PROPOSAL FOR INCLUSION OF SPECIES ON THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANMALS

A. PROPOSAL: Inclusion of *Diomedea chrysostoma* in Appendix II.

B. PROPONENT: Government of Australia

C. SUPPORTING STATEMENT

1. Taxonomy

1. 1 Class	Aves
1.2 Order	Procellariiformes
1.3 Family	Diomedeidae
1.4 Genus/Species	*Diomedea chrysostoma* Foster, 1785
1.5 Common Name(s)	Grey-headed Albatross, Grey-headed Mollymawk (English) Albatros à tête grise (French) Albatros Cabecigris (Spanish)

2. Biological Data

2.1. Distribution (current and historical)

Breeding recorded on Diego Ramirez; South Georgia, Marion and Prince Edward Is., Iles Crozet; Kerguelen Is., Macquarie I., Campbell Is..

The marine distribution is poorly known. Circumpolar in Southern Ocean.
Marine and pelagic, favours colder surface waters than other albatross species. Disperses widely over Southern Ocean, mostly between 65° and 35° reaching 15° in zone of Humbolt current.

2.2 Population

Breeding population is estimated as about 92 000 pairs, which equates to about 600 000 individuals (Gales, in press).

For *D. chrysostoma* and other biennial breeders, interpretations of population estimates is problematical as natural fluctuations occur, which may in part reflect environmental conditions. These fluctuations may be as large as 45%, depending on the breeding success the previous season and the number of adults returning to breed (Prince 1985). On Campbell Island interpretations arc also difficult as many past estimates refer to "hundreds of thousands of mollymauks" (Sorenson 1951), not differentiating between *D. chrysostoma* and *D. melanophris.* Photographic evidence since the 1940s shows population declines of 38 - 57%. Some colonies have declined by up to 89% in areas where *D. chrysostoma* dominate (Moore and Moffat 1990b). Robertson (1980 cited in Moore and Moffat 1990b) estimated that there were 115 00 *D. chrysostoma* pairs at the north of the island but this has been found to be an overestimate (Moore and Moffat 1990b). In 1987/88, it was estimated that the number of annual breeding pairs was between 3 000 - 10 000, with the lower end of the range more likely (Moore and Moffat 1990b). This estimate was based on counts conducted in one year and assumes that *D. chrysostoma* comprise 20% of the mollymawk population as the proportion of each species could not be determined accurately from most of the

photographs (Moore and Moffat 1990b). The current status of the total breeding population of this species on Campbell Is. is, therefore, not clear.

The population of *D. chrysostoma* on Macquarie I. is the smallest across its range (total breeding population about 80 - 100 pairs) and accordingly it is considered *vulnerable* by Garnett (1992). The past status of this population is not known but it appears to have been stable since 1912 when "not more than 40 nests" were found on the island (Falla 1937).

50 - 60% of the world population of *D. chrysostoma* breed at South Georgia. A study initiated in 1975 indicated that almost all the South Georgia *D. chrysostoma* colonies have decreased since the 1950s at an average rate of 1.8% per annum. For example, the Bird I. population decreased from 14 777 pairs to 11 583 pairs between 1976/77 and 1989/90 (P. Prince pers. comm. in Gales 1993). This decline is caused by reduced juvenile survival in the 1960s and 1970s cohorts (Prince *et al.* 1994). There is also no indication that younger cohorts (and as yet not fully recruited) have higher survival (P. Prince pers. comm. in Gales 1991). The most likely reason for this reduced juvenile survival is mortality associated with fishing activities (Prince *et al.* 1994).

Unpublished counts of breeding on Marion I. between 1974 - 1995 suggest that this population is increasing following a gradual decline (J. Cooper pers. comm. in Gales, in press). About 6733 pairs breed each year in this population, with nearly 80% of these breeding on Marion I. A total of about 7900 *D. chrysostoma* pairs breed each year on the Kerguelen Is. while 5 946 pairs breed annually on 4 islands in the Crozet group (Jouventin *et al.* 1984, Weimerskirch *et al.* 1986, 1989). No information regarding past or current status is available except that albatross populations were exploited by sealers last century (Weimerskirch *et al.* 1989). The current status of the Cape Horn population is also unclear. The population is given by Schlatter (1984) as 20 000 individuals, which is assumed to loosely translate as about 10 000 pairs breeding annually. The population was reported to be decreasing with a proposed squid fishery cited as the major threat to the population (Schlatter 1984).

2.3. Habitat

Pairs may use the same nest each breeding attempt and these pedestal nests are usually situated on tussock covered cliffs and slopes, often in association with other albatross species (Robertson 1985, Weimerskirch *et al.* 1986).

2.4. Migratory patterns

During the breeding season, *D. chrysostorna* from Bird I. probably feed in the area south and west, towards the Antarctic Peninsula (Prince and Francis 1984, Rodhouse *et al.* 1990). At the Prince Edward Is., the breeding birds mainly feed north of the Antarctic Polar Front, with large concentrations being observed in the sub-Antarctic Front (about 350km north of the colonies) and in the Polar Frontal Zone that extends from this front south to the Antarctic Polar Front (Abrams 1985, Hunter and Klages 1989). Birds from the Crozet - Kerguelen area have been observed both in sub-Antarctic and Antarctic zones, as far as 1850km from their nests (Weimerskirch, *et al.* 1986, 1988).

Movements outside the breeding season are less well known due to relatively few band returns. Birds disperse over pelagic waters, and it appears that adults remain in the sub-Antarctic Zone, while juveniles and immature birds may extend to subtropical waters (Weimerskirch *et al.* 1985,

Marchant and Higgins 1990). Immature birds from South Georgia may circumnavigate Antarctic waters, with most (of very few) recoveries being from the Australian region (Tickell 1967b, Prince *et al.* 1994). All recoveries from the Campbell Is. have been in the Australian/New Zealand region. In New Zealand waters *D. chrysostoma* are commonly seen in offshore zones (Marchant and Higgins 1990, J. A. Bartle pers. comm. in Gales 1993).

3. Threat data

3.1. Direct threats to the population

Incidental mortality associated with fishing vessels is probably the major threat (Prince*et al.* 1994, Brothers 1991). Although *D. chrysostoma* is not the most commonly occurring species in longline bycatch in Australian waters (Brothers 1991), it is encountered with increasing frequency as fisheries observers are deployed on boats fishing in the high seas (N. P. Brothers pers. comm. in Gales 1993). Both adults and juveniles are being killed.

Brothers (1991) calculates that at least 1375 *D. chrysostoma* are killed each year in southern waters by the Japanese longlining fleet alone. During the 1970s longline activities increased in the Indian Ocean and *D. chrysostoma* have been killed on the high seas in the Indian Ocean and also off the Australian and New Zealand coasts (Brothers 1991; Murray *et al.* 1993, J. A. Bartle pers. comm; N. P. Brothers pers. comm. in Gales 1993).

All *D. chrysostoma* caught by longliners in New Zealand were immature (Murray *et al.* 1993) although both adults and immature birds are caught in the Indian Ocean (N. P. Brothers pers. comm. in Gales 1993). This species is also caught on longlines in waters around Kerguelen I. (Cherel *et al.* 1996). Fishing related mortality has been suggested as the primary cause of the massive decline in rates of juvenile survival at South Georgia (Prince *et al.* 1994). Given the pelagic distribution of *D. chrysostoma,* Murray *et al.* (1992) conclude that this species is more vulnerable to pelagic longlining than shelf-slope fisheries. This accords with the findings of Brothers (1991).

D. chrysostoma are also killed by collision with netsonde monitor cables of trawlers operating in the New Zealand region (Bartle 1991a). This equipment is no longer allowed in New Zealand waters but its use has been widespread in the past and is continued in other areas, particularly on the high seas. The use of netsonde cables is being discouraged and was prohibited in the CCAMLR Convention Area from the 1994/95 fishing season.

During the 1950s egg collecting was not uncommon at South Georgia but this practice had apparently ceased by 1984 (Croxall et al. 1984; J.P. Croxall pers. comm. in Gales 1993),

The major predators of eggs and chicks are Southern Skuas *(Stercorarius skua lonnbergi)* and Northern Giant petrels (*Macronectes halli*) (Moore and Moffat 1990b). The impact of feral cats and rats *(Rattus norvegicus)* is apparently "low" (P.J. Moore pers, comm. in Gales 1993).

3.2. Habitat destruction

None known.

3.3. Indirect threat

On Campbell I. the threats to *D. chrysostoma* are the same as those faced by the sympatric *D. melanophris* population, both species having been subject to human predation and sheep impacts in the past. Sheep were removed from the north of the Island in 1970.
Ticks may compromise the health of the birds via the transfer of a viral infection (A. Heath pers. comm. in Moore and Moffat 1990b).

There is no apparent competition with commercial fisheries for prey. The diet of many of the populations is unknown and therefore complete assessment of competition with fisheries is not possible. In South America the major threat identified for the Diego Ramirez Is. population was a squid fishery (Schlatter 1984) but it is unknown whether any conflict has been realised.

There is little information of other factors which may threaten the species. Plastic debris has been found in *D. chrysostoma* food samples in the South African area but the rate of incidence and mass of ingesta was very small (Ryan 1987). A change in the food supply as a result of ocean warming has been implicated in the 90% decline of rockhopper penguins *(Eudyptes chrysocome)* at Campbell Is. (Moors 1986) and has been suggested as a factor contributing to the decline in albatross numbers at this location (C.J.R. Robertson pers, comm. in Gales 1993).

3.4. Threat connected especially with migrations

Pelagic threats include fisheries bycatch discussed above.

3.5. National and International Utilisation

None known.

4. Protection status and needs

4.1. National protection status

Completely protected in Australia, including its Exclusive Economic Zone (to 200nm) and all external territories.

Currently being considered by Australia for listing as a *vulnerable* species under the Endangered Species Protection Act 1992.

4.2. International protection status

None known.

4.3. Additional protection needs

Research is required into the nature and extent of fisheries mortality in longline and other fisheries. Methods of mitigating this threat (e.g. tori (bird) poles, night setting, weighted branch lines, bait throwing devices) have been developed and should be appropriately assessed and implemented in each type of fishery operation. Assessment of mitigating methods should consider the effect on the catch of target species as measures will only be used on the high seas if they do not impact on the efficiency and economics of the fishery. The mitigating measures should not increase bycatch of