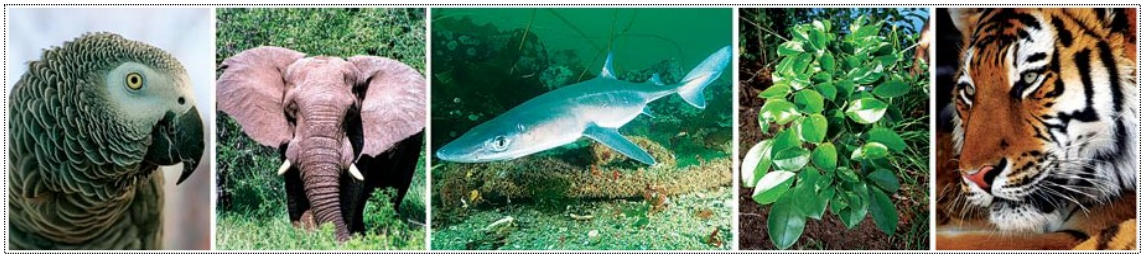
SSN
SPECIES
SURVIVAL
NETWORK



"Working within CITES for the protection and conservation of species in international trade"

Banggai Cardinalfish
Pterapogon kauderni

CoP14 Prop. 19 (United States) Inclusion in Appendix II.

SSN VIEW: SUPPORT Adoption of Proposal

ITS LIMITED RANGE, REPRODUCTIVE STRATEGIES, AND ECOLOGICAL CHARACTERISTICS MAKE THE BANGGAI CARDINALFISH SUSCEPTIBLE TO OVER EXPLOITATION

- The Banggai cardinalfish (*Pterapogon kauderni*) inhabits shallow water reef habitats in isolated populations surrounding 32 islands within the Banggai Archipelago, Eastern Indonesia. Two introduced populations exist outside of the archipelago.
- The species' geographic range is limited to 5,500 km² but, considering its habitat preferences, its potential maximum available habitat comprises only ~300 km of coastline (Vagelli, 2005a).
- The species population size, as estimated in 2004, was 2.4 million fish (Vagelli, 2005a).
- The short life span in the wild (1-2 years), low fecundity, elevated parental energy allocation per offspring, long oral incubation period, and high juvenile mortality of the Banggai cardinalfish, combined with ongoing high rates of exploitation, make this species highly vulnerable to extinction.

CURRENT COLLECTION RATES ARE UNSUSTAINABLE

- Nearly all captured cardinalfish are exported to the United States, Europe, and Asia.
- In the late 1990s, a minimum of 600,000-700,000 fish were exported each year (Allen, 2000). Between 2001 and 2004 it is estimated that 700,000-900,000 fish were exported annually. Substantial fish mortality during collection, holding, and transport suggests that actual collection rates were almost certainly much higher (Vagelli, 2005a).
- According to data obtained in March 2007, exports from local fishers have increased to one million fish annually (Vagelli, 2007). This does not include fish captured by larger fishing boats based in Bali.
- Evidence collected in March 2007 indicates that a minimum of 55 percent of captured fish die or are discarded due to injury or damage prior to international export.
- Population surveys conducted in 2001, 2002, 2004, and 2007 have documented a reduction in species densities at many sites, with evidence of extirpation at several sites. Lunn and Moreau (2004) determined that the mean density of the species in a largely protected site (a pearl farm) was measured in 2001 at 0.63 fish per square meter. This density is approximately 900% higher than the average density (0.07 individuals per square meter) of the species measured during seven censuses of exploited areas completed in 2004 (Vagelli, 2005).
- Experts have predicted that if collection pressures continue unabated, the species could become extinct within the next decade.

HABITAT LOSS CONTINUES TO HARM THE SPECIES

- *The Banggai cardinalfish is threatened by the loss of habitat caused by destructive fishing practices, including the use of cyanide and dynamite, and increased siltation and pollution runoff from land clearing* and poor agricultural practices (Harborne et al., 1997; Allen, 2001).
- Significant changes in the health and vigor of coral populations and fish diversity within reef habitat have been observed since 2001. During the March 2007 census, extensive areas of coral reef habitat were found to be covered with algae, a fungus, or a bacteria making them unsuitable as habitat for the Banggai cardinalfish and other fish species (Vagelli, 2007).

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THE SPECIES HAS VIRTUALLY NO NATIONAL OR INTERNATIONAL PROTECTION

- Except for a 1995 law (which has never been enforced) prohibiting people living outside the Banggai district from fishing in the area without government permits, the Banggai cardinalfish receives no national or international protection.
- No marine protected areas have been established in its range to date.
- No certification system for those collecting the Banggai cardinalfish has been established and, according to the Indonesian representative of the Marine Aquarium Council, no such system is being contemplated at this time (Vagelli, 2007).
- While the species can be bred in captivity, no captive breeding projects are in place and not a single village in the Banggai Archipelago is presently considering such a project (Vagelli, 2007).

THE BANGGAI CARDINALFISH MEETS THE CRITERIA FOR LISTING UNDER CITES APPENDIX II

- Current levels of exploitation for trade are unsustainable and may lead to the species' extinction if not curtailed.
- The species' bilogical characteristics make it particularly susceptible to over-collection.
- As the quality and quantity of cardinalfish habitat continues to decline, the cumulative impacts of ongoing collections for the aquarium industry are magnified.

APPENDIX II LISTING WOULD PROVIDE ADDITIONAL PROTECTION FOR THE BANGGAI CARDINALFISH

- The Banggai cardinalfish satisfies the biological and trade criteria for inclusion in CITES Appendix II.
- The increased protection provided by Appendix II is necessary to bring international trade in this species under control and to ensure the long-term survival of the species.
- An Appendix II listing will not terminate all trade in this species, but would require that such trade not be detrimental to the survival of the species.
- An Appendix II listing would also provide incentive for the development of a comprehensive conservation strategy that may include the establishment of multiple marine protected areas, the implementation of a fisher certification program, and the development of captive breeding operations.

APPENDIX II LISTING WILL <u>NOT</u> ADVERSELY AFFECT THE LOCAL ECONOMY

- Trade in cardinalfish is not a traditional or historical source of income, as the trade only began around 1995.
- Only 50-60 people (less than 0.1% of the total population of the Banggai Archipelago) are involved in the trade.
- Few, if any, of those involved in the cardinalfish trade rely on the trade for their sole or primary source of income. Other sources of income are derived through the harvest and sale of other fish products and agricultural crops.

References Cited: Allen, G. 2001. Reef Fishes of the Togean and Banggai Islands. Pp. 44-53. In: Allen, G., T. Werner and S. McKenna, ets. *A Marine Rapid Assessment of the Togean and Banggai Islands, Sulawesi, Indonesia*. RAP Bulletin of Biology Assessment. Conservation International, Washington DC. 20:75. **Harborne, A., J. Church, P. Raines, J. Ridly, L. Rettie and R. Walker. 1997.** *The 1996 Banggai Islands Conservation Project (Central Sulawesi, Indonesia)*. Coral Cay Conservation, London, UK. 28 pp. + Appendices. **Lunn, K. and M. Moreau. 2004.** Unmonitored Trade in Marine Ornamental Fishes: the Case of Indonesia's Banggai Cardinalfish (*Pterapogon kauderni*). *Coral Reefs*. 23: 344-351. **Vagelli, A.A. 2005.** The Banggai Conservation Project. Working for the creation of a network of small marine sanctuaries in the Banggai Archipelago, Indonesia. *Communique. Am. Zoo & Aquarium Assoc*. July 2005: 47-48. **Vagelli, A.A. 2005a.** *Reproductive Biology, Geographic Distribution and Ecology of the Banggai Cardinalfish Pterapogon kauderni Koumans, 1933 (Perciformes, Apogonidae), with Considerations on the Conservation Status of this Species on its Natural Habitat.* PhD. Dissertation, University of Buenos Airea. 276 pp. **Vagelli, A.A. 2007.** *Comments of the New Jersey Academy of Aquatic Sciences on the proposed Appendix II listing of the Banggai cardinalfish (Pterapogon kaudneri) to the U.S. Fish and Wildlife Service*. Submitted April 23, 2007.