Department of **Biodiversity, Conservation and Attractions**
GOVERNMENT OF WESTERN AUSTRALIA
Biodiversity and Conservation Science

Report on genetic identification of unknown dolphin tissue sample T022417 (Fauna lab) T01763 (Marine)

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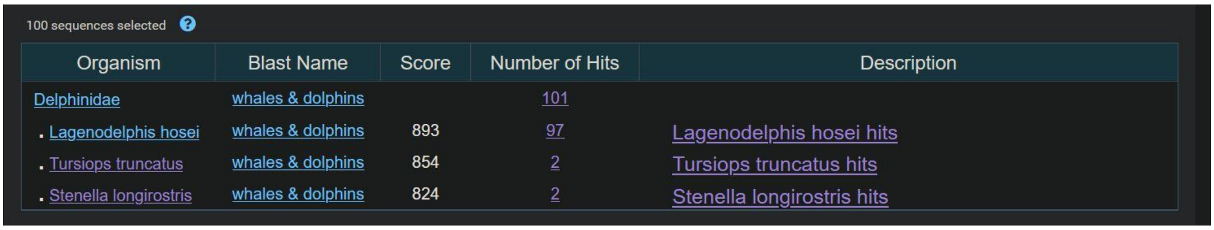
The tissue sample (T022417), suspected to be a Fraser's dolphin (*Lagenodelphis hosei*) was collected from an animal stranded in the Northern Territory and received from Kelly Waples in July 2025. The sample was confirmed via sequencing analysis to be a Fraser's dolphin.

DNA was extracted from the tissue sample using a TNES extraction method. The Displacement Loop primers Delph-D-Loop Forward /Delph-H00034 Reverse were used to amplify non-coding mitochondrial D-Loop DNA using a Shaw hot start PCR program. This region produced a strong single PCR product. The PCR product was sequenced using the same Forward and Reverse primers at the Western Australian State Agricultural Biotechnology Centre (SABC) Murdoch University. Forward sequence data was edited using the Geneious sequence alignment editor although there appeared to be slippage present in the Reverse sequence and this was not assessed further.

The sequenced (Forward primer only) region produced a clean sequence read of 520bp. This sequence region was queried using the blastn suite (megablast) for highly similar sequences (https://blast.ncbi.nlm.nih.gov/Blast.cgi).

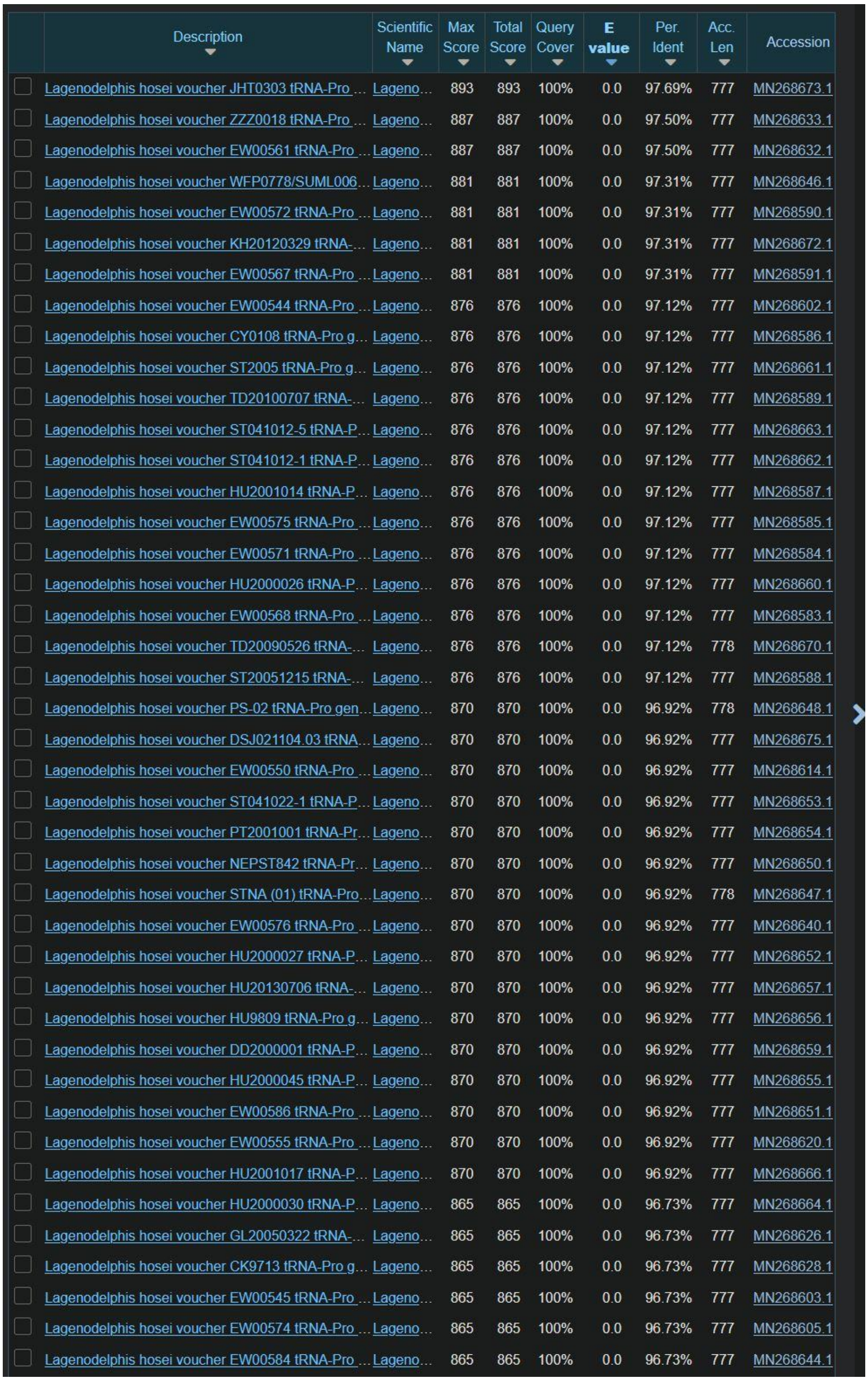
The queried sequence was significantly aligned to 101 sequences of Delphinidae (marine dolphins). There were 97 significant alignments to *Lagenodelphis hosei* (Fraser's dolphin), 2 significant alignments to *Tursiops truncatus* (common bottlenose dolphin), and 2 significant alignments to *Stenella longirostris* (spinner dolphin, Fig 1). Of the sequences producing significant alignment, the top 54 with the highest Maximum Scores, highest Total Scores, highest Query Coverages, lowest E values, and highest Percent Identities were from *L. hosei* (Fig 2).



100 sequences selected

Organism	Blast Name	Score	Number of Hits	Description
Delphinidae	whales & dolphins		101	
. Lagenodelphis hosei	whales & dolphins	893	97	Lagenodelphis hosei hits
. Tursiops truncatus	whales & dolphins	854	2	Tursiops truncatus hits
. Stenella longirostris	whales & dolphins	824	2	Stenella longirostris hits

Figure 1. Number of significant alignments (Hits) for tissue sample T022417.



	Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
☐	Lagenodelphis hosei voucher JHT0303 tRNA-Pro ...	Lageno...	893	893	100%	0.0	97.69%	777	MN268673.1
☐	Lagenodelphis hosei voucher ZZZ0018 tRNA-Pro ...	Lageno...	887	887	100%	0.0	97.50%	777	MN268633.1
☐	Lagenodelphis hosei voucher EW00561 tRNA-Pro ...	Lageno...	887	887	100%	0.0	97.50%	777	MN268632.1
☐	Lagenodelphis hosei voucher WFP0778/SUML006...	Lageno...	881	881	100%	0.0	97.31%	777	MN268646.1
☐	Lagenodelphis hosei voucher EW00572 tRNA-Pro ...	Lageno...	881	881	100%	0.0	97.31%	777	MN268590.1
☐	Lagenodelphis hosei voucher KH20120329 tRNA-...	Lageno...	881	881	100%	0.0	97.31%	777	MN268672.1
☐	Lagenodelphis hosei voucher EW00567 tRNA-Pro ...	Lageno...	881	881	100%	0.0	97.31%	777	MN268591.1
☐	Lagenodelphis hosei voucher EW00544 tRNA-Pro ...	Lageno...	876	876	100%	0.0	97.12%	777	MN268602.1
☐	Lagenodelphis hosei voucher CY0108 tRNA-Pro g...	Lageno...	876	876	100%	0.0	97.12%	777	MN268586.1
☐	Lagenodelphis hosei voucher ST2005 tRNA-Pro g...	Lageno...	876	876	100%	0.0	97.12%	777	MN268661.1
☐	Lagenodelphis hosei voucher TD20100707 tRNA-...	Lageno...	876	876	100%	0.0	97.12%	777	MN268589.1
☐	Lagenodelphis hosei voucher ST041012-5 tRNA-P...	Lageno...	876	876	100%	0.0	97.12%	777	MN268663.1
☐	Lagenodelphis hosei voucher ST041012-1 tRNA-P...	Lageno...	876	876	100%	0.0	97.12%	777	MN268662.1
☐	Lagenodelphis hosei voucher HU2001014 tRNA-P...	Lageno...	876	876	100%	0.0	97.12%	777	MN268587.1
☐	Lagenodelphis hosei voucher EW00575 tRNA-Pro ...	Lageno...	876	876	100%	0.0	97.12%	777	MN268585.1
☐	Lagenodelphis hosei voucher EW00571 tRNA-Pro ...	Lageno...	876	876	100%	0.0	97.12%	777	MN268584.1
☐	Lagenodelphis hosei voucher HU2000026 tRNA-P...	Lageno...	876	876	100%	0.0	97.12%	777	MN268660.1
☐	Lagenodelphis hosei voucher EW00568 tRNA-Pro ...	Lageno...	876	876	100%	0.0	97.12%	777	MN268583.1
☐	Lagenodelphis hosei voucher TD20090526 tRNA-...	Lageno...	876	876	100%	0.0	97.12%	778	MN268670.1
☐	Lagenodelphis hosei voucher ST20051215 tRNA-...	Lageno...	876	876	100%	0.0	97.12%	777	MN268588.1
☐	Lagenodelphis hosei voucher PS-02 tRNA-Pro gen...	Lageno...	870	870	100%	0.0	96.92%	778	MN268648.1
☐	Lagenodelphis hosei voucher DSJ021104.03 tRNA...	Lageno...	870	870	100%	0.0	96.92%	777	MN268675.1
☐	Lagenodelphis hosei voucher EW00550 tRNA-Pro ...	Lageno...	870	870	100%	0.0	96.92%	777	MN268614.1
☐	Lagenodelphis hosei voucher ST041022-1 tRNA-P...	Lageno...	870	870	100%	0.0	96.92%	777	MN268653.1
☐	Lagenodelphis hosei voucher PT2001001 tRNA-Pr...	Lageno...	870	870	100%	0.0	96.92%	777	MN268654.1
☐	Lagenodelphis hosei voucher NEPST842 tRNA-Pr...	Lageno...	870	870	100%	0.0	96.92%	777	MN268650.1
☐	Lagenodelphis hosei voucher STNA (01) tRNA-Pro...	Lageno...	870	870	100%	0.0	96.92%	778	MN268647.1
☐	Lagenodelphis hosei voucher EW00576 tRNA-Pro ...	Lageno...	870	870	100%	0.0	96.92%	777	MN268640.1
☐	Lagenodelphis hosei voucher HU2000027 tRNA-P...	Lageno...	870	870	100%	0.0	96.92%	777	MN268652.1
☐	Lagenodelphis hosei voucher HU20130706 tRNA-...	Lageno...	870	870	100%	0.0	96.92%	777	MN268657.1
☐	Lagenodelphis hosei voucher HU9809 tRNA-Pro g...	Lageno...	870	870	100%	0.0	96.92%	777	MN268656.1
☐	Lagenodelphis hosei voucher DD2000001 tRNA-P...	Lageno...	870	870	100%	0.0	96.92%	777	MN268659.1
☐	Lagenodelphis hosei voucher HU2000045 tRNA-P...	Lageno...	870	870	100%	0.0	96.92%	777	MN268655.1
☐	Lagenodelphis hosei voucher EW00586 tRNA-Pro ...	Lageno...	870	870	100%	0.0	96.92%	777	MN268651.1
☐	Lagenodelphis hosei voucher EW00555 tRNA-Pro ...	Lageno...	870	870	100%	0.0	96.92%	777	MN268620.1
☐	Lagenodelphis hosei voucher HU2001017 tRNA-P...	Lageno...	870	870	100%	0.0	96.92%	777	MN268666.1
☐	Lagenodelphis hosei voucher HU2000030 tRNA-P...	Lageno...	865	865	100%	0.0	96.73%	777	MN268664.1
☐	Lagenodelphis hosei voucher GL20050322 tRNA-...	Lageno...	865	865	100%	0.0	96.73%	777	MN268626.1
☐	Lagenodelphis hosei voucher CK9713 tRNA-Pro g...	Lageno...	865	865	100%	0.0	96.73%	777	MN268628.1
☐	Lagenodelphis hosei voucher EW00545 tRNA-Pro ...	Lageno...	865	865	100%	0.0	96.73%	777	MN268603.1
☐	Lagenodelphis hosei voucher EW00574 tRNA-Pro ...	Lageno...	865	865	100%	0.0	96.73%	777	MN268605.1
☐	Lagenodelphis hosei voucher EW00584 tRNA-Pro ...	Lageno...	865	865	100%	0.0	96.73%	777	MN268644.1

Figure 2. Sequences producing significant alignments for tissue sample T022417.

Results were also visualised as a Fast Minimum Evolution distance tree (Fig 3).

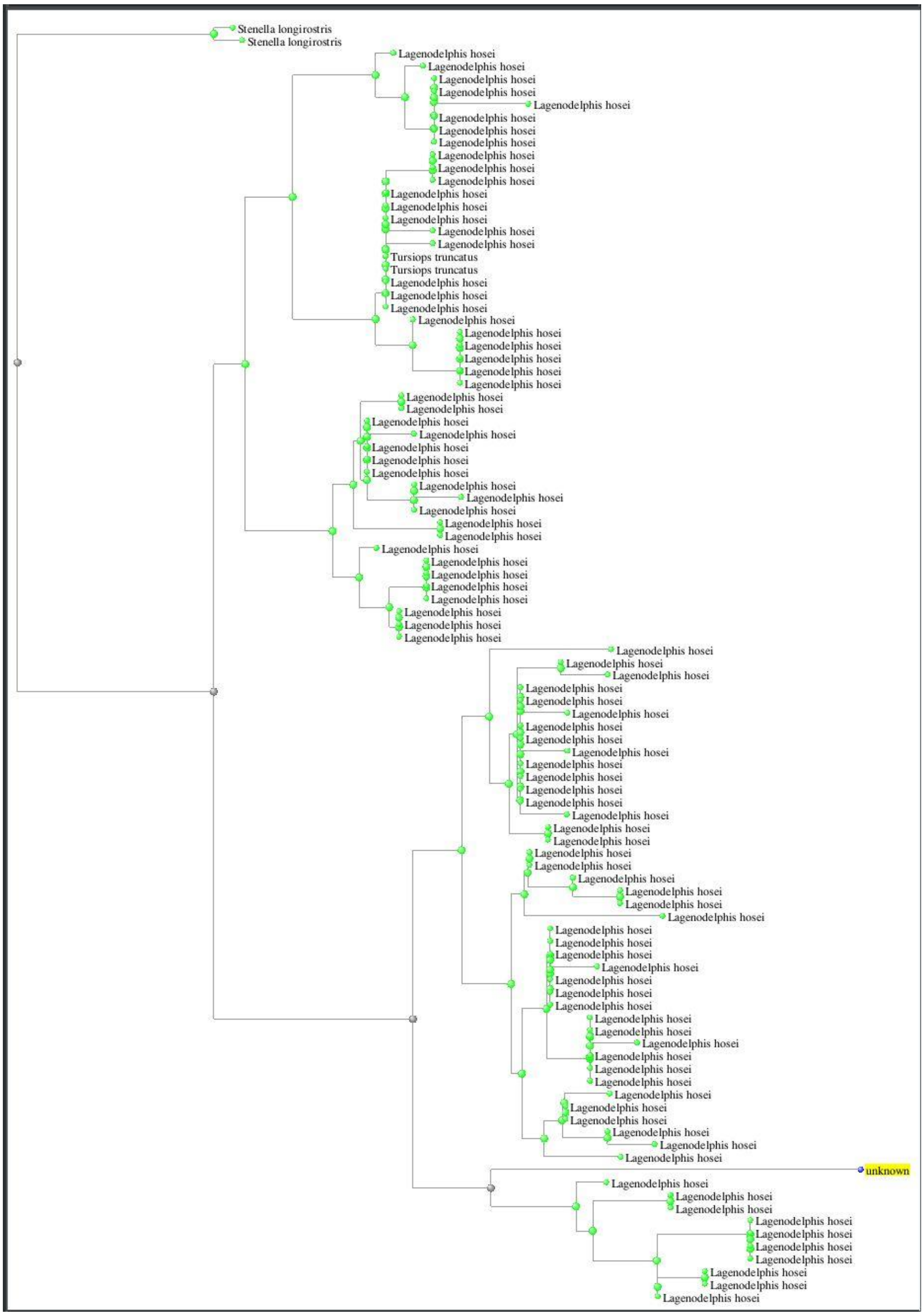


Figure 3. Yellow indicates the queried (sample) region. Green are GenBank sequence accessions with significant sequence alignment.

Conclusion

T022417 has the greatest sequence alignment with and is identified as a Fraser's dolphin *Lagenodelphis hosei*.