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A new species in the *Spirobranchus kraussii* complex (Annelida: Serpulidae) from Australia

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Abstract. The blue coral-worm *Spirobranchus kraussii* (Baird, 1864) (Annelida: Serpulidae) was originally described from South Africa and reported as a widely distributed Indo-Pacific species, however it is now recognized as a complex of regionally distributed species. Molecular studies led to the description of taxa within the monophyletic *S. kraussii* complex including *S. lirianeae* Brandão & Brasil, 2020 (Brazil), *S. sinuspersicus* Pazoki, Rahimian, Struck, Katouzian & Kupriyanova, 2020 (Arabian (Persian) Gulf), *S. akitsushima* Nishi, Abe, Tanaka, Jimi & Kupriyanova, 2022 (Japan), *S. bakau* Sivananthan, Shantti, Kupriyanova, Quek, Yap & Teo, 2021 (Singapore), and *S. manilensis* Sivananthan, Sivalingam, Kupriyanova, Quek, Yap & Teo, 2022 (Philippines). *Spirobranchus kraussii* was reported (as *Pomatoleios kraussii*) as an intertidal belt-forming species from mid-20th century in Queensland, Australia. Here, this species was described as *Spirobranchus straughanae* sp. nov. as a result of the analysis of historic specimens from the Australian Museum and newly obtained DNA sequences of *cytb* and *18S*. Phylogenetic analyses revealed seven well-supported clades within the complex and *S. straughanae* sp. nov. was recovered as sister group to *S. lirianeae*. Genetic distances between *S. straughanae* sp. nov. and other species ranged from 12.8% to 25.6% (p-distance) and 17.3% to 46.6% (Kimura 2-parameter), reinforcing its status as a distinct species. Morphologically, *S. straughanae* sp. nov. differs from congeners in the complex by opercular characteristics, tube morphology, and glandular distribution. The talon can be used to differentiate taxa, but its structure varies significantly. Peduncular wing patterns and chaetal morphology further distinguish species within the complex. The findings underscore the importance of integrative approaches to resolution of species boundaries in the *S. kraussii* complex.

Keywords: integrative taxonomy, systematics, species complex, cytb, 18S
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