



ALDIR

Supraoccipital length as an alternative to condylobasal length for relativizing skull morphometric characters in the Delphinidae



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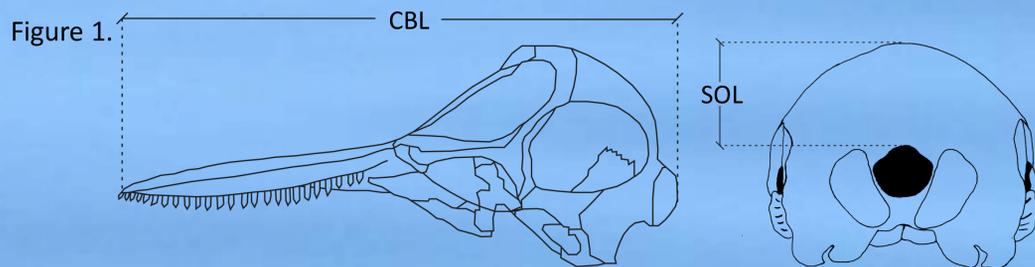
INTRODUCTION

The condylobasal length (CBL) has been used to relativize the data in the studies of skulls (family Delphinidae). Some specimens in collections have to be excluded because they are often incomplete in the rostrum area. The aim was to find morphometric cranial trait related to cranial growth that could replace CBL and avoid the discarding of osteological material.

RESULTS

CBL and supraoccipital length (SOL) were the most significant and positively correlated with TL. (Table 1)

SOL was defined as the distance between the superior margin of the supraoccipital and the *opisthion* (midpoint of the dorsal border of the *foramen magnum*). (Fig. 1)



The strongest positive correlation was between SOL and CBL. (Table 1)

	TL	CBL
CBL Pearson's r	0.8110 ***	—
p-value	< .001	—
n	252	—
SOL Pearson's r	0.8177 ***	0.7804 ***
p-value	< .001	< .001
n	255	509

Note. * p < 0.05, ** p < 0.01, *** p < 0.001

Table 1. Correlation coefficients between CBL and TL; SOL and CBL

CONCLUSIONS

We propose to use SOL as an alternative to CBL to relativize the absolute data of morphometric cranial traits in nine species of the family Delphinidae (*C. commersonii*, *D. delphis*, *G. griseus*, *L. albirostris*, *P. electra*, *S. attenuata*, *S. coeruleoalba*, *S. longirostris* and *T. truncatus*). More research should be done on the rest of the species.

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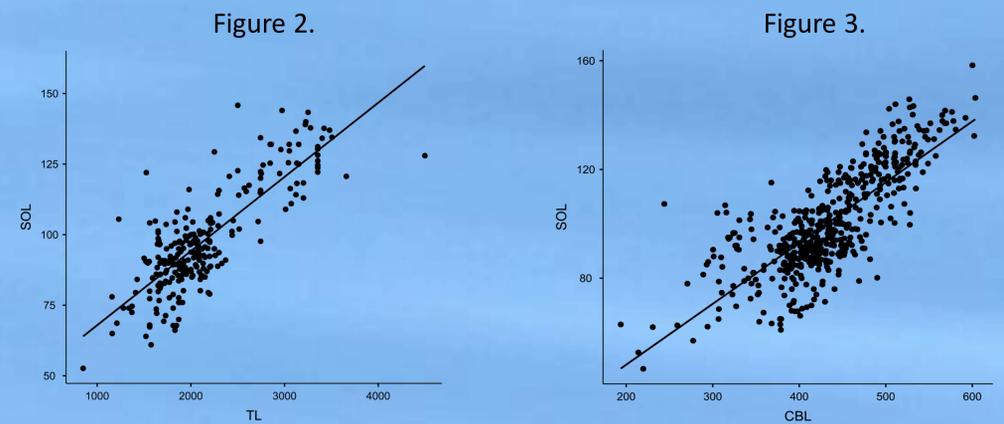
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MATERIAL & METHODS

Sixty-nine morphometric cranial traits were measured in 536 skulls of twelve species (Delphinidae). We used the total body length (TL) reported in the collections database.

The bone material studied belongs to the collections of CEMMA (Galicia), NMS (Edinburgh), NMR (Stockholm), MNHN (Paris), and NHM (London).

The scatter plots showed a positive correlation between LT and SOL (Fig. 2) and between CBL and SOL (Fig. 3).



CBL and SOL showed significant correlation except in *Leucopleurus acutus*, *Sagmatias australis* and *Steno bredanensis*. (Table 2).

	1	2	3	4	5	6	7	8	9	10	11	12
	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL
SOL Pearson's r	0.9023 ***	0.6344 ***	0.7147 ***	0.5854 **	0.4726	0.9564 ***	0.0921	0.8048 ***	0.6913 ***	0.8452 ***	0.1879	0.8746 ***
p-value	< .001	< .001	< .001	0.001	0.065	< .001	0.862	< .001	< .001	< .001	0.415	< .001
n	23	140	53	28	16	11	6	59	39	29	21	82

Note. * p < 0.05, ** p < 0.01, *** p < 0.001

Table 2. Correlation coefficients between CBL and SOL for species: 1. *Cephalorhynchus commersonii*, 2. *Delphinus delphis*, 3. *Grampus griseus*, 4. *Lagenorhynchus albirostris*, 5. *Le. acutus*, 6. *Peponocephala electra*, 7. *Sa. australis*, 8. *Stenella attenuata*, 9. *S. coeruleoalba*, 10. *S. longirostris*, 11. *St. bredanensis*, 12. *Tursiops truncatus*

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