



## ***Notoraja sapphira* sp. nov. (Rajoidei: Arhynchobatidae), a new deepwater skate from the slopes of the Norfolk Ridge (South-West Pacific)**

BERNARD SÉRET<sup>1</sup> & PETER R. LAST<sup>2</sup>

<sup>1</sup>IRD/Muséum national d'Histoire naturelle, Département Systématique et Evolution, UMS 602 "Taxonomie et Collections", Case postale n° 51, 55 rue Buffon, 75231 Paris cedex 05, FRANCE. E-mail: seret@mnhn.fr

<sup>2</sup>CSIRO Marine & Atmospheric Research, GPO Box 1538, Hobart, TAS, 7001, AUSTRALIA. E-mail: peter.last@csiro.au

### **Abstract**

A new arhynchobatid skate of the genus *Notoraja* is described from five specimens collected on the slopes of the Norfolk Ridge between 1195 and 1313 m depth. The new species is distinct from its sibling species from southern Australian waters, the Blue Skate (*N. azurea*), by its smaller size, several morphometric and meristic characters, thorn pattern and dorsal and ventral coloration.

**Key words:** Arhynchobatidae, skate, new species, *Notoraja sapphira*, South-West Pacific

### **Introduction**

The arhynchobatid genus *Notoraja* Ishiyama, 1958 was resurrected by Stehmann (1989) for a new species *N. subtilispinosa* (now assigned to the genus *Insentiraja*) from the Philippines and the type species *N. tobitukai* (Hiyama, 1940). Presently, the genus comprises six species: *N. tobitukai* from Japan, *N. ochroderma* McEachran & Last, 1994 from northeastern Australia, *N. hirticauda* Last & McEachran, 2006 from Western Australia, and three new species described by McEachran & Last in 2008, *N. azurea* from southern Australia, *N. lira* from the southeastern Indian Ocean, and *N. sticta* from the Great Australian Bight. Other species, once described or assigned to the genus *Notoraja*, have been recently re-assigned to the genera *Brochiraja* and *Insentiraja* (Compagno *et al.*, 2005, Last & McEachran 2006, McEachran & Last, 2008): *I. subtilispinosa* (Stehmann, 1989), *I. laxipella* (Yearsley & Last, 1992), *B. asperula* (Garrick & Paul, 1974), and *B. spinifera* (Garrick & Paul, 1974).

During the fishery survey HALIPRO 2, undertaken in 1996 on the northern part of the Norfolk Ridge by the French research institute IRD, a single bright blue skate was collected that was thought to be a member of the genus *Pavoraja* (Séret in Grandperrin *et al.*, 1997). In 2003, during an exploratory voyage by the Australasian institutes CSIRO (Australia) and NIWA (New Zealand) on the southern part of the same ridge using the R.V. *Tangaroa* (Anonymous, 2006), an additional four specimens of this new arhynchobatid skate were collected. This species is herein described and compared to its closely related congener, *N. azurea*, otherwise known as the Blue Skate.

### **Methods**

The descriptive format is based on McEachran & Fechhelm (1982) and the methods follow Last *et al.*, 2008. However, note that in this study the measurement 'pelvic-fin width' was taken as the maximum width (rather than the distance between the points of articulation of the anterior pelvic-fin lobe), and 'snout angle' was taken from the front of the spiracles (rather than the front of the orbits).