Supplementary Table 1. Summary of 2002-2019 survey data used for Bayesian trend analyses of harbour porpoise abundance in summer: for the German EEZ, including year, number of harbour porpoise sightings, mean group size, abundance, density (95% confidence intervals (CI) in brackets), coefficient of variation (CV), effective survey effort in km (i.e. in good or moderate conditions).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **stratum** | **year** | **sightings** | **mean group size** | **Abundance (95% CI)** | **Density (95% CI)** | **CV** | **Survey effort (km)** |
| German EEZ (but excl. stratum A) | 2002 | 229 | 1.3 | 21,620 (14,215-28,981) | 0.69 (0.45-0.92) | 0.18 | 3,697 |
| 2004 | 589 | 1.3 | 34,563 (23,426-48,073) | 1.12 (0.76-1.56) | 0.18 | 3,421 |
| 2006 | 353 | 1.3 | 58,440 (35,564-81,133) | 1.68 (1.02-2.33) | 0.20 | 2,219 |
| 2009 | 492 | 1.3 | 33,068 (23,983-46,083) | 0.95 (0.69-1.32) | 0.17 | 5,827 |
| 2012 | 541 | 1.2 | 24,494 (17,427-34,761) | 0.70 (0.50-1.00) | 0.17 | 6,157 |
| 2015 | 209 | 1.2 | 22,077 (15,365-31,286) | 0.63 (0.44-0.90) | 0.18 | 3,192 |
| 2019 | 201 | 1.3 | 23,219 (16,621-34,104) | 0.67 (0.48-0.98) | 0.18 | 3,119 |

Supplementary Table 2. Summary of 2002-2019 survey data used for Bayesian trend analyses of harbour porpoise abundance in spring: stratum (i.e. three SACs), year, number of harbour porpoise sightings, mean group size, abundance and density (95% CI in brackets), coefficient of variation (CV) and effective survey effort in km (i.e. in good or moderate conditions).

| **stratum** | **year** | **sightings** | **mean group size** | **Abundance (95% CI)** | **Density (95% CI)** | **CV** | **Survey effort (km)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SAC Dogger Bank | 2003 | 70 | 1.4 | 3,484(1,807-5,487) | 2.05(1.07-3.24) | 0.25 | 281 |
| 2005 | 5 | 1.8 | 405(41-909) | 0.24(0.02-0.54) | 0.53 | 227 |
| 2012 | 52 | 1.5 | 3,9,03(2,063-6,559) | 2.30(1.22-3.87) | 0.29 | 226 |
| 2018 | 36 | 1.2 | 2,512(1,034-4,224) | 1.48(0.61-2.49) | 0.31 | 247 |
| 2019 | 32 | 1.3 | 1,496(615-3,045) | 0.88(0.36-1.80) | 0.39 | 282 |
| SAC Sylt Outer Reef | 2002 | 198 | 1.3 | 22,731(15,290-32544) | 4.28(2.88-6.12) | 0.19 | 541 |
| 2003 | 254 | 1.1 | 13,805(8,765-19,522 | 2.60(1.65-3.67) | 0.20 | 752 |
| 2004 | 51 | 1.1 | 8,701(5,576-15,174) | 1.64(1.05-2.86) | 0.26 | 206 |
| 2005 | 232 | 1.1 | 7,659(5,733-10,278) | 1.44(1.08-1.93) | 0.15 | 1,357 |
| 2006 | 233 | 1.1 | 9,823(6,417-14,781) | 1.85(1.21-2.78) | 0.20 | 1,043 |
| 2012 | 354 | 1.2 | 12,599(8,991-18,211) | 2.37(1.69-3.43) | 0.19 | 1,314 |
| SAC Borkum Reef Ground | 2002 | 1 | 2.0 | 69(0-159) | 0.11(0.00-0.25) | 0.84 | 109 |
| 2003 | 10 | 1.0 | 329(86-714) | 0.53(0.14-1.14) | 0.52 | 172 |
| 2005 | 69 | 1.2 | 1,616(764-3,158) | 2.59(1.22-5.05) | 0.37 | 238 |
| 2006 | 75 | 1.1 | 1,123(194-2,476) | 1.80(0.31-3.96) | 0.50 | 356 |
| 2007 | 42 | 1.3 | 1,347(752-2,005) | 2.16(1.20-3.21) | 0.24 | 245 |
| 2008 | 9 | 1.2 | 369(65-680) | 0.59(0.10-1.09) | 0.43 | 137 |
| 2009 | 139 | 1.0 | 617(348-978) | 0.99(0.56-1.57) | 0.25 | 1,094 |
| 2010 | 97 | 1.1 | 814(388-1,401) | 1.30(0.62-2.24) | 0.31 | 597 |
| 2011 | 168 | 1.1 | 1,055(690-1,530) | 1.69(1.10-2.45) | 0.20 | 901 |
| 2012 | 65 | 1.1 | 2,1261,176-3,233) | 3.40(1.88-5.17) | 0.25 | 167 |
| 2013 | 47 | 1.1 | 818(351-1,645) | 1.31(0.56-2.63) | 0.40 | 350 |
| 2014 | 66 | 1.1 | 525(301-799) | 0.84(0.48-1.28) | 0.23 | 586 |
| 2015 | 6 | 1.0 | 209(28-468) | 0.33(0.04-0.75) | 0.53 | 126 |
| 2016 | 46 | 1.1 | 838(396-1,481) | 1.34(0.63-2.37) | 0.31 | 249 |
| 2017 | 7 | 1.3 | 437(66-1,026) | 0.70(0.11-1.64) | 0.54 | 155 |
| 2018 | 4 | 1.0 | 110(0-351) | 0.18(0.00-0.56) | 0.75 | 137 |
| 2019 | 17 | 1.2 | 620(115-1,518) | 0.99(0.18-2.43) | 0.59 | 128 |

**Supplementary Table 3**. Summary of 2002-2019 survey data used for Bayesian trend analyses of harbour porpoise abundance in **summer**: stratum (i.e. three SACs), year, number of harbour porpoise sightings, mean group size, abundance, density (95% CI in brackets), coefficient of variation (CV) and effective survey effort in km (i.e. in good or moderate conditions).
\*: Years were excluded from analysis.

| **stratum** | **year** | **sightings** | **mean group size** | **Abundance (95% CI)** | **Density (95% CI)** | **CV** | **Survey effort (km)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SAC Dogger Bank | 2003 | 12 | 1.3 | 838(387-1,415) | 0.49(0.23-0.83) | 0.30 | 227 |
| 2006 | 10 | 1.2 | 1,515(161-3,055) | 0.89(0.09-1.80 | 0.49 | 162 |
| 2007 | 7 | 1.0 | 493(169-892) | 0.29(0.10-0.53) | 0.36 | 228 |
| 2009 | 49 | 1.5 | 4,035(2,473-6,691) | 2.38(1.46-3.95) | 0.25 | 226 |
| 2011 | 66 | 1.3 | 3,217(1,403-6,097)) | 1.90(0.83-3.60) | 0.37 | 351 |
| 2012 | 35 | 1.6 | 2,486(1,306-4,346) | 1.47(0.77-2.56) | 0.31 | 226 |
| 2018 | 26 | 1.2 | 1,562(1,018-2,230) | 0.92(0.60-1.32) | 0.20 | 273 |
| 2019 | 28 | 1.3 | 2,048(1,077-3,525) | 1.21(0.64-2.08) | 0.30 | 282 |
| SAC Sylt Outer Reef | 2002 | 152 | 1.3 | 5,948(3,728-8,425) | 1.12(0.70-1.59) | 0.20 | 1,285 |
| 2003 | 250 | 1.3 | 12,556(6,977-19,779) | 2.36(1.31-3.72) | 0.24 | 1,020 |
| 2004 | 522 | 1.3 | 16,117(11,560-21,932) | 3.03(2.18-4.13) | 0.16 | 1,620 |
| 2005 | 145 | 1.2 | 5,726(3,761-8,211) | 1.08(0.71-1.55) | 0.20 | 1,276 |
| 2006 | 222 | 1.3 | 24,067(13,840-35,870) | 4.53(2.60-6.75) | 0.24 | 548 |
| 2007 | 74 | 1.2 | 8,104(3,264-15,318) | 1.52(0.61-2.88) | 0.39 | 422 |
| 2008 | 173 | 1.3 | 9,264(6,140-14,592) | 1.74(1.16-2.75) | 0.22 | 1,156 |
| 2009 | 213 | 1.3 | 7,234(4,112-11,539) | 1.36(0.77-2.17) | 0.26 | 1,464 |
| 2010 | 355 | 1.2 | 6,900(5,180-9,513) | 1.30(0.97-1.79) | 0.16 | 2,535 |
| 2011 | 604 | 1.3 | 13,566(8,760-19,904) | 2.55(1.65-3.75) | 0.21 | 2,541 |
| 2012 | 190 | 1.2 | 5,419(3,656-7,995) | 1.02(0.69-1.50) | 0.20 | 1,464 |
| 2013 | 414 | 1.2 | 9,453(6,446-13,931) | 1.78(1.21-2.62) | 0.20 | 2,094 |
| 2014 | 442 | 1.2 | 4,468(3,218-6,445) | 0.84(0.61-1.21) | 0.17 | 4,973 |
| 2015 | 91 | 1.2 | 5,635(3,274-8,610) | 1.06(0.62-1.62) | 0.24 | 949 |
| 2016 | 41 | 1.3 | 3,203(800-6,474) | 0.60(0.15-1.22) | 0.46 | 979 |
| 2018 | 67 | 1.3 | 5,254(3,009-8,765) | 0.99(0.57-1.65) | 0.27 | 766 |
| 2019 | 37 | 1.3 | 3,177(1,877-4,829) | 0.60(0.35-0.91) | 0.24 | 654 |
| SAC Borkum Reef Ground | 2002\* | 9 | 1.3 | 157(38-289) | 0.25(0.06-0.46) | 0.43 | 383 |
| 2003\* | 0 | 0 | 0(0-0) | 0(0-0) | 0 | 181 |
| 2005\* | 0 | 0 | 0(0-0) | 0(0-0) | 0 | 234 |
| 2008 | 14 | 1.4 | 389(115-666) | 0.62(0.18-1.07) | 0.36 | 210 |
| 2009 | 53 | 1.2 | 401(205-615) | 0.64(0.33-0.98) | 0.26 | 726 |
| 2010 | 72 | 1.4 | 896(378-1,621) | 1.43(0.60-2.59) | 0.35 | 578 |
| 2011 | 208 | 1.2 | 2,339(1,156-3,836) | 3.74(1.85-6.14) | 0.30 | 625 |
| 2012 | 111 | 1.3 | 1,058(659-1,588) | 1.69(1.05-2.54) | 0.22 | 707 |
| 2013 | 22 | 1.0 | 331(154-557) | 0.53(0.25-0.89) | 0.32 | 262 |
| 2015 | 23 | 1.3 | 894(349-1,469) | 1.43(0.56-2.35) | 0.32 | 126 |
| 2016 | 27 | 1.3 | 1,091(500-226) | 1.74(0.80-3.63) | 0.39 | 201 |
| 2019 | 23 | 1.5 | 1,402(614-2,894) | 2.24(0.98-4.63) | 0.38 | 127 |