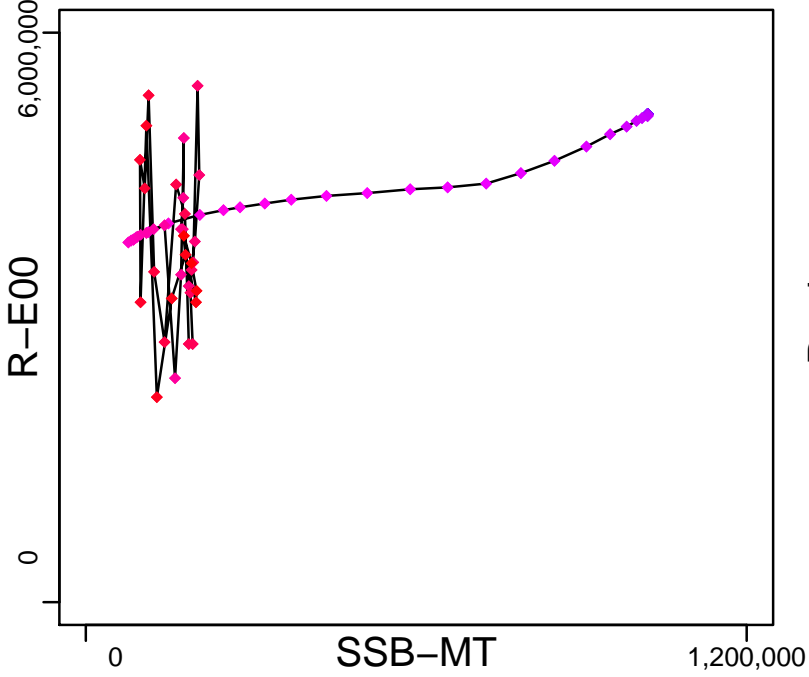
Kobe MSYpref (1917–2015–Rademeyer)



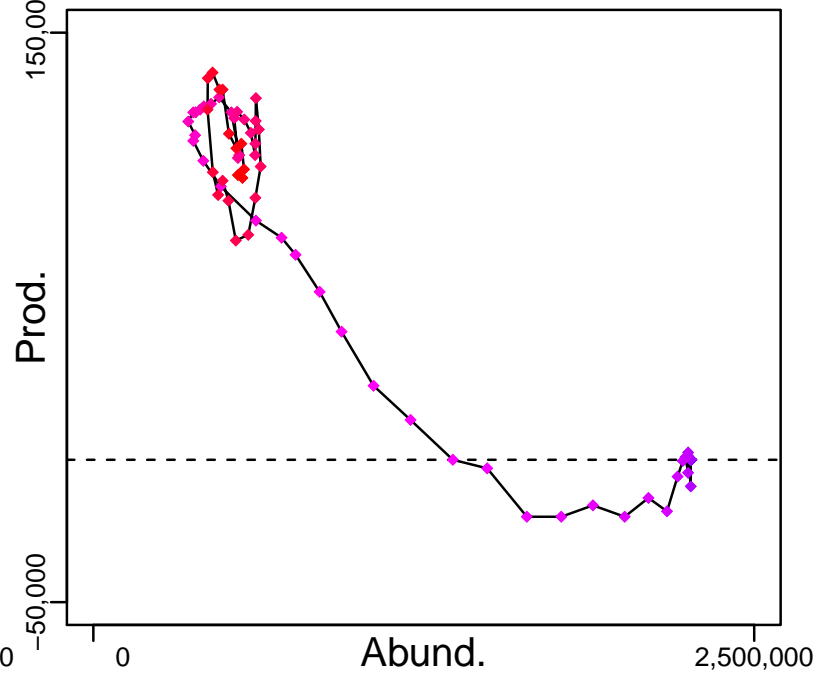
Kobe MGTpref (1917–2015–Rademeyer)



Spawner Recruit (1917–2015–Rademeyer)

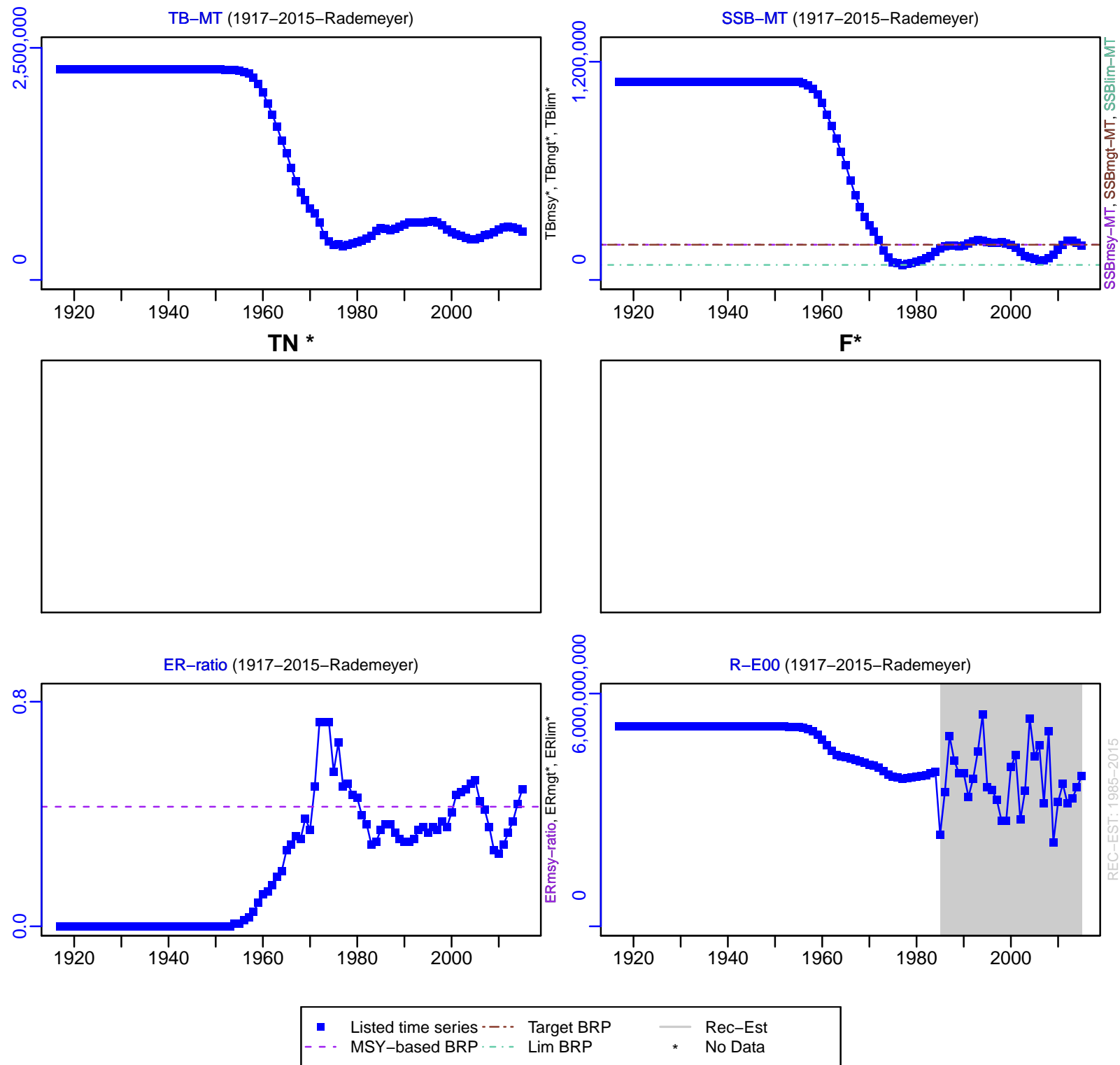


Production (1917–2015–Rademeyer)



◆ Start Year ◆ End Year \* No Data

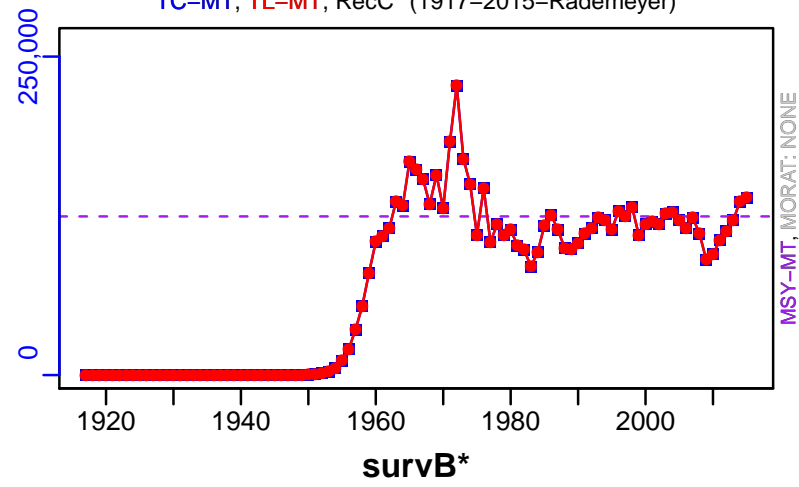
# Deep water cape hake South Africa [DEEPCHAKESA]





# Deep water cape hake South Africa [DEEPCHAKESA]

TC-MT, TL-MT, RecC\* (1917-2015-Rademeyer)



TAC\*, Cpair\*, Cadv\*



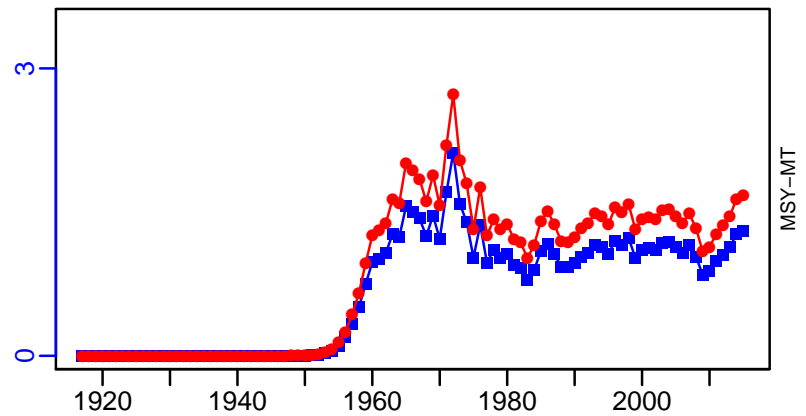
CPUE\*



EFFORT\*



TC-MT/MSY-MT, CdivMEANC-ratio, (1917-2015-Rademeyer)



■ 1st listed time series ▲ 3rd listed time series — MORAT  
● 2nd listed time series - - - MSY \* No Data

## Kingklip South Africa [KINGKLIPSA]

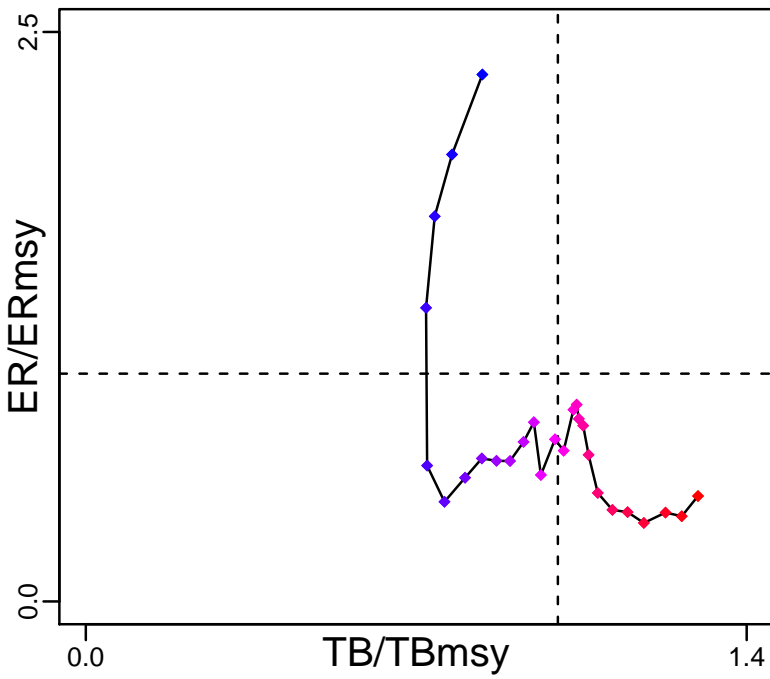
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Genypterus capensis   |
| <b>Current Assess ID</b>    | MARAM-KINGKLIPSA-1986-2012-Brandao  |
| <b>Area</b>                 | South Africa  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012  |

| Reference Points |                 |           |        |
|------------------|-----------------|-----------|--------|
| Type             | ID              | Asmt Year | Value  |
| <b>TBmsy</b>     | TBmsy-est-MT    | 2012      | 87,130 |
| <b>SSBmsy</b>    | -               | -         | -      |
| <b>Fmsy</b>      | -               | -         | -      |
| <b>ERmsy</b>     | ERmsy-est-ratio | 2012      | 0.067  |
| <b>TBmgt</b>     | -               | -         | -      |
| <b>SSBmgt</b>    | -               | -         | -      |
| <b>Fmgt</b>      | -               | -         | -      |
| <b>ERmgt</b>     | -               | -         | -      |
| <b>TB0</b>       | TB0-MT          | 2012      | 85,311 |
| <b>SSB0</b>      | -               | -         | -      |
| <b>MSY</b>       | MSY-MT          | 2012      | 5855   |
| <b>M</b>         | -               | -         | -      |
| <b>TBlim</b>     | -               | -         | -      |
| <b>SSBlim</b>    | -               | -         | -      |
| <b>Flim</b>      | -               | -         | -      |
| <b>ERlim</b>     | -               | -         | -      |

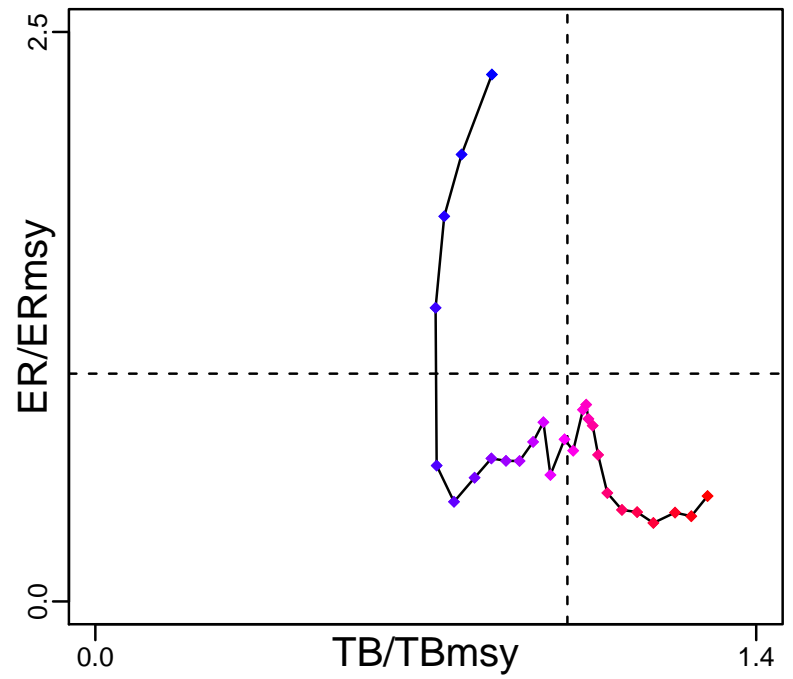
| Time Series       |                               |           |            |     |     |
|-------------------|-------------------------------|-----------|------------|-----|-----|
| Type              | ID                            | Asmt Year | Curr Value | Sex | Age |
| <b>TB</b>         | TB-MT                         | 2012      | 113,000    | -   | 0+  |
| <b>SSB</b>        | -                             | -         | -          | -   | -   |
| <b>TN</b>         | -                             | -         | -          | -   | -   |
| <b>R</b>          | -                             | -         | -          | -   | -   |
| <b>F</b>          | -                             | -         | -          | -   | -   |
| <b>ER</b>         | ER-calc-ratio                 | 2012      | 0.031      | -   | -   |
| <b>TC</b>         | TC-MT                         | 2012      | 3520       |     |     |
| <b>TL</b>         | TL-MT                         | 2012      | 3520       |     |     |
| <b>TB/TBmsy</b>   | TB-MT/TBmsy-est-MT            | 2012      | 1.297      |     |     |
| <b>SSB/SSBmsy</b> | -                             | -         | -          |     |     |
| <b>F/Fmsy</b>     | -                             | -         | -          |     |     |
| <b>ER/ERmsy</b>   | ER-calc-ratio/ERmsy-est-ratio | 2012      | 0.463      |     |     |
| <b>TB/TBmgt</b>   | -                             | -         | -          |     |     |
| <b>SSB/SSBmgt</b> | -                             | -         | -          |     |     |
| <b>F/Fmgt</b>     | -                             | -         | -          |     |     |
| <b>ER/ERmgt</b>   | -                             | -         | -          |     |     |

# Kingklip South Africa [KINGKLIPSA]

Kobe MSYpref (1986–2012–Brandao)



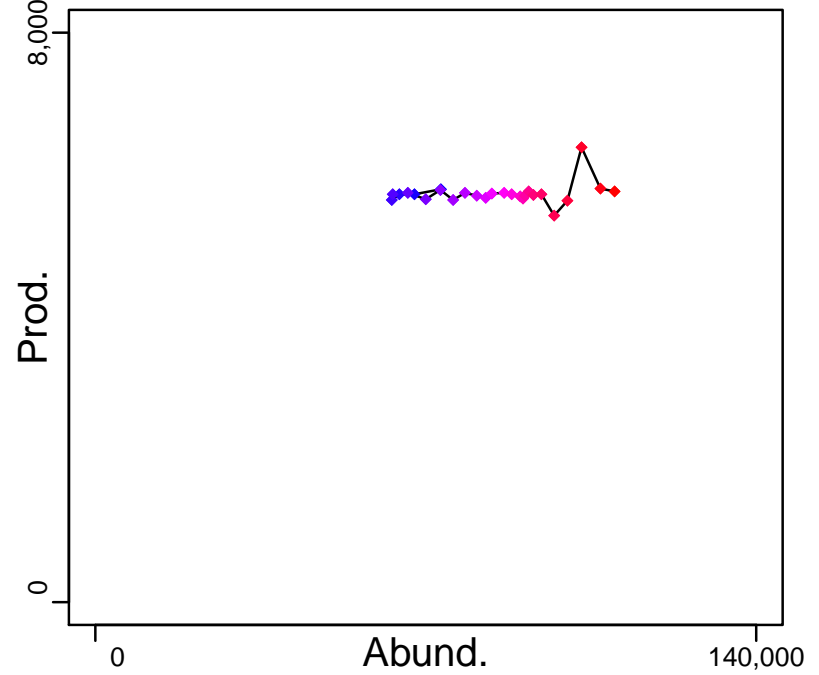
Kobe MGTpref (1986–2012–Brandao)



Spawner Recruit\*



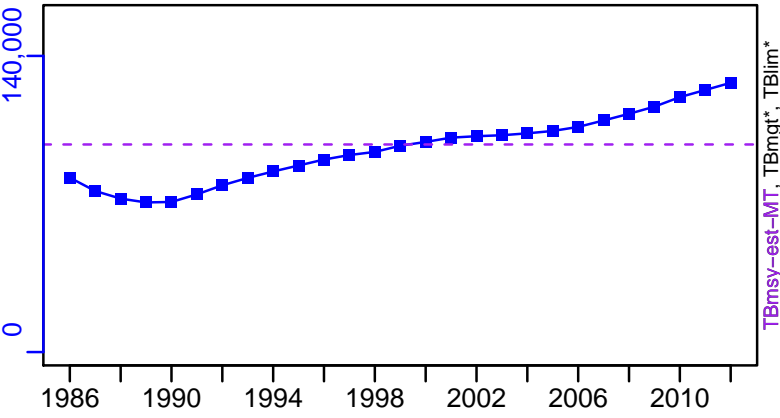
Production (1986–2012–Brandao)



◆ Start Year ◆ End Year \* No Data

# Kingklip South Africa [KINGKLIPSA]

TB-MT (1986-2012-Brandao)



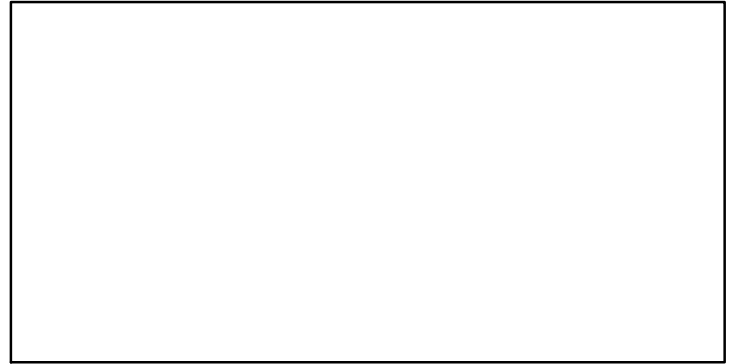
SSB\*



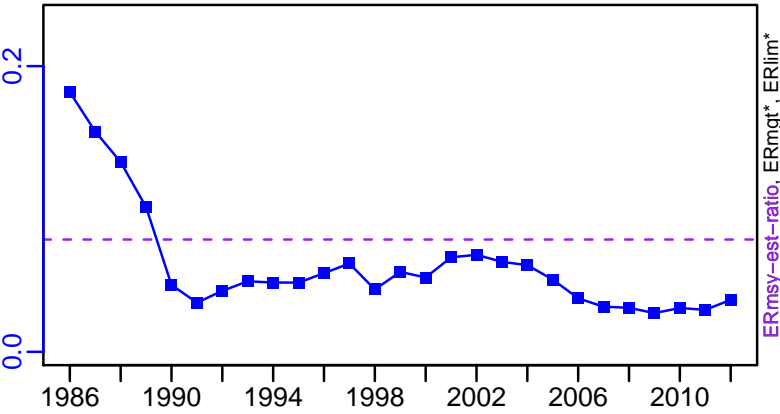
TN \*



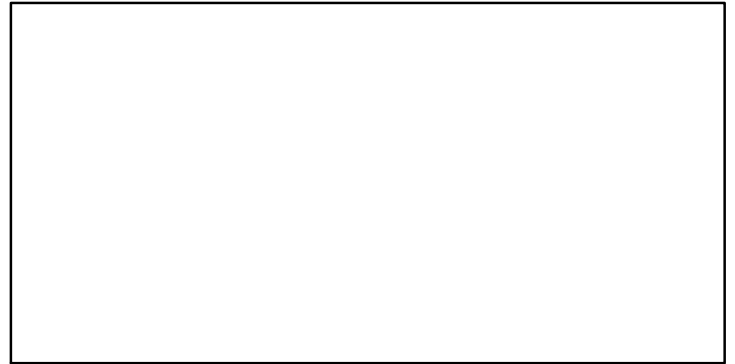
F\*



ER-calc-ratio (1986-2012-Brandao)

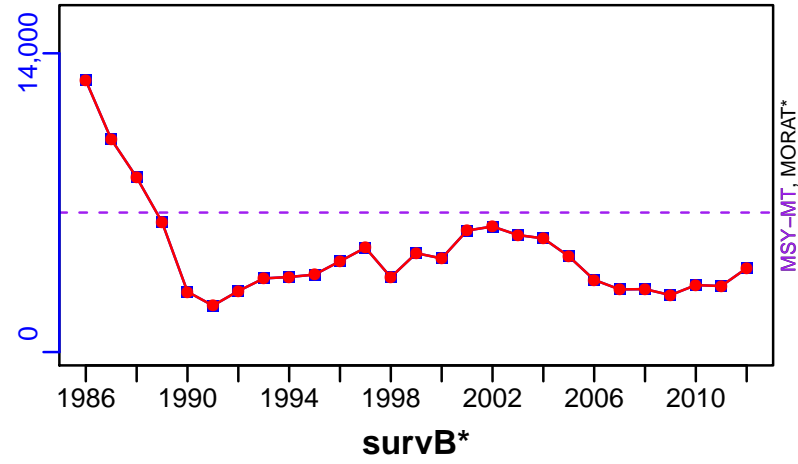


Recruits\*



# Kingklip South Africa [KINGKLIPSA]

TC-MT, TL-MT, RecC\* (1986–2012–Brandao)



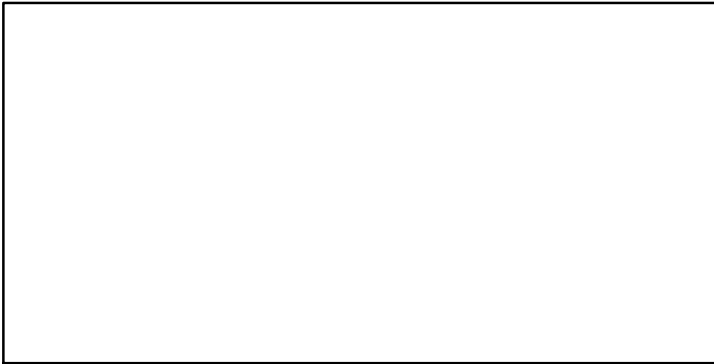
TAC\*, Cpair\*, Cadv\*



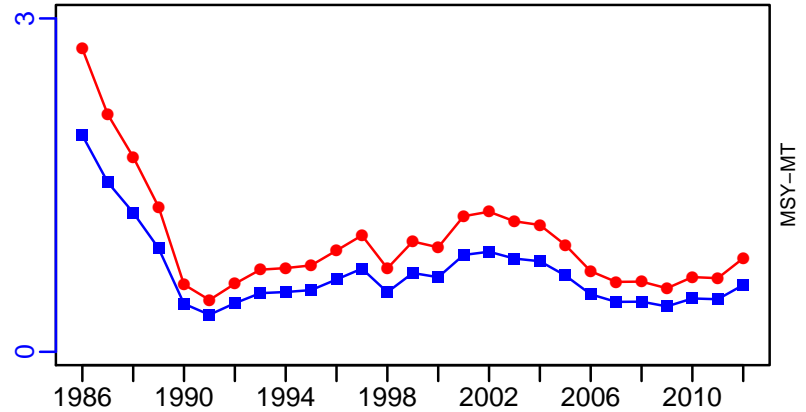
CPUE\*



EFFORT\*



TC-MT/MSY-MT, CdivMEANC-ratio, (1986–2012–Brandao)



■ 1st listed time series    ▲ 3rd listed time series    — MORAT  
● 2nd listed time series    - - - MSY    \* No Data

**Patagonian toothfish South Africa Subantarctic Prince Edward Islands  
[PTOOTHFISHPEI]**

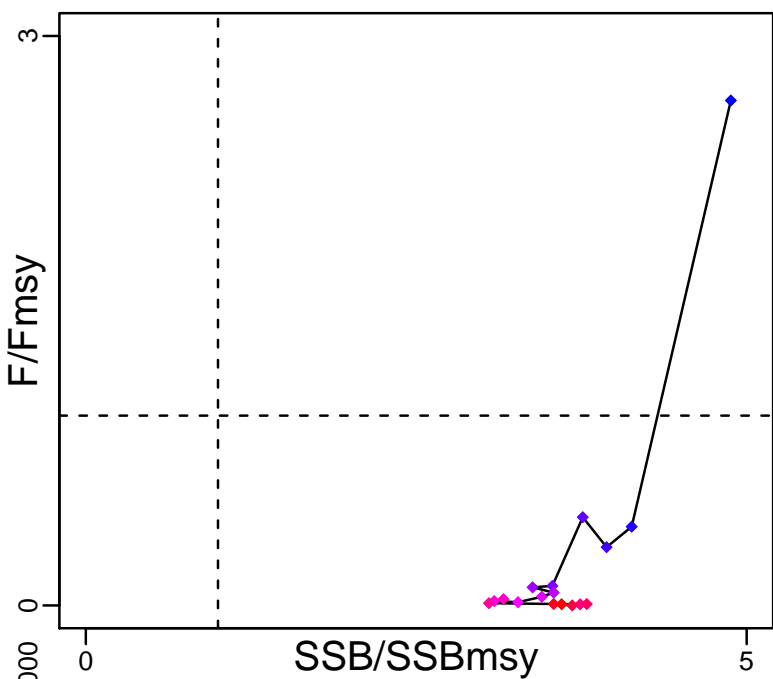
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Dissostichus eleginoides  |
| <b>Current Assess ID</b>    | MARAM-PTOOTHFISHPEI-1960-2015-Brandao   |
| <b>Area</b>                 | South Africa Subantarctic Prince Edward Islands   |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2013, 2015  |

| Reference Points |                  |           |        |
|------------------|------------------|-----------|--------|
| Type             | ID               | Asmt Year | Value  |
| <b>TBmsy</b>     | -                | -         | -      |
| <b>SSBmsy</b>    | SSBmsy-MT        | 2015      | 9180   |
| <b>Fmsy</b>      | Fmsy-1/yr        | 2015      | 0.12   |
| <b>ERmsy</b>     | ERmsy-conv-ratio | 2013      | 0.082  |
| <b>TBmgt</b>     | -                | -         | -      |
| <b>SSBmgt</b>    | -                | -         | -      |
| <b>Fmgt</b>      | -                | -         | -      |
| <b>ERmgt</b>     | -                | -         | -      |
| <b>TB0</b>       | TB0-MT           | 2015      | 59,165 |
| <b>SSB0</b>      | SSB0-MT          | 2015      | 37,662 |
| <b>MSY</b>       | MSY-MT           | 2015      | 1514   |
| <b>M</b>         | M-1/yr           | 2015      | 0.13   |
| <b>TBlim</b>     | -                | -         | -      |
| <b>SSBlim</b>    | -                | -         | -      |
| <b>Flim</b>      | -                | -         | -      |
| <b>ERlim</b>     | -                | -         | -      |

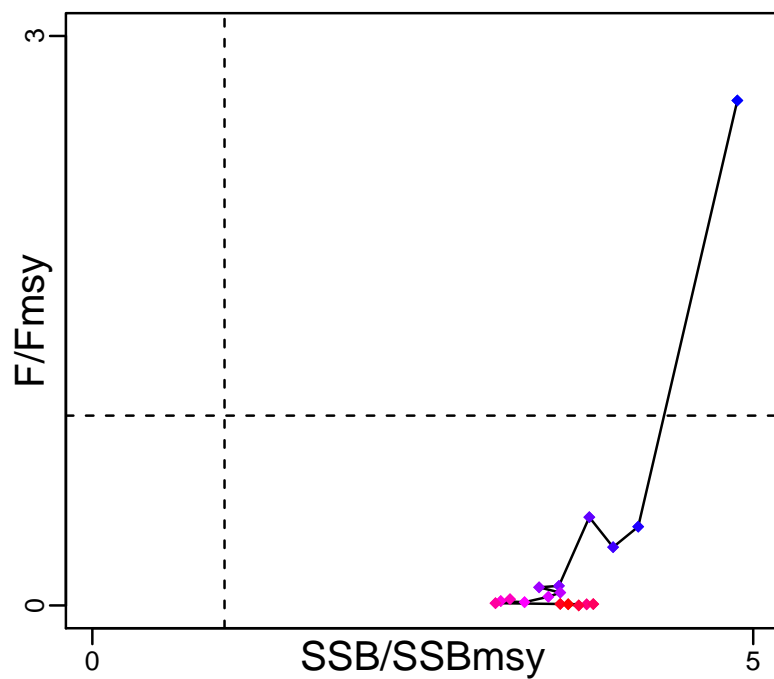
| Time Series       |                            |           |                       |     |     |
|-------------------|----------------------------|-----------|-----------------------|-----|-----|
| Type              | ID                         | Asmt Year | Curr Value            | Sex | Age |
| <b>TB</b>         | TB-MT                      | 2015      | 34,100                | -   | 0+  |
| <b>SSB</b>        | SSB-MT                     | 2015      | 21,700                | -   | 13+ |
| <b>TN</b>         | -                          | -         | -                     | -   | -   |
| <b>R</b>          | R-E00                      | 2015      | $1.41 \times 10^{12}$ | -   | 6   |
| <b>F</b>          | -                          | -         | -                     | -   | -   |
| <b>ER</b>         | ER-calc-ratio              | 2015      | 0.017                 | -   | -   |
| <b>TC</b>         | TC-MT                      | 2015      | 575                   |     |     |
| <b>TL</b>         | TL-MT                      | 2015      | 575                   |     |     |
| <b>TB/TBmsy</b>   | TB-MT/(TB0-MT*0.368)       | 2015      | 1.566                 |     |     |
| <b>SSB/SSBmsy</b> | SSBdivSSBmsy-dimensionless | 2015      | 2.36                  |     |     |
| <b>F/Fmsy</b>     | FdivFmsy-dimensionless     | 2013      | 0.006                 |     |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-conv-ratio  | 2013      | 0.012                 |     |     |
| <b>TB/TBmgt</b>   | -                          | -         | -                     |     |     |
| <b>SSB/SSBmgt</b> | -                          | -         | -                     |     |     |
| <b>F/Fmgt</b>     | -                          | -         | -                     |     |     |
| <b>ER/ERmgt</b>   | -                          | -         | -                     |     |     |

# Patagonian toothfish South Africa Subantarctic Prince Edward Islands [PTOOTHFISHPEI]

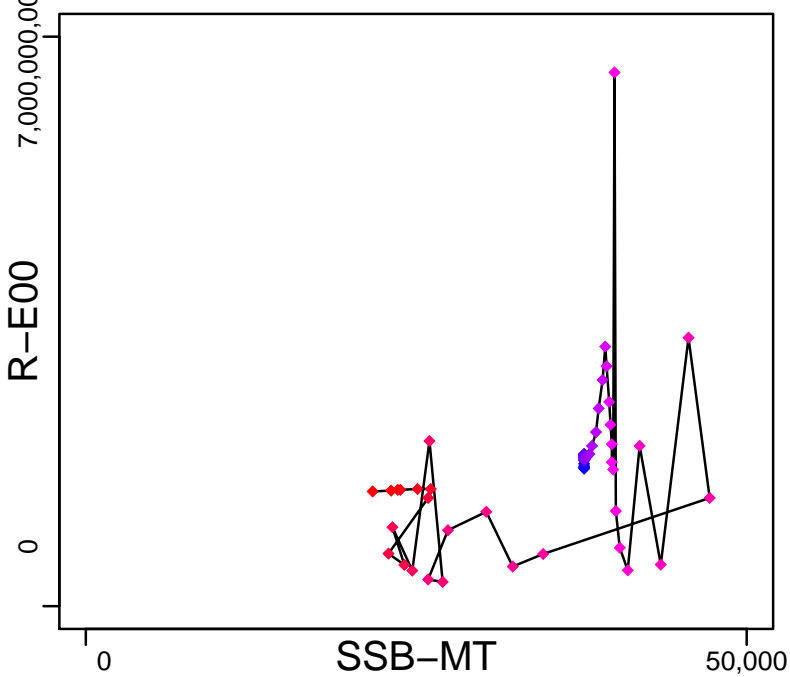
Kobe MSYpref (1960–2013–Brandao)



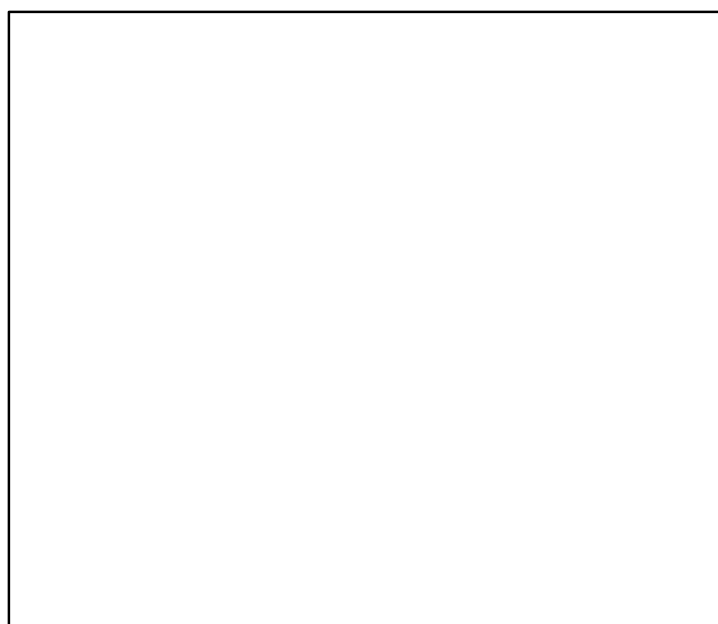
Kobe MGTpref (1960–2013–Brandao)



Spawner Recruit (1960–2015–Brandao)



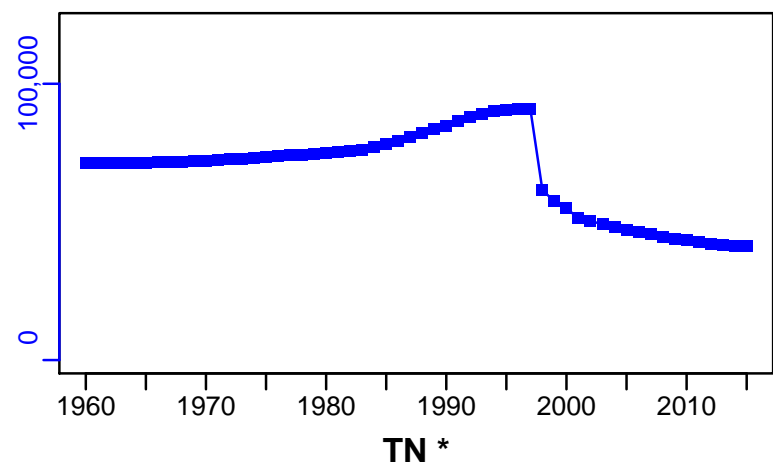
Production\*



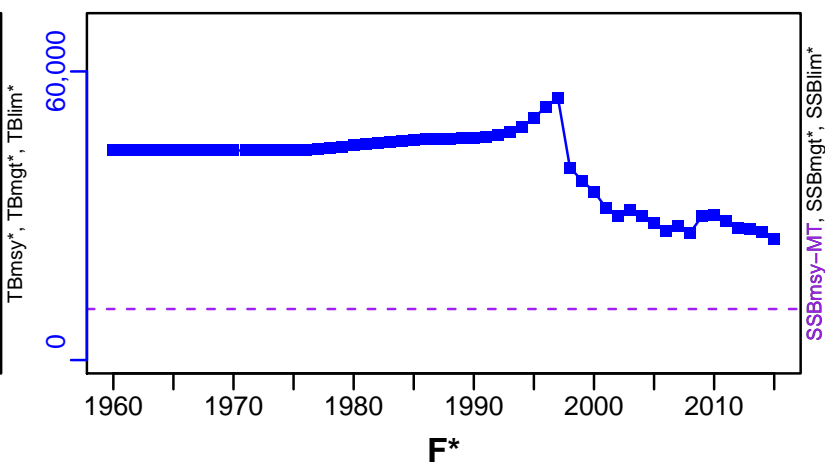
◆ Start Year ◆ End Year \* No Data

# Patagonian toothfish South Africa Subantarctic Prince Edward Islands [PTOOTHFISHPEI]

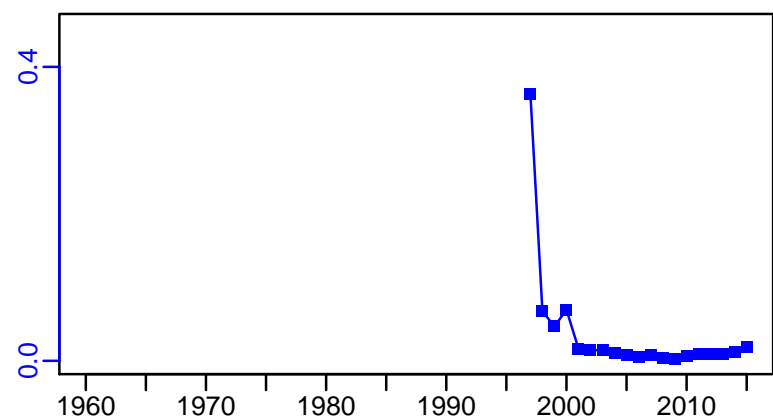
TB-MT (1960–2015–Brandao)



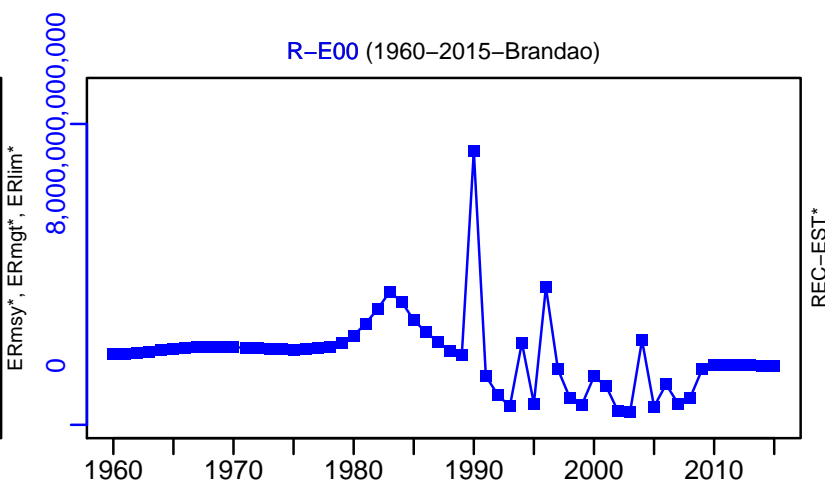
SSB-MT (1960–2015–Brandao)



ER-calc-ratio (1960–2015–Brandao)



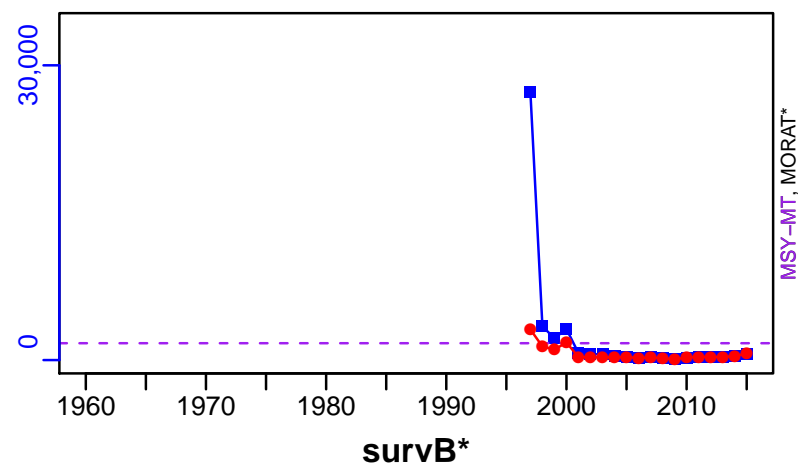
R-E00 (1960–2015–Brandao)





# Patagonian toothfish South Africa Subantarctic Prince Edward Islands [PTOOTHFISHPEI]

TC-MT, TL-MT, RecC\* (1960–2015–Brandao)



TAC\*, Cpair\*, Cadv\*



survB\*



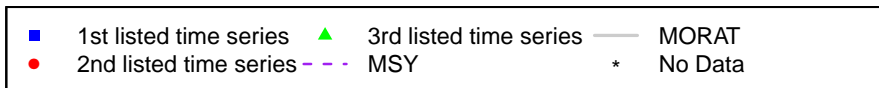
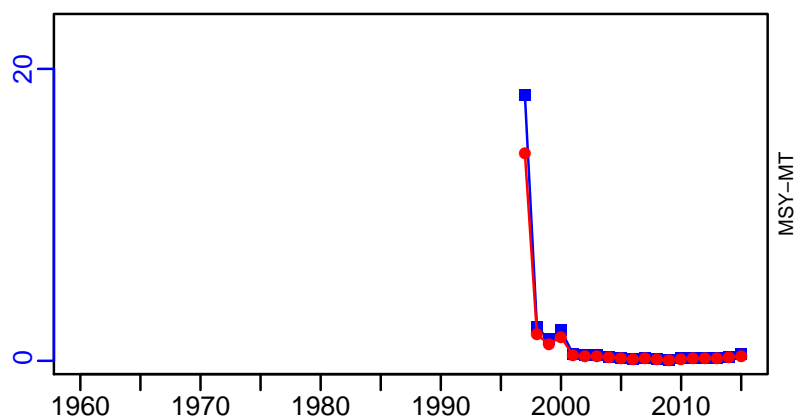
CPUE\*



EFFORT\*



TC-MT/MSY-MT, CdivMEANC-ratio, (1960–2015–Brandao)



## South African abalone South Africa [SAABALONESA]

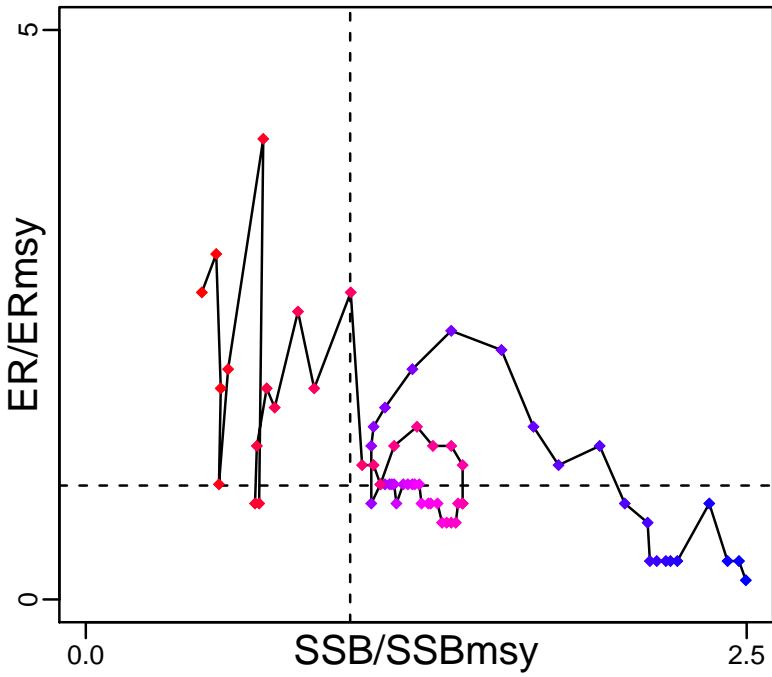
| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Haliotis midae  |
| <b>Current Assess ID</b>    | MARAM-SAABALONESA-1951-2015-Brandao   |
| <b>Area</b>                 | South Africa  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2013, 2015  |

| Reference Points |                 |           |        |
|------------------|-----------------|-----------|--------|
| Type             | ID              | Asmt Year | Value  |
| <b>TBmsy</b>     | -               | -         | -      |
| <b>SSBmsy</b>    | SSBmsy-pr-MT    | 2015      | 11,575 |
| <b>Fmsy</b>      | -               | -         | -      |
| <b>ERmsy</b>     | ERmsy-est-ratio | 2015      | 0.059  |
| <b>TBmgt</b>     | -               | -         | -      |
| <b>SSBmgt</b>    | -               | -         | -      |
| <b>Fmgt</b>      | -               | -         | -      |
| <b>ERmgt</b>     | -               | -         | -      |
| <b>TB0</b>       | TB0-MT          | 2015      | 31,391 |
| <b>SSB0</b>      | SSB0-MT         | 2015      | 28,937 |
| <b>MSY</b>       | MSY-est-MT      | 2015      | 791    |
| <b>M</b>         | M-1/yr          | 2015      | 0.15   |
| <b>TBlim</b>     | -               | -         | -      |
| <b>SSBlim</b>    | -               | -         | -      |
| <b>Flim</b>      | -               | -         | -      |
| <b>ERlim</b>     | -               | -         | -      |

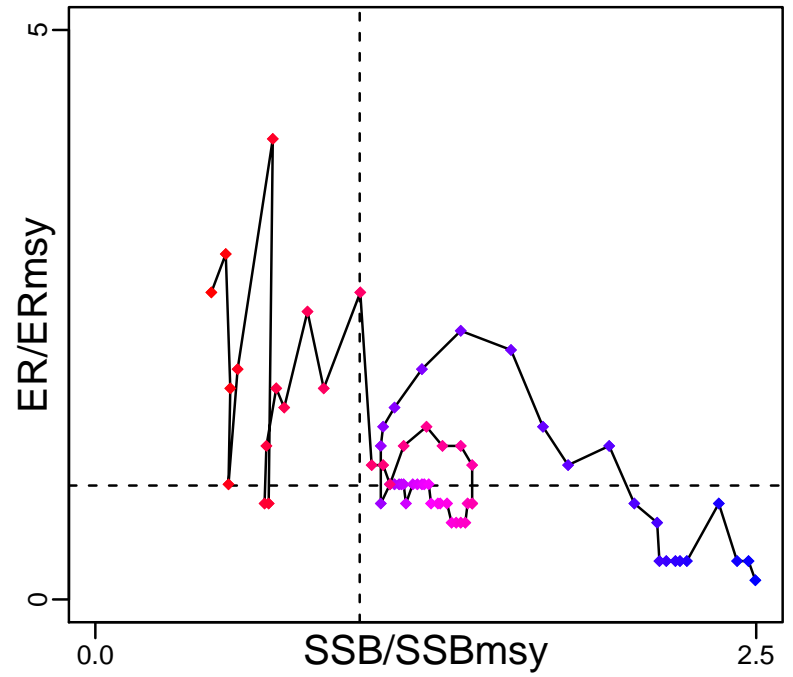
| Time Series       |                          |           |            |     |     |
|-------------------|--------------------------|-----------|------------|-----|-----|
| Type              | ID                       | Asmt Year | Curr Value | Sex | Age |
| <b>TB</b>         | TB-MT                    | 2015      | 6210       | -   | 1+  |
| <b>SSB</b>        | SSB-MT                   | 2015      | 5080       | -   | 7+  |
| <b>TN</b>         | -                        | -         | -          | -   | -   |
| <b>R</b>          | R-E00                    | 2015      | 9,070,000  | -   | 8   |
| <b>F</b>          | F-1/yr                   | 2015      | 0.035      | -   | -   |
| <b>ER</b>         | ER-ratio                 | 2015      | 0.16       | -   | -   |
| <b>TC</b>         | TC-MT                    | 2015      | 985        |     |     |
| <b>TL</b>         | TL-MT                    | 2015      | 50         |     |     |
| <b>TB/TBmsy</b>   | TB-MT/(TB0-MT*0.368)     | 2015      | 0.538      |     |     |
| <b>SSB/SSBmsy</b> | SSB-MT/SSBmsy-pr-MT      | 2015      | 0.439      |     |     |
| <b>F/Fmsy</b>     | -                        | -         | -          |     |     |
| <b>ER/ERmsy</b>   | ER-ratio/ERmsy-est-ratio | 2015      | 2.696      |     |     |
| <b>TB/TBmgt</b>   | -                        | -         | -          |     |     |
| <b>SSB/SSBmgt</b> | -                        | -         | -          |     |     |
| <b>F/Fmgt</b>     | -                        | -         | -          |     |     |
| <b>ER/ERmgt</b>   | -                        | -         | -          |     |     |

# South African abalone South Africa [SAABALONESA]

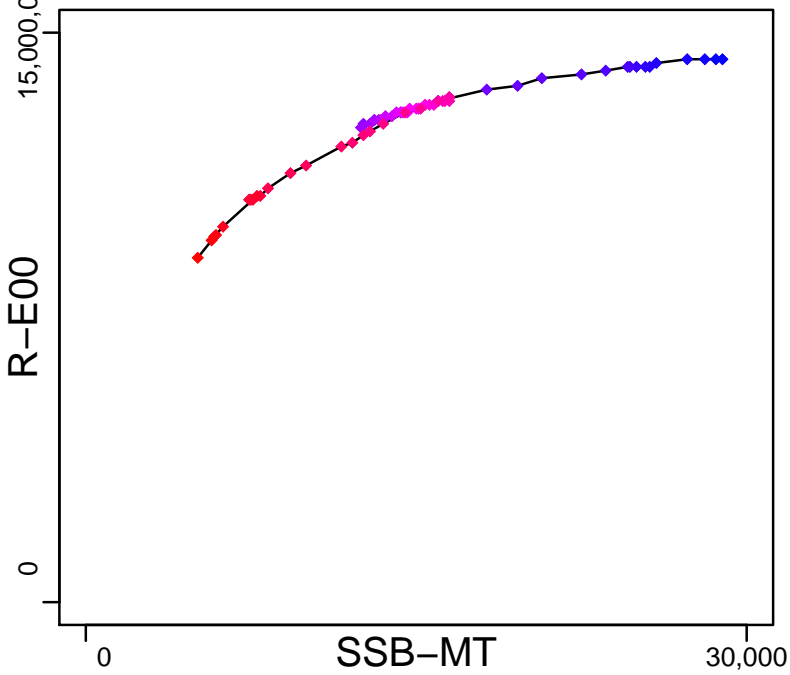
Kobe MSYpref (1951–2015–Brandao)



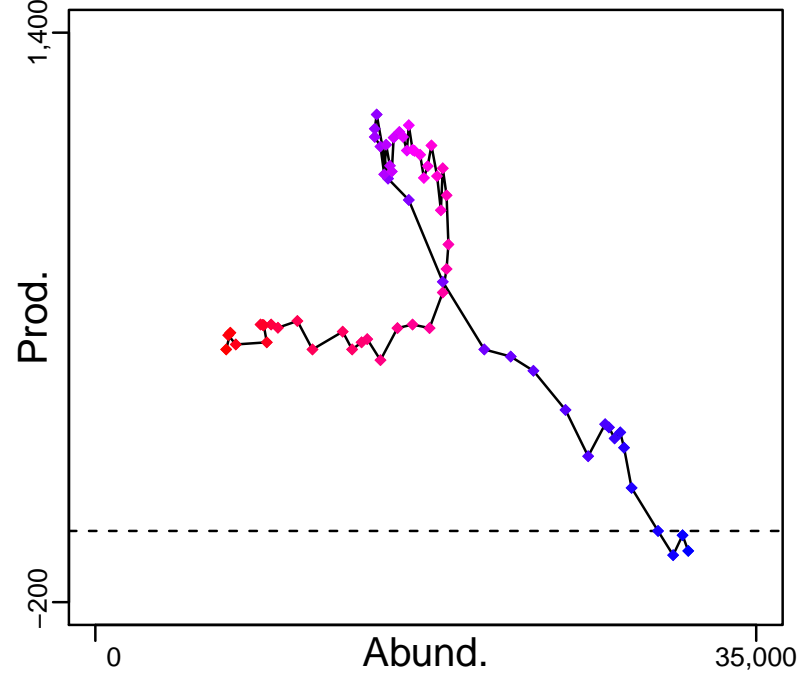
Kobe MGTpref (1951–2015–Brandao)



Spawner Recruit (1951–2015–Brandao)



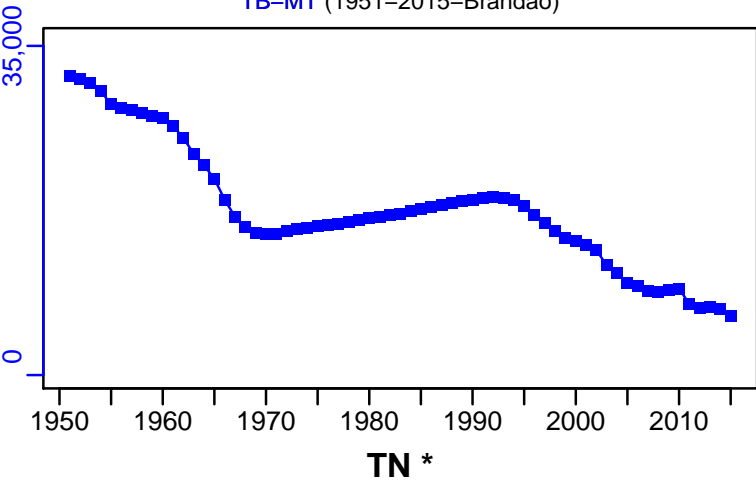
Production (1951–2015–Brandao)



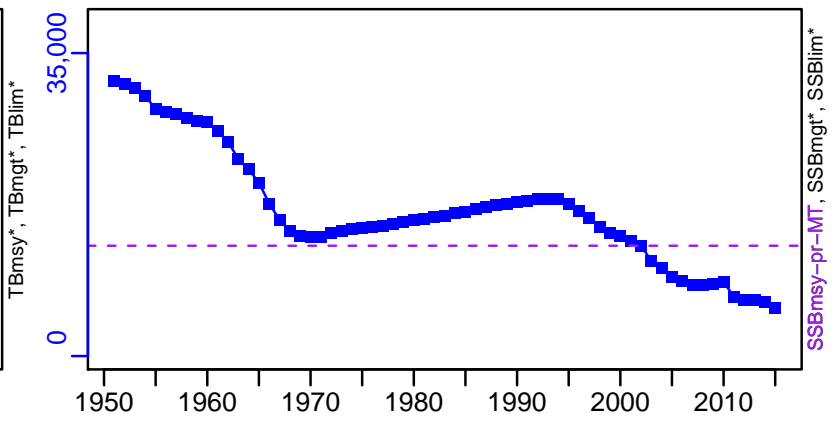
◆ Start Year ◆ End Year \* No Data

# South African abalone South Africa [SAABALONESA]

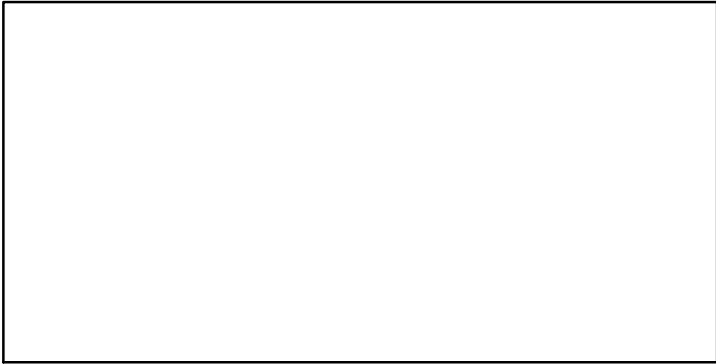
TB-MT (1951–2015–Brandao)



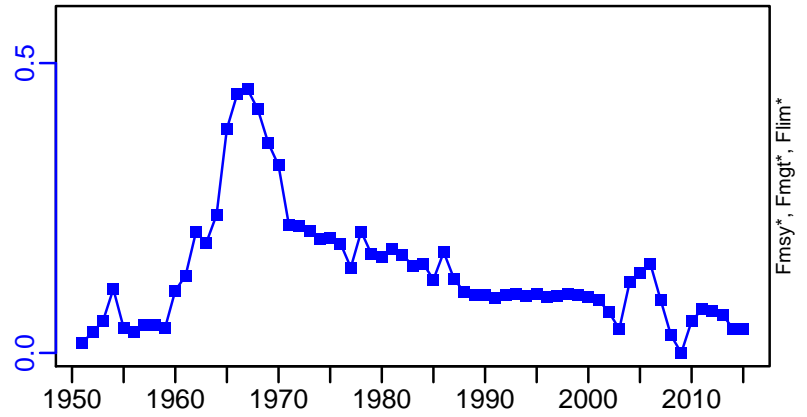
SSB-MT (1951–2015–Brandao)



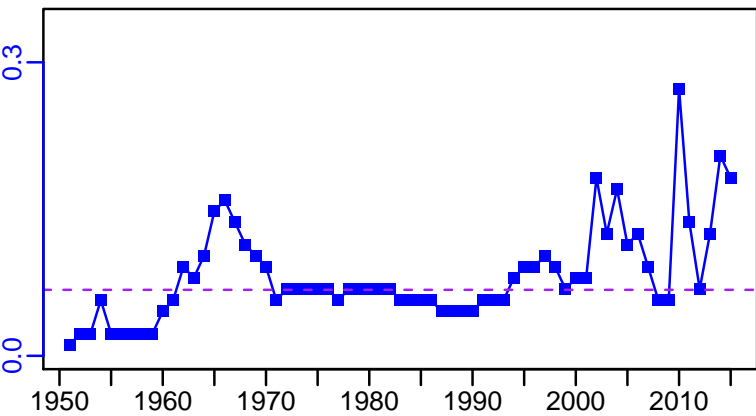
TN \*



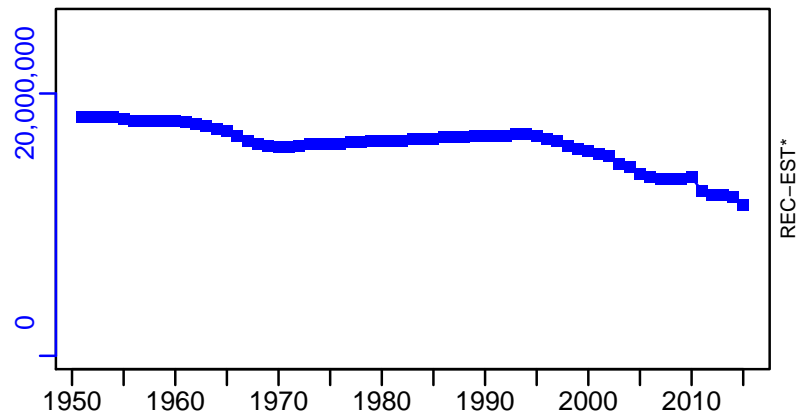
F-1/yr (1951–2015–Brandao)



ER-ratio (1951–2015–Brandao)

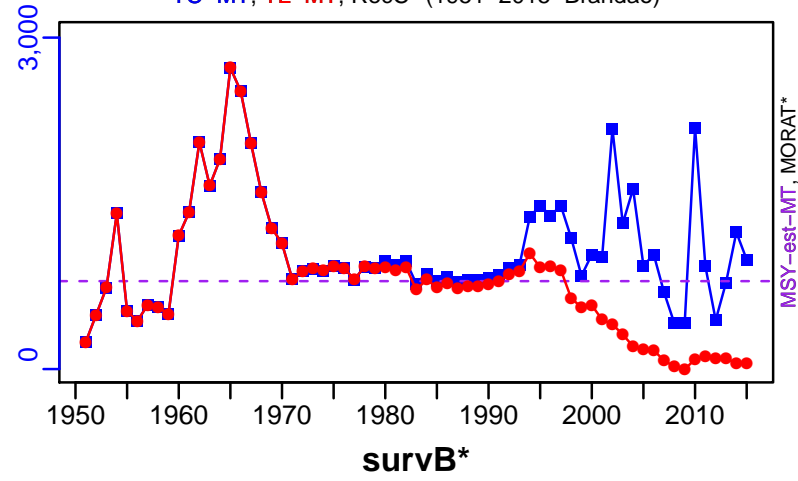


R-E00 (1951–2015–Brandao)



# South African abalone South Africa [SAABALONESA]

TC-MT, TL-MT, RecC\* (1951-2015-Brandao)



TAC\*, Cpair\*, Cadv\*



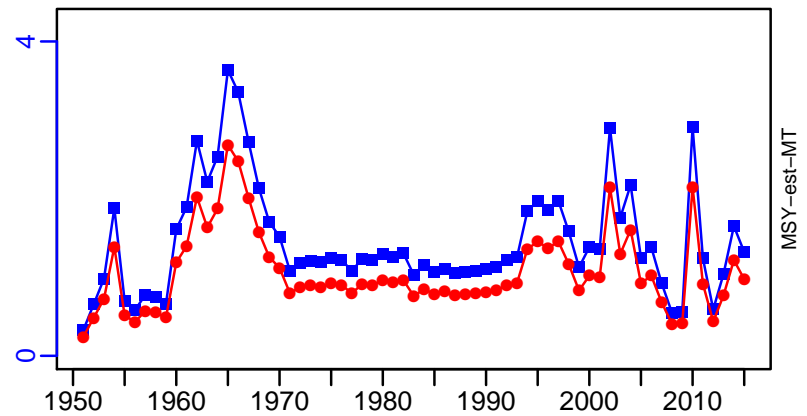
CPUE\*



EFFORT\*



TC-MT/MSY-est-MT, CdivMEANC-ratio, (1951-2015-Brandao)



- 1st listed time series
- 2nd listed time series
- 3rd listed time series
- MORAT
- MSY
- No Data

## Sardine South Africa [SARDSA]

| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Sardinops sagax   |
| <b>Current Assess ID</b>    | MARAM-SARDSA-1949-2015-deMoor   |
| <b>Area</b>                 | South Africa  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2015, 2011  |

| Reference Points |          |           |           |
|------------------|----------|-----------|-----------|
| Type             | ID       | Asmt Year | Value     |
| TBmsy            | -        | -         | -         |
| SSBmsy           | -        | -         | -         |
| Fmsy             | -        | -         | -         |
| ERmsy            | -        | -         | -         |
| TBmgt            | -        | -         | -         |
| SSBmgt           | -        | -         | -         |
| Fmgt             | -        | -         | -         |
| ERmgt            | -        | -         | -         |
| TB0              | TB0-MT   | 2015      | 1,122,314 |
| SSB0             | -        | -         | -         |
| MSY              | -        | -         | -         |
| M                | M-1/yr   | 2015      | 0.9       |
| TBlim            | TBlim-MT | 2015      | 361,990   |
| SSBlim           | -        | -         | -         |
| Flim             | -        | -         | -         |
| ERlim            | -        | -         | -         |

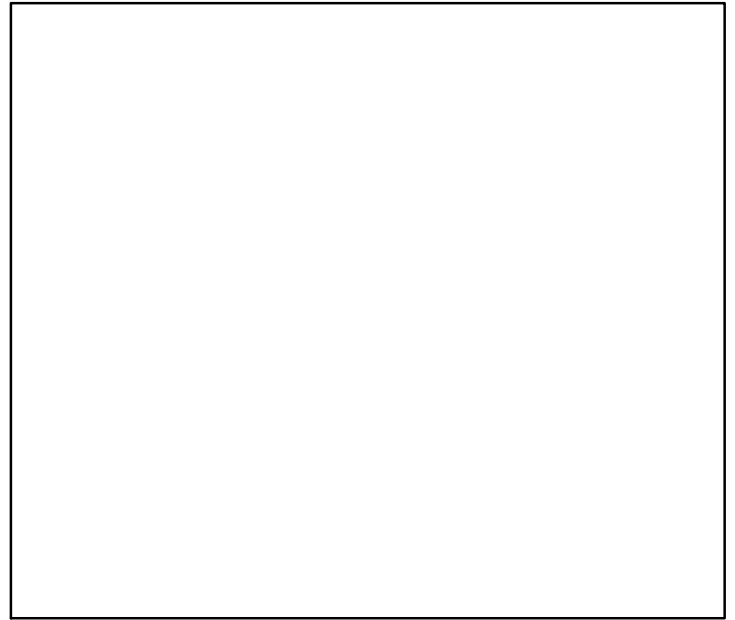
| Time Series |          |           |                       |      |     |
|-------------|----------|-----------|-----------------------|------|-----|
| Type        | ID       | Asmt Year | Curr Value            | Sex  | Age |
| TB          | TB-MT    | 2015      | 688,000               | Both | 0+  |
| SSB         | SSB-MT   | 2015      | 339,000               | Both | 0+  |
| TN          | TN-E00   | 2015      | $4.47 \times 10^{10}$ | Both | 0+  |
| R           | R-E00    | 2015      | $3.13 \times 10^{10}$ | Both | -   |
| F           | -        | -         | -                     | -    | -   |
| ER          | ER-ratio | 2015      | 0.12                  | Both | 0+  |
| TC          | TC-MT    | 2015      | 96,300                |      |     |
| TL          | TL-MT    | 2015      | 96,300                |      |     |
| TB/TBmsy    | -        | -         | -                     |      |     |
| SSB/SSBmsy  | -        | -         | -                     |      |     |
| F/Fmsy      | -        | -         | -                     |      |     |
| ER/ERmsy    | -        | -         | -                     |      |     |
| TB/TBmgt    | -        | -         | -                     |      |     |
| SSB/SSBmgt  | -        | -         | -                     |      |     |
| F/Fmgt      | -        | -         | -                     |      |     |
| ER/ERmgt    | -        | -         | -                     |      |     |

Sardine South Africa [SARDSA]

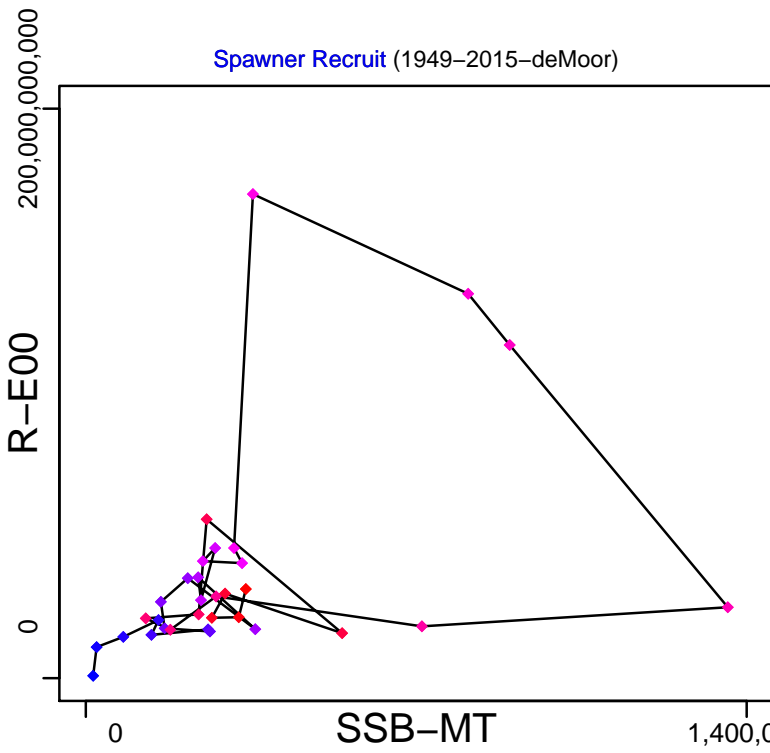
Kobe MSY\*



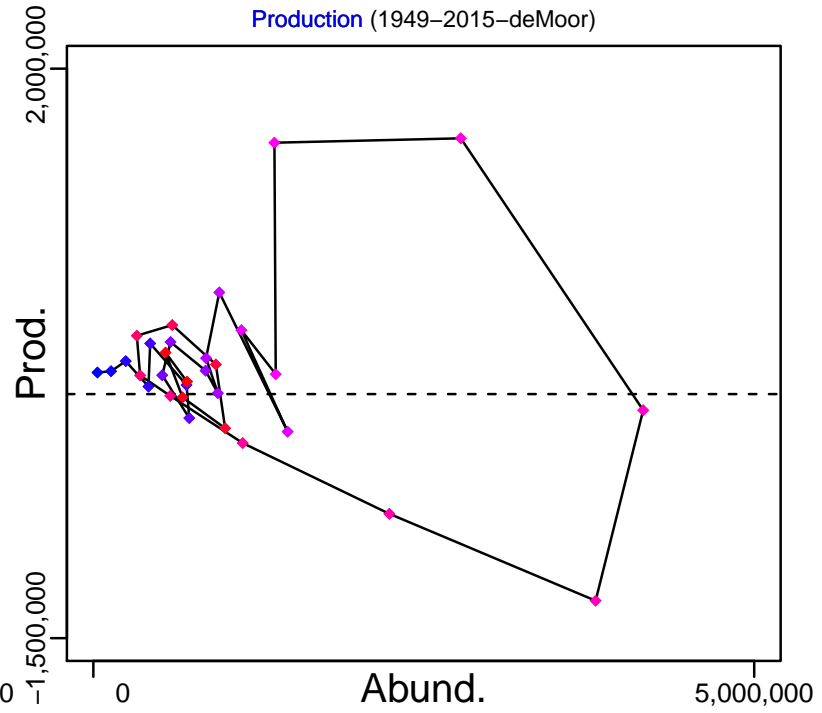
Kobe MGT\*



Spawner Recruit (1949–2015–deMoor)

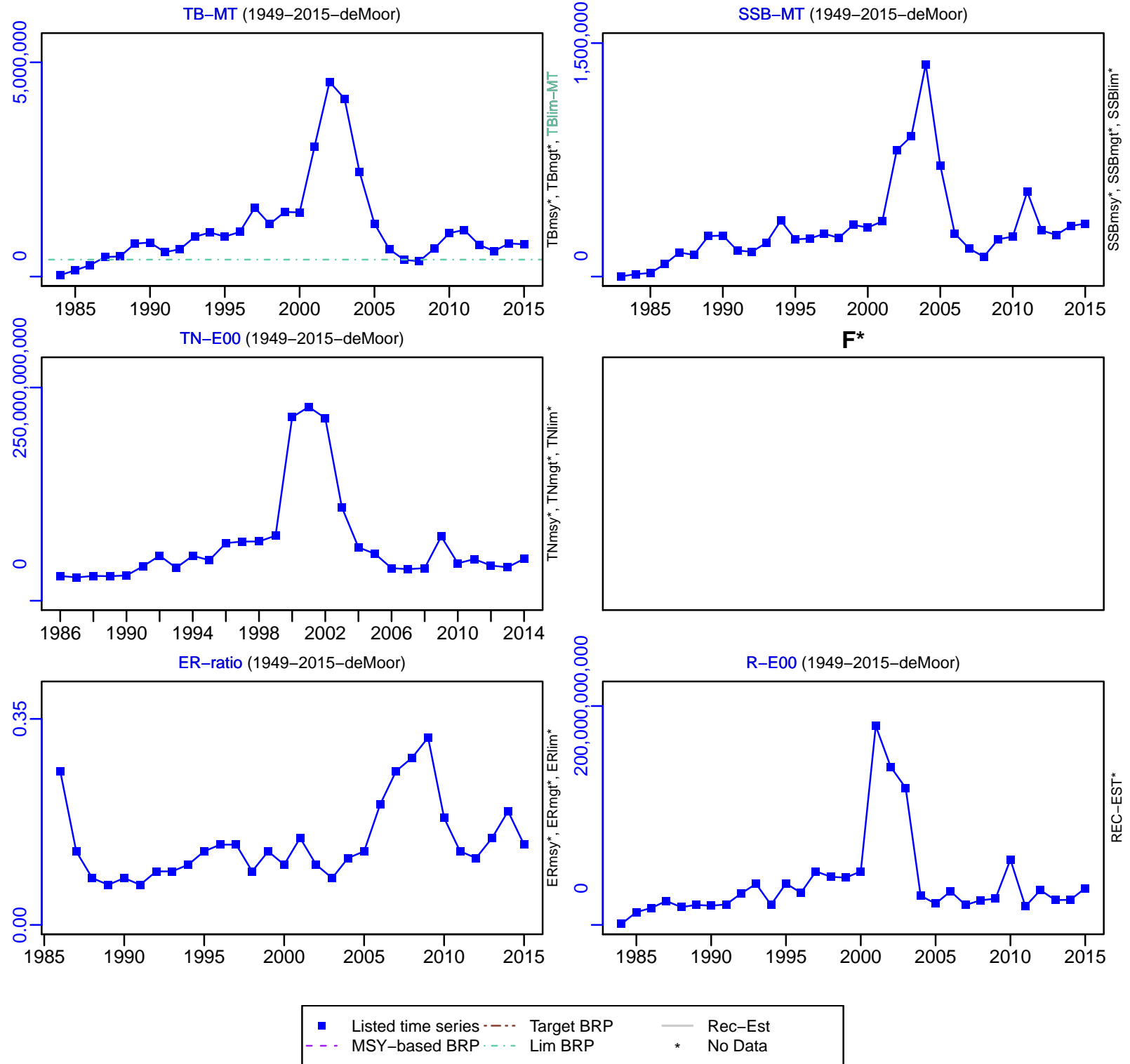


Production (1949–2015–deMoor)



◆ Start Year ◆ End Year \* No Data

# Sardine South Africa [SARDSA]

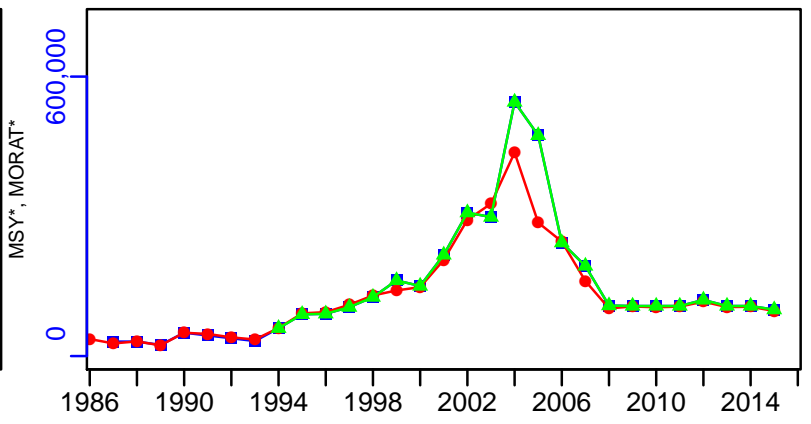
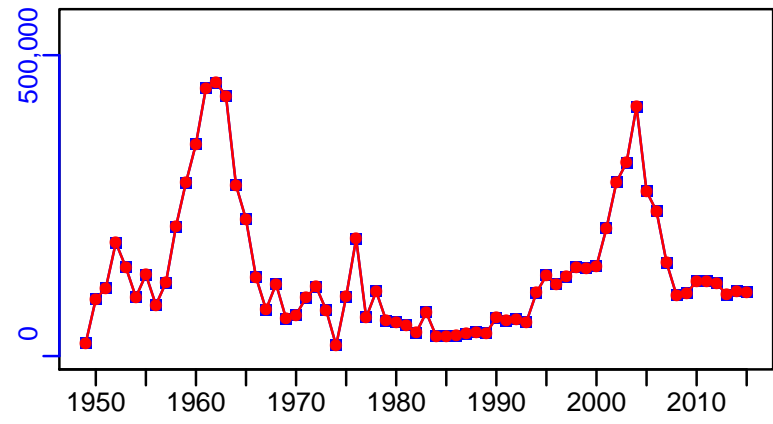




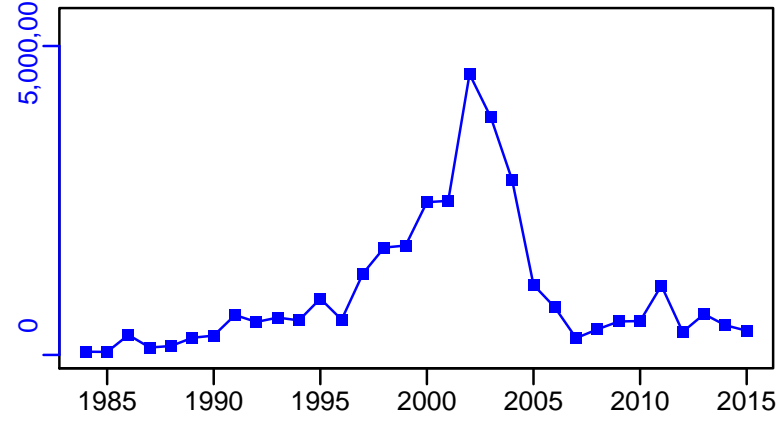
# Sardine South Africa [SARDSA]

TC-MT, TL-MT, RecC\* (1949-2015-deMoor)

TAC-MT, Cpair-MT, Cadvised-MT (1949-2015-deMoor)



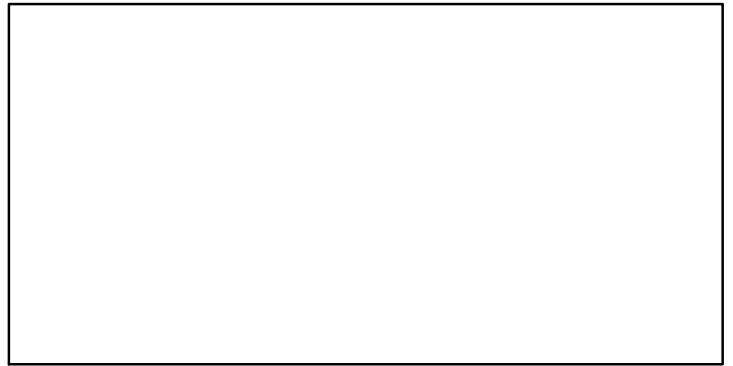
survB-MT (1949-2015-deMoor)



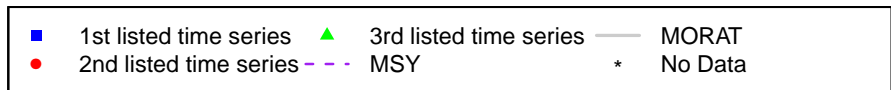
EFFORT\*



CPUE\*



CdivMSY\*



## Southern spiny lobster South Africa South coast [SSLOBSTERSASC]

| Metadata                    |   |
|-----------------------------|---|
| <b>Scientific Name</b>      | Palinurus gilchristi  |
| <b>Current Assess ID</b>    | MARAM-SSLOBSTERSASC-1973-2014-Johnston  |
| <b>Area</b>                 | South Africa South coast  |
| <b>Management Authority</b> | South African national management, Fisheries Branch of Department of Agriculture, Forestry and Fisheries  |
| <b>Assessor</b>             | Marine Resource Assessment and Management Group, Department of Mathematics and Applied Mathematics, University of Cape Town, Rondebosch, 7701, South Africa |
| <b>Asmts in RAM</b>         | 2012, 2014  |

| Reference Points |           |           |       |
|------------------|-----------|-----------|-------|
| Type             | ID        | Asmt Year | Value |
| TBmsy            | -         | -         | -     |
| SSBmsy           | -         | -         | -     |
| Fmsy             | -         | -         | -     |
| ERmsy            | -         | -         | -     |
| TBmgt            | -         | -         | -     |
| SSBmgt           | SSBmgt-MT | 2014      | 1484  |
| Fmgt             | -         | -         | -     |
| ERmgt            | -         | -         | -     |
| TB0              | -         | -         | -     |
| SSB0             | SSB0-MT   | 2014      | 4047  |
| MSY              | -         | -         | -     |
| M                | M-1/yr    | 2014      | 0.1   |
| TBlim            | -         | -         | -     |
| SSBlim           | -         | -         | -     |
| Flim             | -         | -         | -     |
| ERlim            | -         | -         | -     |

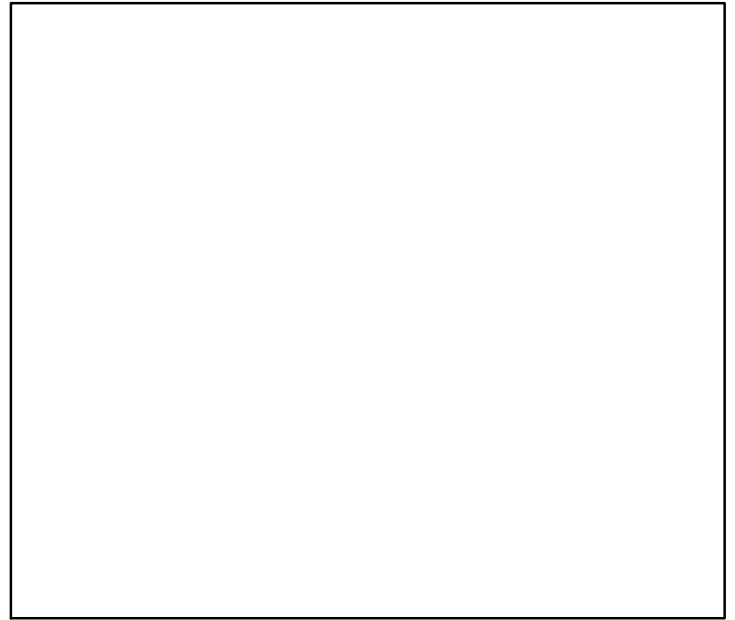
| Time Series |                        |           |            |         |     |
|-------------|------------------------|-----------|------------|---------|-----|
| Type        | ID                     | Asmt Year | Curr Value | Sex     | Age |
| TB          | TB-MT                  | 2014      | 1070       | -       | -   |
| SSB         | SSB-MT                 | 2014      | 1170       | Females | -   |
| TN          | -                      | -         | -          | -       | -   |
| R           | R-E00                  | 2014      | 3,840,000  | -       | -   |
| F           | -                      | -         | -          | -       | -   |
| ER          | ER-ratio               | 2014      | 0.336      | -       | -   |
| TC          | TC-MT                  | 2014      | 359        |         |     |
| TL          | TL-MT                  | 2014      | 359        |         |     |
| TB/TBmsy    | -                      | -         | -          |         |     |
| SSB/SSBmsy  | SSB-MT/(SSB0-MT*0.368) | 2014      | 0.786      |         |     |
| F/Fmsy      | -                      | -         | -          |         |     |
| ER/ERmsy    | -                      | -         | -          |         |     |
| TB/TBmgt    | -                      | -         | -          |         |     |
| SSB/SSBmgt  | SSB-MT/SSBmgt-MT       | 2014      | 0.788      |         |     |
| F/Fmgt      | -                      | -         | -          |         |     |
| ER/ERmgt    | -                      | -         | -          |         |     |

Southern spiny lobster South Africa South coast [SSLOBSTERSASC]

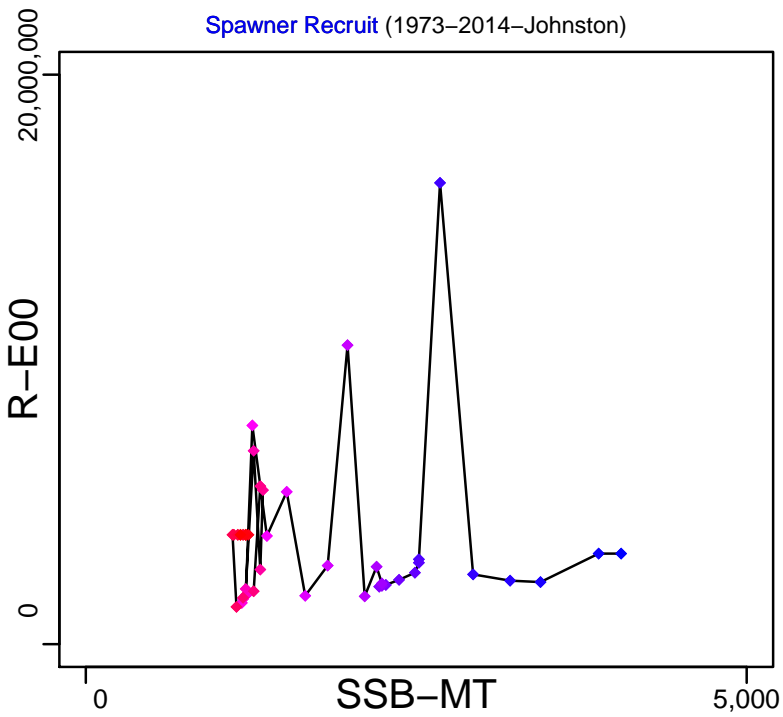
Kobe MSY\*



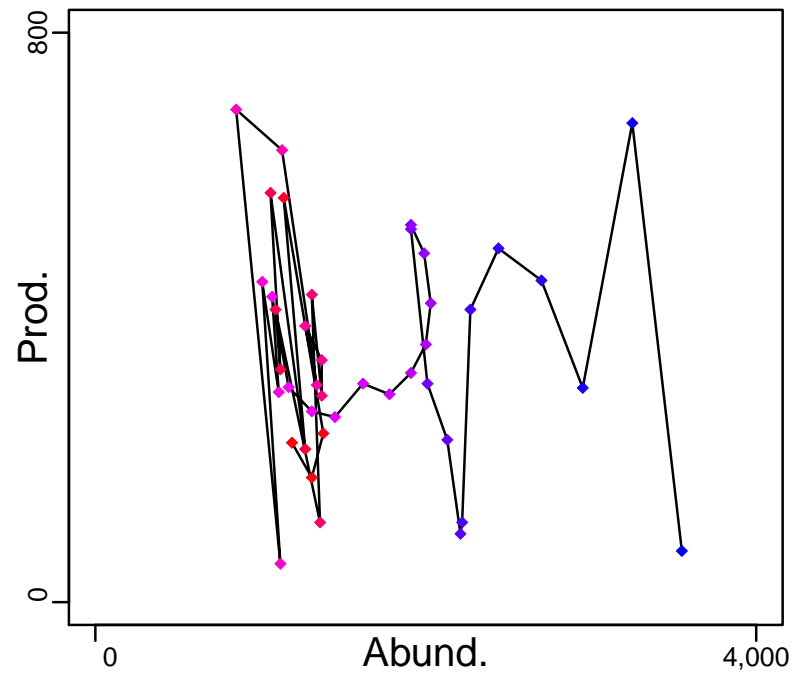
Kobe MGT\*



Spawner Recruit (1973–2014–Johnston)



Production (1973–2014–Johnston)

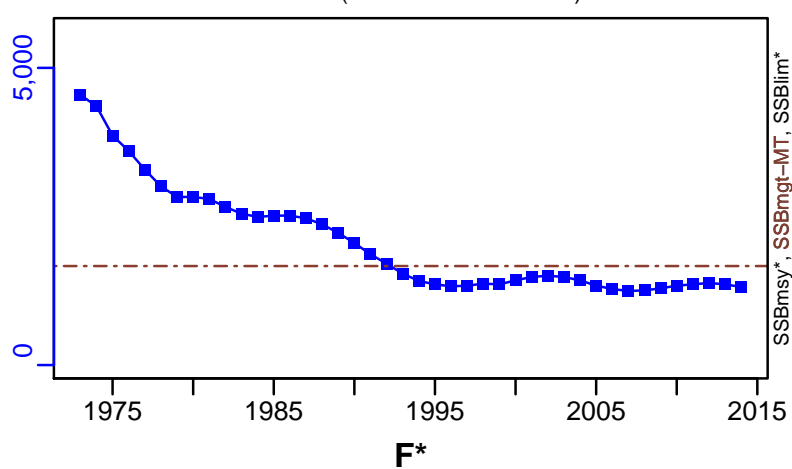
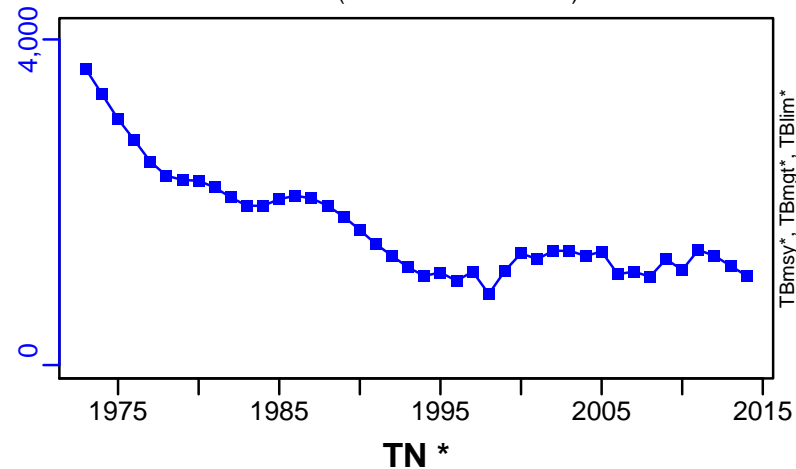


◆ Start Year ◆ End Year \* No Data

# Southern spiny lobster South Africa South coast [SSLOBSTERSASC]

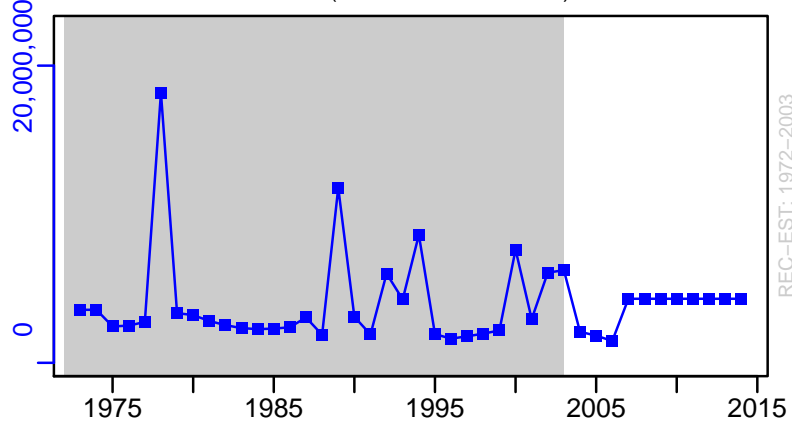
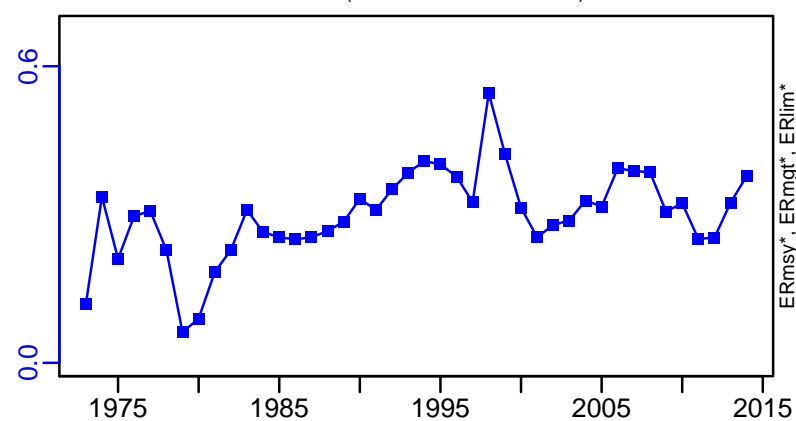
TB-MT (1973–2014–Johnston)

SSB-MT (1973–2014–Johnston)



ER-ratio (1973–2014–Johnston)

R-E00 (1973–2014–Johnston)



# Southern spiny lobster South Africa South coast [SSLOBSTERSASC]

TC-MT, TL-MT, RecC\* (1973–2014–Johnston)

TAC\*, Cpair\*, Cadv\*

