

## New Zealand non-detriment finding for spinetail devil ray

*Mobula japonica*



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### 1. Introduction

In October 2016, the 17<sup>th</sup> Conference of the Parties (CoP16) of the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) listed in Appendix II four commercially-important species of sharks (silky shark *Carcharhinus falciformis*, and the three species of thresher sharks in the genus *Alopias*) and the commercially-important *Mobula* devil rays. The *Mobula* proposal was based on concerns about the stock status of sickle-fin devil ray (*M. tarapacana*) and spinetail devil ray (*M. japonica*), with the other members of the *Mobula* genus included in Appendix II based on look-alike issues. Currently nine species of *Mobula* devil rays are recognised, of which only *M. japonica* is known to occur in New Zealand waters, but other species may occur seasonally as summer migrants from tropical waters (Duffy & Abbott 2003). Because these new listings required administrative work before the listings could be implemented, the date of entry onto CITES Appendix II was delayed by 6 months until 4 April 2017 for the *Mobula* rays.

The CITES convention has three Appendices (I, II and III), based largely on the level of risk that international trade could have on the viability of wild populations of the species. Trade in plant or

animal species listed in Appendix II has three requirements that must be fulfilled before permits are issued:

1. The CITES Management Authority of the exporting country (or equivalent recognised authority in the case of countries that are not Parties to the CITES Convention) must verify that the species was obtained legally;
2. In the case of live specimens, the CITES Management Authority must verify that specimens will be transported in a humane manner, and
3. The CITES Scientific Authority of the exporting country must advise that such export will not be detrimental to the survival of the species (known as a non-detriment finding (NDF)).

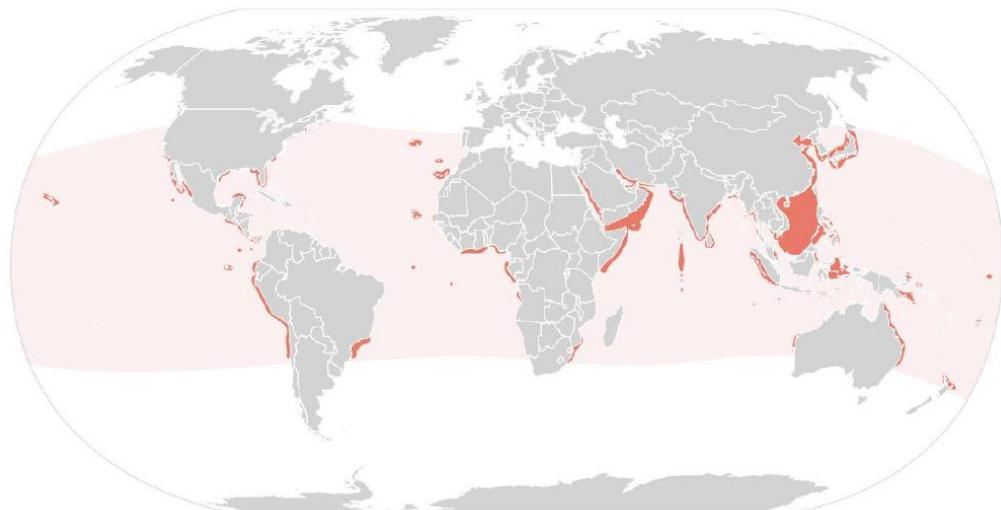
At CoP16 of CITES, Parties adopted Resolution 14.6 (Rev. CoP16) which specifies procedures associated with trade in CITES-listed species obtained on the high seas (i.e. marine areas beyond national jurisdiction and outside the 200 nautical mile jurisdiction of any State). In the case of specimens of Appendix II species, the Scientific Authority (usually from the State where the specimen will be landed, but this can vary depending on particular chartering arrangements) must issue an NDF before the specimens are actually taken (i.e. caught at sea).

The listing of the genus *Mobula* on Appendix II of CITES from 4 April 2017 therefore requires an NDF to be issued in three situations:

- before the export of *Mobula* products that were obtained within the NZ Exclusive Economic Zone (EEZ),
- before the take of *Mobula* on the high seas by an NZ vessel and landed at an NZ port, and
- before the take of *Mobula* on the high seas by an NZ vessel and landed at a foreign port.

## 2. Distribution and ecology

The spinetail devil ray *Mobula japonica* has a worldwide distribution in tropical and subtropical waters (Figure 1). In New Zealand waters, most are recorded in summer along the outer half of the continental shelf of the northeastern North Island, from off the northern Coromandel Peninsula to off the Bay of Islands in water depths of 150-350 m (Francis & Jones 2016).



**Figure 1: Global distribution of spinetail devil ray *Mobula japonica* (map from CITES proposal).**

Spinetail devil rays are highly migratory, travelling alone or in schools. One ray tagged in January remained in New Zealand waters for 2.7 months (until April) apart from a brief offshore movement of 580 km from the tagging site. Two other individuals caught and tagged off northern New Zealand in early April migrated northward in autumn to tropical waters near Vanuatu (1880 km) and Fiji (1400 km) at minimum speeds of 47 and 63 km per day (Francis & Jones 2016). Archive data from one individual showed that it spent most of its time in the top 50 m of the water column, more so at night than in the day, but the three tagged rays moved daily between the surface and 200-300 m and reached maximum depths of 649, 1000 and 1112 m.

Spinetail devil rays feed mainly on mysid and euphausiid shrimps. They are often found associating with schools of small tunas, especially skipjack tuna (*Katsuwonus pelamis*) in New Zealand waters (Francis & Jones 2016). Between 2005 and 2014, they were recorded in 8.2% of all observed purse seine nets targeting tuna in summer, but in the hotspot near the shelf edge off Northland, they were caught in 62% of sets at 300-350 m and in over 20% of sets at depths of 150-450 m (Francis & Jones 2016).

Mobulid rays have low productivity, and so are considered vulnerable to overfishing. They are ovoviparous (eggs develop *in utero* without a placenta) and give birth to a single large (c.90 cm disk width) pup per litter after an unknown gestation period and reproductive cycle duration, including resting periods between pregnancies. It may take 5-6 years (for males at least) to reach sexual maturity, when they have a disk width of about 200-210 cm, and they can live to at least 14 years (Francis & Jones 2016). The maximum disk width of 128 spinetail devil rays measured in New Zealand waters (and globally) was 310 cm (Paulin et al. 1982).

Globally, spinetail devil rays are taken in very large numbers in directed and bycatch commercial fisheries, driven by an increasing demand for their recently highly-valued dried gill plates, which are used in Asian medicines. Some artisanal fisheries in southern Asia target them primarily for food. In New Zealand there has been no directed fishery for spinetail devil rays, but in summer and early autumn they are often caught off the north-eastern North Island as bycatch in purse seines targeting skipjack tuna, and are extremely rarely caught as bycatch on tuna and swordfish long-lines. Overall, about 8% of purse-seine sets catch spinetail devil rays, but the frequency of accidental catch can be as high as 62% in sets at 300-350 m in shelf-edge fisheries off eastern Northland in summer. Because spinetail devil rays are protected in the New Zealand EEZ, fishers return them to the sea, dead or alive. The mortality rate of a small sample of rays released from purse-seine nets was high despite most of the rays swimming off strongly on release. Four of seven rays wearing pop-up archival tags died within 1-4 days of release; all had been entangled in the netting and hauled aboard in the bagged part of the net; whereas the three that survived had all been landed in brail nets (a small net used to land fish from a larger net) before being released (Francis & Jones 2016).

### **3. Spinetail devil ray fisheries provisions**

Spinetail devil rays have been fully protected under Schedule 7A of the Wildlife Act (1953) since July 2010. This means that no spinetail devil rays may be retained by fishers, and all must be returned to the sea dead or alive. Their capture and mortality should be avoided or minimised by not setting nets in areas and water depths of high ray abundance, avoiding setting on ray-associated tuna schools, and adopting best practice methods of returning rays to the sea from the net or vessel. Although the sample size of observed post-release survival was small, it seems preferable to remove them from purse seine nets using a brail net rather than hauling them aboard in the fishing net (Francis & Jones 2016).

#### **4. Conclusion**

Because the spinetail devil ray *Mobula japonica* is fully protected in New Zealand, **it is not possible to issue a non-detriment finding for any spinetail devil ray products being traded**, whether obtained from the New Zealand EEZ or from the high seas to the north of New Zealand, because such product would not be legally acquired.

#### **5. References**

Francis, M.P.; Jones, E.G. 2016. Movement, depth distribution and survival of spinetail devilrays (*Mobula japonica*) tagged and released from purse-seine catches in New Zealand. *Aquatic Conservation* 27: 219-236.

Paulin, C.D.; Habib, G.; Carey, C.L.; Swanson, P.M.; Voss, G.J. 1982. New records of *Mobula japonica* and *Masturus lanceolatus*, and further records of *Luvaris imperialis* (Pisces: Mobulidae, Molidae, Louvaridae) from New Zealand. *New Zealand Journal of Marine and Freshwater Research* 16: 11-17.