## Data summaries

| Type | n | min | max | mean | sd |
| --- | --- | --- | --- | --- | --- |
| ELEFAN | 1,622 | 5.600 | 83.200 | 51.639 | 10.758 |
| Tagged | 521 | 18.800 | 77.400 | 52.481 | 9.760 |
| Not Tagged | 694 | 5.800 | 83.200 | 51.640 | 10.617 |
| Total | 1,286 | 5.800 | 83.200 | 52.201 | 10.146 |
| Start | 27 | 24.640 | 82.970 | 55.409 | NA |
| End | 15 | 34.400 | 71.700 | 57.773 | NA |
| All | 486 | 14.900 | 83.300 | 50.180 | NA |
| H\_Start | 6 | 2.706 | 2.916 | 2.804 | 0.073 |
| H\_End | 3 | 8.800 | 9.200 | 9.000 | 0.200 |
| J\_Start | 1 | 31.400 | 31.400 | 31.400 | NA |
| J\_End | 3 | 47.700 | 62.700 | 52.700 | 8.660 |
| Both | 240 | 20.600 | 85.000 | 52.004 | NA |
| F | 127 | 20.600 | 85.000 | 52.289 | NA |
| M | 113 | 24.800 | 77.200 | 51.684 | NA |

## Site, Station PermANOVA

| Factors | df | SS | MS | Iter | Pr |
| --- | --- | --- | --- | --- | --- |
| Site | 1 | 2,832 | 2,832 | 15.854 | 1.012e-04 |
| Station | 2 | 11,382 | 5,691 | 31.858 | 1.777e-12 |
| Residuals | 170 | 30,369 | 179 |  | NA |

## Site Comps

| Site | mean | sd | Letters |
| --- | --- | --- | --- |
| PP | 39.90 | 27.20 | a |
| WE | 18.96 | 14.35 | b |

## Station Comps

| Station | mean | sd | Letters |
| --- | --- | --- | --- |
| OY | 41.03 | 22.65 | a |
| SG | 13.08 | 8.00 | b |
| SS | 5.68 | 4.36 | b |

## Monthly Counts

| Year | Month | OY | | SG | | SS | | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | PP | WE | PP | WE | PP | WE |  |
| 2018 | 10 | 1 | 32 | 4 | 6 | 7 | 0 | 50 |
| 11 | 0 | 13 | 9 | 4 | 15 | 2 | 43 |
| 12 | 12 | 25 | 5 | 18 | 6 | 2 | 68 |
| 2019 | 1 | 26 | 5 | 8 | 7 | 2 | 0 | 48 |
| 2 | 15 | 7 | 4 | 11 | 9 | 1 | 47 |
| 3 | 0 | 26 | 10 | 13 | 1 | 0 | 50 |
| 4 | 2 | 33 | 2 | 5 | 7 | 0 | 49 |
| 5 | 9 | 36 | 3 | 13 | 7 | 1 | 69 |
| 6 | 26 | 29 | 4 | 9 | 1 | 0 | 69 |
| 7 | 1 | 20 | 0 | 1 | 2 | 0 | 24 |
| 8 | 50 | 7 | 2 | 2 | 0 | 0 | 61 |
| 9 | 36 | 2 | 21 | 9 | 3 | 1 | 72 |
| 10 | 31 | 1 | 4 | 4 | 1 | 1 | 42 |
| 11 | 24 | 3 | 5 | 7 | 1 | 0 | 40 |
| 12 | 37 | 0 | 13 | 9 | 5 | 0 | 64 |
| 2020 | 1 | 60 | 3 | 9 | 11 | 10 | 0 | 93 |
| 2 | 50 | 5 | 17 | 11 | 4 | 0 | 87 |
| 3 | 37 | 10 | 6 | 10 | 10 | 2 | 75 |
| 5 | 49 | 1 | 0 | 6 | 0 | 0 | 56 |
| 6 | 33 | 6 | 4 | 4 | 3 | 0 | 50 |
| 7 | 6 | 1 | 2 | 2 | 0 | 0 | 11 |
| 8 | 56 | 4 | 4 | 2 | 4 | 0 | 70 |
| 9 | 9 | 1 | 2 | 1 | 0 | 0 | 13 |
| 10 | 19 | 5 | 6 | 5 | 0 | 0 | 35 |
| Total | - | 589 | 275 | 144 | 170 | 98 | 10 | 1286 |

## ELEFAN Model summaries

| Model | Linf\_range | Seasonalized | SA\_GA | Linf | t\_anchor | K | Rn\_max |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SA 1 | 64.418 120.362 | NS | SA | 107.707 | 0.145 | 0.242 | 0.242 |
| SA 1S | 64.418 120.362 | S | SA | 94.317 | 0.196 | 0.382 | 0.306 |
| SA 2 | 83.2 120.362 | NS | SA | 89.651 | 0.288 | 0.45 | 0.259 |
| SA 2S | 83.2 120.362 | S | SA | 102.704 | 0.099 | 0.331 | 0.297 |
| GA 1 | 64.418 120.362 | NS | GA | 84.842 | 0.553 | 0.576 | 0.229 |
| GA 1S | 64.418 120.362 | S | GA | 88.917 | 0.418 | 0.47 | 0.292 |
| GA 2 | 83.2 120.362 | NS | GA | 89.775 | 0.284 | 0.446 | 0.272 |
| GA 2S | 83.2 120.362 | S | GA | 101.121 | 0.317 | 0.372 | 0.299 |

## Bootstrapped means, 95% CI

| Param | means | lower | upper | Method |
| --- | --- | --- | --- | --- |
| Linf | 102.9655824 | 84.27374937 | 119.7548204 | ELEFAN-boot |
| K | 0.2630187 | 0.12400207 | 0.5473736 | ELEFAN-boot |
| t\_anchor | 0.4223677 | 0.01986944 | 0.9757003 | ELEFAN-boot |
| C | 0.7422185 | 0.18197163 | 0.9961451 | ELEFAN-boot |
| ts | 0.6119861 | 0.15782579 | 0.9103042 | ELEFAN-boot |

## LFD means, 95% CI

| Param | means | lower | upper | Method |
| --- | --- | --- | --- | --- |
| Linf | 98.9378240 | 55.30682766 | 283.5602831 | LFD |
| K | 0.3233681 | 0.06338939 | 2.7822166 | LFD |
| t0 | -0.4691356 | -1.51952747 | 0.6555134 | LFD |

## Number of days to recapture

| binDays | n |
| --- | --- |
| 10 | 2 |
| 20 | 10 |
| 30 | 9 |
| 40 | 3 |
| 50 | 6 |
| 60 | 6 |
| 70 | 4 |
| 90 | 1 |
| 100 | 1 |
| 110 | 2 |
| 120 | 5 |
| 140 | 4 |
| 150 | 1 |
| 160 | 2 |
| 170 | 1 |
| 180 | 3 |
| 200 | 4 |
| 220 | 1 |
| 240 | 1 |
| 330 | 1 |
| 370 | 1 |
| 400 | 1 |
| 410 | 1 |
| 420 | 2 |

## Recapture binned growth

| binSL | meanRate | sdRate |
| --- | --- | --- |
| 35 | NaN | NA |
| 40 | 0.061 | 0.050 |
| 45 | 0.038 | 0.031 |
| 50 | 0.037 | 0.035 |
| 55 | 0.038 | 0.064 |
| 60 | 0.020 | 0.029 |
| 65 | 0.000 | 0.001 |
| 70 | 0.000 | 0.000 |
| 75 | 0.000 | NA |

## Recapture Models

| Model | term | estimate | std.error | statistic | p.value | R2 | AIC | RMSE | LCI | UCI |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Recaps-tt | Linf | 109.024 | 0.531 | 205.184 | 2.23e-63 | 0.820 | 231.914 | 3.402 | 108.0972 | 110.1013 |
| K | 0.159 | 0.037 | 4.280 | 1.09e-04 | 0.1178 | 0.2658 |
| b | 1.790 | 0.061 | 29.304 | 4.03e-29 | 1.6789 | 1.9122 |

## Recapture Fabens

| Method | Param | means | lower | upper |
| --- | --- | --- | --- | --- |
| Fabens | Linf (cm) | 7.1064 | 6.4994 | 8.2875 |
| Fabens | K | 0.0015 | 0.0008 | 0.0025 |

## Number of days in Wet lab

| binDays | n |
| --- | --- |
| 50 | 2 |
| 70 | 1 |
| 80 | 1 |
| 110 | 2 |
| 140 | 8 |
| 170 | 1 |
| 190 | 4 |
| 200 | 3 |
| 220 | 1 |
| 230 | 1 |
| 350 | 1 |
| 360 | 1 |
| 410 | 1 |
| 450 | 3 |
| 510 | 5 |
| 520 | 1 |
| 630 | 1 |
| 720 | 8 |

## Kruskal-Wallis tests

| Test | Chi-squared | p-value | df | method |
| --- | --- | --- | --- | --- |
| Shell Length | 2.447173 | 0.2941732 | 2 | Kruskal-Wallis rank sum test |
| Rate difference | 2.084445 | 0.3526699 | 2 | Kruskal-Wallis rank sum test |

## Wet lab binned growth

| binSL | meanRate | sdRate |
| --- | --- | --- |
| 10 | NaN | NA |
| 15 | 0.000 | 0.000 |
| 20 | 0.009 | 0.013 |
| 25 | NaN | NA |
| 30 | 0.032 | 0.003 |
| 35 | 0.026 | 0.036 |
| 40 | NaN | NA |
| 45 | 0.009 | 0.008 |
| 50 | 0.023 | 0.019 |
| 55 | 0.008 | 0.007 |
| 60 | 0.010 | 0.018 |
| 65 | 0.015 | 0.019 |
| 70 | 0.002 | 0.004 |
| 75 | 0.000 | NA |
| 80 | 0.001 | 0.000 |

## Wet lab Models

| Model | term | estimate | std.error | statistic | p.value | R2 | AIC | RMSE | LCI | UCI |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Wet Lab-t | Linf | 106.224 | 1.666 | 63.777 | 7.31e-32 | 0.655 | 225.6294 | 7.504 | 103.663 | 109.649 |
| K | 0.038 | 0.013 | 2.851 | 8.10e-03 | 0.023 | 0.076 |
| b | 1.722 | 0.100 | 17.163 | 2.15e-16 | 1.533 | 1.919 |

## Wet lab Fabens

| Method | Param | means | lower | upper |
| --- | --- | --- | --- | --- |
| Fabens | Linf (cm) | 7.3922 | 6.5814 | 8.7819 |
| Fabens | K | 0.0010 | 0.0006 | 0.0015 |

## Wet lab binned growth - with SWG 2016

| binSL | meanRate | sdRate |
| --- | --- | --- |
| 0 | 0.003 | 0.005 |
| 5 | 0.033 | 0.002 |
| 10 | NaN | NA |
| 15 | 0.000 | 0.000 |
| 20 | 0.009 | 0.013 |
| 25 | NaN | NA |
| 30 | 0.032 | 0.003 |
| 35 | 0.021 | 0.027 |
| 40 | NaN | NA |
| 45 | 0.018 | 0.018 |
| 50 | 0.020 | 0.019 |
| 55 | 0.008 | 0.007 |
| 60 | 0.008 | 0.016 |
| 65 | 0.016 | 0.017 |
| 70 | 0.002 | 0.004 |
| 75 | 0.000 | NA |
| 80 | 0.001 | 0.000 |

## Wet lab Models - with SWG 2016

| Model | term | estimate | std.error | statistic | p.value | R2 | AIC | RMSE | LCI | UCI |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Wet Lab-t | Linf | 94.853 | 2.096 | 45.255 | 5.332e-34 | 0.659 | 322.956 | 7.676 | 91.491 | 99.267 |
| K | 0.154 | 0.172 | 0.897 | 3.754e-01 | 0.074 | 0.226 |
| b | 1.905 | 0.094 | 20.281 | 1.231e-21 | 1.718 | 2.078 |

## Wet lab Fabens - with SWG 2016

| Method | Param | means | lower | upper |
| --- | --- | --- | --- | --- |
| Fabens-hatch | Linf (cm) | 7.8128 | 6.9647 | 9.0776 |
| Fabens-hatch | K | 0.0007 | 0.0005 | 0.0010 |

## Histology monthly samples by SL

| SL (mm) | 2019 | | | | | | 2020 | | | | | | | | | 2021 | Total | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2 | 4 | 6 | 8 | 10 | 12 | | 1 | 2 | 3 | 5 | 7 | 9 | 10 | 11 | 1 |  |
| 20 |  |  | 1 |  |  |  | |  | 1 |  | 2 | 2 |  | 1 | 9 |  | 16 |
| 30 | 3 | 3 | 3 | 2 | 3 | 5 | | 6 |  |  | 6 | 2 | 1 | 1 | 1 | 5 | 41 |
| 40 | 5 | 2 | 1 | 5 | 1 | 2 | | 1 | 8 | 7 | 4 | 2 | 2 | 4 | 3 | 7 | 54 |
| 50 | 2 | 2 | 6 | 4 | 2 | 2 | | 5 | 5 | 7 | 4 | 5 | 5 | 8 | 1 | 2 | 60 |
| 60 | 2 | 4 | 1 | 2 | 5 | 5 | | 3 | 2 | 1 | 2 | 4 | 3 | 1 | 2 |  | 37 |
| 70 | 2 | 3 | 2 | 1 | 4 | 1 | |  |  |  |  |  | 4 |  | 7 |  | 24 |
| 80 | 1 | 1 |  | 1 | 1 |  | |  | 2 |  |  |  |  |  | 2 |  | 8 |
| Total | 15 | 15 | 14 | 15 | 16 | 15 | | 15 | 18 | 15 | 18 | 15 | 15 | 15 | 25 | 14 | 240 |

## Histology monthly size ranges

| Month | Sample | aveSL | MF\_Final |
| --- | --- | --- | --- |
| 1 | 29 | 45.8 | B |
| 15 | 44.4 | F |
| 14 | 47.2 | M |
| 2 | 33 | 53.7 | B |
| 17 | 54.1 | F |
| 16 | 53.2 | M |
| 3 | 15 | 51.0 | B |
| 10 | 51.8 | F |
| 5 | 49.4 | M |
| 4 | 15 | 59.2 | B |
| 10 | 62.7 | F |
| 5 | 52.1 | M |
| 5 | 18 | 44.2 | B |
| 7 | 34.4 | F |
| 11 | 50.4 | M |
| 6 | 15 | 52.0 | B |
| 7 | 47.5 | F |
| 8 | 55.3 | M |
| 7 | 15 | 50.4 | B |
| 10 | 47.5 | F |
| 5 | 56.2 | M |
| 8 | 15 | 53.6 | B |
| 6 | 56.0 | F |
| 9 | 52.1 | M |
| 9 | 15 | 59.2 | B |
| 9 | 60.5 | F |
| 6 | 57.2 | M |
| 10 | 31 | 55.0 | B |
| 17 | 56.3 | F |
| 14 | 53.4 | M |
| 11 | 25 | 51.2 | B |
| 12 | 56.1 | F |
| 13 | 46.7 | M |
| 12 | 15 | 51.7 | B |
| 8 | 49.9 | F |
| 7 | 53.7 | M |

## Mean WW and SW per binSL

| binSL | aveWW | sdWW | aveSW | sdSW |
| --- | --- | --- | --- | --- |
| 20 | 1.41 | 0.48 | 11.77 | 1.36 |
| 25 | 2.23 | 0.47 | 14.38 | 1.00 |
| 30 | 3.50 | 0.46 | 17.11 | 3.15 |
| 35 | 5.58 | 0.89 | 19.54 | 2.41 |
| 40 | 8.08 | 0.97 | 22.02 | 1.35 |
| 45 | 10.53 | 1.23 | 23.85 | 1.06 |
| 50 | 13.88 | 1.66 | 25.67 | 1.14 |
| 55 | 18.16 | 2.11 | 28.41 | 2.20 |
| 60 | 22.87 | 2.53 | 30.30 | 0.95 |
| 65 | 28.63 | 5.10 | 32.59 | 1.92 |
| 70 | 34.11 | 4.18 | 34.67 | 1.66 |
| 75 | 40.38 | 4.87 | 36.57 | 1.17 |
| 80 | 48.12 | 5.81 | 39.91 | 2.16 |
| 85 | 53.86 |  | 40.50 |  |

## Weighted least squares

| term | Est. | SE | t | p-value |
| --- | --- | --- | --- | --- |
| (Intercept) | -0.373 | 0.043 | -8.631 | 8.089e-16 |
| SL | 0.055 | 0.001 | 71.046 | 1.462e-164 |
| (Intercept) | 2.441 | 0.379 | 6.441 | 6.318e-10 |
| SL | 0.450 | 0.007 | 60.997 | 2.540e-149 |

## WLS models

| R2 | adjR2 | RSE | F | p-value | df | RSS | Resid.df |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0.954 | 0.954 | 1.276 | 5,047.506 | 0.000e+00 | 1 | 395.9290 | 243 |
| 0.939 | 0.938 | 1.730 | 3,720.656 | 0.000e+00 | 1 | 727.6718 | 243 |

| Age | ELEFAN | | LFD | | Recaps | | Recaps - Fabens | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| minSL | maxSL | minSL | maxSL | minSL | maxSL | minSL | maxSL |
| 0 | 0.0 | 3.1 | 0.0 | 26.7 | 0.0 | 1.4 | 0 | 16 |
| 1 | 3.2 | 25.9 | 26.8 | 46.5 | 1.5 | 17.0 | 17 | 39 |
| 2 | 26.0 | 43.9 | 46.6 | 61.1 | 17.1 | 30.6 | 40 | 51 |
| 3 | 44.0 | 57.4 | 61.2 | 71.4 | 30.7 | 42.0 | 52 | 58 |
| 4 | 57.5 | 68.1 | 71.5 | 79.1 | 42.1 | 51.9 | 59 | 62 |
| 5 | 68.2 | 76.0 | 79.2 | 84.5 | 52.0 | 60.2 | 63 | 64 |
| 6 | 76.1 | 82.3 | 84.6 | 88.5 | 60.3 | 67.4 | 65 | 66 |
| 7 | 82.4 | 87.0 | 88.6 | 91.4 | 67.5 | 73.5 | -- | -- |
| 8 | 87.1 | 90.7 | 91.5 | 93.5 | 73.6 | 78.7 | 67 | 67 |
| 9 | 90.8 | 93.5 | 93.6 | 94.9 | 78.8 | 83.1 |  |  |
| 10 | 93.6 | 95.7 | 95.0 | 96.0 | 83.2 | 86.9 |  |  |
| 11 | 95.8 | 97.4 | 96.1 | 96.8 | 87.0 | 90.1 |  |  |
| 12 | 97.5 | 98.7 | 96.9 | 97.4 | 90.2 | 92.9 |  |  |
| 13 | 98.8 | 99.6 | 97.5 | 97.8 | 93.0 | 95.3 |  |  |
| 14 | 99.7 | 100.4 | 97.9 | 98.1 | 95.4 | 97.3 |  |  |
| 15 | 100.5 | 101.0 | 98.2 | 98.3 | 97.4 | 99.0 |  |  |
| 16 | 101.1 | 101.4 | 98.4 | 98.5 | 99.1 | 100.5 |  |  |
| 17 | 101.5 | 101.8 | 98.6 | 98.6 | 100.6 | 101.7 |  |  |
| 18 | 101.9 | 102.0 | 98.7 | 98.7 | 101.8 | 102.8 |  |  |
| 19 | 102.1 | 102.2 | -- | -- | 102.9 | 103.7 |  |  |
| 20 | 102.3 | 120.0 | 98.8 | 98.9 | 103.8 | 109.0 |  |  |

| Age | WL | | WL-Fabens | | WL+ | | WL+-Fabens | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| minSL | maxSL | minSL | maxSL | minSL | maxSL | minSL | maxSL |
| 0 | 0.0 | 0.3 | 0 | 11 | 0.0 | 1.1 | 0 | 9 |
| 1 | 0.4 | 4.2 | 12 | 30 | 1.2 | 14.4 | 10 | 25 |
| 2 | 4.3 | 8.1 | 31 | 43 | 14.5 | 26.0 | 26 | 37 |
| 3 | 8.2 | 11.8 | 44 | 52 | 26.1 | 35.7 | 38 | 47 |
| 4 | 11.9 | 15.4 | 53 | 58 | 35.8 | 44.2 | 48 | 54 |
| 5 | 15.5 | 18.7 | 59 | 63 | 44.3 | 51.4 | 55 | 59 |
| 6 | 18.8 | 22.1 | 64 | 66 | 51.5 | 57.6 | 60 | 64 |
| 7 | 22.2 | 25.2 | 67 | 68 | 57.7 | 62.9 | 65 | 67 |
| 8 | 25.3 | 28.3 | 69 | 70 | 63.0 | 67.5 | 68 | 69 |
| 9 | 28.4 | 31.2 | 71 | 71 | 67.6 | 71.3 | 70 | 71 |
| 10 | 31.3 | 34.0 | 72 | 72 | 71.4 | 74.7 | 72 | 73 |
| 11 | 34.1 | 36.7 | --- | --- | 74.8 | 77.6 | 74 | 74 |
| 12 | 36.8 | 39.4 | 73 | 73 | 77.7 | 80.0 | 75 | 75 |
| 13 | 39.5 | 41.9 |  |  | 80.1 | 82.1 | --- | --- |
| 14 | 42.0 | 44.3 |  |  | 82.2 | 84.0 | 76 | 76 |
| 15 | 44.4 | 46.6 |  |  | 84.1 | 85.5 | --- | --- |
| 16 | 46.7 | 48.9 |  |  | 85.6 | 86.8 | 77 | 77 |
| 17 | 49.0 | 51.0 |  |  | 86.9 | 88.0 | --- | --- |
| 18 | 51.1 | 53.1 |  |  | 88.1 | 88.9 | --- | --- |
| 19 | 53.2 | 55.1 |  |  | 89.0 | 89.8 |  | --- |
| 20 | 55.2 | 106.2 |  |  | 89.9 | 94.8 |  | 24: 78 |