**Table S2.** Sequences data of the Cytochrome Oxidase Subunit I mitochondrial gene, used in the present paper, corresponding to the following species *Dipturus argentinensis*, *Z. brevicaudata*, *Z. chilensis*, *Z. nasuta*, and *Amblyraja doellojuradoi.* BOLD: Barcode of Life Data System, PN: pending number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Species | Field Code | Sequence Code (BOLD) | Acces Number GenBank | Location | Reference |
| *Dipturus argentinensis* | INIDEP-799 | FARG019-06 | EU074405 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| INIDEP-798 | FARG020-06 | EU074409 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| INIDEP-793 | FARG021-06 | EU074410 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| INIDEP-795 | FARG127-06 | EU074411 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| INIDEP-802 | FARG318-07 | EU074408 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| INIDEP-803 | FARG319-07 | EU074407 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| INIDEP-800 | FARG320-07 | EU074406 | Patagonic platform, Argentine Sea | Díaz de Astarloa et al., 2008 |
| *Dipturus lamillai* | GN 2370 | - | PN | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 2371 | - | PN | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14736 | - | ON357654 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14738 | - | ON357655 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14739 | - | ON357656 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN14741 | - | ON357657 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14742 | - | ON357658 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14743 | - | ON357659 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14745 |  | ON357660 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14746 | - | ON357661 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14747 | - | ON357662 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14748 | - | ON357663 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14749 | - | ON357664 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| GN 14750 | - | ON357665 | Malvinas/ Falkland Islands | Chondrichthyan Tree of Life Project |
| *Zearaja brevicaudata* | RM22 | CCB045-12 | MK813399 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| RM70 | SALS003-19 | MK813387 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| RM90 | SALS004-19 | MK813386 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| RM142 | SALS005-19 | [MK813385](https://www.ncbi.nlm.nih.gov/nuccore/MK813386) | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM143 | SALS006-19 | MK813384 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM151 | SALS007-19 | MK813383 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM155 | SALS008-19 | MK813382 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM158 | SALS009-19 | MK813381 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM161 | SALS010-19 | MK813380 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM166 | SALS011-19 | MK813379 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM167 | SALS012-19 | MK813378 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM169 | SALS013-19 | MK813377 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| RM186 | SALS014-19 | MK813389 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CEGAR 124 | CEGAR032-14 | MK813406 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| CEGAR 128 | CEGAR034-14 | MK813393 | San Jorge Gulf, Argentina | Gabbanelli et al., 2018 |
| CEGAR 131 | CEGAR035-14 | MK813398 | San Jorge Gulf, Argentina | Gabbanelli et al., 2018 |
| CEGAR 135 | CEGAR038-14 | MK813397 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| CEGAR 136 | CEGAR039-14 | MK813390 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| CEGAR 155 | CEGAR048-14 | MK813408 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| CEGAR 156 | CEGAR049-14 | MK813394 | Patagonic platform, Argentine Sea | Gabbanelli et al., 2018 |
| CEGAR 204 | CEGAR061-14 | MK813395 | Bs As. platform, Argentine Sea | Gabbanelli et al., 2018 |
| CEGAR 206 | CEGAR063-14 | MK813392 | Bs As. platform, Argentine Sea | Gabbanelli et al., 2018 |
| CCB\_CDL1 | CCB046-12 | MK813388 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL10 | CCB055-12 | MK813403 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL17 | CCB056-12 | MK813404 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL3 | CCB048-12 | MK813407 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL4 | CCB049-12 | MK813401 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL6 | CCB051-12 | MK813391 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL8 | CCB053-12 | MK813405 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| CCB\_CDL9 | CCB054-12 | MK813376 | Argentine Sea (Fishery) | Gabbanelli et al., 2018 |
| INIDEP-T 0014 | FARG014-06 | EU074404 | San Jorge Gulf, Argentina | Mabragaña et al.,2011a |
| INIDEP-T 0015 | FARG015-06 | EU074402 | San Jorge Gulf, Argentina | Mabragaña et al.,2011a |
| INIDEP-T 0016 | FARG016-06 | EU074400 | San Jorge Gulf, Argentina | Mabragaña et al.,2011a |
| INIDEP-T 0018 | FARG018-06 | EU074403 | San Jorge Gulf, Argentina | Mabragaña et al.,2011a |
| INIDEP-T 0337 | FARG338-07 | EU074401 | Uruguay | Mabragaña et al.,2011a |
| INIDEP-T 0592 | FARG567-09 | MK813402 | Argentine Sea (Fishery) | Mabragaña et al.,2011a |
| INIDEP-T 0594 | FARG569-09 | MK813400 | Argentine Sea (Fishery) | Mabragaña et al.,2011a |
| *Zearaja brevicaudata*  (como *Zearaja chilensis*) | KF648508 | GBMNA14224-19 | KF648508 | Korean market | Jeong & Lee 2014 |
| *Zearaja chilensis* | Zch001 | ANGBF10963-15 | KJ913073 | Chile | BOLD |
| 0358/C12 | FCHIL126-06 | - | Chile | BOLD |
| 0358/D01 | FCHIL127-06 | - | Chile | BOLD |
| 0358/D02 | FCHIL128-06 | - | Chile | BOLD |
| 0358/D03 | FCHIL129-06 | - | Chile | BOLD |
| 0358/D04 | FCHIL130-06 | - | Chile | BOLD |
| 0358/D07 | FCHIL133-06 | - | Chile | BOLD |
| 0358/D09 | FCHIL135-06 | - | Chile | BOLD |
| 0358/D10 | FCHIL136-06 | - | Chile | BOLD |
| 0358/E01 | FCHIL139-06 | - | Chile | BOLD |
| Zchuv06 | SALS001-19 | MK813410 | San Antonio, Chile | Gabbanelli et al., 2018 |
| Zchuv07 | SALS002-19 | MK813409 | San Antonio, Chile | Gabbanelli et al., 2018 |
| *Zearaja nasuta* | P45582 | FNZC113-09 | - | New Zealand | BOLD |
| P45583 | FNZC114-09 | - | New Zealand | BOLD |
| P45584 | FNZC115-09 | - | New Zealand | BOLD |
| P45585 | FNZC116-09 | - | New Zealand | BOLD |
| P45586 | FNZC117-09 | - | New Zealand | BOLD |
| P45595 | FNZC126-09 | - | New Zealand | BOLD |
| GN2692 | IRREK464-08 | - | New Zealand | BOLD |
| *Amblyraja doellojuradoi* | INIDEP-T 0158 | FARG158-06 | EU074316 | Argentine Sea | Mabragaña et al.,2011a |