

# Alaska Rainforest Defenders

A regional environmental organization established in 2011 (formerly GSACC)

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Submitted via e-mail to [objections-alaska-regional-office@fs.fed.us](mailto:objections-alaska-regional-office@fs.fed.us)

Re: Objection to Prince of Wales Island Landscape Level Analysis Project

Mr. Schmid:

This letter is a formal objection to the Prince of Wales Landscape Level Analysis Project (Prince of Wales Logging Project) Draft Record of Decision (ROD) and Final Environmental Impact Statement (FEIS) pursuant to 36 C.F.R. § 218.8. The Responsible Official is Forest Supervisor Earl Stewart, who will implement the project in the Tongass National Forest's Craig and Thorne Bay Ranger Districts. I submit this objection letter on behalf of Alaska Rainforest Defenders ("Defenders"). Defenders submitted timely comments on the Draft EIS on June 18, 2018 (PR 833-1610) and is eligible to file an objection under 36 C.F.R. § 218.5. President Larry Edwards is the lead objector pursuant to C.F.R. § 218.8(d)(3). The Forest Service published the legal notice for this project on November 16, 2018. Objectors submit this timely objection letter on December 31, 2018.

A DVD disk of exhibits was sent by regular mail earlier to today to the above address. One last-minute exhibit (Exh. 134) is being sent by email along with this Objection Letter. Please see the exhibit list in Appendix A, which includes everything on the DVD disk (a resubmission of our DEIS exhibits 1-52, and the new Objection exhibits 101-133), plus the separate 134. The reason we are resubmitting the DEIS exhibits is that the Forest Service has lost them (twice), as explained in Footnote #8.

This letter of objection is in addition to a joint objection letter that ARD co-signed along with a number of other organizations and which was submitted on December 21 by Holly Harris of Earthjustice.<sup>1</sup>

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<sup>1</sup> Defenders also joins another objection letter submitted by the non-profit law firm Earthjustice. We write separately first to identify the Responsible Official's failure to consider updated information about the status of southeast Alaska and Prince of Wales Island salmon populations and second to

The Responsible Official's Selected Alternative Forest Service's proposed action for the Prince of Wales Island Logging Project would remove nearly two-thirds of a billion board feet of federal timber over the next fifteen years.<sup>2</sup> Prince of Wales Island is the largest island in southeast Alaska and the 3<sup>rd</sup> largest island in the United States,<sup>3</sup> and its remaining public forests are essential to a 21<sup>st</sup> century southeast Alaska market-based economy that relies on fish, wildlife, scenery and outdoor recreation. The Forest Service's proposed action reflects an archaic economic model and undermines the regional economy by liquidating remaining old-growth habitat and preventing the recovery of second growth forests.

Defenders' members use the Tongass National Forest, including the project area, for recreation, commercial fisheries, subsistence, wildlife viewing, scientific research and other activities. In particular, our board members have engaged in considerable advocacy on behalf of iconic Prince of Wales Island wildlife species, such as the Alexander Archipelago Wolf, Queen Charlotte Goshawk and Sitka black-tailed deer and have a long history of participation in and dependence on southeast Alaska's commercial salmon fisheries.

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express particular concern about how the Forest Service has failed to recognize the ecological importance of allowing for maturing second growth forest to continue to mature and provide wildlife habitat functions over the long term – particularly in this landscape. Third we discuss a new science paper on Prince of Wales Island wolves.

<sup>2</sup> FEIS at 23, 27.

<sup>3</sup> PR 833\_0594 (Rain Coast Data 2017)(adding that it is the 97<sup>th</sup> largest island in the world); PR 833\_0586 (Alaska Economic Trends 1996 at 5).

# Contents

<b>I. Introduction.....</b>	<b>4</b>
<b>II. Objection Points Pertaining to Fish.....</b>	<b>7</b>
A. Objection Point 1: The FEIS violated NEPA by ignoring salmon population trends .....	8
1. Statement Referencing Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation .....	8
2. Statement of supporting reasons.....	10
a. Southeast Salmon 101 .....	10
b. The FEIS ignored declines in Prince of Wales Island pink salmon populations .....	11
c. The FEIS fail to assess impacts to POW coho & sockeye salmon populations.....	14
3. Conclusion and Suggested Resolution .....	14
B. Objection Point 2: The FEIS and ROD updates violated NEPA by failing to insure the scientific integrity of the analysis	15
1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation.....	15
2. Statement of supporting reasons.....	15
3. Conclusion and Suggested Resolution:.....	18
C. Objection Point 3: The ROD is arbitrary because the FEIS failed to consider cumulative impacts, particularly climate change effects on fish.....	19
1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation.....	20
2. Statement of Supporting Reasons .....	21
3. Conclusion and Suggested Resolution .....	23
D. Objection Point 4: The FEIS fails to show how its proposed fish passage mitigation measures will be effective.....	24
1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation.....	24
2. Statement of Supporting Reasons .....	24
3. Conclusion and suggested resolution .....	28
E. Objection Point 5: The FEIS ignores impacts to salmon dependent wildlife species.....	28
1. Statement Referencing Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation .....	28
2. Statement of supporting reasons.....	29
3. Conclusion and suggested resolution .....	30
<b>III. The FEIS fails to assess harm done by second growth logging .....</b>	<b>31</b>
A. Objection Point 1: The FEIS fails to address the need for forest succession to meet long-term wildlife viability needs.....	31
1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation .....	31
2. Statement of supporting reasons.....	33
3. Conclusion and suggested resolution .....	37
B. Objection Point 2: the FEIS fails to address uncertainties surrounding the purported benefits of its second growth logging “restorative” treatments .....	38
1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation .....	38
2. Statement of supporting reasons.....	38
3. Conclusion and suggested resolution .....	43
C. Objection Point 3: The FEIS failed to justify plans for logging in the beach fringe or other conservation areas .....	43

1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation .....	43
2. Statement of supporting reasons.....	44
3. Conclusion and suggested resolution .....	44
<b>IV. The Purpose and Need for the POWLLA Project arbitrarily targets timber supply for Viking Lumber and disregards socio-economic changes.....</b>	<b>44</b>
<b>V. New information concerning wolves on Prince of Wales Island .....</b>	<b>51</b>
A. Conclusion and requested resolution.....	52
<b>VI. Conclusion .....</b>	<b>53</b>
<b>Appendix A: Exhibit List.....</b>	<b>54</b>
Contents of the DVD disk: .....	54
<hr/>	
<b>FIGURE 1</b> (Map of ADF&G Commercial Fishing Districts .....	8
<b>TABLE 1</b> Declines in District 2 Pink Salmon Harvests, 2014-2018 .....	13

## ***I. Introduction***

The Responsible Official’s proposed action would remove 235 million board feet (MMBF) of old growth timber over the next decade: 25 MMBF annually during the first five years of implementation and 15 MMBF annually during the second five years of implementation.<sup>4</sup> The Forest Service would then evaluate whether to cut the remaining old growth on the island.<sup>5</sup> Alternative 2 would also remove 3 MMBF of recovering, second-growth forest annually for the first seven years of the project and then escalate to 50 MMBF per year for the final eight years, for a staggering total of 421 MMBF.<sup>6</sup> The agency would construct 129 miles of temporary road and 35 miles of permanent system road, adding to the economic and ecological cost of the project.<sup>7</sup>

These levels of timber extraction are unreasonable, particularly in light of the damaged ecological condition of the island and pending timber extraction activities on non-federal land. This project would occur shortly after the largest and most destructive federal timber project in decades, the Big Thorne Stewardship Project, leaving even less to work with, and creating unacceptable environmental risks. Further, the proposed volume is an unreasonable assessment of current and potential demand for timber from the project area. Changed landownership patterns have made large amounts of old-growth timber available through other timber bureaucracies such as the Alaska Mental Health Trust’s Trust Land Office. This project continues the trend of mismanaging public old-growth forests on Prince of Wales Island as a subsidized timber colony that provides high value cedar and other species to Viking Lumber’s de facto parent corporation in Washington state or other Pacific Rim wood processors far outside the region, and similarly for Alcan Forest Products, a timber exporter which does not own a sawmill. The Forest Service would then manage its maturing second-growth forests as a plantation for these or other

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<sup>4</sup> FEIS at 23, 27.

<sup>5</sup> *Id.* at 27.

<sup>6</sup> *Id.* at 23, 27.

<sup>7</sup> *Id.* at 23.

out-of-state timber brokers, delaying watershed recovery and permanently eliminating habitat for wildlife.

Prince of Wales Island is a primary producer of deer in southern Southeast Alaska, supporting harvest by island residents and residents of other southeast Alaska communities. The Forest Service authorized Viking Lumber to destroy much of the best remaining publicly owned winter deer habitat in the central portion of the island through the recent Big Thorne and Logjam projects. Subsequent 2016 and 2017 deer seasons were less productive for local subsistence deer hunters. The proposed action is almost certain to cause local or even island-wide wildlife extirpations and force survivors into isolated patches of lower quality habitat. The draft ROD authorizes the removal of much of the remaining old-growth habitat for old-growth dependent wildlife species, and then proceeds to liquidate the oldest second-growth stands that would otherwise grow to provide wildlife habitat features in the long-term.

There have been recent and staggering declines in pink salmon harvests in Alaska Department of Fish and Game (ADF&G) regulatory districts adjacent to Prince of Wales Island. In 2016 the pink salmon fishery was a disaster – and those 2016 harvests were more than double the 2018 harvest.<sup>8</sup> These declines make it essential for the Forest Service to consider whether the need to provide aquatic habitat for fishery resources should take priority over the interests of timber exporters<sup>9</sup> whose economic “contributions” to the region are negative given the massive public cost of the federal timber program.<sup>10</sup> The Forest Service and other timber agencies have logged watersheds in the 1.5 million acre North Central Prince of Wales Island biogeographic province so intensively that only 15% of the island’s watersheds consist primarily of intact habitat.<sup>11</sup> Commercial salmon harvest data from 2017 and 2018 indicate that productivity from Prince of Wales Island watersheds is declining at a faster rate than other portions of southeast Alaska, raising serious questions about whether effects from timber sales over the past decade are adding to losses associated with declines in marine productivity.

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<sup>8</sup> Exh. 1 (Walker 2016). Defenders provided a USB drive containing electronic copies of all exhibits referenced in its DEIS comments via regular mail to the Thorne Bay Ranger District on June 18, 2018, with the exception of documents in the relevant programmatic planning records (*e.g.*, 1997 Tongass Land Management Plan planning record, 2008 Amended Tongass Land Management Plan administrative record, and 2016 Amended Forest Plan planning record). However, Forest Service personnel initially misplaced the USB drive before finding it late during the summer. See PR 833-1906. Our review of the record suggests that, even now, the Forest Service has placed very few of the reference materials in the actual record and instead merely created a reference list. See PR 833\_1972. We are now re-submitting (along with our new exhibits for this objection) our DEIS exhibits, to accompany this objection letter. The objection is being sent by email; the complete set of old and new exhibits are on a DVD disk being sent by regular mail.

<sup>9</sup> Defenders acknowledge that one of the Forest Service’s two primary timber sale program beneficiaries operates a sawmill. But that operator, Viking Lumber, sends off all the high value timber – cedar, to its de facto (literally and operationally) “parent” corporation in Washington State. As a matter of business, Viking Lumber is primarily a timber exporter.

<sup>10</sup> See Exh. 2 (Mehrkens 2008).

<sup>11</sup> Forest Service. 2016. Tongass Land and Resource Management Plan FEIS at 3-197. R10-MB-769e.

The FEIS suggests the Forest Service intends a broad program that would include non-timber resource uses aimed at southeast Alaska's market-based visitor products and commercial fishing industries and other actions such as invasive species treatments. But in fact the Forest Service only intends to fund the implementation the timber sale component of the project.<sup>12</sup> Projects that close, decommission or store roads and recreation components of the project require outside funding, private investment or volunteer work.<sup>13</sup> And the Forest Service nationally faces a severe budget crisis, worsening what is already a dismal record for providing the special uses administration necessary to authorize even externally funded recreation projects.<sup>14</sup>

The suggestion that the Forest Service would address long-standing fish passage concerns similarly is a nothing burger.<sup>15</sup> Neither the 2009 Prince of Wales Access and Travel Management Plan nor the 2013 Big Thorne Project achieved any meaningful progress on known priority fish passage concerns because it is not a funded agency priority.<sup>16</sup> Now the Forest Service would propose to address fish passage concerns – without any funding - based on an ambiguous identification of “need” through an unnecessary and new prioritization process.<sup>17</sup>

The only funded portions of this project are the administrative planning and other resources and infrastructure subsidies allocated for the purpose of providing Viking Lumber and international timber broker Alcan with a long-term supply of two-thirds of a billion board feet of federal old-growth and second-growth timber.<sup>18</sup> Even if the Forest Service would mitigate some of the harm caused by its past and present mismanagement of southeast Alaska's public lands, the adverse impacts of further federal logging of old-growth and immature forests will more than offset, negatively, any small improvements in fish or wildlife habitat. Industrial activities associated with the removal of remaining old-growth forest and the implementation of plantation forestry on recovering second-growth forests will also render the island undesirable or even inhospitable for visitors from the region and beyond who come for recreation – particularly sport fishing and hunting.

*The Forest Service needs to cease planning on this misguided project.* The Forest Service has the authority and relevant planning material under the 2009 Access and Travel Management Plan to address the most critical fish habitat improvement needs. Although investments in recreation could provide additional

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<sup>12</sup> FEIS, Appx. A at A-23, 33, 37, 74, 91, 95.

<sup>13</sup> *Id.* at A-109, 113, 176, 185, 201.

<sup>14</sup> See <https://www.kcaw.org/2018/02/27/forest-service-fighting-lower-48-wildfires-is-hurting-the-tongass/>. (explaining that wildfires have consumed the national Forest Service budget, further casting doubt on the agency's ability to issue special use or other permits needed to implement recreation projects).

<sup>15</sup> See PR 833-0528 (2003 Forest-level road analysis).

<sup>16</sup> See [https://www.fs.usda.gov/nfs/11558/www/nepa/10788\\_FSPLT1\\_014866.pdf](https://www.fs.usda.gov/nfs/11558/www/nepa/10788_FSPLT1_014866.pdf) at 159 -167 (identifying 377 red crossings blocking 70 stream miles across the system); PR 833\_2083 at 3-352 (Big Thorne Project FEIS).

<sup>17</sup> FEIS Appendix A, B.

<sup>18</sup> PR 833\_00306 (IDT 5.5.2016).

economic stimuli, the visitor products industry economy is thriving even in the absence of federal funding. Defenders supports the no-action alternative, and we discuss our specific concerns in the following sections. *If you do proceed with this project, a new EIS is necessary to address the serious flaws with the existing analysis.*

## **II. Objection Points Pertaining to Fish**

Our DEIS comments noted that the DEIS and project record identified a number of watersheds at risk, 447 red pipes blocking 90 miles of salmon habitat, and a need for a number of watershed treatments deemed necessary to mitigate losses to salmon production.<sup>19</sup> There is substantial deferred maintenance and chronic sedimentation throughout the project area.<sup>20</sup> There is ample evidence that landscape scale modifications, such as the island's system of logging roads, impair and reduce salmon production capacity.<sup>21</sup> This project would increase risks to Prince of Wales Island's salmon production capacity by building road in fish habitat accompanied by intensive logging of old growth and second growth recovering forests – and do so at a time when multiple, cumulative environmental factors have put the island's salmon production capacity at risk.

The FEIS does not address environmental uncertainties or risks to island fish populations in any meaningful way. It provides a single paragraph – “Effects of Forest Management Practices on Salmonid Fish Stocks” which speculates that forest management may affect salmon abundance.<sup>22</sup> The paragraph mentions that sediment may impact habitat productivity, and notes that the project may affect salmon species which rear in freshwater for longer periods of time more than species that rear in the marine environment.<sup>23</sup> The Responsible Official then decided there was no need to discuss the effects of this massive landscape scale disturbance on fish.<sup>24</sup> Instead, the FEIS addressed only potential effects to aquatic habitat itself.<sup>25</sup> The Responsible Official determined that any adverse effects, whether moderate, minor or negligible, were irrelevant based on potential implementation of unfunded mitigation measures.<sup>26</sup>

This conclusion is arbitrary and reflects a cursory treatment of impacts in the environmental analysis that violates NEPA and NFMA in numerous ways. Most importantly, as discussed in the following objection points, the draft ROD and the FEIS upon which it relies are flawed because: (1) there is an unmet need to describe the updated status of southeast Alaska's salmon populations, particularly on Prince of Wales Island where pink salmon harvests declined precipitously in 2017 and 2018; (2) the FEIS failed to provide an appropriate degree of site-specific analysis for a timber project that may have significant and foreseeable direct, indirect and

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<sup>19</sup> FEIS at 131, 137, 154.

<sup>20</sup> PR 833\_0528 (2003 Tongass Roads Analysis); PR 833\_2083 at 3-285-286 (Big Thorne FEIS).

<sup>21</sup> PR 833\_0969 (Forest Service 2000).

<sup>22</sup> FEIS at 3-136.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 3-161.

cumulative impacts on populations that are declining and vulnerable because of a variety of environmental conditions; (3) the FEIS failed to reflect an appropriate level of scientific analysis; and (4) the FEIS relied on unfunded, speculative mitigation measures.

**A. Objection Point 1: The FEIS violated NEPA by ignoring salmon population trends**

**1. Statement Referencing Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation**

Our DEIS comments explained that the Forest Service arbitrarily failed to discuss the current status of island fish populations or the relevance of salmon production trends across southeast Alaska.<sup>27</sup> We noted that 2016 was a pink salmon fishery disaster for southeast Alaska and identified serious concerns for the 2018 season.<sup>28</sup> A large part of the known problem was poor pink production in northern southeast Alaska inside waters, particularly during even year cycles.<sup>29</sup>

Commercial fishing regulatory districts in southern southeast Alaska – especially District 2 adjacent to Prince of Wales Island and District 1 near Ketchikan historically provided the majority of the pink salmon harvest during the even year cycle – as much as ninety percent of the harvest.<sup>30</sup> We added that significant restrictions were likely in northern southeast Alaska in 2018, heightening the importance of returns to Prince of Wales Island and other southern southeast Alaska pink salmon producing watersheds.<sup>31</sup> Our comments thus requested that the Forest Service prepare a revised DEIS that describes project area fishery resources and discusses the current status of salmon populations in southeast Alaska.

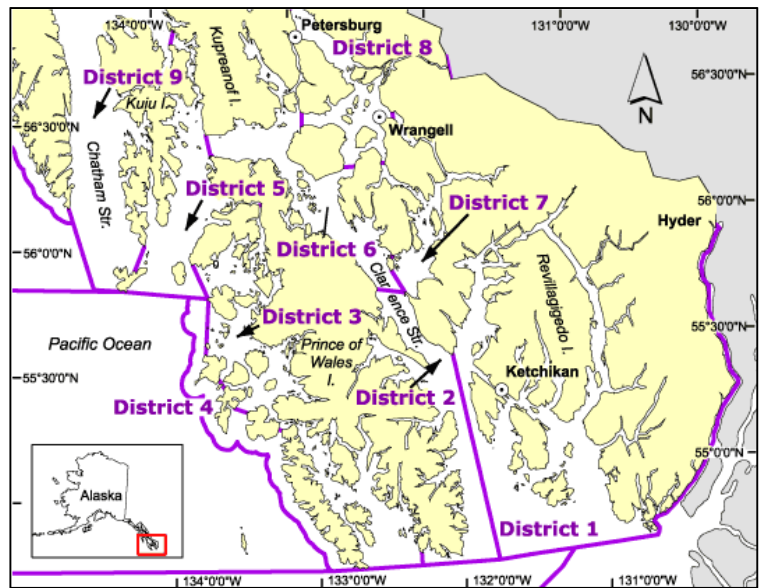


Figure 1. Map of ADF&G Commercial Fishing District numbers

As explained in the following discussion, the most staggering recent decline in pink salmon harvests was in Alaska Department of Fish and Game fishery regulatory District 2 – populations that spawn on in north central Prince of Wales Island watersheds that once formed the most productive pink salmon ecosystem in southeast Alaska. The FEIS relied on stale data and wholly ignored these concerns.

<sup>27</sup> PR 833-1610.

<sup>28</sup> Exh. 1 (Walker 2016).

<sup>29</sup> Exh. 38 (ADF&G 2018).

<sup>30</sup> Exh. 39 (ADF&G 2017).

<sup>31</sup> Exh. 41 (NOAA 2018); Exh. 42 (Viechnicki 2017a).



The proposed action will add 122 miles of new road construction within 300 feet of fish habitat, cause peak flow rate increases in nearly a quarter of the project area watersheds, increase risks of sedimentation and low summer stream flows, and add 436 stream crossings in areas where 477 red culverts already block nearly 100 miles of spawning habitat.<sup>32</sup> But the FEIS provides no analysis of impacts to individual fish populations or even island-wide fish populations. Instead, it notes that there are five salmon species that utilize the project area – and omits any analysis whatsoever.<sup>33</sup>

NEPA’s purpose is to “help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment.”<sup>34</sup> High quality information and accurate scientific analysis are essential to implementing NEPA.<sup>35</sup> An EIS must explain baseline conditions as part of the agency responsibility to “succinctly describe the environment of the area(s) to be affected ... by the alternatives under consideration” and “insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.”<sup>36</sup> Thus agencies must “consider every significant aspect of the environmental impact of a proposed action” and to “inform the public that it has indeed considered environmental concerns in its decisionmaking process.”<sup>37</sup>

The Responsible Official’s omission of any current harvest data or information about island salmon populations violated these requirements. NEPA does not permit the Forest Service to authorize large logging and road construction activities in salmon habitat without providing an analysis of impacts on fish species – particularly when the agency has some capacity and information to provide such an analysis.<sup>38</sup> The omission of such an analysis also violates NFMA by ignoring Forest Plan requirements to use management indicators to evaluate potential project activities affecting fish habitat.<sup>39</sup>

NEPA also imposes “a continuing duty to gather and evaluate new information” relevant to environmental impacts. [*Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1023-24 (9<sup>th</sup> Cir. 1980)]. The Forest Service must address the continuing and now starker decline in pink productivity in a supplemental EIS. The 9<sup>th</sup> Circuit explains that:

When new information comes to light, the agency must consider it, evaluate it and make a reasoned determination whether it is of such

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<sup>32</sup> FEIS at 3-135 – 3-143.

<sup>33</sup> *Id.* at 3-135.

<sup>34</sup> 40 C.F.R. § 1508.1(c).

<sup>35</sup> 40 C.F.R. § 1508.1(b).

<sup>36</sup> 40 C.F.R. § 1502.15; 1500.1(b); *N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1084 (9<sup>th</sup> Cir. 2011); *Oregon Natural Desert Ass’n v. Jewell*, (9<sup>th</sup> Cir. 2016)

<sup>37</sup> *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983).

<sup>38</sup> *Pacific Rivers Council v. U.S. Forest Serv.*, 689 F.3d 1012, 1025-1030 (9<sup>th</sup> Cir. 2012); PR 833\_2083 at 3-337 (Big Thorne FEIS); PR 833\_2085 at 3-135 (Logjam FEIS)

<sup>39</sup> Forest Plan at 4-12.

significance as to require implementation of formal NEPA filing requirements. Reasonableness depends on the environmental significance of the new information, the probable accuracy of the information, the degree of care with which the agency considered the information and evaluated its impact, and the degree to which the agency supported its decision not to supplement with a statement of explanation or additional data. [*Id.*].

Further, there is no indication that the Forest Service responded to public concerns about declining island pink populations in its analysis.<sup>40</sup> “Public scrutiny [is] essential to implementing NEPA,” making it incumbent on the agency to assess public comment on resource specific issues.<sup>41</sup> There must be some indication in the record that the agency provide a “reasoned discussion ... that would reflect how the agency considered, evaluated or rejected concerns.”<sup>42</sup> The FEIS violated NEPA by failing to respond to public comment.

## **2. Statement of supporting reasons**

### **a. Southeast Salmon 101**

Salmon depend on both marine and freshwater environments.<sup>43</sup> Spawning and rearing mostly occur in freshwater streams, and juvenile fish then migrate to marine environment to feed and mature before returning to their natal streams to reproduce.<sup>44</sup> Forests are vital to the productivity of aquatic ecosystems by controlling sediment inputs and regulating stream temperatures.<sup>45</sup> The productivity of marine habitat is variable and cyclical, increasing the importance of freshwater habitat in order to maintain salmon populations during times of unfavorable ocean conditions.<sup>46</sup> Fishery managers and state of Alaska management goals seek to minimize harvests in areas of anticipated weak returns.<sup>47</sup> In order to provide for escapement in times of weak returns, fishery managers implement spatial and temporal closures to reduce fishery impacts on individual salmon stocks.

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<sup>40</sup> USDA Forest Service. 2018. Prince of Wales Island Landscape Level Analysis Project Final Environmental Impact Statement Appendices C and D at D-28-29. R10-MB-833h.

<sup>41</sup> 40 C.F.R. §§ 1500.1(b), 1503.4(a)

<sup>42</sup> *Idaho Conservation League v. Guzman*, 766 F.Supp.2d 1066, 1075 (D. Idaho 2011).

<sup>43</sup> Exh. 48. U.S. Forest Service. 1995. Report to Congress: Anadromous fish habitat assessment. Pacific Northwest Research Station, Alaska Region. R10-MB-279. We submitted this document with our DEIS comments but to the best of our knowledge and belief Forest Service personnel did not include it in the administrative record.

<sup>44</sup> *Id.*

<sup>45</sup> Exh. 119 Hicks, B.J. 2002. Gravel galore: impacts of clear-cut logging on salmon and their habitats. In: Harvey, B., and M. MacDuffee, editors. 2002. Ghost runs: the future of wild salmon on the north and central coast of British Columbia

<sup>46</sup> Exh. 48 (U.S. Forest Service 1995 Anadromous fish habitat assessment).

<sup>47</sup> Exh. 120 Gray, D., T. Thynes, E. Coonradt, A. Piston, D. Harris, and S. Walker. 2018. 2018 Southeast Alaska purse seine fishery management plan. Alaska Department of Fish and Game, Regional Information Report No 1J18-08, Douglas.

Southeast Alaska's ecosystems have historically supported the most productive and highly valued salmon fisheries in the world: commercial salmon fisheries, sport fisheries and subsistence harvests that sustain Alaska native cultures.<sup>48</sup> Spawning salmon also feed more than 50 species of animals and are particularly vital to the health of region's black and brown bear populations.<sup>49</sup> Numerous Pacific salmon stocks from Canada to California are declining or even facing extinction risks because of habitat loss.<sup>50</sup> Remaining watersheds on Prince of Wales Island if allowed to function as fish habitat are the most important part of the Alexander Archipelago ecosystem that is a primary refuge for a large proportion of wild salmon stocks remaining in the Pacific Northwest.<sup>51</sup>

**b. The FEIS ignored declines in Prince of Wales Island pink salmon populations**

The FEIS states that "overall trends in Southeast Alaska commercial harvests from 1960 to 2016, including for coho, pink, chum and sockeye salmon, do not indicate specific downward trends in these populations, or specific trends that could be correlates with amounts of timber harvest activity."<sup>52</sup> There was no indication in the record that the Forest Service reviewed updated data provided by Objector regarding southeast Alaska's diminishing pink salmon returns. Forest Service personnel did not include those materials in the record. Instead, they developed only an index.<sup>53</sup>

The FEIS failed to recognize Prince of Wales Island as the most important island ecosystem in southeast Alaska for commercial fish production. Most of southeast Alaska's salmon production occurs in just over a quarter of Tongass National Forest watersheds These are the watersheds identified by the Alaska Department of Fish and Game as "Primary Fish Producers" - the core of sport, commercial, subsistence and ursine fisheries.<sup>54</sup> Across the entire region, 243 of 934 watersheds produce 60 percent of the pink salmon and 72 percent of cohos.<sup>55</sup>

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<sup>48</sup> Exh. 48. (U.S. Forest Service. 1995 Anadromous fish habitat assessment).

<sup>49</sup> Exh. 118 C.S. Shanley & D. Albert. 2014. Climate change sensitivity index for Pacific salmon habitat in southeast Alaska; Flynn, R.W., S.B. Lewis, L.R. Beier & G.W. Pendleton. 2007. Brown bear use of riparian and beach habitat on Northeast Chichagof Island: implications for streamside management in coastal Alaska. Alaska Department of Fish and Game Final Report. Douglas, AK: April 2007.

<sup>50</sup> Exh. 122 (M.D. Bryant & F.H. Everest. 1998. Management and conditions of watersheds in Southeast Alaska: the persistence of anadromous salmon).

<sup>51</sup> *Id.*; PR 833\_2040 (D. Albert & J. Schoen. 2007. A conservation assessment for the coastal forests and mountains ecoregion of southeast Alaska and the Tongass National Forest. In: Southeast Alaska Conservation Assessment, Ch. 2)(identifying Prince of Wales Island as providing the largest number of stream miles and habitat for pink, coho and sockeye salmon relative to other regional island biogeographic provinces).

<sup>52</sup> FEIS at 136.

<sup>53</sup> PR 833\_1972.

<sup>54</sup> 833\_1050 (ADF&G 1998 Tongass Fish and Wildlife Resource Assessment).

<sup>55</sup> *Id.*

Roughly a third of these high value, Primary Salmon Producer watersheds (POW 77) are on Prince of Wales Island.<sup>56</sup>

The FEIS fails to disclose serious declines in pink salmon populations across the region and particularly on Prince of Wales Island. The 2016 pink salmon return was a *declared federal fishery disaster* for all of southeast Alaska.<sup>57</sup> 2018 returns were even worse.<sup>58</sup> Across southeast Alaska the pink salmon run failed to meet even low expectations, with a 7.3 million fish harvest – the lowest since 1976 at over ten million fewer fish than fishermen caught during the 2016 disaster year.<sup>59</sup> Fishery managers anticipated a poor year - juvenile abundance indices developed by NOAA were the lowest since that agency began surveys and suggested extremely low harvests.<sup>60</sup> Fishery managers identify the marine heat wave in the Gulf of Alaska from 2013 through 2016 as a potential cause of the recent decline.<sup>61</sup> *Now, for 2019, fishery managers project the lowest odd-year harvest of 18 million fish in over three decades.*<sup>62</sup> There are also indicia of freshwater survival concerns.<sup>63</sup>

Southeast Alaska's most productive island ecosystems for salmon are north Prince of Wales Island, Kupreanof/Mitkof Islands, Revilla Island and East Chichagof Island.<sup>64</sup> Stocks have a distinct separation between the northern and southern portions of southeast Alaska.<sup>65</sup> Overall, even year cycles of pink salmon runs have historically been lower than odd years.<sup>66</sup> A significant downturn in the even-year cycle beginning in 2006 has worsened this disparity.<sup>67</sup> The last seven even-year cycles have produced just half of the historical average harvest.<sup>68</sup> The pink production has been particularly poor in northern southeast Alaska inside watersheds adjacent to Frederick Sound and Chatham Straits, and worsened during

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<sup>56</sup> *Id.*, Appx. A. These 77 watersheds have nothing to do with the Trout Unlimited “T-77” watersheds, many of which do not currently produce commercially relevant harvests due to both serious inherent flaws in the model used by Trout Unlimited and Trout Unlimited’s ongoing failure to validate its model results through comparisons with actual commercial harvests at relevant spatial and temporal scales).

<sup>57</sup> See <https://gov.alaska.gov/newsroom/2017/01/federal-government-declares-fishery-disaster-for-low-pink-salmon-harvest-in-gulf-of-alaska/>

<sup>58</sup> <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyfisherysalmon.bluesheet>

<sup>59</sup> <https://www.kfsk.org/2018/08/29/southeast-pink-salmon-catch-lowest-in-over-four-decades/>;  
<http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyfisherysalmon.bluesheet>

<sup>60</sup> Exh. 41 (NOAA 2018); Exh. 120 (Gray, D., T. Thynes, E. Coonradt, A. Piston, D. Harris, and S. Walker. 2018).

<sup>61</sup> Exh. 120 (Gray, D., T. Thynes, E. Coonradt, A. Piston, D. Harris, and S. Walker. 2018).

<sup>62</sup> Exh. 101 (ADF&G 2018).

<sup>63</sup> *Id.*

<sup>64</sup> PR 833\_2040 (D. Albert & J. Schoen 2007).

<sup>65</sup> Exh. 120 (Gray, D., T. Thynes, E. Coonradt, A. Piston, D. Harris, and S. Walker. 2018).

<sup>66</sup> U.S. Forest Service. 2016. Tongass Land and Resource Management Plan Final Environmental Impact Statement at 3-106, Figure 3.6-2.

<sup>67</sup> Exh. 117 Conrad, S. & D. Gray. 2018. Overview of the 2017 Southeast Alaska and Yakutat commercial, personal use, and subsistence salmon fisheries. Alaska Department of Fish and Game, Fishery Management Report No 18-01. Anchorage.

<sup>68</sup> *Id.*

even year cycles.<sup>69</sup> These poor returns have caused an ongoing failure to meet escapement goals in northern southeast Alaska inside waters.<sup>70</sup>

Prince of Wales Island provides over a thousand miles of pink salmon streams – *more than any other biogeographic province in southeast Alaska.*<sup>71</sup> Commercial fishing regulatory districts in southern southeast Alaska – especially District 2 adjacent to Prince of Wales Island and District 1 near Ketchikan historically provided the majority of the pink salmon harvest during the even year cycle – as much as ninety percent of the harvest.<sup>72</sup> There is readily available information showing that fishing in ADF&G regulatory District 2 – the east coast of Prince of Wales – has been exceptionally poor.<sup>73</sup> In both 2017 and 2018, some of the worst pink salmon production in southeast Alaska occurred in District 2. Indeed, fishery harvests in District 2 targeting Prince of Wales Island pink salmon have shown the most staggering declines in southeast Alaska.

**TABLE 1: DECLINES IN DISTRICT 2 PINK SALMON HARVESTS 2014-2018**<sup>74</sup>

Date	Pink salmon harvest per boat per opening	Notes
7/29/2014	9,400	
8/6/2014	19,512	
8/10/2014	15,882	
8/1/2015	8,000	
8/5/2015	21,667	Highest average in SE AK
8/9/2015	9,273	
7/29/2016	10,000	Highest average in SE AK
8/6/2016	5,556	
8/13/2016	3,800	
7/25/2017	125	<b>Lowest in SE AK</b>
8/2/2017	0	<b>Lowest in SE AK</b>
8/10/2017	0	<b>Lowest in SE AK</b>

<sup>69</sup> Exh. 38 (ADF&G 2018).

<sup>70</sup> Exh. 125 (ADF&G 2017, Heinl, S.C., E.L. Jones III, A. W. Piston, P.J. Richards, L. D. Shaul, B.W. Elliott, S.E. Miller, R.E. Brenner, and J.V. Nichols. 2017. Review of salmon escapement goals in Southeast Alaska, 2017. Alaska Department of Fish and Game, Fishery Manuscript Series No. 17-11; Exh. 120 (Gray, D., T. Thynes, E. Coonradt, A. Piston, D. Harris, and S. Walker. 2018); <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareasoutheast.salmon>.

<sup>71</sup> PR 833\_2040 (D. Albert & J. Schoen 2007).

<sup>72</sup> Exh. 39 (ADF&G 2017).

<sup>73</sup>[http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.search\\_results&mgmt=1&district=&spec=&gear=2&act=&year=2017](http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.search_results&mgmt=1&district=&spec=&gear=2&act=&year=2017); Exh. 39 (ADF&G 2017). See also Exhs. 37 (Fishermen’s News Online 2017) and 40 (Viechnicki 2017)(identifying concerns about 2017 poor pink returns in southern southeast Alaska and unknown causes of the poor returns).

<sup>74</sup> See Exhs. 101 – 117 (ADF&G purse seine fishery announcements showing pink salmon harvests by regulatory district during peak season openings).

8/7/2018	2,273	Lowest in SE AK
8/10/2018	2,750	2 <sup>nd</sup> Lowest in SE AK
8/14/2018	1,667	Lowest in SE AK

**c. The FEIS fail to assess impacts to POW coho & sockeye salmon populations**

The FEIS also fails to recognize that Prince of Wales is also the leading island ecosystem for coho and sockeye salmon. North Prince of Wales Island provides 1,904 stream miles of coho habitat, making it the most important island ecosystem for cohos which utilize a broad range of small stream habitats.<sup>75</sup> Scientists believe that North Prince of Wales Island karst landscapes are particularly productive for coho.<sup>76</sup> Coho salmon inhabit freshwater ecosystems for at least a year before migrating to the marine environment and most juveniles will remain in freshwater for two years.<sup>77</sup> The availability of rearing habitat – small streams, ponds, lakes and off-channel areas – is a key factor in the viability of coho populations and makes them vulnerable to changes in freshwater habitat.<sup>78</sup> Sockeye salmon can utilize various freshwater habitat types but most of southeast Alaska’s roughly 200 sockeye stocks spawn in systems that include lakes.<sup>79</sup> Lake-type juveniles often spend 1 to 3 years rearing in lakes.<sup>80</sup> Juvenile sockeye typically leave freshwater systems in the late spring and spend two to three years in the marine environment before returning to spawn.<sup>81</sup> By ignoring these species, the FEIS violated NEPA by failing to take a hard look at their specific habitat needs and how the Prince of Wales Island project would affect smaller headwater streams utilized by coho salmon and lake habitat utilized by sockeye salmon.

**3. Conclusion and Suggested Resolution**

The Responsible Official ignored a serious resource concern and failed to acquire valid, current data or include any discussion of Prince of Wales Island salmon populations in the FEIS, violating NEPA, the NFMA and the APA. The Reviewing Officer should direct the Responsible Official to prepare a Revised DEIS or an SEIS that considers the population status of island and southeast Alaska salmon populations and that recognizes uncertainties about the viability of the population.

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<sup>75</sup> PR 833\_2040 (D. Albert & J. Schoen 2007).

<sup>76</sup> Exh. 126 Bryant, M.D. & D.N. Swanston. 1998. Coho salmon populations in the karst landscapes of North Prince of Wales Island, Southeast Alaska. In: Transactions of the American Fisheries Society 127: 425-433.

<sup>77</sup> PR 833\_0971 (Halupka, K, M. Bryant, M. Willson, and F. Everest. 2000)

<sup>78</sup> *Id.*; Exh. 119 (Hicks, B.J. 2002).

<sup>79</sup> PR 833\_0971 (Halupka, K, M. Bryant, M. Willson, and F. Everest. 2000).

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

**B. Objection Point 2: The FEIS and ROD updates violated NEPA by failing to insure the scientific integrity of the analysis**

**1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation**

Defenders provided scientific studies and other reference materials identifying habitat loss caused by logging as a primary factor in the decline of Pacific salmon populations throughout their range. The description of direct, indirect and cumulative effects in the FEIS ignored specific impacts to salmon entirely. The minimal analysis was internally inconsistent, stating that the proposed action “would have moderate adverse effects to aquatic resources” and that the Forest Service “will ensure that no adverse effects to aquatic resources will occur.”

NEPA requires agencies to “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.” [40 C.F.R. § 1502.24]. The omission of any discussion of impacts to salmon makes clear that there was not an adequate review of relevant scientific information. NEPA required that the Forest Service defend its position that the project would not affect project area salmon populations. Among other things, Objector submits that the FEIS violated NEPA because it fails to discuss or review scientific opinion. NEPA requires the Forest Service to ensure that it has “fully contemplated the environmental effects of its action” and provided the public with sufficient information to review its conclusions.<sup>82</sup> The Forest Plan requires the agency to “[p]rovide the abundance and distribution of habitat necessary to maintain viable populations of existing native and desirable introduced species in the project area.” It is hard to see how the agency can meet this requirement under NFMA without assessing the species at all or identifying its key habitats.

The findings of actual scientists demonstrate the risks of salmon population declines associated with further loss of habitat caused by old-growth logging and road construction – yet the FEIS failed to consider, analyze, or respond to these risks, violating NEPA. The FEIS and ROD violated NEPA by failing to disclose known and likely environmental risks posed to the salmon or evaluate fundamental scientific uncertainties about the predicted consequences in the FEIS.<sup>83</sup> The following Statement of Supporting Reasons addresses specific uncertainties and unknown risks and other factors that were neither disclosed nor analyzed in the FEIS.

**2. Statement of supporting reasons**

The FEIS states that “overall trends in Southeast Alaska commercial harvests from 1960 to 2016, including for coho, pink, chum and sockeye salmon, do not indicate specific downward trends in these populations, or specific trends that could be correlates with amounts of timber harvest activity.”<sup>84</sup> The FEIS merely

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<sup>82</sup> *League of Wilderness Defenders*, 184 F.Supp.2d at 1068 (citing *Idaho Sporting Congress*, 137 F.3d at 1150).

<sup>83</sup> *Seattle Audubon Society v. Moseley*, 798 F.Supp. 1473, 1478, 1482 (W.D. Wash. 1992); *Ecology Center v. Austin*, 430 F.3d 1057, 1067 (9<sup>th</sup> Cir. 2005)(explaining that a general statement regarding possible impact and risk involved does not constitute a hard look).

<sup>84</sup> FEIS at 136.

acknowledges that changes in freshwater habitat, such as increased peak flows or sedimentation, may affect salmon but then concludes that it was not necessary to provide any further analysis.<sup>85</sup> The FEIS concludes that removing 650 million board feet of old and young growth trees and adding 122 miles of new road would present minor and short-term adverse effects to watersheds.<sup>86</sup>

Scientists have long recognized that industrial logging in anadromous watersheds has contributed to declines in salmon abundance and diversity.<sup>87</sup> There are strong negative correlations between logging road density, timber extraction and salmon productivity.<sup>88</sup> The record makes clear, for example, that island coho populations would be particularly susceptible to habitat changes because of the need for suitable rearing habitat, particularly smaller streams.<sup>89</sup> Logging related degradation of habitat quality “has contributed to a decline in abundance of coho salmon in [the Pacific Northwest].”<sup>90</sup> Similarly, NMFS has found that logging has:

..degraded coho salmon habitat through removal and disturbance of natural vegetation, disturbance and compaction of soils, construction of roads and installation of culverts. Timber harvest activities can result in sediment delivered to streams through mass wasting and surface erosion that can elevate the level of fine sediments in spawning gravels and fill the substrate interstices inhabited by invertebrates. The most pervasive cumulative effect of past forest practices on habitats for anadromous salmonids has been an overall reduction of habitat complexity from loss of multiple habitat components. Habitat complexity has declined principally because of reduced size and frequency of pools due to filling with sediment and loss of LWD (large woody debris).... As previously mentioned, sedimentation of stream beds has been implicated as a principal cause of declining salmonid populations throughout their range .... Several studies have indicate that, in [southern Oregon/northern California], catastrophic erosion and subsequent stream sedimentation [from major floods] resulted from areas which had been clearcut or which had roads constructed on unstable soils.<sup>91</sup>

The analysis in the FEIS ignores this body of science – implicitly suggesting that aquatic habitat in the Alexander Archipelago can support salmon despite degradation. The FEIS provides no scientific support for this implicit assumption. State fishery managers and Forest Service scientists have long urged the agency to

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<sup>85</sup> *Id.* at 134, 136.

<sup>86</sup> *Id.* at 3-156-157.

<sup>87</sup> 833\_1050 at 17 (ADF&G 1998).

<sup>88</sup> *See e.g.* PR 833\_0971 at 54, 58, 205 (Halupka et al 2000).

<sup>89</sup> *Id.* at 16, 54 (explaining that (the best coho habitat is small streams, beaver ponds, of-channel areas and lakes – complex habitat structure with abundant aquatic and bank cover and that small stream thermal regimes are particularly sensitive to disruption and offer fewer refuges).

<sup>90</sup> PR 833\_0971 at 54 (Halupka et al 2000).

<sup>91</sup> Endangered and Threatened Species: Threatened status for Southern Oregon/Northern California Evolutionarily Significant Unit (ESU) of coho salmon. 62 Fed. Reg. 24588 at 24593 and 24599. May 6, 1997.



adopt site-specific analysis aimed developing a better understanding of ways to provide for long-term sustainability of southeast Alaska's fish populations.<sup>92</sup> The Forest Service has never undertaken this effort, making it impossible for the agency to detect whether or to what extent the agency has reduced salmon productivity in the region. Because most of logging in southeast Alaska coincided with the most highly productive fish habitat, there very well may be a significant but undocumented loss of salmon production from heavily logged watersheds.<sup>93</sup>

In stark contrast to the Responsible Official's implicit assumption that he can authorize further degradation of the region's most important island salmon ecosystem with minimal impacts are the cautionary warnings of scientists and fishery managers. More highly qualified Forest Service scientists from the 1990s have long anticipated that logging will cause some level of reduction in southeast Alaska salmon populations as timber harvests expose highly productive streams to significant risks.<sup>94</sup> Alaska Department of Fish and Game fishery managers also believe that decades of logging have reduced habitat capability for coho salmon through alterations in stream channels, culverts that block fish passage on logging roads and effects on smaller streams.<sup>95</sup>

These concerns are consistent with the numerous scientific studies showing that clearcutting and timber road construction in salmon habitat harms habitat productivity for salmon.<sup>96</sup> These anthropogenic disturbances, which are cumulative across time and all forestland ownerships, "substantially" reduce habitat quality, even if there are forested buffers on known anadromous streams.<sup>97</sup> Buffers in southeast Alaska are too narrow and tend to blow down, losing their effectiveness over time.<sup>98</sup> Unbuffered, smaller streams classified as non-anadromous comprise the bulk of the stream mileage in southeast Alaska watersheds.<sup>99</sup>

Reduction in the value of salmon habitat occurs through the removal of natural vegetation, installation of culverts and reductions in habitat complexity.<sup>100</sup>

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<sup>92</sup> *Id.*

<sup>93</sup> Exh. 122 (Bryant & Everest 1998); PR 833\_0971.

<sup>94</sup> 833\_1050 at 17.

<sup>95</sup> Exh. 121 (Shaul, L., E. Jones, K. Crabtree, T Tydingco, S. McCurdy and B. Elliot. 2008. Coho salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 08-20, Anchorage).

<sup>96</sup> PR 833\_0966 (Gregory & Bisson 1997); PR 833\_0969 (USDA Forest Service. 2000. Forest Roads – a synthesis of scientific information (identifying degraded fish habitat by roads and a clear correlation between road density and fish production); PR 833\_0975 (discussing the need for riparian buffers on headwaters streams; Exh. 122 (M.D. Bryant & F.H. Everest. 1998); PR 833\_0971 (Halupka et al 2000); Firman, Julie C., et al.. 2011 Landscape models of adult coho salmon density examined at four spatial extents. In: Transactions of the American Fisheries Society, 140:2, 440-455. 2011. Available at: <http://dx.doi.org/10.1080/00028487.2011.567854>. Exh. 48 (U.S. Forest Service. 1995).

<sup>97</sup> Exh. 48 (U.S. Forest Service. 1995).

<sup>98</sup> *Id.*

<sup>99</sup> *Id.*

<sup>100</sup> Endangered and Threatened Species: Threatened status for Southern Oregon/Northern California Evolutionarily Significant Unit (ESU) of coho salmon. 62 Fed. Reg. 24588 at 24593 and 24599. May 6, 1997.

Sedimentation of stream beds caused by clearcutting and timber road construction in particular is neither negligible nor minor – it is a *major* cause of salmon population declines throughout the species’ range.<sup>101</sup> Timber roads increase sediment, degrade water quality, fragment habitat, and increase high temperature regimes.<sup>102</sup>

Importantly, it takes over a century for watersheds to recover from intensive logging and road construction, and short timber rotations cycles of less than 100 years prevent recovery: “[f]ew refuges remain in a watershed that fish can use during such widespread, intense, and recurrent disturbances.”<sup>103</sup> This means that the high levels of second growth logging authorized for this project may permanently degrade aquatic habitat and fish production. The FEIS never contemplates or discloses this concern.

Another major concern of fishery scientists is that high levels of habitat degradation may coincide with periods of low marine productivity, creating a potential for “double jeopardy.”<sup>104</sup> Intensively logged watersheds may have some habitat value during periods of high marine productivity, but these degraded habitats will be of lower value during periods of environmental stress.<sup>105</sup> Smolt production will likely be more variable in logged watersheds, and other environmental disturbances such as droughts, flooding or landslides will be more severe in logged watersheds.<sup>106</sup>

The double jeopardy scenario is present because of plans by the Forest Service and other landowners to continue and even accelerate intensive logging of old growth and immature recovering forests at a time when the region’s salmon production capacity is at risk due to multiple environmental factors. The most highly productive fish habitat in southern southeast Alaska overlaps with areas intensively managed for timber production.<sup>107</sup> These areas – particularly Prince of Wales Island - have also suffered habitat loss at a much greater rate than other portions of southeast Alaska.<sup>108</sup>

### **3. Conclusion and Suggested Resolution:**

In sum, the Responsible Official and the environmental analysis failed to adequately explain or provide convincing reasons in support of the effects determinations for salmon and further failed to provide the information necessary to understand and evaluate project impacts, in violation of NEPA.<sup>109</sup> The uncertainty and analytical flaws could be addressed through an EIS that discloses risks.

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<sup>101</sup> *Id.*

<sup>102</sup> U.S. Forest Service. 2000. Roadless Area Conservation Final Environmental Impact Statement at 3-163.

<sup>103</sup> Exh. 48 (U.S. Forest Service. 1995).

<sup>104</sup> *Id.*

<sup>105</sup> Exh. 122 (M.D. Bryant & F.H. Everest. 1998).

<sup>106</sup> *Id.*

<sup>107</sup> *Id.*

<sup>108</sup> PR 833\_2040 (D. Albert & J. Schoen 2007).

<sup>109</sup> *Ecology Center*, 430 F.3d at 1068.

**C. Objection Point 3: The ROD is arbitrary because the FEIS failed to consider cumulative impacts, particularly climate change effects on fish**

Warming trends have already occurred in Alaska.<sup>110</sup> The state overall has experienced significant temperature increases over the past century, warming twice as fast as the rest of United States, with a considerable reduction in extremely cold days and increase in extremely hot days.<sup>111</sup> Climate change is likely to impact southeast Alaska's natural capital through sea level rise, glacial retreat, increased storms, changing thermal regimes for freshwater and marine ecosystems, changes in rain and snowfall, and changes in distribution of plant and animal species.<sup>112</sup> Scientists expect average annual temperatures to continue to increase in southeast Alaska by the end of the century.<sup>113</sup> Temperatures in 2100 will be warmer by 6° to 8° Fahrenheit under an increasing greenhouse gas emission scenario, or by 4° to 6° Fahrenheit should greenhouse gas emissions substantially decrease.<sup>114</sup>

Scientists expect southeast Alaska will have the largest change in winter days above freezing in all of North America, which may have significant ecological effects as watersheds currently fed by snowpack will change into rain-fed systems.<sup>115</sup> Glacial-fed watersheds will shift to relying on snow melt and eventually also become dependent on rainfall.<sup>116</sup> This change likely means increased winter flows, reduced summer flows and higher temperatures all year.<sup>117</sup> The rain-snow transition zone will increase in elevation, resulting in less precipitation stored as snowpack.<sup>118</sup> Some climate models project a decline in precipitation for southeast Alaska in both summer and winter.<sup>119</sup> Evidence of this changing water balance is already appearing with quantifiable decreases in the number and area of some waterbodies.<sup>120</sup>

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<sup>110</sup> PR 833\_1142 (Wolken, J.M. et al. 2011. Evidence and implications of recent and projected climate change in Alaska's forest ecosystems. *Ecosphere* 2(11):124).

<sup>111</sup> PR 833\_0928 (Haufler, J.B., C.A. Mehl & S. Years. 2010. Climate change anticipated effects on ecosystem services and potential actions by the Alaska Region. U.S. Forest Service Ecosystem Management Institute, Seeley Lake, Montana, U.S.A.); **Exh. 130** [labeled as "Trainor 2014" on the DVD disk] (Chapin, F.S., III, S.F. Trainor, P. Cochran, H. Huntington, C. Markon, M. McCammon, A.D. McGuire, and M. Serreze. 2014. Ch. 22: Alaska. Climate change impacts in the United States: the third national climate assessment, J.M. Melillo, T.C. Richmond, and G.W. Yohe, Eds., U.S. Global Change Research Program, 514-536).

<sup>112</sup> PR 833\_0928 (Haufler, J.B., C.A. Mehl & S. Years. 2010); PR 833\_0933 (Shanley, C.S. et al. 2015)(explaining that "climate change impacts on ecosystem services related to fish and wildlife populations will undoubtedly influence their many beneficiaries in the region, which include subsistence, commercial and recreational users").

<sup>113</sup> PR 833\_0928 (Haufler, J.B., C.A. Mehl & S. Years. 2010); **Exh. 129** (Brinkman et al. 2014)

<sup>114</sup> Exh. 130 (Chapin, F.S., III, S.F. Trainor, P. Cochran, H. Huntington, C. Markon, M. McCammon, A.D. McGuire, and M. Serreze. 2014).

<sup>115</sup> PR 833\_0933 (Shanley, C.S. et al. 2015).

<sup>116</sup> *Id.* (identifying a likely shift toward higher winter stream flows and lower summer stream flows).

<sup>117</sup> *Id.*

<sup>118</sup> *Id.*

<sup>119</sup> Exh. 128 (E.A. Parson, L. Carter, P. Anderson, B. Wang, G. Weller. 2001. PR 833\_1142 (Wolken, J.M. et al. 2011).

<sup>120</sup> *Id.*

**1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation**

Our DEIS comments explained that there are serious concerns about salmon populations – particularly pink salmon - throughout the Alexander Archipelago, meaning that additional habitat loss or degradation implicated serious concerns about the viability of the species across its range.<sup>121</sup> Defenders’ DEIS comments explained that a revised DEIS was needed to assess the cumulative effects of climate change and habitat degradation and whether those impacts increase risks to project area salmonid species. The FEIS arbitrarily failed to consider the significance of the project and cumulative impacts.

NEPA’s purpose is to “help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment.”<sup>122</sup> High quality information and accurate scientific analysis are essential to implementing NEPA.<sup>123</sup> As part of this mandate, NEPA analysis must describe the affected environment in a way that compares the future state of the environment pending implementation of the proposed project.<sup>124</sup> This guidance necessarily entails consideration of climate change impacts based on available information.<sup>125</sup> The CEQ explains that:

The analysis of impacts on the affected environment should focus on those aspects of the human environment that are impacted by both the proposed action and climate change. Climate change can affect the environment of a proposed action in a variety of ways. Climate change can increase the vulnerability of a resource, ecosystem, human community or structure, which would then be more susceptible to climate change and other effects and result in a proposed action’s effects being more environmentally damaging. For example, a proposed action may require water from a stream that has diminishing quantities of available water because of decreased snow pack in the mountains, or add heat to water body that is exposed to increasing atmospheric temperatures. Such considerations are squarely within the realm of NEPA, informing decisions on whether to proceed with and how to design the proposed action so as to minimize these impacts, ultimately enabling the selection of smarter, more resilient actions.<sup>126</sup>

A cumulative impacts analysis “requires ‘some quantified or detailed information’ and ‘must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects.’” *Klamath-Siskiyou Wildlands Center v. BLM*, 387 F.3d 989, 993-94 (9<sup>th</sup> Cir. 2004)(citations omitted).

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<sup>121</sup> PR 833\_1610.

<sup>122</sup> 40 C.F.R. 1508.1(c).

<sup>123</sup> 40 C.F.R. 1508.1(b).

<sup>124</sup> 40 C.F.R. 1502.6, 1508.9.

<sup>125</sup> Exh. 123 (CEQ 2014).

<sup>126</sup> *Id.*

The Ninth Circuit has explained that individual impacts can have more significant impacts in relation to other impacts on overall species viability:

Cumulative impacts of multiple projects can be significant in different ways. The most obvious way is that the greater total magnitude of the environmental effects – such as the number of acres affected or the total amount of sediment to be added to streams within a watershed- may demonstrate by itself that the environmental impact may be significant. Sometimes the total impact from a set of actions may be greater than the sum of the parts. For example, the addition of a small amount of sediment to a creek may have only a limited impact on salmon survival, or perhaps no impact at all. But the addition of a small amount here, a small amount here, and still more at another point could add up to something with a much greater impact, until there comes a point where even a marginal increase will mean that no salmon will survive.

[*Klamath-Siskiyou Wildlands Center v. BLM*, 387 F.3d 989, 994 (9<sup>th</sup> Cir. 2004); see also *Pacific Coast Federation of Fishermen’s Associations v. NMFS*, 265 F.3d 1028 (9<sup>th</sup> Cir. 2001)(explaining that “[u]nless the effects of individual projects are aggregated to ensure that their cumulative effects are perceived and measured”, it was difficult to have any faith in regional wildlife viability conclusions).

The Ninth Circuit’s explanation of sediment impacts to salmon bears directly on how the Responsible Official should have addressed risks to individual salmon populations in the project area. The cumulative effects analysis in the FEIS failed to consider how the Prince of Wales Island logging project, in combination with population declines, declining marine productivity, a warming climate, and recent and planned federal and non-federal projects may reduce the island’s productivity for salmon.

## **2. Statement of Supporting Reasons**

The FEIS fails to analyze or consider appropriate management responses to climate change related watershed effects, including increased flooding and rain-on-snow events, changes in timing and magnitude of stream flow, freshwater thermal regimes and nutrient exports and shifts in anadromous salmon distribution and productivity. The cumulative effects conclusion for the proposed action ignored all these projected changes.<sup>127</sup> Indeed, the FEIS appeared to confuse cumulative effects with direct and indirect effects by simply restating those conclusions.<sup>128</sup> The failure to consider climate change effects on stream flow, temperature and other key components of freshwater habitat was clearly arbitrary and capricious in light of the findings of the southeast Alaska-specific studies and other scientific research.<sup>129</sup>

The Forest Service’s 1995 Anadromous Fish Habitat Assessment made numerous findings and recommendations related to reducing the impacts of

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<sup>127</sup> FEIS at 3-159.

<sup>128</sup> *Id.*

<sup>129</sup> *South Yuba River Citizens League v. National Marine Fisheries Service*, 723 F.Supp.2d 1247, 1273-74 (E.D. Cal. 2010).

industrial clearcut logging on salmon habitat in southeast Alaska. The Assessment explained that:

The cumulative effects of frequent disturbances in the Pacific Northwest have been shown to substantially reduce the quality of freshwater fish habitats resulting in negative consequences for species, stocks, and populations of fish that depend on them, even if coniferous cover is left in buffer strips along the fish-bearing streams. Fish-bearing streams represent only a small portion of stream mileage in any watershed. Because recovery of fish habitat from the effects of extensive logging in a watershed may take a century or more, recovery may never be complete if forests are clearcut harvested and watersheds are disturbed extensively on rotation cycles of about 100 years. Few refuges remain in a watershed that fish can use during such widespread, intense, and recurrent disturbances.

...Should freshwater habitats be degraded for long periods, *salmon and steelhead stocks will eventually be confronted simultaneously with low marine productivity and degraded freshwater habitat. The likely result of such double jeopardy could be high, long-term risk of extinction.*<sup>130</sup>

Given the changing climate and current trends in pink salmon production, this project would present the “double jeopardy” situation described above, and yet the FEIS failed to adequately disclose or discuss how this project could have long-term adverse impacts on commercial fisheries. We provided scientific analysis considering how the cumulative effects of climate change and habitat degradation increase risks to salmon populations.<sup>131</sup>

The FEIS asserts that it would address impacts to streams and aquatic organisms in the "Watershed Function – Aquatics" section.<sup>132</sup> But there it only provides one sentence, falsely stating that “increased summer temperature is much less of a concern than for more southerly regions due to the normal cool climatic conditions.”<sup>133</sup> It is unclear how the Forest Service arrived at this assumption given the rapid warming and related changes occurring in Alaska.

Climate-caused changes in stream flow will likely have primarily adverse effects on southeast Alaska salmon. Scientific studies project hydrological changes that will adversely impact southeast Alaska’s salmon populations.<sup>134</sup> Global climate change is likely to worsen the effects of habitat degradation by stressing salmon stocks and disrupting migration patterns, *decreasing summer stream flows and altering*

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<sup>130</sup> Exh. 48 (U.S. Forest Service. 1995).

<sup>131</sup> Exh. 43 (Bryant 2008).

<sup>132</sup> FEIS at 3-63.

<sup>133</sup> FEIS at 134.

<sup>134</sup> Exh. 118 (C.S. Shanley & D. Albert 2014).

temperature regimes.<sup>135</sup> High flows during winter increase embryo mortality, resulting in declining numbers of returning spawners.<sup>136</sup>

One of the more predictable aspects of climate change will be stream warming.<sup>137</sup> Decreased snowpack and changes in glacial system runoff will alter stream flow patterns that historically maintained cooler summer temperatures.<sup>138</sup> Stream warming will affect each salmon species in different ways, with moderately higher temperatures benefitting some life stages (perhaps increased biomass of smolts) while negatively affecting others.<sup>139</sup> High temperature events and late summer low stream flows which periodically occur in southern southeast Alaska are likely to become more common and even spread to northern southeast Alaska, increasing pre-spawning mortality for pink and chum salmon.<sup>140</sup> Temperature increases in freshwater systems will adversely affect coho and sockeye salmon at various stages of their life cycle.<sup>141</sup>

Increased storm strength and sea level rise will also reduce the amount of freshwater habitat and estuarine habitat available to all salmon species for spawning and rearing.<sup>142</sup> A primary concern for the marine environment will be the food web; pteropods – a primary prey species for salmon – may be at substantial risk since populations in increasingly acidic waters show “rapid and significant” shell dissolution.<sup>143</sup> Juvenile pink salmon in particular feed heavily on pteropods.<sup>144</sup> Warming ocean temperatures likely to result in smaller sized adults.<sup>145</sup>

### **3. Conclusion and Suggested Resolution**

The FEIS failed to analyze or disclose *real threats to fish, wildlife and vegetation resources* in the project area that will result from scientifically-recognized changes in climate. The FEIS failed to provide an adequate analysis of climate change impacts in the project area and consider the interplay between action alternatives and climate change in its analyses of direct, indirect and cumulative effects. The Reviewing Officer should direct the Responsible Official to prepare an additional NEPA analysis that evaluates and considers reasonably foreseeable effect of climate change on the frequency and intensity of storms, landslides, changes to precipitation patterns and

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<sup>135</sup> Exh. 43 (Bryant, M.D. 2008).

<sup>136</sup> PR 833\_0933 (Shanley, C.S. et al. 2015. Climate change implications in the northern coastal temperate rainforest of North America).

<sup>137</sup> Exh. 128 (E.A. Parson, L. Carter, P. Anderson, B. Wang, G. Weller. 2001. Potential consequences of climate variability and change for Alaska. In, Climate change impacts on the U.S. Foundation report, National Assessment Synthesis Team. April 2001. 618 pp. Ch. 10).

<sup>138</sup> PR 833\_0933 (Shanley, C.S. et al. 2015).

<sup>139</sup> *Id.*

<sup>140</sup> Exh. 43 (Bryant, M.D. 2008).

<sup>141</sup> *Id.*

<sup>142</sup> *Id.*

<sup>143</sup> Exh. 120 (J.T. Mathis, S.R. Cooley, N. Lucey, S. Colt, J. Ekstrom, T. Hurst, C. Hauri, W. Evans, J.N. Cross, R.A. Feely. 2015. Ocean acidification risk assessment for Alaska’s fishery sector).

<sup>144</sup> *Id.*

<sup>145</sup> PR 833\_0933 (Shanley, C.S. et al. 2015).

marine survival and evaluate the cumulative habitat loss from those forces combined with those from past, proposed and planned future federal and non-federal logging.<sup>146</sup> This flaw can be remedied by the preparation of a revised EIS.

**D. Objection Point 4: The FEIS fails to show how its proposed fish passage mitigation measures will be effective**

**1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation**

Defenders DEIS comments requested that the FEIS explain how the Forest Service intended to deal with the longstanding failure to address fish passage obstruction on the island. Efforts to analyze and prioritize red pipe replacement are meaningless absent the capacity to actually fix them.<sup>147</sup> The FEIS failed to take a hard look at mitigating measures, violating NEPA. “A mere listing of mitigation measures is insufficient to qualify as a reasoned discussion required by NEPA.”<sup>148</sup> “An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective .... A mitigation discussion without at least some evaluation of effectiveness is useless in making that determination.”<sup>149</sup> A statement of what the agency hopes will happen is inadequate to measure the effectiveness of mitigating measures.<sup>150</sup>

**2. Statement of Supporting Reasons**

Of particular concern is the statement that red pipes “may” be replaced or that action alternatives “allow” for replacing culverts.<sup>151</sup> Why “may”? Any Forest Service action to improve watershed function “must” prioritize fish passage improvements by replacing culverts. Indeed, the FEIS acknowledges that “[r]emoving or replacing Red crossings could have major (lasting for years) positive effects on aquatic organisms because access to upstream habitat would be restored/improved.”<sup>152</sup>

The “activity cards” and implementation process described in Appendices A and B to the FEIS provide little assurance that the Forest Service will do a better job with this project than it has under the Access and Travel Management Plan or subsequent timber projects. There is no funding for fish passage work, and the Forest Service delegates the decisionmaking process to the same group of timber industry interests that developed the proposed action. The record itself shows a massive amount of blocked habitat, and yet the Forest Service would not replace red pipes except

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<sup>146</sup> 40 C.F.R. 1502.22(b).

<sup>147</sup> FEIS Appx. D at D-93.

<sup>148</sup> *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380 (9<sup>th</sup> Cir. 1998).

<sup>149</sup> *S. Fork Bank Council of W. Shoshone Of Nevada v. U.S. Dep’t of Interior*, 588 F.3d 718, 727 (9<sup>th</sup> Cir. 2009).

<sup>150</sup> *National Trust for Historic Preservation et al, v. Suazo (D. Ariz. 2015)*.

<sup>151</sup> FEIS at 2-27.

<sup>152</sup> FEIS at 3-147.



through subsequent analyses that would identify a “need” based on impermissibly vague triggers.<sup>153</sup>

The issue of blocked culverts is so important to salmon habitat that tribes have sued the state of Washington in order to require it to fix barrier culverts in order to increase salmon populations in the region.<sup>154</sup> As explained by Earthjustice in an amicus brief filed on behalf of commercial fishermen in the state of Washington:

... because barrier culverts block access to habitat entirely, barrier removal is frequently the most effective recovery measure (and often the measure with the most immediate positive impact) when compared with other habitat recovery efforts, such as reforestation, repairing stream-straightening or channelization, or increasing flows. And obviously, other habitat restoration efforts will be futile if salmon are unable to access the restored habitat.

Earthjustice’s brief noted that the district court agreed that barrier culverts “have a significant total impact on salmon production” due to “a negative impact on spawning success, growth and survival of young salmon, upstream and downstream migration, and overall production.” Thus, removing them “provides immediate benefit in terms of salmon production, as salmon rapidly re-colonize the upstream area and returning adults spawn there.”<sup>155</sup>

Fixing red pipes is the most important activity that the Forest Service can do to support the regional economy. Commercial fishing is Alaska’s largest private sector employer overall, with 56,800 workers employed in commercial fishing, seafood processing and fishery management earning \$1.5 billion.<sup>156</sup> This state economy generates positive impacts throughout the United States, with national economic impacts estimated at \$12.7 billion.<sup>157</sup>

Southeast Alaska is one of the most important fishing regions in the state, with more fishery workers than any region other than the Bering Sea.<sup>158</sup> Indeed, seven of the top 100 fishing ports by value in the entire country are southeast Alaska communities.<sup>159</sup> All of these communities rely extensively on the productivity of Prince of Wales island watersheds and have suffered undocumented economic harm as a result of the Forest Service’s role as a regional landowner and its failure to assess fishery losses caused by habitat degradation.

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<sup>153</sup> See e.g. FEIS Appendices A, B.

<sup>154</sup> Exh. 43 (PCFFA 2017).

<sup>155</sup> *Id.*

<sup>156</sup> North Pacific Fishery Management Council. 2017. Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska and Bering Sea/Aleutians Island Area: economic status of the groundfish fishery off Alaska, 2016. Anchorage, AK. McDowell Group. 2017.

<sup>157</sup> *Id.*

<sup>158</sup> *Id.*

<sup>159</sup> <http://www.ufafish.org/wp-content/uploads/2018/09/Commercial-fishing-facts-ALL-IN-ONE-2016-v.7.0-REDUX.pdf>

There are roughly 2,700 commercial fishing permit holders and 2,400 crew members living in southeast Alaska communities.<sup>160</sup> Their harvests supported over 4,500 processing jobs, generating \$50 million in wages.<sup>161</sup> Earnings generated by commercial fishing support every business in southeast Alaska communities as well as a significant employment in the transportation, marine, academic and government sectors.<sup>162</sup> Economists estimate the total impact of commercial fishing, and processing jobs as more than \$700 million annually.<sup>163</sup>

Commercial fishery resources are critical to nearly all of southeast Alaska's 33 communities.<sup>164</sup> Many of the more remote communities such as Port Protection, Port Alexander and Pelican are historical fishing villages that rely almost exclusively on commercial fishing and new economic activity associated with sport fishing lodges.<sup>165</sup> Every resident of Point Baker has a fishing permit.<sup>166</sup> Historical native communities such as Hoonah, Klawock, Metlakatla and Yakutat also heavily rely on commercial fishing; in Yakutat more than a quarter of the population participates in commercial fishing.<sup>167</sup>

"Mid-sized" southeast Alaska communities of Haines, Petersburg and Wrangell are heavily dependent on commercial fishing and especially on the salmon fishery.<sup>168</sup> Petersburg is 29<sup>th</sup> ranked fishing port in the United States based on the economic value of Sea Bank assets harvested by its fishermen.<sup>169</sup> There are over 800 commercial fishing permit owners in the three communities who own 1,652 permits with nearly 1,000 vessels home ported.<sup>170</sup> More than one in every ten residents owns a fishing permit.<sup>171</sup> Including crew, over 1,300 individual fishermen live in the three communities with vessels generating over \$63 million in fishing income in 2016.<sup>172</sup> Sea Bank assets harvested by these fishermen supported over 1,400 processing jobs generating over \$15.5 million in wages.<sup>173</sup> Virtually every business in the three communities benefits from fishing dollars and state and local governments receive \$1.3 million in fishery business and landing taxes.<sup>174</sup>

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<sup>160</sup> *Id.*

<sup>161</sup> *Id.*

<sup>162</sup> *Id.*

<sup>163</sup> McDowell Group. 2017. The economic value of Alaska's seafood industry.

<sup>164</sup> 2016 TLMP FEIS at 3-537 – 3-691.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*

<sup>167</sup> <http://www.ufafish.org/wp-content/uploads/2018/09/Commercial-fishing-facts-ALL-IN-ONE-2016-v.7.0-REDUX.pdf>

<sup>168</sup> *Id.*

<sup>169</sup> *Id.*(Haines and Wrangell are both in the top 100 based on landings volume).

<sup>170</sup> *Id.*

<sup>171</sup> *Id.*; 2016 TLMP FEIS at 3-537 – 3-691;

<sup>172</sup> <http://www.ufafish.org/wp-content/uploads/2018/09/Commercial-fishing-facts-ALL-IN-ONE-2016-v.7.0-REDUX.pdf>

<sup>173</sup> *Id.*

<sup>174</sup> *Id.*; North Pacific Fishery Management Council. 2017. Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska and Bering Sea/Aleutians Island Area: economic status of the groundfish fishery off Alaska, 2016. Anchorage, AK. December 2017.

Prince of Wales Island is the third largest island in the United States with 4,200 residents living in 12 communities.<sup>175</sup> Commercial fishing is a “cornerstone” of the economy and current trends show increases in revenues and harvests.<sup>176</sup> There are 294 fishing permit holders and 274 crew, with roughly ten percent of the population participating in commercial fishing.<sup>177</sup>

The region’s three largest communities – Juneau, Ketchikan and Sitka – have diversified economies that rely on commercial fishing as the primary private sector small business generator and employer.<sup>178</sup> Sitka is 16<sup>th</sup> ranked fishing port in the United States by volume and value, producing 56 million pounds of seafood worth \$55 million in 2016.<sup>179</sup> Both Ketchikan and Juneau are among the country’s top 50 fishing ports.<sup>180</sup> There are over 2,300 permit holders and crew in the three communities – and 1,655 fishing boats.<sup>181</sup> Each community has multiple processing facilities which cumulatively employ over 2,500 workers earning over \$31 million in wages.<sup>182</sup>

Salmon is the most abundant and valuable seafood species for fishermen in southeast Alaska communities and supports 1 in 10 jobs in the region.<sup>183</sup> Lands managed by the Forest Service provide slightly more than half of southeast Alaska’s salmon catch.<sup>184</sup> Given these findings and recent declines in fishery outputs, we pointed out that a revised DEIS needs to evaluate losses associated with lost fishing revenues caused by logging and road construction. Habitat loss has a substantial impact on the commercial fisheries. It is possible to estimate the loss of salmon related economic values caused by logging and related road construction.<sup>185</sup> Canadian researchers in 2003 developed habitat values (which the authors described as conservative estimates) that ranged from \$.026 to \$1.40 per acre of watershed, or \$1,491 to \$7,914 per mile of spawning stream (converted to 2003 U.S. dollars – or

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<sup>175</sup> Rain Coast Data. 2016. Prince of Wales Alaska economy.

<sup>176</sup> Abrahamson, M. 2012. Prince of Wales area redefines its economy after the timber decline. In: Alaska Economic Trends. August 2012.

<sup>177</sup> <http://www.ufafish.org/wp-content/uploads/2018/09/Commercial-fishing-facts-ALL-IN-ONE-2016-v.7.0-REDUX.pdf>

<sup>178</sup> 2016 TLMP FEIS at 3-537 – 3-691.

<sup>179</sup> <http://www.ufafish.org/wp-content/uploads/2018/09/Commercial-fishing-facts-ALL-IN-ONE-2016-v.7.0-REDUX.pdf>

<sup>180</sup> *Id.*

<sup>181</sup> *Id.*

<sup>182</sup> *Id.*

<sup>183</sup> *Id.*; <http://www.ufafish.org/wp-content/uploads/2018/09/Commercial-fishing-facts-ALL-IN-ONE-2016-v.7.0-REDUX.pdf> C.S. Shanley & D. Albert. 2014. Climate change sensitivity index for Pacific salmon habitat in southeast Alaska. McDowell Group. 2017.

<sup>184</sup> See 2016 LRMP FEIS PR Folder 769 02 000088, Exh. 13 at 11 (Alexander 2011).

<sup>185</sup> Exh. 47, Foley, et al. 2012. A review of bioeconomic modelling of habitat-fisheries interactions. In: International Journal of Ecology, Vol. 2012. Doi:10.1155/2012/861635; Exh. 45, Knowler, D. et al. 2001. Valuing the quality of freshwater salmon habitat – a pilot project. Simon Fraser University. Burnaby, B.C.: January 2001; Exh. 45, Knowler, D.J., B.W. MacGregor, M.J. Bradford, and R.M. Peterman. 2003. Valuing freshwater salmon habitat on the west coast of Canada. In: Journal of Environmental Management, 69: 261-273 (Nov. 2003). Available at: [www.sciencedirect.com/science/article/pii/S0301479703001543](http://www.sciencedirect.com/science/article/pii/S0301479703001543).

roughly \$10,000 per mile of spawning stream today).<sup>186</sup> A 1988 study identified significant economic losses to salmon fisheries caused by logging and road construction on just 21% of the Siuslaw National Forest.<sup>187</sup> The author noted that even “while improved timber harvesting practices of leaving buffer strips and use of better road design have reduced the extent of fisheries losses, there are still substantial ‘unavoidable’ losses associated with timber harvesting.” Another study found that “if habitat improvements resulting from salmon-related logging restrictions generated one additional fish for the recreational fishery per year per acre for the foreseeable future, the asset value of the habitat would be about \$2,800 per acre” or seven times the forgone timber asset value of the land.<sup>188</sup>

### **3. Conclusion and suggested resolution**

Fixing fish passage obstructions is an obligation under the Clean Water Act and Alaska state law, and that there is a NEPA obligation to develop an alternative or mitigation measure that *effectively* addresses fish passage problems. The Reviewing Officer should direct the Responsible Official to rescind the Draft ROD with instructions to develop a funded and mandatory alternative that repairs all red pipes in the project area.

#### **E. Objection Point 5: The FEIS ignores impacts to salmon dependent wildlife species**

##### **1. Statement Referencing Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Specifically Violate Law or Regulation**

Defenders scoping comments requested that the FEIS discuss *black bear* abundance trends, disclose future losses of black bear summer habitat and denning habitat and impacts of human caused disturbances to bears.<sup>189</sup> Black bear, *ursus americanus*, are an umbrella species with large area requirements and varied habitat uses, including riparian areas, estuaries and old-growth forests. The health of black bear populations is an indicator of overall ecosystem integrity.

NEPA’s purpose is to “help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment.”<sup>190</sup> High quality information and accurate scientific analysis are essential to implementing NEPA.<sup>191</sup> An EIS must explain baseline conditions as part of the agency responsibility to “succinctly describe the environment of the area(s) to be affected ... by the alternatives under consideration” and “insure that environmental information is available to public officials and citizens

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<sup>186</sup> Exh. 45 (Knowler et al. 2003).

<sup>187</sup> Loomis, J.B. 1988. The bioeconomic effects of timber harvesting on recreational and commercial salmon and steelhead fishing: a case study of the Siuslaw National Forest. In: Marine Resource Economics, Vol. 5; 43-60 (1988). This article can be reviewed in its entirety (but not downloaded) at [www.jstor.org/stable/42871964?seq+2#page\\_scan\\_tab\\_contents](http://www.jstor.org/stable/42871964?seq+2#page_scan_tab_contents). We request that the Forest Service obtain this study and include it in the planning record.

<sup>188</sup> Exh. 44 ECONorthwest. 1999. Salmon, timber and the economy. Numbers in 1999 dollars.

<sup>189</sup> PR 833\_0105.

<sup>190</sup> 40 C.F.R. § 1508.1(c).

<sup>191</sup> 40 C.F.R. § 1508.1(b).

before decisions are made and before actions are taken.”<sup>192</sup> Thus agencies must “consider every significant aspect of the environmental impact of a proposed action” and to “inform the public that it has indeed considered environmental concerns in its decisionmaking process.”<sup>193</sup> The Forest Service is acting in an arbitrary and unlawful manner with regard to the Prince of Wales Logging Project’s impacts to black bears and the FEIS fails to show how the Forest Service can meet NFMA’s viability requirements given risks to existing and unanalyzed black bear populations.

## 2. Statement of supporting reasons

The FEIS does not directly address impacts to black bears at all, but simply lumps them in with other species.<sup>194</sup> The FEIS failed to analyze black bear habitat needs in any meaningful way. It relies on an arbitrary “50%” habitat threshold – even though the Forest Service has previously concluded that the Big Thorne Project would result in declines in black bear carrying capacity – and that there would be habitat falling below the 50% threshold in project area WAAs.<sup>195</sup>

The FEIS suggested that the project will not impact bears because of their dispersal capacity, but this ignores specific black bear habitat needs. Riparian habitats provide important habitat, especially during the late summer when bears concentrate along anadromous fish-bearing streams to harvest salmon.<sup>196</sup> Forested buffers alongside these streams are critical, especially for females.<sup>197</sup> Bears also utilize estuaries and beach fringe habitat for seasonal foraging needs.<sup>198</sup> Bears are vegetarian and carnivorous at different times, eating vegetation during early spring, deer fawns in late May and June, and consuming large quantities of salmon when available during summer and fall.<sup>199</sup> Salmon abundance in general results in larger, healthier bears and is critical to successful reproduction.<sup>200</sup> Bears have the highest vulnerability to human activities in low elevation riparian areas during summer months. Yet the FEIS never considers these impacts – a particularly egregious failing now that black bears may be using more energy to pursue declining numbers of pink salmon, while possibly getting less for the effort.

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<sup>192</sup> 40 C.F.R. § 1502.15; 1500.1(b); *N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1084 (9<sup>th</sup> Cir. 2011); *Oregon Natural Desert Ass’n v. Jewell*, (9<sup>th</sup> Cir. 2016)

<sup>193</sup> *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983).

<sup>194</sup> FEIS at 3-180-181.

<sup>195</sup> PR 833\_2083 at 3-202-203(Big Thorne FEIS).

<sup>196</sup> Flynn, R.W., S.B. Lewis, L.R. Beier & G.W. Pendleton. 2007. Brown bear use of riparian and beach habitat on Northeast Chichagof Island: implications for streamside management in coastal Alaska. Alaska Department of Fish and Game Final Report. Douglas, AK: April 2007. While this study is specific to brown bears, it also describes black bear habitat needs.

<sup>197</sup> *Id.*

<sup>198</sup> *Id.*

<sup>199</sup> Bethune, S. 2011. Unit 2 black bear management report. Pages 67-95 in P. Harper, editor. Black bear management report of survey and inventory activities 1 July 2007-30 June 2010. Alaska Department of Fish and Game. Project 17.0 Juneau, Alaska.

<sup>200</sup> Flynn, R.W., S.B. Lewis, L.R. Beier & G.W. Pendleton. 2007 (Bears prefer no-cut, closed-forest buffers along salmon spawning streams to other habitats; landscape alteration displaces females first).

Wildlife managers believe that *black bears also select for large-tree old-growth forest habitat* and expect population declines to occur with further losses of old-growth forest. The availability of adequate den sites to black bear survivability and reproductive success is critical.<sup>201, 202</sup> There is considerable re-use of existing den sites, which may indicate in part a lack of adequate alternative sites.<sup>203</sup> Yet the FEIS never considers denning habitat or impacts to that habitat.

Hunters, mostly from outside Alaska, take most of the black bear harvest from central southeast Alaska islands (Kupreanof and Kuiu) and Prince of Wales Island.<sup>204</sup> The largest area of quality black bear habitat is on Prince of Wales Island because of the number of salmon streams, large estuaries and lower elevation subalpine areas.<sup>205</sup> Unlogged portions of the island provide some of the best black bear habitat in southeast Alaska.<sup>206</sup> However, the greatest extent of clearcut logging has occurred on Prince of Wales Island, with over 475 square miles of forested black bear habitat cut over the past century, including over 40% of the old growth forest.<sup>207</sup>

There are concerns about population declines in central southeast Alaska and on Prince of Wales Island.<sup>208</sup> Hunter harvests and skull sizes have declined considerably over the past decade.<sup>209</sup> State biologists speculate that the population decline may be evidence of reduced carrying capacity due to habitat loss and consider logging to be the most serious long-term threat to black bear habitat.<sup>210</sup>

### **3. Conclusion and suggested resolution**

The Reviewing Officer should direct the Responsible Official to prepare a revised EIS that evaluates black bear population status and trends and identifies project impacts to specific ecological needs and other risks.

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<sup>201</sup> Degayner, E.J., M.G. Kramer, J.G. Doerr and M.J. Robersten 2005. Windstorm disturbance effects on forest structure and black bear dens in Southeast Alaska. In: *Ecological Applications*, 15(4) 2005, pp. 1306-1316. Clearcutting can have a long-term adverse impact on site availability.

<sup>202</sup> Exh. 134, ADF&G 2015. Nesting brown bears in trees on Prince of Wales Island. Riley Woodford. Ak Fish & Wild. News. March 2015.

<sup>203</sup> Exh. 132 (Davis, A., A.N. Hamilton, A.S. Harestad & R.D. Weir. 2012. Longevity and re-use of black bear dens in managed forests of British Columbia. In: *The Journal of Wildlife Management* 76(3); 523-527; 2012. Black bears in coastal temperate rainforests rely on large diameter tree needed to hibernate through cool, wet winters that are challenging and limit the available structures for denning. “[b]road-scale harvests of late-successional forests may diminish the supply of dens for black bears”).

<sup>204</sup> Exh. 131 Bethune, S. 2014. Unit 2 black bear management report. Ch. 5, pages 5-1-5-26 in P. Harper, editor. Black bear management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game. SMR 2014-5. Juneau, Alaska.

<sup>205</sup> *Id.*

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> *Id.*

<sup>210</sup> *Id.*

### **III. The FEIS fails to assess harm done by second growth logging**

Defenders DEIS comments requested that the Forest Service reconsider its aggressive approach to second growth logging on Prince of Wales Island and assess the value of allowing those forests to recover to the point of attaining some old-growth habitat features of value for wildlife. The FEIS states that clearcutting second-growth forests would have positive effects relative to the current condition by increasing forage.<sup>211</sup> But overall, the Forest Service believes that clearcutting as much as half a billion board feet of second growth forest would benefit deer – indeed, the more, the better.<sup>212</sup> The Forest Service reasons that it is better to maintain thousands of acres as early seral habitat than to allow maturing forests on the cusp of understory initiation to complete the forest succession process and attain old-growth characteristics.<sup>213</sup>

The FEIS also fails to adequately consider that uncut or lightly treated second-growth forests can have some value for wildlife despite the limited availability of biological characteristics associated with old-growth forests.<sup>214</sup> In particular, wildlife will utilize second-growth forests in areas where there is a deficit of preferred habitats.<sup>215</sup> Maintaining these recovering forests would have multiple benefits to wildlife by reducing edge effects, extending the size of forested acres, enhancing interior habitat, reducing blowdown risks, reducing disturbances of nesting and breeding areas and providing refugia.<sup>216</sup>

The FEIS is so inadequate with regard to (1) how it considers forest succession, (2) the limited value of silvicultural treatments, and (3) other issues related to recovering second growth forests and wildlife *that a revised DEIS is necessary*.

#### **A. Objection Point 1: The FEIS fails to address the need for forest succession to meet long-term wildlife viability needs**

##### **1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation**

Defenders' DEIS comments explained that the Forest Service's analyses never squarely considered the value of no-action alternative in terms of the value of allowing the forest succession process to occur so that public forests will eventually develop old-growth habitat characteristics.<sup>217</sup> Indeed, the FEIS purposefully omits

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<sup>211</sup> FEIS at 222.

<sup>212</sup> *Id.* at 223.

<sup>213</sup> *Id.* at 222. Defenders recognizes that the Forest Service may authorize experimental second growth treatments as part of this project. However, even if these experiments were successful, Appendices A and B make clear there is no funding for these activities unless financed by timber sales. Defenders' submits that such mitigation is thus a nothing burger. Either low timber values or maladministration of timber funds to support timber sale purchasers will ensure that no funding is available for purported wildlife habitat improvements.

<sup>214</sup> PR 833\_0844 at 140 (Harrop-Archibald)

<sup>215</sup> *Id.*

<sup>216</sup> *Id.* at 141.

<sup>217</sup> The FEIS (p. 220) does insert a paragraph from our DEIS comments containing some of the scientific material purporting to acknowledge that The POWLLA project "may be inconsistent with the

any description of environmental effects of second-growth clearcutting impacts on wildlife.<sup>218</sup> The Forest Service’s indirect effects conclusions with respect to deer and other wildlife species are wrong. The CEQ regulations explain that indirect effects are effects “which are caused by the action and *are later in time or farther removed in distance, but are still reasonably foreseeable*” and “may include ... effects on air and water and other natural systems, including ecosystems.”<sup>219</sup> The analysis of impacts to management indicator species such as deer identifies short-term positive effects associated with creating forage through clearcuts or by establishing wildlife corridors.<sup>220</sup> But it arbitrarily fails to disclose or consider long-term impacts, violating NEPA. Defenders submits that it is impossible for the Forest Service to move forward with additional clearcutting on the island – including second-growth – because of these severe long-term impacts.<sup>221</sup>

Further, the Forest Service’s belief that maintaining early seral forests through clearcutting at a landscape scale would be beneficial rather than harmful to wildlife is wrong. The analysis in the FEIS is a significant departure from the findings of expert scientists who reviewed the impacts of short rotation forestry on wildlife habitat and a number of wildlife species. These prior assessments are incompatible with the analysis in the FEIS. An agency must “explain cogently the bases of its decisions” when it “departs directly from an earlier path” or when its environmental assessments are in conflict with previous findings.<sup>222</sup> The findings in previous risk assessments are relevant data, triggering the need for the Forest Service to “examine that relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.”<sup>223</sup>

Nor does the FEIS address the long-term habitat impacts in any meaningful way; it merely identifies 20 – 50 percent old-growth habitat thresholds without considering long-term needs for the recovery of second growth forests. Broad habitat measurements do not demonstrate sufficient “knowledge of what quality and quantity of habitat is necessary to support the species” and ensure compliance with NFMA’s viability standards.<sup>224</sup>

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need to provide long-term understory forage production and habitat quality for wildlife” and, “over the long term, would result in some NFS land remaining at the stem exclusion stage or lower” and “can create a long-lasting deficit of wildlife habitat for a given watershed or region (Alaback 2010).” However, the indirect and cumulative effects conclusions in the FEIS are wholly inconsistent with these conclusions.

<sup>218</sup> FEIS at 3-177.

<sup>219</sup> 40 C.F.R. § 1508.8.

<sup>220</sup> FEIS at 222.

<sup>221</sup> 16 U.S.C. § 1604(g)(3)(E)(iv). NFMA’s directives on clearcutting mean that it is only acceptable in “exceptional circumstances” or, at a minimum, the Forest Service “must proceed cautiously in implementing an even-aged management alternative and only after a close examination of the effects that such management will have on other forest resources.” *Sierra Club v. Thomas*, 105 F.3d 248 (6<sup>th</sup> Cir. 1997); *Sierra Club v. Espy*, 38 F.3d 792, 799 (5<sup>th</sup> Cir. 1994).

<sup>222</sup> *Humane Society v. Locke*, 626 F.3d at 1040, 1049, 1051-1052 (9<sup>th</sup> Cir. 2010).

<sup>223</sup> *Id.*

<sup>224</sup> *Lands Council v. McNair*, 537 F.3d 981, 999 (9<sup>th</sup> Cir. 2008).



The inaccurate discussion in the FEIS – particularly the failure to analyze future conditions - violated NFMA, NEPA and the APA. There are significant risks of continued and serious wildlife population declines associated with further loss of habitat caused by old-growth logging and future logging of recovering forests – yet the FEIS failed to consider, analyze, or respond to these risks, violating NEPA. The FEIS failed to disclose known and likely environmental risks or evaluate fundamental scientific uncertainties about the predicted consequences.<sup>225</sup> The failure to adequately assess and respond to specific risks to the species also means that the Forest Service has failed to meet its species diversity requirements under NFMA.<sup>226</sup>

## **2. Statement of supporting reasons**

The decision to authorize the removal of thousands of acres of recovering forest that will become old-growth habitat creates an adverse impact that occurs “*later in time*” that warranted disclosure and analysis in the FEIS. As explained in Person and Brinkman’s 2013 study, “Succession Debt and Roads,” industrial scale clearcutting:

... will be paid for by long-term ecological consequences resulting from patterns and processes of forest succession and roads. There may be short-term benefits for some wildlife species, but succession debt implies that those benefits are ephemeral and do not reflect conditions for those species over the long term.<sup>227</sup>

Thus, although deer may benefit from new clearcuts during summer and mild winters, “the long-term prognosis is permanent loss of suitable foraging habitat.”<sup>228</sup> Maintaining landscapes in a young-growth condition will result in increased mortality risks to deer over time.<sup>229</sup> “Short rotation clearcut logging will reduce habitat capability for Sitka black-tailed deer.”<sup>230</sup> The FEIS assumes clearcutting thousands of acres of maturing second growth forest will be beneficial for wildlife in general and arbitrarily ignores these adverse impacts – whether “compromising continued succession towards old-growth conditions that support long-term habitat for deer” or potential utilization of mature second growth by Queen Charlotte goshawks for forage or even nesting.<sup>231</sup> Plans for massive clearcutting of maturing second growth forest fail to meet the long-term wildlife viability need to allow for a mix of forested habitats.<sup>232</sup> The delay of the forest recovery process, displacement caused by logging

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<sup>225</sup> *Seattle Audubon Society v. Moseley*, 798 F.Supp. 1473, 1478, 1482 (W.D. Wash. 1992); *Ecology Center v. Austin*, 430 F.3d 1057, 1067 (9<sup>th</sup> Cir. 2005)(explaining that a general statement regarding possible impact and risk involved does not constitute a hard look).

<sup>226</sup> 16 U.S.C. § 1604(g).

<sup>227</sup> PR 833\_0820 at 144 (Person & Brinkman 2013).

<sup>228</sup> *Id.* at 147.

<sup>229</sup> PR 833\_0703 (Farmer, J., D.K. Person & T. Bowyer. Risk factors and mortality of black-tailed deer in a managed forest landscape).

<sup>230</sup> Exh. 127 (Vallenar Exh. 9). Person, D. et al. 1996. Conservation Assessment for the Alexander Archipelago Wolf.

<sup>231</sup> PR 833\_0888 at 103 (FWS 2007); PR 833\_0847 at 18 (Interagency Wolf Habitat Management Program Recommendations for GMU 2 (2017)

<sup>232</sup> PR 833\_0837 at 47 (Hanley et al. 1987).

activities and impairment to travel corridors will have significant long-term adverse effects that the Forest Service unlawfully failed to consider in the analysis.

There are four stages of forest succession in previously clearcut forests in southeast Alaska: (1) stand initiation (1 – 25 years); (2) stem exclusion (25 – 150 years); (3) understory re-initiation (150 – 250 years); and old-growth forest (>250 years).<sup>233</sup> Many older second-growth stands in biogeographic provinces with high levels of past old-growth logging would recover fully into the understory re-initiation stage over the next 40 to 50 years. However, this project would delay this recovery process so that clearcut second-growth forests would require 50 to 60 years to reach the same inhospitable stand conditions present today, and another 40 to 50 years to recover into understory re-initiation structure. The Forest Service’s planned plantation rotation is 100 to 110 years old (or less) – preventing the “development of additional, quality habitat and increasing species extirpation risks across the landscape” over the long-term.<sup>234</sup>

*The Forest Service refused to convene a scientific panel or consult scientific experts regarding the short rotation logging plan proposed by the Tongass Advisory Committee – a group consisting primarily of engaged timber industry representatives, timber industry collaborator/”conservationists,” and a few bystanders.*<sup>235</sup> Given its composition, it is unsurprising that the Tongass Advisory Committee’s eagerness to clearcut massive swaths of immature, recovering forest *ignores* the scientifically established need to provide long-term understory forage production and habitat quality for wildlife.

As explained to the Forest Service during the 2016 Forest Plan Amendment process, setting succession back to its earliest stage will not advance old growth conditions and not be beneficial for any resource in the long-term.<sup>236</sup> One of the most important and early reviews of forest succession in southeast Alaska noted that “there are no data at this time to suggest that ... timber rotations less than 200 years will measurably increase either the diversity or productivity of understory vegetation over that typically found in old-growth forests.”<sup>237</sup> In other words, all of the alternatives, over the long-term, will result in federal lands remaining at the stem exclusion stage. Given this impact, the scale of recovering forest removals, particularly in light of the proportion of private and state logging in the planning area, *it was unreasonable to forgo a detailed analysis of the risk of creating a long-term habitat deficit.*

In Southeast Alaska there are many specific ecological factors which explain why logging can have such a negative impact on key wildlife species in this region. Most logging has occurred in low-elevation valley bottoms (<1000’) which provide critical habitat for wildlife, especially during times of heavy snow cover. Removal of old-growth forest and its

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<sup>233</sup> Exh. 18 (Alaback 1984).

<sup>234</sup> See, e.g. Exh. 29 (Iverson 1997); Exh. 30 (Degayner 1997); Exh. 31 (Iverson 1996a); Exh. 32 (Julin/USFS 1995); Exh. 33 (Iverson 1996b).

<sup>235</sup> See Exh. 26 at 19 (TAC 2015).

<sup>236</sup> Exh. 24 (Kirchhoff 2015).

<sup>237</sup> Exh. 18 (Alaback 1984).

replacement by second-growth forest affects winter habitat for deer in two specific ways: loss of snow shedding capability of complex old-growth canopies (effects mobility and foraging efficiency of deer) and loss of a productive understory plant community (provides forage quality and quantity). Although clearcut harvesting does produce an immediate flush of high quality understory biomass, it typically lasts only 10-25 years, and is not available to deer during periods of heavy snow. The greatest impact occurs three or more decades after logging, during the “stem exclusion” phase of forest stand development, when the densely stocked and rapidly growing young conifers shade out most of the important plant species for deer and other wildlife species. The stem exclusion phase lasts for as much as 150-200 years so can create a long-lasting deficit of wildlife habitat for a given watershed or region, unless an *effective* restoration strategy can be developed.<sup>238</sup>

Thus, it is clear that a logging plan which would indefinitely maintain planning area successional forests in the stem exclusion phase – in areas with an existing old-growth habitat deficit – is a significant problem. Scientific experts agree there is a significant difference between landscape scale clearcutting on a one hundred year rotation versus a 200 year rotation because of habitat features that emerge during the second century of forest succession.<sup>239</sup> Even in areas where there is some remaining old-growth habitat, “additional areas of older second-growth forest will have to be protected and allowed to recover to an old-growth state to ensure adequate representation of these forest types in the future, and to provide a continuous network of wildlife habitat.”<sup>240</sup>

**a. The FEIS fails to adequately address the need for maturing second-growth forested habitat for deer and wolves**

Expert scientific opinion in the record raises serious questions about the Forest Service’s reliance on providing wildlife habitat throughout the landscape in thinned second-growth stands. A 2018 study on Prince of Wales Island “demonstrate[s] that thinning treatments do not thus far appear to enhance habitat for wolves.”<sup>241</sup> There is widespread scientific agreement that thinning treatments at best may maintain understory forage for five to ten years – hardly enough to sustain wildlife through the long-lasting stem exclusion phase.<sup>242</sup> The interagency wolf habitat management plan identifies a need to reduce the scale of impacts to recovering second-growth forest so as to avoid “compromising continued succession towards old-growth conditions that support long-term habitat for deer.”<sup>243</sup> Thus it is better to pursue longer rotations

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<sup>238</sup> Exh. 20 (Alaback 2010).

<sup>239</sup> Exh. 29 (Iverson 1997); Exh. 30 (Degayner 1997); Exh. 31 (Iverson 1996a)

<sup>240</sup> PR 833\_0844 at 140 (Harrop-Archibald)

<sup>241</sup> PR 833\_0876 at 197 (Roffler et al. 2018).

<sup>242</sup> *Id.*.

<sup>243</sup> PR 833\_0847 at 13 (Wolf Habitat Management Program 2017)(identifying a “desired management condition of progressing stands toward old-growth conditions”).

with smaller openings so as to ensure retention of maturing forests to provide habitat features.<sup>244</sup>

One of the most significant adverse impacts to deer pertains to the need for varying habitat needs within seasons or even over periods of years, particularly for snow interception.<sup>245</sup> The Forest Service's myopic focus on forage in clearcuts arbitrarily fails to address key winter habitat needs:

For ungulates at temperate and higher latitudes, winter is often the limiting season for survival, when cold temperatures and snowfall restrict the availability of forage and increase costs of movement. In addition, vulnerability of ungulates to predators can be higher in snow-covered landscapes because of reduced nutritional condition and increased cost of movements for prey relative to predators. Subsequently, habitat selection of ungulates in winter can be strongly shaped by the landscapes of energetic costs and risk of death. *As snow depth increases, values of habitat to wildlife may be completely reversed from low-snow conditions.* As habitat types with abundant forage but little canopy cover to intercept snow become unusable, habitats with adequate forage and good canopy cover become preferred.<sup>246</sup>

There is little the Forest Service can do to address the need for forest cover to reduce snow accumulation other than allow juvenile trees to mature – indeed, silvicultural treatments will worsen the problem.<sup>247</sup> Deer do utilize older second-growth as snow depths increase.<sup>248</sup> As Person and Brinkman, explain, even if climate change results in milder winters, precipitation and extreme storm probabilities may increase, increasing risks of deep snow events that can substantially reduce deer numbers to low levels for extended periods of time.<sup>249</sup> Because Prince of Wales Island deer are susceptible to both wolves and occasional severe winter die-offs, the Forest Service's failure to plan for long-term winter range needs presents serious species-specific risks that the EIS fails to disclose or analyze.<sup>250</sup>

**b. Maturing second-growth forests provide habitat for Queen Charlotte goshawks**

The record is clear, for example, that new clearcuts do not provide forage for all wildlife species – fresh clearcuts will not provide foraging opportunities for Queen Charlotte goshawks, but stands in the understory initiation phases will provide improved foraging habitat and even nesting trees.<sup>251</sup> The analysis failed to consider

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<sup>244</sup> *Id.* at 14.

<sup>245</sup> PR 833\_0832 at 247 (Gilbert et al 2017).

<sup>246</sup> *Id.* (emphasis added)(internal citations omitted).

<sup>247</sup> PR 833\_0837 at 47 (Hanley et al 1989).

<sup>248</sup> PR 833\_0832 at 246 (Gilbert et al 2017).

<sup>249</sup> PR 833\_0820 at 149 (Person and Brinkman 2013).

<sup>250</sup> PR 833\_0836 at 16 (Hanley 1984).

<sup>251</sup> PR 833\_0848 (Iverson et al. 1996).

the additional risks associated with logging recovering second growth forests that the agency was aware or soon will be old enough to provide nesting habitat.

This project will likely maintain an excess amount of early seral forest (90 – 100 years old), increasing long-term viability risks to Queen Charlotte Goshawks. New clearcut and early seral stage habitats do not provide critical habitat features for Queen Charlotte goshawks.<sup>252</sup> In its 2007 Status Review, the Fish and Wildlife Service stated that “[f]orest management *must*... emphasize continued existence of *mature* and old forest to ensure preservation of the species.”<sup>253</sup> Scientists who considered the influence of forest rotations on the long-term viability of the species “generally agreed that older second growth resulting from timber rotations of 200 to 300 years could provide useful habitat, and would reduce risk to goshawks, as compared to 100-year rotations.”<sup>254</sup>

Moreover, the analysis failed to respond to these risks with an evaluation of timber rotations that would for the long-term address these risks. The review of the TLMP conservation strategy anticipated ecological rotations of 300 years as likely to sustain goshawks (i.e. 1/3 of the forest in second growth <100 years old, 1/3 of the forest <200 years old, and 1/3 >200 years old), but noted this scale masked localized effects which would create gaps in distribution.<sup>255</sup> The FWS anticipated that habitat quality could improve over the long-term as recovering forests mature – but not under a 100 year rotation as proposed here.<sup>256</sup>

If left alone, or thinned only from below, second-growth stands could provide suitable habitat in the long-term that equate to 15% of the habitat value of productive old-growth.<sup>257</sup> These findings are consistent with recent studies showing successful Queen Charlotte goshawk utilization of mature second-growth forests.<sup>258</sup> Further fragmentation, however, reduces the potential value of mature second growth for goshawk habitat needs.<sup>259</sup> The premature removal of recovering forests at the scale proposed in the FEIS significantly diverges from the assumptions about rotations the formed a critical part of the conservation strategy.

### **3. Conclusion and suggested resolution**

For the above reasons, the Reviewing Officer should direct the Responsible Official to produce a revised EIS that takes a hard look at forest succession and analyzes the value of allowing immature, recovering forests to provide long-term habitat values for wildlife.

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<sup>252</sup> PR 833\_0888 at 103 (FWS 2007).

<sup>253</sup> *Id.* (emphasis added).

<sup>254</sup> *Id.* at 105; *see also* Exh. 29 at 1-7 (Iverson 1997) (concluding that a 200 year rotation was most important for goshawk viability relative to reserve systems and un-even aged management options).

<sup>255</sup> PR 833\_0848 at 74 (Iverson et al. 1996).

<sup>256</sup> *Id.* at 76-78.

<sup>257</sup> PR 833\_0888 at 99 (FWS 2007).

<sup>258</sup> *Id.* at 102.

<sup>259</sup> *Id.*

**B. Objection Point 2: the FEIS fails to address uncertainties surrounding the purported benefits of its second growth logging “restorative” treatments**

**1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation**

Defenders’ DEIS comments explained that the Forest Service’s plan for logging recovering forests on the island are, at best, highly experimental with regard to potential impacts on forest resources. The Forest Service must consider uncertain risks associated with relying on thinning or similar treatments to mitigate adverse impacts to wildlife, given the uncertainty about impacts to wildlife and forest structure and significant uncertainties regarding the effectiveness of the treatments identified by scientific experts.<sup>260</sup> The FEIS failed to disclose these concerns at an “appropriate point” – the text of the FEIS.<sup>261</sup> The FEIS then failed “to explain the differences between the Forest Service’s view of likely impacts and the view of others in the scientific community.”<sup>262</sup>

In *Ecology Center v. Austin*, the Forest Service proposed commercial thinning and salvage logging projects in response to fire damage in portions of national forest land in Montana.<sup>263</sup> The Forest Service had concluded that the treatments would be beneficial to forest dependent species.<sup>264</sup> However, the court noted that the agency “had not yet taken the time to test its theory with any ‘on the ground analysis.’”<sup>265</sup> The court explained that:

Just as it would be arbitrary and capricious for a pharmaceutical company to market a drug to the general population without first conducting a clinical trial to verify that the drug is safe and effective, it is arbitrary and capricious for the Forest Service to irreversibly “treat” more and more old-growth forest without first determining that such treatment is safe and effective for dependent species. This is not a case in which the Forest Service is asking for the opportunity to verify its theory of the benefits of old-growth treatment. Rather, the Service is asking us to grant it the license to continue treating old-growth forests while excusing it from ever having to verify that such treatment is not harmful.<sup>266</sup>

**2. Statement of supporting reasons**

There is a limited number of peer-reviewed scientific studies regarding the efficacy of second-growth treatments. Those studies review thinning and gap treatments and provide no support for the proposition that ten acre patch clearcuts, or even commercial thinning, would benefit wildlife to the extent suggested in the

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<sup>260</sup> *Sierra Club v. Bosworth*, 510 F.3d 1016, 1031-32 (9<sup>th</sup> Cir. 2007).

<sup>261</sup> 40 C.F.R. §§ 1502.9, 1502.22; *Friends of the Earth v. Hall*, 693 F.Supp. 904, 924-25 (W.D. Wash. 1988).

<sup>262</sup> *League of Wilderness Defenders v. Forsgren*, 184 F.Supp.2d 1058, 1066 (D. Or. 2002).

<sup>263</sup> *Ecology Center v. Austin*, 430 F.3d 1057, 1061 (9<sup>th</sup> Cir. 2005).

<sup>264</sup> *Id.* at 1064.

<sup>265</sup> *Id.*

<sup>266</sup> *Id.*

analysis. While the Forest Service has recently initiated research regarding second-growth logging, it has not published the results, and there is a need for “much more” research.<sup>267</sup> The primary silvicultural studies reflect an historical focus on thinning treatments for tree growth and wood product quality rather than wildlife benefits.<sup>268</sup> Indeed, reviews of wildlife based silvicultural treatments in the record consistently describe the Forest Service’s work on wildlife habitat as “experiments” that are mere descriptions of results at one point in time.<sup>269</sup> Thus the agency’s understanding of the long-term consequences of these habitat manipulation experiments “is only in its infancy today.”<sup>270</sup> A recent 2017 study authored by five wildlife experts notes that the Forest Service has proposed treating older second growth stands but explains that “[c]urrently, there are no data for deer use of such treatments and their value is purely speculative.”<sup>271</sup>

Even in the Pacific Northwest, “[t]here is little research or operational experience, ... to validate successful outcomes of new silvicultural approaches being proposed and implemented for managing young-growth stands.”<sup>272</sup> Moreover, ten acre patch clearcutting does not mimic natural old-growth forest conditions where wind disturbance or small patches of tree mortality create canopy gaps, rather, clearcutting is a “major disturbance.”<sup>273</sup>

The 2008 TLMP FEIS acknowledged that “there are many unanswered questions on how to implement thinning treatments that provide a sustainable source of high value wood products while maintaining biological diversity.”<sup>274</sup> The Forest Service identified considerable experience with pre-commercial thinning as the “only intermediate treatment commonly used on the Tongass.”<sup>275</sup> There was “much less experience with other young-growth management techniques, such as pruning and commercial thinning.”<sup>276</sup> Thus, silvicultural prescriptions for recovering second-growth forests other than pre-commercial thinning were described as “experiments.”<sup>277</sup>

Pacific Northwest forest managers have moved forward with new approaches that seek to mimic characteristics of older stands, but even then there is considerable uncertainty:

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<sup>267</sup> Exh. 19 (Cole 2010).

<sup>268</sup> Exh. 20 at 3 (Alaback 2010)(explaining that thinning can be effective in improving wildlife habitat for up to a decade, but a key limitation on its effectiveness “is its relatively short longevity”); Exh. 21 at 39 (PNW 2002); 2016 LRMP PR 769\_05\_000506.

<sup>269</sup> PR 833\_0841 at 36 (Hanley et al. 2013).

<sup>270</sup> *Id.*

<sup>271</sup> PR 833\_0832 at 256 (Gilbert et al 2017).

<sup>272</sup> Exh. 21 at 39 (PNW 2002).

<sup>273</sup> Exh. 20 at 3 (Alaback 2010); Exh. 21 at 74 (PNW 2002).

<sup>274</sup> 2008 TLMP FEIS at 3-330.

<sup>275</sup> *Id.* at 3-329, 3-342.

<sup>276</sup> *Id.*

<sup>277</sup> *Id.* at 330.

No young-growth stands, however, have been managed for an extended period under these proposed alternative regimes. Thus, estimates of relative costs and benefits are based on major extrapolations from limited data. In addition, no experimentation has focused on how various factors (i.e., understory and overstory species composition, vertical and horizontal spatial distribution of trees, snags, and coarse woody debris (CWD) within a stand, and age-size distribution of trees) independently affect plant and animal populations, or how altering these factors will impact tree growth, stand differentiation, habitat functions, or the production of forest products.<sup>278</sup>

One of the most important and early reviews of forest succession in southeast Alaska noted that “there are no data at this time to suggest that silvicultural thinnings ... will measurably increase either the diversity or productivity of understory vegetation over that typically found in old-growth forests.”<sup>279</sup> The record shows that research related to wildlife habitat improvements associated with second growth treatments focuses on less destructive prescriptions. For example, single-tree selection can improve forage availability and summer habitat conditions relative to untreated stands in Southeast Alaska second-growth forests.<sup>280</sup> Implicit in their recommendation for conservation of old-growth for old-growth-dependent species is the need, given the existing and prospective deficit of old-growth, for forest succession to proceed past the stem exclusion phase.

Importantly, however, more recent research shows that these improvements associated with many thinning prescriptions may not be statistically significant, and confirms previous studies showing “only transient effects of thinning treatments on wildlife habitat.”<sup>281</sup> Efforts to evaluate measures to improve wildlife habitat in Southeast Alaska’s recovering forests should instead consider the creation of small, artificial canopy gaps up to a half acre in size – not ten acre clearcuts.<sup>282</sup> The artificial canopy gaps would likely result in stands “more similar to the patchy forest conditions that characterize old-growth forests.”<sup>283</sup> This type of prescription would be much more likely to achieve wildlife objectives than an untested experiment that would maintain large areas in stem exclusion:

For typical gap treatments, where as little as 5-10% of the area of the stand is treated, we estimate there will still be a 20-50% increase in deer carrying capacity. In theory as much as a 4 fold increase in deer carrying capacity could be achieved in the winter, or a doubling of summer carrying capacity if canopy gaps were increased to 50% of the stand area. In addition to these significant gains in habitat quality, canopy gaps would be expected to also be an important means to promote connectivity, dispersal habitat and to retain pockets of

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<sup>278</sup> Exh. 21 at 39 (PNW 2002).

<sup>279</sup> Exh. 18 at 3 (Alaback 1984).

<sup>280</sup> Exh. 21 (PNW 2002).

<sup>281</sup> Exh. 20 at 6 (Alaback 2010).

<sup>282</sup> Exh. 22 at 2-3 (Ott & Juday 2002).

<sup>283</sup> *Id.* at 4.



understory diversity that could aid reestablishment of diversity when stands are scheduled for other treatments such as commercial thinning.

...From an ecological standpoint there is much data and theory that supports the idea that forest biodiversity is generally enhanced by increasing forest heterogeneity as we done with creation of canopy gaps [citations omitted]. It makes sense that disturbances which create irregular openings are generally going to create a variety of ecological conditions which will provide habitat for a wider range of species than what would occur with more homogenous forest conditions (or more homogenous disturbances). There is considerable evidence that canopy gap formation is a major driver of ecological diversity in temperate rainforests in general. It should not be surprising then, that by creating small canopy openings, similar in size to what occurs in old-growth forests one can enhance habitat diversity following homogeneous disturbances such as clearcut logging.<sup>284</sup>

The interagency wolf habitat work group similarly identified the experimental nature of second-growth “logging for wildlife” treatments. The group notes that studies have assessed effects of thinning on understory response, but:

... research on effects of young-age thinning on use and vital rates of deer are more limited. To learn whether young growth treatments are having the desired effect and whether they can be improved, additional monitoring and research to evaluate population response of deer to young growth treatments are needed. The need to treat second growth forest presents an opportunity to experimentally test the effects of treatments on deer and other species. Some of the early efforts to treat young growth should be developed in an experimental framework to evaluate effectiveness of the treatments. Information from monitoring will assist and adaptive management and planning for subsequent treatments, and help avoid inadvertent creation of long-term impacts to deer habitat.”<sup>285</sup>

Further:

In timber lands “more small treatments as opposed to fewer large treatments, spread across larger or contiguous even-aged stands, can improve deer habitat value of the area. Staggering treatments in time (cutting only a small percentage of a large stand each decade, for example) can reduce fluctuations in deer habitat quality and help stabilize deer numbers.”<sup>286</sup>

Further, the length of the rotation is also important to consider when thinning for wildlife benefits because those full benefits may not accrue for over a century. For

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<sup>284</sup> Exh. 20 (Alaback 2010).

<sup>285</sup> PR 833\_0847 at 10 (Interagency Wolf Habitat Management Program Recommendations for GMU 2 (2017); *see also id.* at 11-12: “the influences of opening shapes and sizes on forage and deer response over time are not well understood”).

<sup>286</sup> PR 833\_0847 at 13.

example, snow interception by the forest overstory is critically important for the survival of Sitka black-tailed deer.<sup>287</sup>

Silvicultural treatments that promote an uneven height distribution, broad crowns, and large lateral limb development should improve the snow interception ability of individual trees. Over the short term, thinning 2<sup>nd</sup> growth will result in a more open canopy, increased snow accumulation, and a decline in winter habitat value for deer. However, over long time periods (>100 years), repeated thinning in managed stands may promote a multilayered canopy with large, dominant trees, similar to old-growth in function and appearance. Silvicultural treatments to improve snow interception capacity, therefore, should be directed at stands on productive sites that are scheduled for rotations >150 years.<sup>288</sup>

In a letter to the non-scientists from the Tongass Advisory Committee, deer expert Matt Kirchhoff explained that their rationale for “rehabilitating” recovering forests was “gibberish”:

By clearcutting, in any shape or size in a 70 – 90 year old stand, you are setting back succession to its earliest stage, and perpetuating an even-aged management regime on the land. Yes, it may be somewhat better for wildlife in the short term. But no, it will not advance old-growth conditions, and it will not be beneficial to any resource but timber in the long term.<sup>289</sup>

Kirchhoff also repeatedly questioned whether there was any scientific basis for the TAC’s assumptions that second-growth logging would shorten the time frame needed to attain old growth conditions.<sup>290</sup> In May 2015, a group of actual scientists, including some of the leading experts on southeast Alaska wildlife, wrote a letter to the timber bureaucrats and bystanders on the Tongass Advisory Committee. The scientists disagreed with the assumptions that now form the rationale for the proposed LRMP second-growth components:

- (1) there was very little research or experience in silvicultural treatments for older second-growth stands, and none of the available studies contemplated 10 acre clearcuts;
- (2) there is “no empirical research on secondary succession following clearcutting of young-growth forests in Southeast Alaska, and there is no theoretical reason to assume that it might be better for wildlife habitat than clearcutting old-growth forest;
- (3) artificial canopy gaps smaller than one acre may have some value in some applications, but these treatments “are ecologically distinct” from treatments used in timber sales;

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<sup>287</sup> Exh. 23 at 31 (Kirchhoff 1987).

<sup>288</sup> *Id.*

<sup>289</sup> *Id.* at 6.

<sup>290</sup> *Id.* at 7-8.

- (4) increased use of thinned stands by wildlife is not proven and may be misleading when it does occur
- (5) there is “no empirical data to support the contention that one can log 60 – 80 year young growth in ways that ... achieve desired wildlife benefits.”<sup>291</sup>

### **3. Conclusion and suggested resolution**

It is thus clear that the Forest Service has never studied what effects these treatments may or may not have in terms of mitigating impacts to wildlife or forest structure. The POWLLA is thus a plan “to act first and study later” despite uncertainty as to “whether the measures are sufficiently related to the effects they are designed to cure.”<sup>292</sup> The Reviewing Officer should direct the Responsible Official to prepare an EIS that addresses the risks and significant adverse environmental impacts associated with management that relies on second-growth clearcuts as a restorative or mitigative measure. There is no reasonable support for the efficacy of the treatments, and the courts have determined it unacceptable when a project poses, as here, a long-term risk that is caused by maintaining second-growth stands in the stem exclusion phase or earlier phases.<sup>293</sup>

#### **C. Objection Point 3: The FEIS failed to justify plans for logging in the beach fringe or other conservation areas**

##### **1. Statement Referencing Our Prior Written Comments and Content of Objection and Explaining How Decision and/or Analysis Violate Law or Regulation**

Our DEIS comments objected to POWLLA planning for second-growth logging in conservation areas.<sup>294</sup> The FEIS proposes to implement an unknown amount of logging in the beach fringe and other areas without analyzing the potential harms to these areas that provide critical ecological features for fish and wildlife.<sup>295</sup> Forest plan components authorize logging in old-growth habitat, riparian management areas and the beach fringe.<sup>296</sup> The plan assumes that logging will “improve or maintain fish and wildlife habitat by accelerating old-growth characteristics.”<sup>297</sup> These “improvements” will occur through “patch [clear]cuts” of up to 10 acres removing up to 35% of the forest in the beach and estuary fringe, and commercial thinning (removing up to 33% of the stand volume) in the beach fringe, riparian management areas and old-growth reserves. *There is no scientific support for the assumptions used to justify logging in these important conservation areas.*

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<sup>291</sup> Exh. 26 at 45-46 (TAC 2015).

<sup>292</sup> See, e.g. *National Parks & Conservation Ass’n v. Babbitt*, 241 F.3d 722, at 734 (9<sup>th</sup> Cir. 2001)(identifying “a paucity of analytic data to support the Park Service’s conclusion that the mitigation measures would be adequate in light of the potential environmental harms”).

<sup>293</sup> See *National Audubon Society v. Hoffman*, 917 F.Supp. 280, 289 (D. Vt. 1995)(finding a proposed mitigation measure “particularly troublesome” given the lack of support for its effectiveness and adverse project impacts on wildlife).

<sup>294</sup> See e.g. PR 833\_1199 at A-32 (DEIS, Appx. A).

<sup>295</sup> FEIS at 3-219.

<sup>296</sup> LRMP at 5-6.

<sup>297</sup> *Id.*

## **2. Statement of supporting reasons**

In December 2014, biologists with significant experience in southeast Alaska wildlife research and forest ecology, including involvement in the development and implementation of the conservation strategy, wrote the Forest Service and the TAC in order raise concerns about logging recovering forests in beach fringes, riparian areas and old growth reserves.<sup>298</sup> The experts explained that “[a]cre for acre, beach fringe and riparian are two of the most important habitats for sustaining wildlife populations on the Tongass.”<sup>299</sup> They opposed the changes, particularly in the absence of any review by actual scientists.<sup>300</sup> One of those experts, Matt Kirchhoff, wrote the TAC again the next year, and requested that it take the beach fringe and OGRs “off the table” except for “very limited” research.<sup>301</sup>

Again, in May 2015, a larger group of biologists, including some of the same experts, again addressed the TAC. Their letter reiterated that “[a]llowing commercial logging in [old-growth reserves, beach fringe buffers and riparian management areas] risks the integrity of [the conservation strategy].”<sup>302</sup> Given the significant concern about implementing 10 acre clearcuts in the beach fringe and other protected areas, the Forest Service *must prepare a revised EIS* that provides a NEPA-compliant analysis.

## **3. Conclusion and suggested resolution**

The analysis of logging in the beach fringe and riparian areas violated NEPA. The Responsible Official should direct the Reviewing Officer to prepare another EIS.

## **IV. The Purpose and Need for the POWLLA Project arbitrarily targets timber supply for Viking Lumber and disregards socio-economic changes**

Defenders concludes this objection by restating its DEIS comments, which explained that the Forest Service in reality selected an overly narrow purpose and need for this project – to support a failing timber economy. References to all other project components are misleading, violating NEPA. The decision to proceed with a massive timber project is arbitrary and based on an unreasonable interpretation of the socio-economic analysis in the FEIS. Defenders requests that the Reviewing Officer select the no-action alternative, and direct the Responsible Official to shift his focus from timber production to recreation management and deferred road maintenance.

The stated purpose of the project “is to improve forest ecosystem health on the Craig and Thorne Bay Ranger Districts, help support community resiliency, and provide economic development.”<sup>303</sup> The stated need is “to contribute to the economic

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<sup>298</sup> Exh. 27 at 1 (Alaback 2014).

<sup>299</sup> *Id.*

<sup>300</sup> *Id.* at 2.

<sup>301</sup> Exh. 24 at 2 (Kirchhoff 2015).

<sup>302</sup> Exh. 26 at 45-46 (TAC 2015).

<sup>303</sup> FEIS at 5.

viability of Prince of Wales communities by providing a sustainable level of forest products to help maintain the expertise and infrastructure of the timber industry.”<sup>304</sup> The FEIS also lists a number of other objectives, including maintaining or restoring fish habitat and maintaining ecosystems and habitat capable of supporting biodiversity and wildlife, but fails to show how the Forest Service will provide the funding and other resources needed to accomplish those objectives.<sup>305</sup>

Non-timber objectives are clearly subordinate to the true purpose of the POWLLA Project – providing 235 MMBF of old-growth timber for Viking and another 421 MMBF of second growth timber to raw log export markets. The actual purpose and need for the project is unreasonable – allowing Viking Lumber to further liquidate publicly owned forests will harm the economic viability of communities that depend on fisheries and wildlife. Further, there is no need to maintain current infrastructure or labor in a market-based economy. The southeast Alaska workforce has shifted to employment opportunities in other business sectors, making the “need” to maintain infrastructure and workforce superfluous. The actual habitat remediation needs – reducing sediment inputs into streams from the poorly maintained transportation system and repairing red pipes – are road construction projects for which there is existing local labor and infrastructure.

Defenders also questions the need to “manage” second-growth forest for products or other values given the longer-term benefits accruing from forest recovery and high costs associated with logging or otherwise managing second growth forests. Past, present and future intensive clearcutting of old-growth forests in the short-term and subsequently combined with plans to clearcut recovering forests over the long-term poses unjustifiable risks to Region 10 sensitive species, subsistence wildlife species such as deer, apex predators, salmon and unique, endemic wildlife species.

In particular, the Forest Service needs to consider whether the federal government can provide a better return from the public expenditures on POW land management activities made by local and national taxpayers. The timber-industry-favoring need statement continues a costly course of producing taxpayer-funded, large-scale old-growth timber sales as long as deemed necessary to maintain Viking Lumber’s large export business and small mill production, and then adds as a source of that subsidy the logging of recovering forests. The Forest Service needs to rescind this FEIS and instead commit agency resources to replacing all red pipes and addressing major sources of sedimentation on Prince of Wales Island.

The non-timber objectives of the Prince of Wales Landscape Level Analysis Project appear to be an empty promise. Can the Forest Service show that it has appropriated funds to achieve appropriate watershed and recreation objectives? Are the “restoration” needs dominated by thinning projects which primarily aim at timber industry objectives such as accelerating growth for future logging? Does the Forest Service intend to remove mature second growth trees in riparian, beach fringe or other sensitive areas and then experiment with mechanized equipment, and then place them in otherwise functioning watersheds during spawning season or other sensitive stages of the anadromous fish life cycle, and call this “restoration?” Simply

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<sup>304</sup> *Id.* at 7.

<sup>305</sup> *Id.* at 5-6.

put, Defenders does not trust the Forest Service to develop a cost-effective or environmentally acceptable approach to cleaning up the mess left by Viking Lumber and other timber operators, as long as the agency intends to integrate timber harvest with contrived restoration opportunities.<sup>306</sup> *Until the Forest Service develops realistic priorities that actually benefit salmon production and wildlife abundance* (such as red pipe replacement or even expensive treatments aimed at wildlife habitat needs such as small – less than an acre – canopy gap treatments), *the “restoration” “need” is just greenwashing the agency’s forest landscaping experiments.*

Defenders thus submits that the other components of the purpose and need are empty promises meant to obscure and greenwash the agency’s priority for timber development “over the competing environmental and recreational goals without justification sufficient to support the agency’s balancing of these goals.”<sup>307</sup> Defenders submits that actual purpose and need reflects an overly narrow focus on providing timber for one private entity – Viking Lumber Company. Even if the Forest Service could somehow remediate the damage Viking Lumber Company has done to the island in a cost effective manner, the decision to adopt the POWLAT recommendations to remove two-thirds of a billion MMBF of old growth and recovering forest from the island wholly undermines the value of such efforts.

The misleading purpose and need violate the Administrative Procedure Act (APA) and NEPA. NEPA requires federal agencies to disclose sufficient information as need to ensure “informed decisionmaking and informed public participation.”<sup>308</sup> NEPA requires that federal agencies (1) take a hard look at the environmental impacts of proposed projects and (2) ensure the availability of information to the public so as to enable public participation in the decisionmaking process.<sup>309</sup> In particular, NEPA analyses cannot serve this second essential function if they reflect misleading economic assumptions “by skewing the public’s evaluation of a project.”<sup>310</sup> NEPA thus requires that “[a]gencies shall insure the professional integrity ... of the discussions and analyses.”<sup>311</sup>

The failure of the FEIS to analyze relevant information subverted NEPA’s purpose of ensuring the availability of an “accurate assessment of the information” necessary to evaluate project impacts.<sup>312</sup> Further, the Administrative Procedure Act (APA) requires that an agency “examine the relevant data and articulate a satisfactory explanation for its action, including a “rational connection between the facts found and the choice made.”<sup>313</sup> An agency action is “arbitrary and capricious if the agency ... entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is

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<sup>306</sup> FEIS at 7.

<sup>307</sup> *Natural Resources Defense Council v. U.S. Forest Service*, 421 F.3d 797, 808 (9<sup>th</sup> Cir. 2005).

<sup>308</sup> 40 C.F.R. § 1502.1

<sup>309</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)

<sup>310</sup> *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d, 437, 446 (4<sup>th</sup> Cir. 1996).

<sup>311</sup> 40 C.F.R. § 1502.24.

<sup>312</sup> *Natural Resources Defense Council*, 421 F.3d at 812.

<sup>313</sup> *Motor Vehicle Manufacturers Ass’n v. State Farm Mutual Automobile Ins. Co.*, 463 U.S. 29, 43 (1983)

so implausible that it could not be ascribed to a difference in view or the product of agency expertise.”<sup>314</sup>

The FEIS fails these standards because it suggests the possibility of recreation projects and fixed fish habitat without ever analyzing whether or not the Forest Service has the capacity and funding to achieve any non-timber objectives. Further, the FEIS assumes that clearcutting two-thirds of a billion board feet will provide socio-economic benefits without analyzing the number of actual Alaskans employed by federal timber – or worse, the number of seafood products and visitor products providers who will suffer harm from further ecological degradation on the island.

The Forest Service is proposing a programmatic landscape scale project over an extended time frame that emphasizes old and second growth forest removals for Viking Lumber or some other raw log exporter. As explained by the CEQ, “the purpose and need statement for a programmatic review will differ from the purpose and need for a project- or site-specific EA or EIS.”<sup>315</sup> “The purpose and need for a [Programmatic] EA or a [Programmatic] EIS should be written to avoid eliminating reasonable alternatives and focused enough for the agency to conduct a rational analysis of the impacts and allow for the public to provide meaningful comment on the programmatic proposal.”<sup>316</sup>

The emphasis on providing timber for Viking Lumber in the need statement is an overly narrow purpose and need that would preclude alternatives that would respond to other, more important programmatic considerations. An agency “cannot define its objectives in unreasonably narrow terms.”<sup>317</sup> Congress enacted NFMA in part to respond to “widespread public distress and scientific concern over the Forest Service’s post-World War II shift to massive, heavily subsidized timber production in the National Forests.”<sup>318</sup> The goal was to ensure that timber production would not be the “sole objective” of the Forest Service and to direct forest managers to protect other resources such as fish and wildlife habitats.<sup>319</sup>

The Forest Service’s myopic focus on supplying timber for Viking at a massive public cost fails to recognize the market-based transition away from federal timber dependency and toward a more diversified and sustainable economy. The Forest Service’s economic program is dead; indeed, the industry is smaller than it was over a century ago.<sup>320</sup> Timber worker earnings are less than 1% of total employment

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<sup>314</sup> *Id.*

<sup>315</sup> CEQ. 2014. Memorandum for heads of federal departments and agencies: effective use of Programmatic NEPA reviews at 18. Council on Environmental Quality, Washington D.C. December 2014.

<sup>316</sup> *Id.* at 18-19.

<sup>317</sup> *City of Carmel-by-the-Sea v. U.S. Dep’t of Transportation*, 123 F.3d 1142, 1155 (9<sup>th</sup> Cir. 1997).

<sup>318</sup> *Sierra Club v. Peterson*, 185 F.3d 349, 353-54 (5<sup>th</sup> Cir. 1999)(*superseded* on other grounds, 228 F.3d 559 (5<sup>th</sup> Cir. 2000).

<sup>319</sup> S. Rep. 94-893, *reprinted in* 1976 U.S.C.C.A.N. 6662, 6671.

<sup>320</sup> See 2016 LRMP FEIS PR 769\_05\_000340 at 10 (Southeast Conference 2014).

related earnings in the region; federal timber generated a fraction of a percent (0.2%) of regional employment in 2013.<sup>321</sup>

The Forest Service needs to re-evaluate its response to the socio-economic data in the record and discussion in the FEIS and instead evaluate whether the federal government can better meet socio-economic needs on the island in another way. The FEIS neither analyzes whether a landscape scale clearcutting project would harm island communities nor whether an alternative economic model would yield a better return from the public expenditures on Prince of Wales Island land management activities made by local and national taxpayers. The timber-industry-focused need statement continues a costly course of producing taxpayer-funded, large-scale old-growth timber sales as long as deemed necessary to maintain Viking Lumber's large export business and small mill production and then shifts that subsidy to the logging of recovering forests.

By 2000, the pulp mills had closed and large timber corporations shifted their efforts to other countries after decades of commercial clearcutting of publicly owned forests in Alaska, reducing the viability of the federal timber economy on Prince of Wales Island.<sup>322</sup> It was clear that the role of federal timber in the island's economy would be smaller than in the past.<sup>323</sup>

As the pulp mill era ended, the Prince of Wales Island region sought to redefine its economy and developed other economic sectors for employment.<sup>324</sup> Economic planners recognized that the federal timber sale program "was heavily influenced by corporate and governmental policies and decisions that were external and largely indifferent to the community."<sup>325</sup> Thus, Prince of Wales Island communities began to pursue a market-based transition that would "support small locally based businesses and their existence, with hiking, hunting, fishing lodges, small gift shop and small seasonal café for tourists."<sup>326</sup> This effort identified the decline of the timber industry as an opportunity to shift into the maritime economy and visitor products industry in order to "provide the basis for the long-term viability of each community."<sup>327</sup> The island's road system which connects most of the island's towns and villages is a major competitive advantage relative to other southeast Alaska communities in terms of its extent and for attracting visitors for recreational opportunities around the island.<sup>328</sup>

Over the two decades following the end of the pulp mill era, the Prince of Wales Island area has redefined its economy around fishing and seafood and hospitality

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<sup>321</sup> *Id.* at 3; *Cf.* 2016 LRMP FEIS at 3-480, Table 3.22-2 (53,145 total jobs); *id.* at 3-485, Table 3.22-4 (federal timber provided 123 jobs)

<sup>322</sup> PR 833\_0587 (Alaska Economic Trends 2001).

<sup>323</sup> PR 833\_0587 (Alaska Economic Trends 2001).

<sup>324</sup> PR 833\_0588 (Alaska Economic Trends 2012).

<sup>325</sup> PR 833\_0503 at 1 (City of Coffman Cove Economic Recovery Action Plan 2002).

<sup>326</sup> PR 833\_0597 (Whale Pass Economic Recovery Plan and Action Plan 1997).

<sup>327</sup> PR 833\_0503 at 1-2 (City of Coffman Cove Economic Recovery Action Plan 2002).

<sup>328</sup> PR 833\_0586 at 7 (Alaska Economic Trends 1996); PR 833\_00587 at 6 (Alaska Economic Trends 2001).



businesses.<sup>329</sup> This market-based effort reflects regional economic trends showing that commercial fishing, the visitor industry and the maritime sector are the “bright points in our economy.”<sup>330</sup> These sectors have contributed to an overall growth in employment, population and wages following a market-based recovery from past dependence on timber industry employment.<sup>331</sup> Overall, employment, total income, per capita income and per-capita business earnings have increased in the region since 2000.<sup>332</sup>

Nature-based tourism generated more than \$30 million in gross revenues to Prince of Wales Island in 2007 – mostly from sport fishing.<sup>333</sup> By 2001, guided sport fishing became a primary economic sector:

The richness of Prince of Wales fishing grounds makes the island a dream destination for sport fishers. Guided saltwater sport fishing has developed into a thriving industry. The island’s many fishing lodges and burgeoning charter boat fleet suggest that the industry has the potential for even further growth.

The rehabilitated Waterfall Cannery remains the largest lodge on the island and the islands fifth largest employer. ... During peak summer months the lodge has more than 100 employees on the payroll. Recreational fishers are also attracted to the several lodges in and around Coffman Cove and Whale Pass where they can fish for salmon, halibut, and other saltwater species, or steelhead in the island’s freshwater streams.<sup>334</sup>

The interstate ferry system alone is a better income generator than the federal government, bringing 3,000 visitors to the island.<sup>335</sup> This type of economic impact accrues to the island because 21<sup>st</sup> century economic activity in Alaska relies on ecosystem values, particularly values associated with fish, wildlife, and scenery. In 2011, wildlife hunting and viewing generated 2,463 jobs in southeast Alaska, \$138 million in labor income and \$360 million in total economic output.<sup>336</sup>

In contrast to the failed timber program, funded federal programs that support recreation can make positive contributions toward enhancing the visitor economy. According to a recent peer-reviewed analysis, the National Park Service returns \$10

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<sup>329</sup> PR 833\_0588 (Alaska Economic Trends 2012).

<sup>330</sup> See 2016 LRMP FEIS PR 769\_05\_000340 at 1 (Southeast Conference 2014).

<sup>331</sup> *Id.* at 2-3.

<sup>332</sup> 2016 LRMP FEIS at 3-442, Table 3-279.

<sup>333</sup> Big Thorne FEIS at 3-454.

<sup>334</sup> PR 833\_0587 (Alaska Economic Trends 2001)(Waterfall employs more workers than Viking Lumber).

<sup>335</sup> PR 833\_0594 (Rain Coast Data 2017 (800 of these visitors were Ketchikan hunters; the 3,000 visitors stayed for an average of 12.7 days; 79% of the visitors came by ferry to fish; they spent \$10.2 million on hotels, food, activities for a total economic impact of \$14 million, generating 213 peak summer visitor industry jobs with and associated payroll of \$1.7 million; 41% of visitors fresh water fished; 32% hiked; 17% camped; 14% hunted; 19% pursued other types of recreation (caving, kayaking, cycling).

<sup>336</sup> See 2016 LRMP FEIS PR 763-05-00116 at 24 (EcoNorthwest 2014).

in direct visitor spending for every \$1 invested.<sup>337</sup> This return is 2000 times as high as the ½¢ per dollar return from the timber sale program. Alaska ranks third in the nation in spending and job support, with visitors to national parks spending \$1.06 billion and supporting 16,181 jobs.<sup>338</sup> The program supports 400 private businesses.<sup>339</sup> Overall, the visitor industry impact in southeast Alaska is massive and dwarfs the timber industry by an order of magnitude, with average visitor industry spending in excess of \$1 billion per year, providing between 10,200 and 10,900 jobs, with labor income impacts ranging from \$370 million to \$407 million.<sup>340</sup>

There are thousands of individual fishermen and seafood processing workers from southern and central southeast Alaska communities who harvest seafood adjacent to Prince of Wales Island.<sup>341</sup> Lands managed by the Forest Service provide slightly more than half of southeast Alaska's salmon catch.<sup>342</sup> Salmon hatcheries provide an additional 22 percent of the statewide salmon value, and are the largest agricultural industry in Alaska, providing hundreds of jobs.<sup>343</sup> By 2000, Prince of Wales Island fisheries saw increased effort in shellfish and dive fisheries.<sup>344</sup>

Socio-economic data show that Prince of Wales Island's population has rebounded over the past decade as a result of these changes.<sup>345</sup> Since 2010, there were population increases in nearly all Prince of Wales Island communities that once relied on timber corporations and the federal government for local employment.<sup>346</sup> The overall population, labor force and job earnings on Prince of Wales Island have all increased over the last five years at a higher rate than the rest of southeast Alaska.<sup>347</sup>

In contrast, the timber industry makes no positive economic contribution to the majority of southeast Alaska communities and the habitat damage it causes reduces economic outputs from their primary business sectors. Only two of the 24 smaller rural communities have any timber activity at all, while the rest depend

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<sup>337</sup> See 2016 LRMP FEIS PR Folder 763\_02\_000088, document 112 (Thomas et al. 2014).

<sup>338</sup> *Id.*

<sup>339</sup> *Id.*

<sup>340</sup> See 2016 LRMP FEIS PR 765\_05\_000334 at 8 (McDowell Group 2015).

<sup>341</sup> See Exh. 10 (UFA Fish Facts 2017).

<sup>342</sup> See 2016 LRMP FEIS PR Folder 769\_02\_000088, Exh. 13 at 11 (Alexander 2011).

<sup>343</sup> *Id.* at 13.

<sup>344</sup> PR 833\_0587 at 4 (Alaska Economic Trends 2001)(“commercial fishing [is] a cornerstone of the island's economy” with 416 permit holders and 374 active permits in the census area; harvesting secotr employment was 564 jobs for local residents).

<sup>345</sup> PR 833\_00583 (also showing per capita incomes and number of business licenses); \_00594 (Rain Coast Data 2017).

<sup>346</sup> See PR 833\_0488-0494; 0497-0498 (showing a cumulative ten percent population in all former federal timber colony communities except for Edna Bay and Naukati from 2010-2016 (2,125 residents increasing to 2,354); Edna Bay lost one resident over that time and Naukati lost nine residents). This data does not include the fishing villages of Port Protection and Point Baker; the project record does not include identical data for the commercial and sport fishing municipality of Craig).

<sup>347</sup> PR 833\_0594 (Rain Coast Data 2017); PR 833\_0588 (Alaska Economic Trends 2012).

primarily on fishing and tourism.<sup>348</sup> The amended Forest Plan FEIS addresses the needs of those two communities (both on Prince of Wales Island) separately with an old-growth set-aside for the cottage industry.<sup>349</sup> Larger communities such as Petersburg, Wrangell and Ketchikan have fully transitioned toward economies based on tourism and fishing.<sup>350</sup> Only Klawock has more than marginal timber industry activity, because of the presence of Viking.<sup>351</sup>

In sum, the purpose and need for the POWLLA Project – a two-thirds of a billion board foot timber sale – *is not a forest ecosystem health project at all*, but rather a massive timber sale with an overly narrow focus on providing a future timber supply for a failing large timber sale purchaser at the expense of federal and state taxpayers and small commercial fishing and tourism businesses in the region. The EIS begins with the false assumption that federal timber supply can maintain the industry. It then wrongly assumes that maintaining the existing industry would somehow benefit Prince of Wales Island rather than inhibit and delay significant and positive economic changes because of the transition toward recreation and fishery-based economies.

In other words, the POWLLA Project will do significant harm to the economic viability of southeast Alaska communities in general and further inhibit market-based economic growth on Prince of Wales Island by perpetuating a federal land use policy that has been unsuccessful for decades and inhibits the transition toward proven and successful 21<sup>st</sup> century southeast Alaska economic models. The Forest Service isn't planning this project for an industry in the conventional sense of businesses employing workers – this is merely a corporate welfare program for Viking that simultaneously supports a massive number of federal, state, and other for-profit and not-for-profit corporate bureaucrats.

For the above reasons, we request that any further planning of federal activity on Prince of Wales Island reflect a *new* purpose and need statement that reflects the broader economic and ecological needs of southeast Alaska residents and wildlife. For example, the Forest Service could develop a comprehensive plan to address water quality issues with an emphasis on red pipe replacement and remediating road conditions that cause excessive sediment input into streams.

## **V. New information concerning wolves on Prince of Wales Island**

A new paper concerning denning requirements of wolves on Prince of Wales Island became available this month. It is Roffler & Gregovich (2018), "Wolf Space Use During Denning Season on Prince of Wales Island, Alaska."<sup>352</sup> It concludes that "protection of den sites can be an important management strategy for maintaining viable wolf populations," and the study was conducted because "agencies are concerned protection buffer sizes might be inadequate." The study quantified the

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<sup>348</sup> 2016 LRMP FEIS at 3-547-3-689.

<sup>349</sup> *Id.* at 3-152.

<sup>350</sup> *Id.* at 3-613, 3-639, 3-684-685.

<sup>351</sup> *Id.* at 3-558, 3-617.

<sup>352</sup> Exh. 133. Roffler & Gregovich 2018, in *Wildlife Biology*, doi:10.2981/wlb.00468.

areas for denning season core and home ranges. It was conducted to provide more detailed information to the interagency Wolf Technical Committee, which has:

... delayed defining specific den buffer distances and the proportion of old-growth habitat (considered to be important for deer and wolf denning habitat) to be maintained within foraging areas pending development of and evaluation of new information.<sup>353</sup>

Roffler & Gregovich found that the distance from active den sites to the edge of core habitat ranged from 1186 to 6326 meters (~3900 to 21,000 feet), and for breeding wolves it ranged from 734 to 2308 meters (~2400 to 7600 feet). Significantly, "all distances exceeded the existing recommended den buffer distance" of 366 meters (1000 feet).

The "Management Implications" section contains several specific recommendations, summarized here:

- 1) For all wolves associated with an active den, the median distance between the den and the core home range edge was 3756 meters (~12,300 feet).
- 2) "Therefore, land managers working to protect den sites should consider expanding the much smaller guideline den site buffers in place now to this larger size."
- 3) "The shape of the protected polygon surrounding the den should be selected to maximize high quality denning habitat (flat, low elevation terrain, in old-growth forests, near freshwater and distant from high density road areas, Person and Russell 2009, Roffler et al. 2018). Therefore, the buffer width may vary to accommodate high-priority habitat but should not be less than 734 m (the minimum buffer width for breeding wolves)." [~2400 feet].
- 4) To maintain denning season foraging, "it is recommended the proportion of old-growth forest should not be reduced below the current values (61% of the core home range area for wolves associated with an active den).
- 5) "[E]xtending the restriction period to late July would be a conservative management action." (See reasons in the text.)
- 6) " Because wolves display a flexible response to road density throughout the year by avoiding areas with high road densities during denning season, but selecting these areas during winter (Roffler et al. 2018), timing is also a consideration in road closures as a management action."

#### **A. Conclusion and requested resolution**

This preliminary work, not yet evaluated by the Wolf Technical Committee (WTC) or others, suggests that protections provided by the current Forest Plan for wolf denning areas (and as a result for wolf population viability) are quite inadequate. This has a significant implication for the viability of the POWLLA project as presently conceived, including the forestland area and volume of timber (both old-growth and young growth) contemplated for cutting and the project's overall impact on wolves. We request the Reviewing Officer to direct the Responsible Officer to prepare a revised FEIS that incorporates the information and recommendations in the Roffler & Gregovich (2018) study and subsequent information and

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<sup>353</sup> Id. at 3, internal citations omitted.

recommendations the WTC may develop. It is crucial that the public have the opportunity to review and comment on a draft NEPA document that considers these issues and the new information, as required by NEPA.<sup>354</sup>

## **VI. Conclusion**

For the above reasons, Defenders requests that you direct the Responsible Official to rescind the draft ROD and FEIS with instructions to cease any further planning on this poorly conceived project. Any further action requires a new EIS with additional analysis.

Sincerely,

A handwritten signature in black ink that reads "Larry Edwards". The signature is written in a cursive style with a large, stylized "L" and "E".

Larry Edwards, President

December 31, 2018

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<sup>354</sup> 40 C.F.R § 1501.7(c).

# Alaska Rainforest Defenders

A regional environmental organization established in 2011 (formerly GSACC)

[defenders@akrainforest.org](mailto:defenders@akrainforest.org)

## **Appendix A: Exhibit List**

The exhibits were sent on a DVD disk by regular mail on December 31, 2018, while this objection letter is being submitted by email later the same day. The disk includes both new exhibits for the Objection (numbered starting with 101) and a *resubmission* of exhibits we timely submitted for our DEIS comments, but which were not in the objection-period planning record we received and are not in the planning record index.

A last-minute exhibit, Exh. 134, is being sent by email with the Objection letter.

We request that all of our DEIS and objection exhibits be included in the planning record and that they be individually listed in the planning record and administrative record indexes.

### **Contents of the DVD disk:**

#### **Folder: Exhibits for DEIS Comments (1-52)**

( Note: some file names in this folder are shortened to fit the DVD architecture being used for the Objection submission. )

Exh. 1 Walker 2016.pdf	12/19/2017	68 KB
Exh. 2 Mehrkens Declaration Signed with Exhibit A. 5-14-08.pdf	6/6/2018	456 KB
Exh. 3 PEER_1996_Stealing the Tongass & the Alaska rules.pdf	7/30/2017	820 KB
Exh. 4 4_3_17_Post_Harvest_Monitoring.pdf	6/10/2018	420 KB
Exh. 5 4_3_17_Timber_Sale_Review.pdf	6/10/2018	1.66 MB
Exh. 6 PEER 2017_USDA_IG_audit_request.pdf	7/30/2017	204 KB
Exh. 7 7_10_17_Nourse_memo (1).pdf	6/10/2018	192 KB
Exh. 8 7_10_17_Pendleton_U-turn.pdf	6/10/2018	112 KB
Exh. 9 Kosciusko GNA IG Complaint.pdf	6/10/2018	496 KB
Exh. 10 UFA 2017 Comm-Fish-Facts-CY'15-all-012017-v6.2-redo.pdf	4/28/2018	1.53 MB
Exh. 11 Jenkins 2017.pdf	6/11/2018	268 KB
Exh. 12 Forest_About_Logging_Harvest_Systems.pdf	4/6/2018	680 KB
Exh. 13 B.C. Forestry Sil468-2-2.pdf	4/6/2018	2.77 MB

Exh. 14 FM12-Mechanized-vs-Conventional-Logging.pdf	4/6/2018	68 KB	
Exh. 15 (Nichols 2017).pdf	6/12/2018	76 KB	
Exh. 16 Southeast Conference CEDS Sept 2017.compressed.pdf	6/12/2018	7.66 MB	
Exh. 17 testimony_dahlstrom.pdf	6/12/2018	116 KB	
Exh. 18 Alaback 1984.pdf	2/21/2016	476 KB	
Exh. 19 Cole 2010.pdf	2/21/2016	336 KB	
Exh. 20 Alaback 2010.pdf	2/21/2016	2.42 MB	
Exh. 21 PNW 2002.pdf	2/21/2016	2.73 MB	
Exh. 22 Ott Juday 2002.pdf	2/21/2016	420 KB	
Exh. 23 Kirchhoff 1987.pdf	2/21/2016	1.01 MB	
Exh. 24 Kirchhoff_2015__19-April letter to the TAC.pdf	2/21/2016	916 KB	
Exh. 26 TAC 2015.pdf	2/21/2016	3.17 MB	
Exh. 27 Alaback et al 2014.pdf	2/21/2016	676 KB	
Exh. 28 (D. Alaska 2018).pdf	6/11/2018	228 KB	
Exh. 29 (Iverson et al 1997).pdf	6/13/2018	1 MB	
Exh. 30 Degayner et al 1997.pdf	6/13/2018	0.98 MB	
Exh. 31 Iverson et al 1996.pdf	6/13/2018	684 KB	
Exh. 32 Julin 1998.pdf	6/13/2018	1.53 MB	
Exh. 33 Iverson 1996.pdf	6/13/2018	528 KB	
Exh. 34 Peer Statement.pdf	6/13/2018	1.42 MB	
Exh. 35 deer_smr_2015_3_chapter_4_unit_2.pdf	12/19/2017	248 KB	
Exh. 36 searac_fall2017_meeting_book_small.pdf	12/19/2017	17.8 MB	
Exh. 37 Fishermen's News 2017.pdf	6/17/2018	940 KB	
Exh. 38 2018_se_pink_salmon_harvest_forecast.pdf	6/13/2018	188 KB	
Exh. 39 ADF & G 2017.pdf	6/13/2018	2.54 MB	
Exh. 40 Viechnicki 2017.pdf	6/17/2018	960 KB	
Exh. 41 (NOAA 2018).pdf	6/17/2018	716 KB	
Exh. 42 (Viechnicki 2017a).pdf	6/17/2018	968 KB	
<b>Exh. 43</b> Bryant 2008.pdf	11/26/2014	720 KB	<i>[There are 2 exhibits labeled 43]</i>
<b>Exh. 43</b> pacific-coast-federation-of-fishermens-associations.pdf	10/30/2015	380 KB	<i>[There are 2 exhibits labeled 43]</i>
Exh. 44 EcoNorthwest 1999 PRC-RES-SalmonTimberEconomy.pdf	11/3/2015	252 KB	

Exh. 45 Knowler et al 2001.pdf	11/3/2015	436 KB
Exh. 46 Valuing Fw Salmon Habitat, Protected Areas Benefit.pdf	11/3/2015	52 KB
Exh. 47 Foley et al 2011.pdf	11/3/2015	1.25 MB
Exh. 48 AFHA 1995.pdf	4/22/2018	944 KB
Exh. 49 Review of 2017 GMU2 WHMP rept_Edwards.pdf	6/18/2018	96 KB
Exh. 50 Resubmit'g ARD Exhibs 1-33 of 8Aug2017, not in rec.zip	6/18/2018	72.4 MB
Exh. 51 LTF exhibits (containing exhib LTF-1 through 12).zip	6/18/2018	14.3 MB
Exh. 52 Law e-a 2018_LU clim chng strats for C-dense forest.pdf	5/3/2018	1.17 MB

**Folder: Additional Exhibits for FEIS-DROD Objection (101-133)**

Exh. 101 ADF & G 2018 pink salmon forecast.pdf	12/29/2018	272 KB
Exh. 102 ADF & G 7.25.2017.pdf	12/29/2018	456 KB
Exh. 103 8.10.2017.pdf	12/29/2018	456 KB
Exh. 104 ADF & G 8.7.18.pdf	12/29/2018	344 KB
Exh. 105 ADF & G 8.10.18.pdf	12/29/2018	348 KB
Exh. 106 ADF & G 8.14.18.pdf	12/29/2018	332 KB
Exh. 107 ADF&G 7.29.16.pdf	12/29/2018	264 KB
Exh. 108 ADF&G 8.6.2016.pdf	12/29/2018	272 KB
Exh. 109 ADF&G 8.5.2015.pdf	12/29/2018	316 KB
Exh. 110 ADF&G 8.9.2015.pdf	12/29/2018	308 KB
Exh. 111 ADF&G 8.2.17.pdf	12/29/2018	436 KB
Exh. 112 ADF&G 8.13.16.pdf	12/29/2018	332 KB
Exh. 114 ADF&G 7.29.14.pdf	12/29/2018	280 KB
Exh. 115 ADF&G 8.6.14.pdf	12/29/2018	276 KB
Exh. 116 ADF & G 8.10.2014.pdf	12/29/2018	284 KB
Exh. 117 Conrad & Gray 2018.pdf	12/30/2018	1.10 MB
Exh. 118 Shanley & Albert 2014.pdf	12/30/2018	1.07 MB
Exh. 119 Hicks 2002 .pdf	12/30/2018	1.58 MB
<b>Exh. 120</b> Gray et al 2018.pdf <i>[There are 2 exhibits labeled 120]</i>	12/30/2018	300 KB
<b>Exh. 120</b> Mathis 2015.pdf <i>[There are 2 exhibits labeled 120]</i>	12/30/2018	3.47 MB



Exh. 121 Shaul et al 2008.pdf	12/30/2018	504 KB
Exh. 122 Bryant and Everest 1998.pdf	12/30/2018	2.75 MB
Exh. 123 CEQ 2014.pdf	12/30/2018	276 KB
Exh. 124 Rhodes 2013.pdf	12/30/2018	808 KB
Exh. 125 ADF&G 2017.pdf	12/30/2018	956 KB
Exh. 126 Bryant & Swanston 1998.pdf	12/30/2018	168 KB
Exh. 127 Person et al 1996.pdf	12/31/2018	784 KB
Exh. 128 Parson et al.pdf	12/31/2018	2.92 MB
Exh. 129 TongassClimateChangeVulnerability_SummaryReport.pdf	12/31/2018	1.73 MB
Exh. 130 trainor 2014.pdf <a href="#">[actually Chapin, Trainor]</a>	12/31/2018	1.18 MB
Exh. 131 blackbear_2014_chapter_5_unit_2.pdf	12/31/2018	752 KB
Exh. 132 Davis et al 2011.pdf	12/31/2018	88 KB
Exh. 133 Roffler&Gregovich 2018_POW wolf denning space use.pdf	12/24/2018	636 KB

**Sent in the email with the Objection letter:**

Exh. 134 ADFG 2015_POW Nesting Bears, DFG Newsletter_March.pdf	3/5/2015	334 KB
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