

**DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE
PROPOSED APPLICATION OF PROTECTIVE REGULATIONS UNDER
SECTION 4(D) OF THE ENDANGERED SPECIES ACT FOR THE THREATENED
BANGGAI CARDINALFISH**

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EXECUTIVE SUMMARY

This draft EA evaluates the potential environmental effects that may result from implementing protective regulations under the Federal Endangered Species Act (ESA) for the threatened Banggai cardinalfish (*Pterapogon kauderni*). The National Marine Fisheries Service (NMFS) listed Banggai cardinalfish as a threatened species under the ESA on January 20, 2016 (81 FR 3023). Several threats to the Banggai cardinalfish were identified, including the degradation of habitat, international trade as a live marine ornamental reef fish, disease linked to high mortality of wild-caught fish imported for the ornamental trade, and inadequate protections in its endemic range. Unless these threats are addressed, the Banggai cardinalfish may continue to decline in abundance, which may result in an increased risk of extinction.

Section 4(d) of the ESA authorizes NMFS to issue regulations deemed necessary and advisable to provide for the conservation of threatened species. Pursuant to Section 4(d), NMFS may also apply by regulation any or all of the prohibitions listed under Section 9(a)(1) of the ESA to the Banggai cardinalfish.

NMFS considered and evaluated three alternatives for this action:

No-action Alternative: The No-action Alternative represents the environmental baseline against which the other alternatives are compared to determine their environmental effects. If implemented, the No-action Alternative would not apply any of the prohibitions under Section 9 of the ESA to the Banggai cardinalfish or apply any other regulations for the conservation of the species.

Alternative A: Under Alternative A, all of the prohibitions under Section 9(a)(1) of the ESA would be applied to the Banggai cardinalfish. As such, it would be unlawful to do any of the following with respect to Banggai cardinalfish: (A) import the species into, or export the species from the United States; (B) take the species within the United States or the territorial sea of the United States; (C) take the species upon the high seas; (D) possess, sell, deliver, carry, transport, or ship, by any means whatsoever, the species taken in violation of subparagraphs (B) and (C); (E) deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of a commercial activity, the species; (F) sell or offer for sale in interstate or foreign commerce the species; or (G) violate any regulation pertaining to the species or to any threatened species of fish or wildlife listed pursuant to Section 4 of this Act and promulgated by the Secretary pursuant to authority provided by this Act.

Alternative B (Proposed Action): Under Alternative B, only the prohibitions in Section 9(a)(1)(A) of the ESA would be applied to Banggai cardinalfish. As such, the import of the species into or export of the species from the United States would be prohibited.

The alternatives would apply to people and areas that fall under U.S. jurisdiction, including but not limited to:

- Public and private aquaria in the United States; and
- Wholesale and retail distributors in the United States.

NMFS is able to identify some of the categories of activities that affect Banggai cardinalfish within U.S. jurisdiction. The No-action Alternative would not provide any additional protection for the Banggai cardinalfish, but the other two alternatives would provide some degree of protection for the species. Alternative A would apply all prohibited acts under Section 9(a)(1) to Banggai cardinalfish. Alternative B was preferred over Alternative A, however, because it would effectively eliminate the import and export of Banggai cardinalfish, thereby reducing the effects of U.S. trade on the species, while still allowing interstate commerce of domestically-bred Banggai cardinalfish. Thus, Alternative B was selected as the preferred alternative because it was determined to provide a high degree of protection for Banggai cardinalfish while avoiding significant adverse effects on some of the affected entities.

The preferred alternative (Alternative B) would be expected to result in the following effects:

- Prohibit the import and export of Banggai cardinalfish into and from the U.S. and its territories.
- Improvements in domestic breeding programs and development of an Association of Zoos and Aquariums Regional Studbook which would contain the registration number of each animal of the particular species kept under human care.
- Increased collaboration among affected entities.
- Improvements in wild species abundance.
- Additional economic costs to comply with requirements under Section 10 of the ESA for the purpose of conducting research or enhancement activities.

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GLOSSARY

CEQ - Council on Environmental Quality

CFR - Code of Federal Regulations

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

EA - Environmental Assessment

ESA - Federal Endangered Species Act

FR - Federal Register

IRFA - Initial Regulatory Flexibility Act Analysis

NEPA - National Environmental Policy Act

NMFS - National Marine Fisheries Service

NOAA - National Oceanic and Atmospheric Administration

RIR - Regulatory Impact Review

U.S.C - U.S. Code

Conservation (conserve, conserving) - to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the ESA are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking [ESA Section 3(3)].

Cumulative effects - the effect on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (CEQ Regulations, 40 CFR § 1508.1(g)).

Endangered species - any species which is in danger of extinction throughout all or a significant portion of its range [ESA Section 3(6)].

Exclusive Economic Zone - the area that extends from the seaward boundaries of the coastal states (3 nautical miles [n.mi.] in most cases; the exceptions are Texas, Puerto Rico, and the Gulf coast of Florida at 9 n.mi.) to 200 n.mi. off the U.S. coast. Within this area, the United States claims and exercises sovereign rights and exclusive fishery management authority over all fish and all continental shelf fishery resources. The EEZ was created in 1983 by Presidential Proclamation 5030 (NMFS Glossary).

Foreign species - a species that occurs only in areas beyond the U.S. exclusive economic zone and territorial waters.

Harass – an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3).

Harm – an act which actually kills or injures fish or wildlife, such as significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR § 222.102).

Human environment – means comprehensively the natural and physical environment and the relationship of present and future generations of Americans with that environment (40 CFR § 1508.1(g)).

Jeopardize the continued existence of – to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of the listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

Listed species - any species of fish, wildlife, or plant which has been determined to be endangered or threatened under Section 4 of the federal ESA (50 CFR § 402.02).

Significant impacts or effects - changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives (40 CFR § 1508.1 (g)).

Species – includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature [ESA Section 3(16)].

Take – to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Territorial seas – extends 12 n.mi. offshore of the United States. States exercise authority over marine fisheries in waters from the coastline to 3 n.mi. offshore, and out to 9 n.mi. for Texas, Puerto Rico, and the Gulf coast of Florida (NMFS Glossary).

Threatened species – any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range [ESA Section 3(20)].

1.0 INTRODUCTION

In this Environmental Assessment (EA), NMFS evaluated the potential environmental effects of issuing regulations under Section 4(d) of the Endangered Species Act (ESA) for the conservation of the threatened Banggai cardinalfish (*Pterapogon kauderni*). NMFS analyzed the potential environmental effects of the proposed protective regulations, or ESA Section 4(d) rule, and two alternatives. This EA was prepared according to the Council on Environmental Quality's (CEQ) regulations (40 CFR Parts 1500 to 1508¹), and NOAA policy and procedures for implementing NEPA.

1.1. Background

The Banggai cardinalfish is a marine fish species that is endemic to the Banggai Archipelago, Central Sulawesi, Indonesia. Banggai cardinalfish face several threats to their survival, including the degradation of habitat, international trade as a live marine ornamental reef fish, disease linked to high mortality of wild-caught fish imported for the ornamental trade, and inadequate protections in its endemic range.

On January 20, 2016, Banggai cardinalfish were listed as a threatened species pursuant to the ESA (81 FR 3023). On March 29, 2021, NMFS initiated a review of the species' ESA classification, pursuant to ESA Section 4(c)(2). NMFS concluded that no change to the listing status of the Banggai cardinalfish was warranted at that time. On April 22, 2021, NMFS received a petition from the Center for Biological Diversity, the Animal Welfare Institute, and the Defenders of Wildlife requesting NMFS promulgate a rule under Section 4(d) of the ESA to provide for the conservation of the Banggai cardinalfish. On August 4, 2021, NMFS published in the Federal Register a notice of receipt (86 FR 41935) and requested information and comments for evaluating the request during a 60-day comment period. In addition to comments and information pertaining to any aspect of the petition, we specifically requested information regarding; (1) The adequacy of existing measures regulating the collection and trade of the Banggai cardinalfish throughout its range; (2) The availability and efficacy of captive-bred fish for aquaria trade, both domestic and international; (3) Information on the collection/harvest (including, but not limited to, number, location, mortality rate), and trade (import/export data, value, transit mortality rates) of wild fish for aquaria trade; and (4) Implementation and efficacy of Indonesia's National Plan of Action (NPOA) (2017-2021) for Banggai cardinalfish and adequacy of enforcement of Banggai cardinalfish regulations. We received 18,395 comments on this notice, of which 18,391 were from concerned citizens, scientists, and the Center for Biological Diversity, Animal Welfare Institute, and the Defenders of Wildlife, and were in support of promulgating protective regulations under Section 4(d) of the Endangered Species Act for the Banggai cardinalfish (*Pterapogon kauderni*). Particularly, the comments focused on prohibiting the importation of Banggai cardinalfish into the U.S. The other 4 comments were received from the Florida Department of Agriculture and Consumer Services, Yayasan Alam

¹ This EA is being prepared using the 2020 CEQ NEPA Regulations as modified by the Phase I 2022 revisions. The effective date of the 2022 revisions was May 20, 2022 and reviews begun after this date are required to apply the 2020 regulations as modified by the Phase I revisions unless there is a clear and fundamental conflict with an applicable statute. This EA began on November 11, 2022, and accordingly proceeds under the 2020 regulations as modified by the Phase I revisions.

Indonesia Lestari, Ornamental Fish International, and the Pet Industry Joint Advisory Council. Florida Department of Agriculture and Consumer Services expressed concern that the extension of prohibitions through Section 4(d) of the ESA would make aquaculture production of Banggai cardinalfish illegal. However, this would not be the case as we are not proposing to prohibit take of Banggai cardinalfish or interstate commerce. Yayasan Alam Indonesia Lestari, which is an Indonesian non-profit conservation organization, and Ornamental Fish International also expressed concerns with promulgating protective regulations as they believe they would undermine years of investment in the effort for the conservation of the species. Lastly, the Pet Industry Joint Advisory Council stated that they believe there is no justification to extend the prohibitions of the ESA to this species.

Detailed information on the biology, life history, and causes of the decline of Banggai cardinalfish are provided in the Status Reviews (Conant 2015; Markin 2021) and previously published listing determinations and rules (79 FR 74953, December 16, 2014; 81 FR 3023, January 20, 2016).

1.2 Application of ESA Section 4(d)

The ESA provides several means for the conservation of threatened and endangered species. Section 7 of the ESA requires Federal agencies to consult with NMFS to ensure that any activity they authorize, fund, or carry out (called the “agency action”) does not jeopardize the continued existence of an endangered or threatened species, nor destroy or adversely modify its critical habitat. The protections under Section 7 of the ESA automatically apply when a species is listed as endangered or threatened. Because the Banggai cardinalfish is a foreign species, ESA Section 7 will not apply unless an activity authorized, funded, or carried out by a Federal agency could affect this species.

Section 9(a)(1) of the ESA prohibits any person subject to the jurisdiction of the United States from the following activities with respect to endangered species:

- A) Import any such species into or export any such species from the U.S.;
- B) Take any such species within the U.S. or the U.S. territorial sea;
- C) Take any such species upon the high seas;
- D) Possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any such species taken in violation of (B) and (C) above;
- E) Deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity, any such species;
- F) Sell or offer for sale in interstate or foreign commerce any such species; or

G) Violate any regulation pertaining to such species or to any threatened species of fish or wildlife listed pursuant to Section 4 of this Act and promulgated by the Secretary pursuant to authority provided by this Act.

All of the prohibitions listed under Section 9 of the ESA automatically apply when a species is listed as endangered but not when a species is listed as threatened. For threatened species, Section 4(d) of the ESA authorizes the Secretary to promulgate protective regulations the Secretary deems are necessary and advisable for the conservation of the threatened species. The Secretary may also apply by regulation any of the prohibitions listed under Section 9(a)(1) of the ESA to any threatened species of fish or wildlife. NMFS determines what regulations to apply based on the biological status, conservation needs, and potential threats to the threatened species.

The purpose of an ESA Section 4(d) rule is to provide for the conservation of threatened species. The Secretary has discretion as to how to achieve this purpose. The Section 4(d) rule may apply all of the prohibitions in Section 9, or it may apply a subset of those prohibitions that contribute to the conservation and protection of the threatened species.

In addition, the National Environmental Policy Act (NEPA; 42 United States Code (U.S.C.) 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500 to 1508), and NOAA policy and procedures for implementing NEPA require NMFS to consider the potential environmental impacts of a proposed action before making a decision. NMFS' issuance of regulations under Section 4(d) of the ESA is generally a major federal action. Therefore, when necessary, NMFS analyzes the environmental effects associated with its decision.

Other than the ESA, NEPA, and Regulatory Flexibility Act (RFA) no other applicable laws or regulations affect the proposed rule.

2.0 PURPOSE OF AND NEED FOR ACTION

2.1 The Proposed Action

NMFS proposes to establish a Section 4(d) rule for the Banggai cardinalfish, to apply some of the prohibitions in Section 9 to this species. No regulatory timeline exists for the issuance of a Section 4(d) rule. Within the United States, the Banggai cardinalfish occurs in areas including :

- Public and private aquaria; and
- Wholesale and retail distributors.

2.2. Purpose and Need

The purpose of the proposed action is to protect and reduce the extinction risk of Banggai cardinalfish. The Banggai cardinalfish faces several threats including, but not limited to: degradation of habitat, international trade as a live marine ornamental reef fish, disease linked to high mortality of wild-caught fish imported for the ornamental trade, and inadequate protections in its endemic range. The proposed action is needed because NMFS has determined that protective regulations are necessary and advisable to provide for the conservation of the Banggai

cardinalfish, but because the species is listed as threatened, NMFS cannot institute prohibitions under Section 9 of the ESA to protect the species unless specified in a Section 4(d) rule. Without protective regulations governing Banggai cardinalfish, NMFS does not have regulatory authority to regulate or manage actions that may be contributing to the extinction risk of Banggai cardinalfish, nor does it have authority to require that conservation measures be taken to reduce or avoid take. Without the establishment of protective regulations, NMFS cannot effectively address the threats faced by Banggai cardinalfish, and the species may continue to decline toward extinction.

This EA will also be used by NMFS as the basis either for a finding of no significant impact (FONSI) or for the preparation of an environmental impact statement (EIS). Significance is evaluated in terms of both the context and intensity of a proposed action. The context for this proposed action includes the interests of user groups that either benefit from the existence of and protections for Banggai cardinalfish or are impacted by such protections.

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 Alternatives Considered

NMFS' action is to issue a Section 4(d) rule under the ESA to apply the prohibitions in Section 9 (a)(1) of the ESA to the Banggai cardinalfish to provide for the conservation of the species. In accordance with the NEPA and the CEQ Regulations, NMFS is required to consider a reasonable range of alternatives to a Proposed Action as well as the No Action Alternative. Reasonable alternatives are viable options for meeting the purpose and need for the proposed action.

The evaluation of alternatives under NEPA assists NMFS with ensuring that unnecessary impacts are avoided through an assessment of alternative ways to achieve the purpose and need for its Proposed Action that may result in less environmental harm. To warrant detailed evaluation under NEPA, an alternative must be reasonable, along with meeting the stated purpose and need for the proposed action. Accordingly, for this action, an alternative must meet these criteria to be considered "reasonable":

- 1) To conserve Banggai cardinalfish.
- 2) To comply with the mandates of the ESA.
- 3) To avoid or minimize import into and export from the United States of Banggai cardinalfish.
- 4) To regulate activities to avoid or minimize take of Banggai cardinalfish.
- 5) To allow ongoing conservation efforts to continue or promote further conservation and protective efforts for the Banggai cardinalfish.
- 6) To comply with all other federal laws and regulations.

Three alternatives were considered for Banggai cardinalfish. The main features of each alternative are summarized below and in Table 3.1-1:

- *No-action Alternative*: Do not promulgate regulations under Section 4(d) of the ESA to conserve the Banggai cardinalfish.
- *Alternative A*: Promulgate regulations under Section 4(d) of the ESA that apply all prohibitions under Section 9(a)(1) of the ESA to the Banggai cardinalfish.
- *Alternative B (Proposed Action)*: Promulgate regulations under Section 4(d) of the ESA that apply the prohibitions of Section 9(a)(1)(A) of the ESA to Banggai cardinalfish.

Table 3.1-1 Summary of the alternatives considered by NMFS. The primary features, similarities, and differences between the alternatives are highlighted.

Alternative Description	Application of ESA Section 9 prohibitions	Application of take prohibitions	Exception/Exemptions
No Action Alternative; No change from current management [no ESA 4(d) rule]	Do not apply any ESA Section 9 prohibitions	Do not apply any take prohibitions	No
Alternative A; Same as the protections applied to endangered species	Apply all ESA Section 9 prohibitions	Prohibit all take of Banggai cardinalfish	No
Alternative B; Limited protections applied	Apply ESA Section 9(a)(1)(A) prohibitions which would prohibit the import into and export from the United States and its territories	Do not apply any take prohibitions	No

3.2 No-action Alternative

Under the No-action Alternative, NMFS would not establish a Section 4(d) rule (i.e., no change from current management policies). The No-action Alternative represents the physical and biological status quo.

Without regulations established in a Section 4(d) rule, Banggai cardinalfish would remain vulnerable to a range of threats, including international trade as a live marine ornamental reef fish and disease linked to high mortality of wild-caught fish imported for the ornamental trade. The No-action Alternative would avoid potential adverse effects on the socio-economic components of the human environment, but Banggai cardinalfish would continue to be at risk of further declines in abundance.

3.3 Alternative A

Alternative A would apply all prohibitions under Section 9(a)(1) of the ESA to Banggai cardinalfish by: (1) prohibiting the take of Banggai cardinalfish within the United States, the U.S. territorial sea, or upon the high seas [“take prohibitions,” ESA Section 9(a)(1)(B) and (a)(1)(C)]; and (2) prohibiting the import, export, possession, sale, delivery, carrying, transport, or shipping of Banggai cardinalfish in interstate or foreign commerce or for commercial activity, and the violation of any regulation pertaining to the species [ESA Section 9(a)(1)(A) and (a)(1)(D) through (a)(1)(G)]. Alternative A would essentially provide Banggai cardinalfish the same protection as an endangered species. If Alternative A were implemented, proposed or ongoing activities would need to be modified to avoid violating the above protective regulations including take of Banggai cardinalfish. Entities could apply for an ESA Section 10 permit if their activities met the criteria of Section 10.

3.4 Alternative B (Proposed Action)

Alternative B would apply Section 9(a)(1)(A) of the ESA to Banggai cardinalfish. The import into or export from the United States and its territories would be prohibited. Sections 9(a)(1)(B) through 9(a)(1)(G) of the ESA would not be applied to Banggai cardinalfish. Alternative B would allow for delivery, receipt, carrying, transport, or shipment and sell or offering for sale of Banggai cardinalfish in interstate commerce, by any means whatsoever, and in the course of commercial activity.

4.0 AFFECTED ENVIRONMENT

4.1 Introduction

This chapter describes the environmental baseline or the current conditions of the environment

that could potentially be affected if the Proposed Action or an alternative were implemented. There are three broad categories that NMFS uses to evaluate the environmental impacts of proposed actions: physical, biological, and socioeconomic. The physical environment includes geographic factors. The biological environment includes the status and distribution of marine species, and life history information. The analysis of the socioeconomic environment includes effects on affected economic sectors of the community from regulatory actions and any interrelated or additional social impacts. In each section, the relevance of the issue to the Proposed Action and alternatives is reviewed, followed by a description of the relevant resources.

4.2 Physical Environment

The Proposed Action and alternatives would apply to areas within the United States and its territories where Banggai cardinalfish are known to occur, including but not limited to:

- Public and private aquaria; and
- Wholesale and retail distributors.

Banggai cardinalfish do not inhabit the marine waters of the United States, including the Exclusive Economic Zone, or territorial waters; therefore, activities occurring on land or in the waters of the United States and its territories would not affect Banggai cardinalfish. Banggai cardinalfish are a marine ornamental fish housed in public and private aquaria as well as wholesale and retail distributors in the United States. The affected environment would include entities within the United States and its territories that import or export Banggai cardinalfish for the marine aquarium industry or for conducting research and enhancement activities. The affected environment under each alternative may differ. Under Alternative A, prohibitions would apply throughout the United States and its territories where Banggai cardinalfish are present, limiting all commerce activities into, from, and within the United States and its territories. Under Alternatives A and B, import into and export from the United States and its territories, as defined by the borders of the United States and its territories, would be prohibited.

4.3 Biological Environment

The Banggai cardinalfish is the primary resource of concern for the Proposed Action and alternatives. The Banggai cardinalfish is a marine fish species that is endemic to the Banggai Archipelago, Central Sulawesi, Indonesia, where its distribution is limited to 20-34 km² of shallow-water habitat around 34 islands (Vagelli 2017; Ndobe et al. 2018; Wiadnyana et al. 2020). Banggai cardinalfish mature at <1 year of age, which corresponds to approximately 40

mm standard length. The number of eggs in an egg mass ranges from 20-102 (mean = 59), while the number of eggs brooded ranges from 45-99 (mean = 59). Banggai cardinalfish face several threats to their survival, including the degradation of habitat, international trade as a live marine ornamental reef fish, disease linked to high mortality of wild-caught fish imported for the ornamental trade, and inadequate protections in its endemic range.

On January 20, 2016, Banggai cardinalfish were listed as threatened (81 FR 3023), based on data that indicated an overall population decline and decreases in population density. On March 29, 2021, NMFS initiated a review of the species' ESA classification, pursuant to ESA Section 4(c)(2), and concluded that no change to the listing status of the Banggai cardinalfish was warranted (Markin 2021).

Critical habitat cannot be designated because the range of Banggai cardinalfish is entirely outside the United States. There are no other habitat resources located within NMFS' jurisdiction for this species.

4.4 Socioeconomic Environment

Because Banggai cardinalfish are a foreign species, there are no activities that occur in and around waters occupied by Banggai cardinalfish or make use of vital resources in such a way that take of Banggai cardinalfish may occur. However, certain commercial and non-commercial activities may affect Banggai cardinalfish, including wholesale and retail distribution and sale and public and private aquaria. According to the best available data, approximately 120,000 Banggai cardinalfish are imported to the United States each year, and this number is anticipated to remain fairly stable over the foreseeable future. A single small business imports approximately 90 percent of this total.² The vast majority of imported Banggai cardinalfish are wholesaled by the importing companies to pet stores and other retailers of marine species and aquarium supplies. The primary direct impact of the Proposed Action would be revenue loss borne by the companies that import and wholesale the Banggai cardinalfish. The primary indirect impact of the proposed action would be revenue loss borne by retailers of the fish. The best available data suggest that direct impacts would be borne almost entirely by small businesses. There is greater uncertainty regarding the proportion of retailers of the Banggai cardinalfish that are small versus large businesses. Revenues to U.S. businesses from the export of fish are uncertain but far lower than revenues from domestic wholesale and retail. The analysis of the impacts of the Proposed Action to U.S. businesses, therefore, does not attempt to quantify these impacts. Potential socioeconomic impacts of the Proposed Action are described in detail in the draft Initial Regulatory Flexibility Analysis (IRFA) (*National Marine Fisheries Service 2023*).

² Impacts of the proposed rule to small entities were estimated in part based on U.S. Small Business Administration small business size standards for the potentially impacted industries.

5.0 Environmental Consequences

5.1 Introduction

In this chapter, we describe the potential environmental consequences of the Proposed Action and alternatives on the environment. The Proposed Action and alternatives do not impose specific requirements on activities. Alternative A and Alternative B would each provide for some degree of protection and conservation of Banggai cardinalfish. Each of these alternatives would result in socioeconomic effects associated with the regulatory changes and restrictions on activities. Under Alternative B, socioeconomic effects would be limited in that import into and export from the United States and its territories would be prohibited, thereby eliminating international trade of the species into and from the United States and its territories.

Socioeconomic effects under Alternative A could be substantially greater than those that would occur under Alternative B, in part because of the interstate commerce prohibition, which would significantly constrain the development of wholesale and retail markets for domestically bred Banggai cardinalfish. The No-action Alternative would have little effect on the biological or human environment, but would not provide for the protection of Banggai cardinalfish from current threats. The potential environmental effects of each alternative are summarized in Table 5.1-1.

Table 5.1-1 Summary of the potential environmental consequences of the alternatives considered under Section 4(d) of the ESA.

Resource	No-Action Alternative	Alternative A	Alternative B (Proposed Action)
Physical Environment	No change in the physical environment.	The affected environment would include entities within the United States and its territories that import, export, possess, sell, offer for sale, deliver, receive, carry, transport, or ship Banggai cardinalfish.	The affected environment would include entities within the United States and its territories that import or export Banggai cardinalfish.

Resource	No-Action Alternative	Alternative A	Alternative B (Proposed Action)
Biological Environment	<p>Potentially adverse effects on Banggai cardinalfish because the import and export as well as take of Banggai cardinalfish would continue to be allowed.</p> <p>It would not provide regulations for habitat protection and improvement. Critical habitat cannot be designated because the range of Banggai cardinalfish is entirely outside the United States.</p>	<p>Prohibitions on take and the import, export, possession, sell, offering for sale, delivery, receiving, carrying, transport, or shipping of Banggai cardinalfish in interstate or foreign commerce or for commercial activity of Banggai cardinalfish would provide for the protection and conservation of the species.</p> <p>It would not provide regulations for habitat protection and improvement. Critical habitat cannot be designated because the range of Banggai cardinalfish is entirely outside the United States.</p>	<p>Prohibitions on the import to and export from the United States and its territories of Banggai cardinalfish would provide for the protection and conservation of the species. It would continue to allow scientific research to inform conservation and management.</p> <p>It would not provide regulations for habitat protection and improvement. Critical habitat cannot be designated because the range of Banggai cardinalfish is entirely outside the United States.</p>

Resource	No-Action Alternative	Alternative A	Alternative B (Proposed Action)
Socioeconomic Environment	No effects.	Additional measures, time, and costs required to comply with Section 10 of the ESA. Prohibitions on the import, export, possession, sell, offering for sale, delivery, receiving, carrying, transport, or shipping of Banggai cardinalfish in interstate or foreign commerce or for commercial activity.	Additional measures, time, and costs required to comply with Section 10 of the ESA for the purposes of conducting research or enhancement activities, but only for such activities that involve import into and export from the United States and its territories. Prohibitions on import and export for commercial purposes.

5.2 No-action Alternative

Under the No-action Alternative, NMFS would not promulgate any Section 4(d) rules and thus not apply any of the ESA Section 9(a)(1) prohibitions, or any other protective regulations, to Banggai cardinalfish. The No-action Alternative would represent no change from current management policies for Banggai cardinalfish. The No-action Alternative represents the environmental baseline upon which to evaluate the environmental effects of the other alternatives and was considered in further analyses in this EA.

5.2.1 Physical Environment

Under the No-action Alternative, there would be no change in the physical environment.

5.2.2 Biological Environment

Over the long-term, the No-action Alternative may hinder the conservation of Banggai cardinalfish, because no regulatory prohibitions on the take, import or export, possession, sale, delivery, carrying, transport, receipt, or shipping of Banggai cardinalfish would exist. Activities conducted by nonfederal entities within NMFS jurisdiction would not be subject to NMFS' review under the ESA and take of Banggai cardinalfish in the course of these activities would

continue.

The No-action Alternative would not result in a net benefit or cost to habitat resources within the affected environment. Critical habitat cannot be designated for the Banggai cardinalfish, because the range of the species is entirely outside the United States. There are no other habitat resources located within NMFS jurisdiction for this species.

5.2.3 Socioeconomic Resources

Implementation of the No-action Alternative would not be expected to result in additional regulatory burdens or costs for entities involved in activities that may import into or export from the United States and its territories or cause take of Banggai cardinalfish. This alternative represents the regulatory baseline.

5.3 Alternative A

Alternative A would apply all of the ESA Section 9(a)(1) prohibitions through the promulgation of a Section 4(d) rule for the protection of the Banggai cardinalfish. Alternative A would prohibit take of Banggai cardinalfish within the United States and its territories, as well as prohibit the import, export, possession, sell, offering for sale, delivery, receiving, carrying, transport, or shipping of Banggai cardinalfish in interstate or foreign commerce or for commercial activity. Activities that affect Banggai cardinalfish either directly or indirectly would need to be altered to avoid take. Otherwise, any take would have to be requested through an ESA Section 10 permit application.

5.3.1 Physical Environment

The affected environment would include entities within the United States and its territories that import, export, possess, sell, offer for sale, deliver, receive, carry, transport, or ship Banggai cardinalfish. Implementation of Alternative A may result in closures of entities within the United States that deal exclusively with Banggai cardinalfish, in addition to constraining the market for Banggai cardinalfish, including aquaculture facilities that domestically breed the species.

5.3.2 Biological Environment

Implementation of Alternative A would provide increased protection for the threatened Banggai cardinalfish by prohibiting the take of Banggai cardinalfish within the United States and its territories, as well as prohibit the import, export, possession, sell, offering for sale, delivery, receiving, carrying, transport, or shipping of Banggai cardinalfish in interstate or foreign commerce or for commercial activity. Alternative A would essentially provide Banggai cardinalfish the same protection as an endangered species. This alternative would likely have a

positive effect on the species' abundance.

Alternative A would not result in a net benefit or cost to habitat resources within the affected environment. Critical habitat cannot be designated, because the range of Banggai cardinalfish is entirely outside the United States. There are no other habitat resources located within NMFS jurisdiction for this species.

5.3.3 Socioeconomic Resources

Socioeconomic effects are described and evaluated in the draft IRFA (*National Marine Fisheries Service 2022*). As noted above, Alternative A would prohibit the import and export of Banggai cardinalfish and would, therefore, directly regulate entities that import and sell the fish wholesale, as well as any entities that export the fish. Under Alternative A, the large majority of direct impacts of the proposed rule would be borne by businesses that import and sell the Banggai cardinalfish wholesale.³ Impacts to these entities would comprise the loss of revenues from the sale of the fish that would be generated under the baseline (No-action alternative). According to data gathered for the IRFA, five or fewer businesses account for all imports of Banggai cardinalfish. These businesses import approximately 120,000 Banggai cardinalfish per year, and there is no anticipated increase or decrease in the level of imports over the foreseeable future. With an estimated wholesale price of \$11 per Banggai cardinalfish, the proposed rule would result in annualized impacts to wholesalers of approximately \$1.32 million (in 2022 dollars) in lost revenues, relative to the baseline. Between 80 and 90 percent of these impacts are anticipated to be borne by a single small entity.⁴ The IRFA estimates that revenue generated from wholesale of the Banggai cardinalfish accounts for just under six percent of this company's average annual revenues.

While not directly regulated by the proposed action, pet stores and other aquarium industry retailers of imported Banggai cardinalfish would be affected through the loss of revenues generated absent the proposed action. The IRFA estimates annualized impacts to these retailers of just under \$4 million (in 2022 dollars). Between 80 and 90 percent of these impacts are anticipated to be borne by a single large business, and impacts to this business are estimated to account for less than 0.1 percent of its average annual revenues.

The prohibition against interstate commerce of the Banggai cardinalfish under Alternative A would further impact wholesalers and retailers to the extent that they would otherwise generate

³ Entities that import and sell Banggai cardinalfish wholesale are classified under the Other Miscellaneous Nondurable Goods Merchant Wholesalers industry of the North American Industry Classification System (NAICS). Entities that sell the fish retail are classified under the Pet and Pet Supplies Retailers NAICS industry.

⁴ This market share assumption is based on data estimates obtained through interviews with industry trade group representatives. This entity was determined to be a small business based on employment estimates gathered from the Dun and Bradstreet Hoovers database and the Small Business Administration Table of Small Business Size Standards.

revenue from the interstate sale of domestically bred Banggai cardinalfish. This analysis does not seek to quantify these impacts due to significant uncertainty regarding the extent to which interstate commerce of domestically bred Banggai cardinalfish would occur with the import prohibition, but absent the interstate commerce prohibition.

According to interviews with industry trade group representatives, wholesale and retail of the Banggai cardinalfish accounts for nearly all U.S. trade of the fish. In comparison, import by aquaria and export for commercial or other purposes account for a small fraction of the trade of the species. Data were not available to quantify potential impacts to entities conducting these activities. Under Alternative A, entities conducting scientific research on Banggai cardinalfish would be impacted to the extent that obtaining ESA Section 10 permits would incur costs to the regulated entities and NMFS, relative to the baseline. However, the likelihood and potential scope of impacts to these types of organizations is uncertain and cannot be quantified with available data.

5.4 Alternative B (Proposed Action)

Alternative B would apply the prohibitions in Section 9(a)(1)(A) of the ESA to Banggai cardinalfish through the promulgation of a Section 4(d) rule. The import into or export from the United States and its territories would be prohibited. The prohibitions in Sections 9(a)(1)(B) through (G) of the ESA would not be applied to Banggai cardinalfish. Alternative B would continue to allow for the possession, delivery, receipt, carrying, transport, shipment, and selling or offering for sale of Banggai cardinalfish in interstate commerce, by any means whatsoever, and in the course of commercial domestic activity.

5.4.1 Physical Environment

The affected environment would include entities within the United States and its territories that import and/or export Banggai cardinalfish. There would be little effect on the physical environment; however, some wholesalers may decide to no longer carry Banggai cardinalfish if they can no longer receive international shipments. Others may choose to obtain Banggai cardinalfish through domestic channels.

5.4.2 Biological Environment

Alternative B would provide for the protection and conservation of the threatened Banggai cardinalfish by prohibiting the import into and export from the United States and its territories, thereby reducing the effects of trade on the species, which, at this time, is considered to be one of the greatest threats to the species. Thus, it is likely that the alternative would lead to positive effects on the biological environment.

Alternative B would not result in a net benefit or cost to habitat resources within the affected environment. Critical habitat cannot be designated, because the range of Banggai cardinalfish is

entirely outside the United States. There are no other habitat resources located within NMFS jurisdiction for this species.

5.4.3 Socioeconomic Resources

The socioeconomic effects of Alternative B are analyzed and described in detail in the draft IRFA (*National Marine Fisheries Service 2023*). Under Alternative B, import and export of Banggai cardinalfish into and from the United States and its territories would be limited solely to research or other activities that enhance the survival of the species and would need to be permitted under Section 10 of the ESA. Like Alternative A, Alternative B would prohibit the import and export of Banggai cardinalfish for recreational or commercial purposes. Similarly, the large majority of direct impacts of the proposed rule would be borne by businesses that import and sell the Banggai cardinalfish wholesale, and impacts to these entities would comprise the loss of revenues from the sale of the fish that would be generated under the baseline (No-action Alternative). As with Alternative A, the IRFA estimates that the Proposed Action would result in annualized impacts to wholesalers of approximately \$1.32 million (in 2022 dollars) in lost revenues, relative to the baseline, and that between 80 and 90 percent of these impacts would be borne by a single small entity.

In addition, pet stores and other aquarium industry retailers of imported Banggai cardinalfish would be affected through the annual loss of just under \$4 million (in 2022 dollars) in revenues that would be generated under the baseline. As with Alternative A, between 80 and 90 percent of these impacts are anticipated to be borne by a single large business, and impacts to this business are estimated to account for less than 0.1 percent of its average annual revenues. It is possible that retailers affected under Alternative B could offset a portion of revenue losses through the sale of domestically captive bred Banggai cardinalfish. However, available data do not allow for estimation of these potential offsetting revenues.

As with Alternative A, entities conducting scientific research on Banggai cardinalfish would be impacted under Alternative B to the extent that obtaining Section 10 permits required to import or export Banggai cardinalfish to conduct the research would incrementally incur costs to the regulated entities and NMFS, relative to the baseline. However, the likelihood and potential scope of impacts to these types of organizations is uncertain and cannot be quantified with available data.

5.5 Environmental Justice

Federal agencies are required to address environmental justice issues in NEPA documents. Environmental justice is defined as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (*see*

Executive Order 12898, Feb. 11, 1994; 59 FR 7629 (Feb. 16, 1994)). NMFS must ensure that the decision-making process for the development of the Section 4(d) rule is fair and that the impacts are evenly distributed. No single group of people, based on racial, ethnic, socioeconomic, or another status, should bear an unequal share of any negative environmental consequences that result from the application of a Section 4(d) rule for Banggai cardinalfish (*see* Executive Order 14008, Jan. 27, 2021; 86 FR 7619 (Feb. 1, 2021)).

The Proposed Action and alternatives would apply to all entities that import or export of Banggai cardinalfish and would not be based on racial, ethnic, socioeconomic, or any other status of groups of people. Thus, the Proposed Action and alternatives are not expected to impose disproportionately greater burdens on any single group of people based on characteristics of status.

5.6 Unavoidable Adverse Effects and Irreversible and Irrecoverable Commitments of Resources

No unavoidable adverse effects or irreversible and irretrievable commitments of resources would be expected to result from implementation of the Proposed Action or any of the alternative Section 4(d) rules. The Proposed Action and alternatives are regulatory actions that do not implement specific actions that would involve the commitment of resources prior to evaluation of their effects. Through this action, NMFS hopes to avoid adverse effects on Banggai cardinalfish.

5.7 Cumulative Effects

CEQ's NEPA regulations define cumulative effects as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR §1508.1(g)(3)).

5.7.1 Past, Present, and Reasonably Foreseeable Actions

Past, present, and reasonably foreseeable actions that may affect, or be affected by, the Proposed Action include the import into and export from the United States and its territories for commercial and private aquariums, retail and wholesale distributors, and potentially scientific research activities within the areas identified in Section 2.1 of this EA. Specific actions related to the Proposed Action include:

- Import into the United States and its territories for commercial and private aquariums, retail and wholesale distributors, and potentially scientific research activities
- Export from the United States and its territories for commercial and private aquariums,

retail and wholesale distributors, and potentially scientific research activities occurring internationally

5.7.2 Climate Change

Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer. (U.S. EPA Glossary of Climate Change Terms⁵). The effects of climate change most people refer to today stem from “global warming,” a relatively recent phenomenon of rising average temperatures across the globe. The temperature increase is thought to be due in large part to the human-induced increase in greenhouse gas emissions released into the atmosphere as a result of combustion. Common greenhouse gases (GHG) such as carbon dioxide, methane, and nitrous oxide trap radiant heat from the earth, causing the average temperature to rise. Climate change research in reports from the United Nations Intergovernmental Panel on Climate Change (IPCC) (www.ipcc.ch), U.S. Climate Change Science Program’s Science Synthesis and Assessment Products, and the U.S. Global Change Research Program, conclude that earth’s climate is already changing. This change is expected to accelerate and that human GHG emissions, primarily carbon dioxide emissions (CO₂), are the main source of accelerated climate change.

The Proposed Action and alternatives would not be expected to affect climate change. The purpose of the Proposed Action and alternatives is to protect and conserve the Banggai cardinalfish by prohibiting the import and export of the species into and from the United States and its territories. The Proposed Action and alternatives do not implement specific actions that would contribute to emissions of greenhouse gases into the atmosphere. However, climate change may affect Banggai cardinalfish through effects on the marine habitats occupied by the Banggai cardinalfish.

5.8 Conclusions and Comparison of Alternatives

The No-action Alternative was not selected because it would not accomplish the purpose and need of the action as described in this EA as it does not provide any additional protections for Banggai cardinalfish. There would be impacts on the physical or socioeconomic environments under this alternative. However, the biological environment and the abundance of Banggai cardinalfish may be negatively affected by the No-action Alternative.

Alternatives A and B would meet the purpose and need as described in this EA as they both provide additional prohibitions, thus, providing additional protection to the species and the biological environment. Alternative A would prohibit the take of Banggai cardinalfish within the

⁵ https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html#Climate%20Change

United States and its territories, as well as prohibit the import, export, possession, sell, offering for sale, delivery, receiving, carrying, transport, or shipping of Banggai cardinalfish in interstate or foreign commerce or for commercial activity and Alternative B would only prohibit the import into or export from the United States and its territories of Banggai cardinalfish.

Alternative A would likely result in greater adverse effects on the physical environment than Alternative B, as additional industries/locations may be affected by Alternative A when compared to Alternative B. Specifically, Alternative A would not allow for interstate commerce in Banggai cardinalfish to continue, while Alternative B would.

Additionally, Alternative A would likely result in greater overall adverse socioeconomic impacts than Alternative B. Under both Alternative A and Alternative B, it is possible that directly regulated importers and indirectly impacted retailers could benefit from increased demand for imported aquarium fish species that represent substitutes for the Banggai cardinalfish. However, these potential benefits would be indirect and are too uncertain to quantify.

Alternative A would likely result in adverse impacts to entities in the Other Miscellaneous Nondurable Goods Merchant Wholesalers and Pet and Pet Supplies Retailers industries beyond those incurred under Alternative B, as all of the Section 9(a)(1) prohibitions would be adopted and applied under Alternative A. Under Alternative B, many of the affected entities (e.g., wholesalers, retailers, and public aquaria) would still be permitted to deliver, receive, carry, transport, ship, and sell or offer for sale Banggai cardinalfish in interstate commerce. Under Alternative A and Alternative B, the import prohibition would likely result in increased demand for domestically captive bred Banggai cardinalfish, which currently account for a small percentage of the commercial trade of the fish in the United States. However, permissible interstate commerce under Alternative B would allow for more of this demand to be met than Alternative A, which would significantly constrain the development of wholesale and retail markets for domestically captive bred Banggai cardinalfish. This analysis does not seek to quantify impacts under Alternative A incremental to those under Alternative B due to significant uncertainty regarding the extent to which a U.S. market would develop for domestically bred Banggai cardinalfish under either alternative.

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