

## **Masked Booby**

*Sula dactylatra personata*

Hawaiian: A

Family: Sulidae

### **Identification**

The Masked Booby is the largest Hawaiian booby. Adult birds are white with black primaries and secondaries, which in flight extend the whole way across the rear wing in a thick band. Their head is white with a black face patch at the base of the bill, which is yellow. Their tail is black while their feet are an olive-drab to bluish-gray. Sexes are similar in appearance except for bill color, which is brighter in males, and size with females larger than males. Juveniles are generally grayish brown with white underparts and adult plumage is attained by the third year.

Adult Masked Boobies can be separated from other black and white boobies by the entirely dark secondaries and dark tail. Immature boobies are very difficult to identify. Juveniles are darker brown than juvenile Red-footed Boobies (*Sula sula*) and are perhaps more easily confused with Brown Boobies (*Sula leucogaster*). As the juvenile ages it becomes dark brown with an obvious white collar, which is lacking in the Brown Booby.

### **Survival and Lifespan**

The maximum known age is 20 years. Yearly survival within Sulidae is estimate at 91%.

### **Distribution**

#### ***Breeding (year-round)***

The species is found throughout the tropical Pacific as well as the Caribbean, tropical western and central, Indian Ocean and Australasia. Colonies are located in all the Northwest Hawaiian Islands with large colonies located on Laysan, Lisianski and French frigate Shoals. On the main Islands they occur in small numbers at Moku Manu, Oahu and Kaula, Niihau.

#### ***Marine***

Birds in some colonies are thought to be year-round residents. Others wander far during the non-breeding season and have been sighted 1,000 - 2,000 km from their breeding colonies.

### **Breeding Ecology**

Masked Boobies nest alone or in small loose colonies on open ground, where they make a nest or scrape with a few items of vegetation. Unlike most seabirds, Masked Boobies typically lay two eggs per breeding season. The eggs hatch asynchronously, and the first chick to hatch usually pushes the other sibling out of the nest. In Hawaii, eggs are laid between January and July and young fledge five months after eggs are laid. Both parents incubate the eggs, and brood and feed the chicks. Adults continue to feed young up to six months after fledging. Birds typically first breed at four years of age

### **Feeding and Prey**

- Feeding guild – PELECANIFORMES
- Food capture – Food is caught by plunge-diving from heights of up to 30 m, although most foraging is done from a height of 6 - 10 meters.
- Foraging Distribution – Masked Boobies forage as far as 150 km from shore and feed primarily from the top 3 - 4 m of the water column. They feed in bluewater pelagic zones and are not drawn to major upwelling systems. Little is known about the role of oceanographic factors in the distribution of this species.
- Microhabitat for foraging – Feeding birds are often associated with schools of large predatory fish, such as tuna and cetaceans. They forage alone or in large, mixed species flocks associated with schools of large predatory fishes which drive prey species to the surface.

- Diet –In Hawaii, the Masked Booby diet is comprised almost entirely of fish; primarily flyingfish and jacks. In the Northwest Hawaiian Islands prey analysis revealed 15 fish families and 1 squid family. Major prey families included flying fishes (Exocoetidae, 48% of items), and jacks (Carangidae, 27%) and 10% of items were from various squid families (Decapoda). Masked Boobies consume the largest prey items of the Hawaiian seabirds with lengths ranging from 3 - 34 cm.

### Threats and Status

In Hawaii over 7,000 individuals are present, although up to a quarter of these are non-breeders. The majority occurs in the Northwest Hawaiian Islands and approximately 450 pairs breed in the main Hawaiian Islands. The worldwide population is estimated at several hundred thousand birds.

- Invasive species – Non-native plants, specifically golden crown-beard (*Verbesina encelioides*), degrade nesting habitat. Masked Boobies nest on the ground on bare rock or low-growing vegetation. *Verbesina* grows in dense swaths that reach over 6 ft in height thereby precluding nesting by boobies. Birds nesting early in the growing season may become surrounded by *Verbesina* and die of heat stress once the plants reach their full height.
- Fisheries – In Hawaii, overfishing may directly or indirectly harm seabird populations; harvest of Skipjack and Yellowfin Tuna (*Thunnus albacares*) could eliminate predatory fish needed to drive prey species to surface. Also, live bait needed for the fishery could potentially decrease prey items. Development of a squid fishery could also impact Masked Boobies.
- Predation – Predation of individuals is much the same as for Red-footed Boobies, with introduced mammals being the major threat, although the more remote areas inhabited by the species means that populations tend to be less affected than Red-foot colonies. Frigatebirds seldom chase Masked Boobies.
- Human impacts – The most severe human impact is the loss of nesting sites to development and general human disturbance in colonies. Although they generally tolerate disturbance by researchers, a new pair may desert eggs if disturbed several early in the breeding season.

### Selected Readings

Anderson DJ. 1993. Masked booby (*Sula dactylatra*). In The Birds of North America, No. 73 (Poole A, Gill F, editors.). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

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