Western
Pacific
Regional
Fishery
Management
Council

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VIA ELECTRONIC FILING AND POSTAL MAIL

Ms. Donna S. Wieting
Green Turtle Proposed Listing Rule
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Re: Identification and Proposed Listing of Eleven Distinct Population Segments of Green Sea Turtles (*Chelonia mydas*) as Endangered or Threatened and Revision of Current Listings (NOAA-NMFS-2012-0154)

Dear Donna:

The Western Pacific Regional Fishery Management Council (Council) appreciates this opportunity to provide comments to the National Marine Fisheries Service (NMFS) on the proposed listing of eleven Distinct Population Segments (DPS) as endangered or threatened under the Endangered Species Act (ESA)[1].

The future of green turtle management is an important issue for the Council given that the species holds cultural and traditional significance throughout the Pacific Islands, including Hawaii, Commonwealth of the Northern Mariana Islands (CNMI), Guam and American Samoa. Fisheries managed under the Council's Fishery Ecosystem Plan (FEP), such as the Hawaii longline fishery and the American Samoa longline fishery, are known to interact with several populations of green turtles, and the Council recently developed management measures for the American Samoa longline fishery to prevent interactions with green turtles.

The Council, at its 163rd Meeting held in Honolulu, Hawaii on June 16-18, 2015, reviewed the proposed rule and considered recommendations from its Scientific and Statistical Committee, Protected Species Advisory Committee, and Advisory Panels. This letter reflects the discussions and resulting recommendations from the recent meetings.

[1] *See* 80 Fed. Reg. 15272 (March 23, 2015).

Overview

Based on our review of the proposed rule and the status review, and as described in detail in the following sections, the Council provides the following recommendations:

1) Reconsider the threatened listing for the Central North Pacific DPS.
2) Maintain listing status for the Central West Pacific and Central South Pacific DPS as threatened.
3) Provide exemptions to the take prohibitions under ESA Section 4(d), similar to the management mechanism implemented for ESA-listed salmon species. Activities for take exemption should include limited directed take and active population management.
4) Do not designate critical habitat as such designations are not likely to provide any measureable benefit to green turtle populations.

The Council also provides several major limitations identified in the proposed rule that apply to all DPSs. Furthermore, the Council request that NMFS and FWS (Services) extend the period for making a final determination by six months as allowed under ESA Section 4(b)(6)(B)(i) given the substantial disagreement and uncertainty regarding the sufficiency or accuracy of the available data relevant to the proposed rule.

As a general matter, the Council finds it incomprehensible that a species for which there are a total of 550,000 nesting females worldwide with most major populations showing stable or increasing trends continues to be at risk of extinction. Using a simple nester converter developed by Dr. Milani Chaloupka, the total nesting female abundance would translate to a global abundance of at least 73 million green turtles of all age classes and both sexes.[2] The most abundant of the 11 DPSs is the North Atlantic DPS has a nester abundance of 167,528 females, which would translate to at least 22 million individuals. However, none of the DPSs are proposed for delisting.

Reconsider the Threatened Listing for the Central North Pacific DPS

The Council disagrees with the Services' finding that the Hawaii population of green turtles, defined as the Central North Pacific (CNP) DPS, warrants continued listing under the ESA as a threatened species. The Services argued that continued threats (in particular possible loss of nesting habitat from sea level rise and other climate change impacts) coupled with a small and narrowly distributed nesting population (with 96% nesting on French Frigate Shoals) are likely to endanger the DPS within the foreseeable future.

As discussed in length in the following sections, the Council finds that the CNP DPS does not warrant listing under the ESA now, or in the foreseeable future due to the lack of quantified threat of extinction, unsubstantiated claims regarding climate change threats, and lack of other significant population-level threats. The Council therefore recommends that the Services reconsider the threatened listing for the CNP DPS.

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[2] The conversion assumes that 1.5 percent of the total population is adults and the sex ratio is 50 percent female.

Lack of Quantified Threat of Extinction within the Foreseeable Future

In the Council's review, the status review and proposed rule lack any rigorous scientific assessment of threats on the population and relies heavily on speculative arguments to justify the threatened listing for the CNP DPS. Threats are discussed qualitatively and distinctions between impacts to individual animals and the population as a whole are not made.

For example, the proposed rule argues that climate change is a primary threat to the CNP DPS, but provides no quantitative analysis of the extent to which current predictions of sea level rise are expected to impact nesting areas for this population. The proposed rule also makes reference to Whale-Skate Island, which submerged completed during the 1990s, as evidence that such disappearance of nesting sites could be detrimental to the Hawaii green turtle population. However, NMFS and FWS failed to provide any evidence to show that the disappearance of Whale-skate Island contributed to a negative impact on the overall population, or whether nesting shifted to other areas in French Frigate Shoals.

Even more troubling is that the only quantitative assessment conducted by the Status Review Team (SRT) on the status of the CNP DPS has been ignored in the proposed rule. The SRT conducted a population viability analysis (PVA) for the nesting population on East Island based on 38 years of nesting beach monitoring data. The results showed there is a zero percent probability that the population would fall below two critical reference points (50 percent decline in abundance trend and abundance falling below 100 females per year within 100 years). The PVA results for the CNP DPS is notably absent, whereas the results from PVAs conducted for other populations are reported in the proposed rule.

NMFS staff indicated at the public hearing held in Honolulu, Hawaii, on April 8, 2015, that the PVA is misleading given that it was based solely on past population trends and did not include future threats in the modeling. However, this appears to be a shortcoming on the Services' part and a more rigorous PVA could have been conducted, incorporating the "increasing threats" in the model. NMFS has previously incorporated predictions of future catastrophic events in conducting a PVA for the main Hawaiian Islands insular false killer whale population.[3] In that example, NMFS relied on the PVA results in the proposed decision to list the insular false killer whale DPS as endangered.[4]

Climate Change Threats Unsubstantiated

The Services' determination that the CNP DPS is likely to become endangered in the foreseeable future due to climate change impacts and the limited distribution of nesting at French Frigate Shoals is predicated on two main assumptions that are not supported by the best available science. As described in detail below, the Council believes that the Services' justification that climate change constitutes a significant threat to the CNP DPS is unsubstantiated.

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[3] Oleson, E. M., C. H. Boggs, K. A. Forney, M. B. Hanson, D. R. Kobayashi, B. L. Taylor, P. R. Wade, and G. M. Ylitalo. 2010. Status review of Hawaiian insular false killer whales (*Pseudorca crassidens*) under the Endangered Species Act. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-PIFSC-22, 140 p. + Appendices.
[4] *See* 75 Fed. Reg. 70169 (November 17, 2010).

The first assumption is that French Frigate Shoals will disappear due to sea level rise. NMFS and FWS cited Baker et al. (2006)[5] to indicate that the primary nesting area for the CNP DPS is threatened by sea level rise through possible loss of nesting habitat, and also point to the example of the aforementioned Whale-Skate Island. However, conclusions of the paper cited by the Services is much more nuanced, with the authors suggesting that the higher nesting concentration at East Island in French Frigate Shoals may be fortunate given that approximately 70% of the island is projected to remain even under the worst-case sea level rise scenario. Tiwari et al. (2010)[6] further examined the potential impact of East Island losing 30% of the available nesting area and found that the island will have sufficient sandy area to hold 15,000 to 25,000 females at the maximum sea level rise scenario and that the population is likely to be limited by coastal foraging habitat.

A more recent report by the United States Geological Survey (USGS) published in 2012[7] is consistent with the findings of Baker et al. (2006) and Tiwari et al. (2010), and found that the total land area loss of French Frigate Shoals was estimated at 12 percent at sea level rise of 1 meter and 32 percent at sea level rise of 2 meters. The Services also did not consider the fact that carbonate and reef accretion are net positive at French Frigate Shoals, where modern reef accretion is estimated to be approximately 5.6 mm per year (Grigg 1997[8]).

Additionally, available evidence indicates that sea level in Hawaii was higher than today as recent as 5,000 to 2,000 years ago with a peak at approximately 2 meters above current levels ca. 3,500 years ago (Grossman & Fletcher 1998[9]). This indicates that green turtles in Hawaii have survived sea levels significantly higher than today in recent history.

The second assumption made by the Services is that, if a substantial portion of the existing nesting areas at French Frigate Shoals were to disappear, the turtles would not relocate to new nesting areas and consequently cease to reproduce. However, examples from Suriname and French Guiana, where nesting beaches routinely shift due to erosion, suggest that sea turtles have a high degree of plasticity in nesting beach selection than commonly understood today (Hawkes et al. 2014[10]). Additionally, sea turtles have been known to colonize newly formed natural and artificial beaches (Hawkes et al. 2014).

NMFS and FWS also characterized the concentrated nesting at French Frigate Shoals as contributing to low resilience within the CNP DPS. However, the very nature of green turtle

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[5] Baker, J.D., Littnan, C., Johnston, D., 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. Endanger. Species Res. 2, 21–30.

[6] Tiwari, M., Balazs, G.H., Hargrove, S., 2010. Estimating carrying capacity at the green turtle nesting beach of East Island, French Frigate Shoals. Mar. Ecol. Prog. Ser. 419, 289–294.

[7] Reynolds, M.H., Berkowitz, P., Courtot, K.N., and Krause, C.M., eds., 2012, Predicting sea-level rise vulnerability of terrestrial habitat and wildlife of the Northwestern Hawaiian Islands: U.S. Geological Survey Open-File Report 2012–1182, 139 p.

[8] Grigg, R. W. 1997. Paleoceanography of coral reefs in the Hawaiian-Emperor Chain–revisited. Coral Reefs, 16(1), S33-S38.

[9] Grossman, E. E., & Fletcher, C. H. (1998). Sea level higher than present 3500 years ago on the northern main Hawaiian Islands. Geology, 26(4), 363-366.

[10] Hawkes, L. A., Broderick, A. C., Godfrey, M. H., Godley, B. J., Witt, M. J., & TURTLES, W. M. 2014. The impacts of climate change on marine turtle reproductive success. Coastal Conservation. Cambridge University Press, Cambridge, 287-310.

reproductive behavior provides for diversity and resilience. Green turtles produce large clutches of eggs, nest multiple times per season, nesting every several years, and are active nesters for decades. This life history strategy buffers populations from disturbances at nesting beaches, such as storm events (Dewald and Pike 2014[11]). Additionally, the mere fact that green turtle nesting areas are distributed widely across the world points to the adaptability of this species.

The Council also notes that the proposed rule clearly states that threats such as climate change are either not able to be regulated under the ESA or not regulated sufficiently to control or even slow the threat. This would suggest that climate change should not be used as a reason to retain listing under the ESA. In fact, the ESA listing for the Beringia DPS of bearded seals, which was based on climate change threats, was vacated by the U.S. District Court of Alaska in July 2014 on the basis that the action was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." The Court cited two primary factors for the decision: 1) lack of any articulated discernable, quantified threat of extinction within the reasonably foreseeable future; and 2) the express finding that, because existing protections were adequate, no further protective action need be taken at this time.

Lack of Other Significant Population-Level Threats

NMFS and FWS identified a number of other non-climate change threats for the CNP DPS, including disease, coastal development, fishing gear entanglements, and boat strikes. As previously discussed, the Services did not provide a rigorous analysis of these threats at the population level, and did not rate or rank the level of impacts to the population or growth rate as was done for the recent proposed rule to revise the ESA listing of humpback whales.[12]

The various threats identified by the Services have persisted throughout the recent decades, but has not impeded the recovery of the CNP DPS green turtles. NMFS and FWS do not provide sufficient explanation for how these threats are expected to increase and whether such increases in threats would reverse the current population trend. In particular, available scientific information does not indicate that disease is a significant factor of decline for the CNP DPS. An international workshop on fibropapillomatosis was held on June 11-13, 2015, and results from this workshop should be considered in the Services' final decision.

The Council is not aware of any other significant population-level threats that would suggest the CNP DPS warrants listing under the ESA now, or in the foreseeable future.

Other Limitations with the CNP DPS

In addition to the issues discussed in previous sections, the Council has identified additional limitations regarding the Services' proposed decision on the CNP DPS. These issues are summarized below, and the Council requests that NMFS and FWS address these issues in the final decision.

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[11] Dewald, J. R., & Pike, D. A. 2014. Geographical variation in hurricane impacts among sea turtle populations. Journal of biogeography, 41(2), 307-316.

[12] *See* 80 Fed. Reg. 22304 (April 21, 2015).

1. The proposed rule only includes nesting data for Hawaii up to 2012. Two additional years of nesting data are now available,[13] with another season currently in progress. The Council therefore requests that the Services consider data from all available nesting seasons at all nesting sites including the main Hawaiian Islands (MHI) in the final determination.

2. NMFS and FWS did not consider density dependence and habitat carrying capacity in evaluating population status. The Services considers the CNP DPS to have a low nesting abundance, but failed to consider readily available scientific evidence that indicate some foraging areas for this population are at or near carrying capacity. For example, Tiwari et al. (2010) suggested that the Hawaii green turtle population is likely limited by coastal habitat availability, and Wabnitz et al. (2010)[14] confirmed through an ecosystem model that the green turtle aggregation at the Kaloko-Honokohau National Historical Park has reached carrying capacity.

3. The proposed rule makes reference to a recent publication on possible historical nesting beach distribution and turtle abundance in the main Hawaiian Islands based on archival searches, archaeological deposits and interviews.[15] This study should be interpreted with caution given that midden analyses in archaeological reports are not necessarily representative of nearshore human activities and impacts on biodiversity. Basking beaches are not necessarily nesting beaches.

4. The Services' finding that the Hawaii green turtle population continues to be at risk of extinction primarily on the basis of climate change is contrary to the findings made by an international body of sea turtle experts in 2012. The Marine Turtle Specialist Group (MTSG) of the International Union for Conservation of Nature (IUCN) found that the Hawaii green turtle population is not at risk of extinction and was reclassified as a "least concern" species under the IUCN Red List. In particular, the Red List assessment for the Hawaii population indicated the following:

> "Nesting habitat loss may occur through climatic impacts and heightened erosion, but anthropogenic impacts at this site have now been mostly eliminated through the protection of the site as a US National Monument. Natural sand accretion may replace eroded habitat (see Baker et al. 2006), there are other suitable nesting sites throughout the archipelago, and the natural history of the species is that it colonises new nesting habitat with sea level rise and fall. East Island, which hosts most turtle nesting in the FFS, was projected to lose 15% of its area with an Intergovernmental Panel on Climate Change (IPCC)-projected 48 cm increase in sea level, and up to 26% of its area under the extreme predictions of 88 cm rise in sea level. These predictions are based on IPCC suggested rises up to 2100 (Church et al. 2001), or roughly three green sea turtle generations. There are no accurate predictions beyond this 2100 cut-

[13] 2014 nesting season was a record year with 846 females nesting at East Island in French Frigate Shoals.
[14] Wabnitz, C., Balazs, G.H., Beavers, S., Bjorndal, K.A., Bolten, A.B., Christensen, V., Hargrove, S., Pauly, D., 2010. Ecosystem structure and processes at Kaloko Honokohau, focusing on the role of herbivores, including the green sea turtle *Chelonia mydas*, in reef resilience. Mar. Ecol. Prog. Ser. 420, 27–44.
[15] Kittinger, J.N., Van Houtan, K.S., McClenachan, L.E., Lawrence, A.L., 2013. Using historical data to assess the biogeography of population recovery. Ecography (Cop.). 36, 868–872.

off. This reduced nesting habitat would continue to support large numbers of turtles if predictions on carrying capacity by Tiwari et al. (2010) hold true, and if sand accretion offsets the beach loss resulting from sea level rise (see Baker et al. 2006)."[16]

Maintain Listing Status for the Central West Pacific and Central South Pacific DPS as Threatened

The Council disagrees with the Services' finding that the Central West Pacific (CWP) DPS (which includes Guam and CNMI) and the Central South Pacific (CSP) DPS (which includes American Samoa) warrant listing under the ESA as endangered. NMFS and FWS argued that the CWP DPS has low abundance at approximately 6,500 nesting females and are exposed to increasing threats, including rapid human population growth in many areas of the insular Pacific resulting in coastal development and construction, destructive fishing methods, fishery bycatch, legal and illegal harvest of green turtles and eggs, and climate change impacts. For the CSP DPS, the Services argued that this population also has low abundance at approximately 2,800 nesting females and is exposed to increasing threats, especially chronic and persistent illegal harvest and sea level rise (nearly all nesting sites exist on low-lying atolls).

As discussed in detail below, the Council finds that the Services' decision to uplist the CWP and CSP DPSs is premature as the decision is based on limited data and lack of quantified threat of extinction within the foreseeable future. A more rigorous assessment of the population across the DPS range should be conducted before such uplisting can be considered. The Council therefore recommends that NMFS and FWS maintain the listing of these two DPSs as threatened.

Data Limitations for the CWP and CSP DPSs

The proposed rule to uplist the CWP and CSP DPSs to endangered is premature due to significant data limitations and lack of consistent surveys conducted in these regions. One of the most significant limitations is that the abundance estimates were not weighted for survey effort despite the fact that survey effort in the CWP and CSP DPSs are significantly lower than most other DPSs. As the Services acknowledge in the proposed rule, these two DPSs lack consistent long-term surveys necessary to assess population status. Only one nesting area in the CWP DPS (Ogasawara Islands in Japan) had 15 years of data necessary to conduct a PVA, and no nesting area in the CSP DPS had sufficient data for PVA. The "low" abundance for these DPSs is likely to be a product of the limited survey effort rather than a reflection of realistic abundance.

Each of the Pacific Islands DPSs consists of over 1,000 islands, islets and atolls spanning large expanses of the Pacific Islands. The CWP DPS encompasses a vast area covering CNMI, Guam, Federated States of Micronesia, Republic of Marshall Islands, Nauru, Palau, Solomon Islands, Wake Island and portions of Japan, Kiribati, Indonesia and Papua New Guinea. The CSP DPS covers an area including American Samoa, French Polynesia, Cook Islands, Fiji, Kiribati, Tokelau, Tonga, Tuvalu, Western Samoa, Wallis and Futuna, Pitcairn Islands, and part of the PRIAs (Palmyra Atoll and Kingman Reef, Jarvis Island, and Howland and Baker Islands). Many

[16] Pilcher, N.J., Chaloupka, M.Y. & Woods, E. 2012. *Chelonia mydas (Hawaiian subpopulation)*. The IUCN Red List of Threatened Species. Version 2015.2. <www.iucnredlist.org>.

of the islands within these two DPSs are remote and uninhabited, making long-term surveys challenging. Out of these areas, approximately 50 nesting sites were identified for each DPS, with no additional information provided to determine the extent to which nesting activities are present in non-surveyed areas.

Available information indicate that the nester abundance for the CWP and CSP DPSs are, at best, minimum estimates and are likely to be significant underestimates. For example Mason et al. (2010)[17] noted the following: "It is estimated that between 500 and 1000 green turtles nest annually in FSM, however, estimates are based on available data from the few nesting sites that have been monitored and sampled, whereas green turtles may nest at many more sites throughout Micronesia undocumented. As such, it is likely that we have underestimated nesting activity in this under-monitored region."

Information compiled in the Turtle Research and Monitoring Database System (TREDS) and maintained by the Secretariat of the Pacific Regional Environment Programme (SPREP) indicate that the considerable data gaps exist in the proposed rule. The 2009 Annual Report of TREDS (Trevor 2009[18]) reports on green turtle nesting activity in Papua New Guinea at Long Island and at various nesting beaches along Milne Bay, which are not listed in the status review as CWP DPS nesting sites. SPREP has continued to work with Pacific Islands countries and territories and maintained TREDS since the 2009 Annual Report, but it does not appear that the Services consulted SPREP in developing the proposed rule. The Council therefore urges NMFS and FWS to coordinate with SPREP in obtaining updated nesting site information throughout the Pacific Islands.

Furthermore, CWP DPS nesting sites in Papua New Guinea listed in the status review are are all of the St. Mathias Group, which is an area dominated by Seventh Day Adventists, which prohibits eating meat, including turtles (Maison et al. 2010). Nester abundance for all of these sites are denoted with "N/A" in the status review, indicating data were not available. Pritchard (1995), as cited in Maison et al. (2010) reported "notable increase in the turtle populations over a 30 to 50 year period", and it is likely that these areas continue to provide an ad hoc protected area for nesting sea turtles.

Lack of Quantified Threat of Extinction within the Foreseeable Future

As with the CNP DPS, the proposed rule lacks any quantified threat of extinction within the foreseeable future and relies heavily on speculative arguments to justify the endangered listings for the CWP and CSP DPSs. Additionally, the proposed rule extensively cites the 1998 Pacific Green Turtle Recovery Plan to describe current threats to the CWP and CSP DPSs. This suggests that NMFS and FWS have not addressed the threats for nearly 20 years since the recovery plan was completed, or did not make efforts to verify whether these threats are still current for the purpose of the decision.

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[17] Maison, K.A., Kinan-kelly, I., Frutchey, K.P., 2010. Green Turtle Nesting Sites and Sea Turtle Legislation throughout Oceania. U.S. Dep Commerce, NOAA Technical Memorandum NMFS-F/SPO-110, 52 pages.
[18] Trevor, A.P., 2009. Turtle Research and Monitoring Database System (TREDS) Annual Report 2009. SPREP.

In discussing threats to the CWP DPS, the Services make an overbroad statement that human populations are growing rapidly in many areas of the insular Pacific, and that the resultant coastal development and construction are impacting green turtle habitat. However, the proposed rule provides no analysis of the current population growth in the region or specific information regarding development. In reality, recent data indicate that many Pacific islands are experiencing reduced growth rates and emigration resulting in stable or reduced population trends, and many of the outer islands are experiencing depopulation.[19]

NMFS and FWS also appear to use available scientific information in a selective manner, suggesting that the Services did not objectively weigh all available information in their decision-making. For example, in discussing climate change threats to the CSP DPS, the Services cite Webb and Kench (2010)[20] to show that 14% of islands in the Central Pacific decreased in area over a 19-61 year period. However, NMFS failed to present the main findings from the study, which showed that 86% of the islands remained stable or increased in area over the same timeframe. A more recent publication from Kench et al. (2015)[21] have shown similar results, indicating that the Funafuti Atoll in Tuvalu has increased by 7.3% over the past century despite sea level rise.

Provide Exemptions to the Take Prohibitions under ESA Section 4(d)

NMFS and FWS are proposing to maintain all take prohibitions for the threatened DPSs currently set forth at 50 CFR 17.42(b), 223.205, 223.206, and 223.207. Under the ESA, section 4(d) authorizes the Secretary to issue regulations necessary and advisable to provide for the conservation of species listed as threatened, and may extend take prohibitions under section 9(a)(1) to threatened species. In the proposed rule, the Services did not provide any explanation of why take prohibitions are necessary and advisable for each of the threatened DPSs. The Council believes that a blanket take prohibition is unnecessary and potentially more harmful to the CNP, CWP and CSP DPSs, and requests that NMFS and FWS work with affected communities to develop exemptions to the take prohibitions under the 4(d) rule, similar to the management mechanism implemented for ESA-listed salmon populations.[22]

The primary reason for the continued listing of the CNP DPS as threatened is the potential for nesting habitat loss at French Frigate Shoals due to sea level rise and other climate change impacts. Take prohibitions under the ESA will be ineffective in addressing this threat given that multilateral actions to address climate change at the global level would be necessary

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[19] for example, see the United Nations Population Fund Repot, available at: http://countryoffice.unfpa.org/pacific/drive/web__140414_UNFPAPopulationandDevelopmentProfiles-PacificSub-RegionExtendedv1LRv2.pdf

[20] Webb, A. P., & Kench, P. S. (2010). The dynamic response of reef islands to sea-level rise: evidence from multi-decadal analysis of island change in the Central Pacific. Global and Planetary Change, 72(3), 234-246.

[21] Kench, P. S., Thompson, D., Ford, M. R., Ogawa, H., & McLean, R. F. 2015. Coral islands defy sea-level rise over the past century: Records from a central Pacific atoll. Geology, 43(6), 515-518.

[22] The 4(d) rule has been used by NMFS for ESA-listed salmon populations to exempt fishery management from take prohibitions. Pursuant to 50 CFR 223.203(b)(4)(i), take prohibitions for ESA-threatened salmon populations do not apply to fishery harvest activities if fisheries are managed in accordance with NMFS-approved Fishery Management and Evaluation Plan (FMEP) and implemented in accordance with a letter of concurrence from NMFS. The regulations additionally outline the requirements for the FMEP.

and habitat loss from sea level rise would not constitute a take. Other threats identified for this DPS, including disease, fishery entanglements, and vessel collisions have not negatively affected the recovery of the green turtles in Hawaii, and the State of Hawaii has regulations in place to protect this species from take. It is therefore unclear how a blanket take prohibition is "necessary" and "advisable" for the conservation of the CNP DPS.

Additionally, as the green turtle population around Hawaii continues to grow, the need for active management of this species will also increase. As previously discussed, the population is already experiencing carrying capacity and exhibiting poor health conditions at certain foraging areas, and such conditions are likely to spread to other foraging areas in the future. However, a blanket take prohibition would constrain the range of management actions that may be considered to improve the overall health of those foraging areas. The lack of active management is likely to result in increased negative impacts to the green turtle population in the long-term.

As discussed in the previous section, the Council believes the CWP and CSP DPS should be listed as threatened rather than endangered, and thus exemptions to take prohibition should also be considered for these DPSs. Take prohibitions under section 9(a)(1) are applicable to any person subject to the jurisdiction of the United States, and thus are ineffective outside of the U.S. American Samoa, Guam, CNMI and the U.S. Pacific Remote Island Areas constitute a small portion of the CWP and CSP DPSs, indicating that any take prohibitions would have limited benefits to the overall population in these areas.

Moreover, take prohibitions without exceptions will continue to prohibit indigenous cultural uses of green turtles in Hawaii, American Samoa, Guam and CNMI. Return of traditional use and thereby perpetuating the cultural importance of green turtles in these areas would increase the conservation value of the species in the appropriate cultural context, and is likely to outweigh impacts from any limited take. Appropriate levels of take can be determined using the best available scientific information to ensure that take levels do not negatively impact the population.

Do Not Designate Critical Habitat as Such Designations are Not Likely to Provide Any Measureable Benefit to Green Turtle Populations

As part of the proposed rule, NMFS and FWS are soliciting comments on critical habitat. The Council believes that critical habitat is not likely to provide measurable benefits to green turtle populations and thus should not be designated at this time. Since the original ESA listing in 1978, critical habitat for green turtles has only been designated around Culebra Island, Puerto Rico. Major U.S. green turtle populations in Hawaii and Florida have been successfully recovering without critical habitat designations, indicating that critical habitat is not necessary to achieve increasing populations. As with the take prohibitions, critical habitat for CWP and CSP DPSs are unlikely to provide conservation benefits to the overall DPS given that most of the distribution lies outside of U.S. jurisdictions.

Limitations Applicable to All DPSs

In addition to the issues discussed above with respect to the CNP, CWP, and CSP DPSs, the Council has identified several other limitations applicable to all DPSs. These issues are summarized below, and the Council requests that the Services fully address these issues prior to making the final determination.

1. The proposed rule is not supported by the best available science and NMFS and FWS appear to be ignoring the scientific review provided by its own SRT team. The SRT conducted PVAs for populations with sufficient nesting data, but these results were largely dismissed in the proposed rule. Similarly, the SRT used a voting process for assessing risk, but the Services deemed the voting results unsuitable for informing the ESA listing decision and did not use them for the proposed determination.[23] The Services' dismissal of the scientific findings suggests that the SRT was not provided with sufficient guidance to perform an adequate status review under the ESA.

2. Given that much of the SRT's risk analysis was dismissed and not used in the listing determination, the risk assessment for the listing determination is limited to what is written in the proposed rule. The proposed rule does not include any additional rigorous risk assessment of each identified threat to the population (rather than impacts to individuals). Threats are discussed, but no systematic approach is provided for assessing the level of impact each threat poses on the population presently or into the future. This is in stark contrast to NMFS' humpback whale delisting proposed rule,[24] which rates each threat discussed in the proposed rule as low, medium, high, very high or unknown impacts on population size or growth rate, based on the rating provided by the BRT.

3. The proposed rule lacks transparent criteria for determining "low" abundance. The Services determined that the CNP, CWP and CSP DPSs have "low" abundance, but does not describe any criteria for categorizing abundance in this manner. It is possible that the Services compared the abundance of these DPSs to other DPSs, which would provide relative abundance. However, as previously discussed, the Services did not consider survey effort in estimating nester abundance in the data-poor CWP and CSP DPSs, which likely resulted in underestimates. The Services also did not consider carrying capacity in estimating abundance, and thus it is possible that some DPSs are expected to have lower abundance. NMFS and FWS specified recovery criteria in the 1998 Recovery Plan for U.S. Pacific Populations of the Green Turtle, which states that "Each stock must average 5,000 (or a biologically reasonable estimate based on the goal of maintaining a stable population in perpetuity) females estimated to nest annually (FENA) over six years." These criteria do not appear to have been considered in the proposed rule[25], and thus it is

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[23] The SRT's voting for quasi-extinction was designed so that risk categories were "chosen to be most meaningful for interpreting whether or how to list the DPSs under the ESA" (Status Review at p.31), yet the proposed rule notes that the approach used "does not directly correlate with the ESA's definitions of endangered and threated" (FR at 15287) and thus the proposed rule did not base the listing determination on the votes.

[24] *See* 80 Fed. Reg. 22304 (April 21, 2015).

[25] The lack of reference to existing recovery plans in the status review is contrary to previous NMFS actions, such as recent status review of the Eastern DPS of Steller sea lions (NMFS 2012).

unknown what the biologically reasonable estimate is for each of these DPSs.

4. The Services estimated abundance solely on the basis of nesting females, which is contrary to the 2010 National Research Council report entitled "Assessment of Sea Turtle Status and Trends: Integrating Demography and Abundance."[26] The report suggests caution about estimating abundance using nesting beach trends, and its key finding indicated the following: "Sea-turtle population assessments in the United States are based too heavily on abundance estimates of adult females at nesting beaches. Without knowledge of accompanying changes in demographic rates for all life stages, the causes of population trends cannot be determined. Selection and evaluation of the options for sea-turtle population management depend on an understanding of the basis for the changes in sea turtle populations."

5. The Services' analyses of threats are inconsistent across different DPSs. For example, the description of fibropapillomatosis impacts on the North Atlantic DPS is much more extensive than that of the Central North Pacific DPS. In the North Atlantic DPS section of the SRT document, it is noted that FP is not always lethal, there is no conclusive evidence on the effect of FP on reproductive effort, tumors have shown regression, and acknowledges that the population has been increasing despite FP. These points are made using studies conducted in Hawaii. Yet, for the Central North Pacific DPS' description of disease, much of those references used in the North Atlantic DPS are absent.

6. Peer review of the SRT report appears to be inadequate for certain DPSs. The Services requested peer review of the SRT report from 15 independent specialists. Based on the peer review comments, the level of expertise each reviewer had on their assigned DPS was inconsistent, with some DPSs receiving more detailed review than others. Importantly, reviewers for the CWP and CSP DPSs commented primarily on issues related to Japan and Cook Islands, respectively, and provided little to no comments on the remaining portions of the DPS. The Council notes that the data-limited nature of the CWP and CSP DPS make it difficult to find qualified experts who can provide thorough review of these regions. Nevertheless, the Council believes that the CWP and CSP DPS sections of the SRT report did not receive adequate peer-review.

Consider Extension of Final Determination under ESA Section 4(b)(6)(B)(i)

The Council requests that the Services take the extension on the period for making a final determination by six months as allowed under ESA Section 4(b)(6)(B)(i) to resolve the substantial disagreement and uncertainty regarding the sufficiency or accuracy of the available data relevant to the proposed rule. As previously discussed, the proposed rule is in disagreement with data presented in the SRT report, lacks any quantified threat of extinction within the foreseeable future and relies heavily on speculative arguments to justify the threatened listing for the CNP DPS and endangered listings for the CWP and CSP DPSs. Furthermore, the proposed

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National Marine Fisheries Service. 2012. (Draft) Status Review of The Eastern Distinct Population Segment of Steller Sea Lion (*Eumetopias jubatus*). 106pp + Appendices. Protected Resources Division, Alaska Region, National Marine Fisheries Service, 709 West 9th St, Juneau, Alaska 99802. Available for download at: http://alaskafisheries.noaa.gov/protectedresources/stellers/edps/draftedps0412.pdf

[26] Additional findings and the full report can be found at: http://dels.nas.edu/Report/Assessment-Turtle-Status/12889

decision to uplist the CWP and CSP DPS suffer from data limitations that would benefit from coordination with SPREP and its member countries to obtain more accurate and updated information regarding the status of green turtles throughout this region. The extension would allow the Services to gather and consider additional scientific information and resolve some of the uncertainties evident in the proposed rule.

Conclusions

The Council finds that the CNP DPS no longer warrants listing under the ESA and that the proposed uplisting of the CWP and CSP DPS are not justified. The Services' decision to maintain ESA listing of all DPSs despite large and increasing populations begs the question of whether the green turtles can ever be delisted from the ESA. The Recovery Plan for U.S. Pacific Populations of the Green Turtle has been in place for nearly 20 years, yet the proposed uplisting of the two Pacific DPSs suggest that the ESA has failed to contribute to the recovery of the species in these regions.

Green turtles have been an integral part of the history and culture of the people of the Pacific, and the existing approach of imposing a Western perspective of protection has been clearly ineffective. If the Services have true intentions to recover the turtles in the Pacific, they must change the paradigm to work in concert with the traditional and cultural backdrop within which the species has thrived for millennia. The Council is prepared to work with NMFS and FWS to implement a reasonable approach to managing green turtles in the U.S. Pacific Islands.

The Council respectfully requests that the Services consider these comments and information in its final decision to revise the ESA listing of green turtle populations. Please do not hesitate to contact me or Asuka Ishizaki, Protected Species Coordinator, at (808) 522-8220 if you would like to discuss these comments in detail.

Sincerely,

Kitty M. Simonds
Executive Director

Cc: Sam Rauch, Deputy Assistant Administrator for Regulatory Programs
Jennifer Schultz, Office of Protected Resources
Michael Tosatto, Regional Administrator, NMFS Pacific Islands Regional Office