Supplementary Table S2: Accession numbers of comparison sequences use in phylogenetic analysis to determine placement and identification of Burrows Bay octopus.

| **Taxon** | **12S accession** | **COIII accession** | **CytB accession** |
| --- | --- | --- | --- |
| *Octopus vulgaris* | AB191119 | AJ616311 | EF423031 |
| *Octopus rubescens* | AY545084 | X83101 | - |
| *Octopus bimaculoides* | AY545086 | KF225012 | MG999670 |
| *Octopus cyanea* | AB191129 | AJ628221 | KX024747 |
| *Amphioctopus aegina* | AB191125 | AJ628214 | AJ628178 |
| *Hapalochlaena maculosa* | AY545085 | AJ628212 | AJ628176 |
| *Abdopus aculeatus* | HM104234 | AJ628213 | AJ628177 |
| *Octopus tetricus* | KJ605225 | KJ605301 | KJ605331 |
| *Octopus berrima* | AY545082 | AJ628218 | AJ628182 |
| *Macroctopus maorum* | HM104239 | AJ628231 | AJ628194 |
| *Muusoctopus leioderma* (CASIZ 31213) | MH361295 | MH363733 | MH363737 |
| Burrows Bay octopus (CASIZ 236693-B) | MH361296 | MH363734 | MH363738 |
| *Muusoctopus leioderma* neotype(CASIZ 031369) | MH361297 | MH363735 | MH363739 |
| *Muusoctopus eureka* | HM572145 | HM572190 | HM572204 |
| *Muusoctopus oregonensis* | FJ603545 | FJ603538 | FJ603518 |
| *Muusoctopus yaquinae* | FJ603550 | FJ603532 | FJ603519 |
| *Muusoctopus longibrachus longibrachus* | HM572146 | HM572192 | HM572206 |
| *Muusoctopus rigbyae* | FJ428006 | FJ603528 | FJ603527 |
| *Muusoctopus normani* | EF016354 | EF016327 | FJ603526 |
| *Muusoctopus longibrachus akambei* | HM572152 | HM572195 | HM572205 |
| *Muusoctopus johnsonianus* | EF016351 | EF016324 | FJ603517 |
| *Muusoctopus sp. A* | FJ603551 | FJ603535 | FJ603521 |
| *Muusoctopus cf. profundorum* | FJ603548 | FJ603537 | FJ603524 |
| *Muusoctopus sp. B* | FJ603552 | HM572189 | FJ603525 |
| *Octopus californicus* | HM572142 | HM572187 | HM572209 |
| *Enteroctopus dofleini* | AB191121 | FJ603531 | FJ603522 |
| *Enteroctopus megalocyathus* | GQ226030 | GQ226027 | MG999665 |

a(Strugnell et al., 2011), b(Gleadall et al. 2010), c(Strugnell et al., 2009), d(Allcock et al., 2006), eUnpublished, f(Espiñeira et al., 2010), g(Kaneko et al., 2011), h(Strugnell et al., 2004), i(Barriga Sosa et al., 1995), j(Amor et al., 2014), k(Strugnell et al., 2013), l(J M Strugnell et al., 2008), m(Ibáñez et al., 2014), nThis study