UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OREGON 97232-1274

January 24, 2017

Refer to NMFS No.: NWR-2011-3197

Mark Carey
FEMA Region X
130 – 228th Street, SW
Bothell, Washington 98021-8627

Re: Clarification and Errata to the Reasonable and Prudent Alternative (RPA) issued with the Biological Opinion for the National Flood Insurance Program in Oregon (Opinion) (NWR-2011-3197).

Dear Mr. Carey:

We've appreciated the cooperative relationship between our two agencies as the RPA workshops were conducted in several Oregon communities in 2016. Through the course of the workshops, we noted some questions regarding the intent of the RPA and are taking this opportunity to respond to those questions and clarify the intent of certain portions of our RPA. Also, we have identified a few non-substantive, inadvertent errors in the final RPA. The attached Errata revises these errors and should be considered a supplement to the above-referenced opinion.

1) General Applicability of RPA.
The RPA applies to the "Special Flood Hazard Area" (SFHA), as currently defined by FEMA in its regulations at 44 CFR 59.1.[1] Also, the RPA recommends that the Federal Emergency management Agency (FEMA) map riverine channel migration zones and the RPA would then apply to those areas after they are identified (which can be done using Channel Migration Zone (CMZ) mapping protocols) and depicted on flood insurance rate maps[2] (FIRMS) per 44 CFR 64.3. We do not intend for the RPA to extend beyond current or future mapped special flood hazard areas and channel migration zones.

[1] "Area of special flood hazard is the land in the flood plain within a community subject to a 1 percent or greater chance of flooding in any given year. The area may be designated as Zone A on the FHBM. After detailed ratemaking has been completed in preparation for publication of the flood insurance rate map, Zone A usually is refined into Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, or V1-30, VE, or V. For purposes of these regulations, the term 'special flood hazard area' is synonymous in meaning with the phrase 'area of special flood hazard'." 50 CFR 59.1.

[2] 44 CFR 59.1: "*Flood* or *Flooding* means: (a) A general and temporary condition of partial or complete inundation of normally dry land areas from: (1) The overflow of inland or tidal waters. (2) The unusual and rapid accumulation or runoff of surface waters from any source. (3) . . . (b) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event . . . ."

2) RPA Element 2.A (Interim Measures).

- RPA Element 2.A(i) was intended to refer to the 10-year flood interval (as determined in a Flood Insurance Study (FIS)), not the 25-year flood interval. The 10-year flood interval is provided where an FIS has been performed, but is not typically depicted on a Flood Insurance Rate Map. This is corrected in the attached Errata.

- In RPA Element 2.A(i), the language "in the larger of" was intended to refer to the larger of the 10-year flood interval (as corrected above), the floodway, or the CMZ, assuming more than one of these measures is available. If only one of the measures is available, that should be the applicable measure; if none of these areas have been designated (by FEMA, the state, or the community) for a given community or location, then the applicable area would be the 170-foot riparian buffer zone (RBZ) proposed by FEMA in FEMA's 2013 Program Level Biological Assessment (PBA) (pp. 2-41 to 2-42). A community may elect to use the RBZ in lieu of other available measures if the RBZ is larger than the other available measures.

- FEMA's PBA and, consequently, the Opinion, did not address whether FEMA's proposed development limitations (PBA p. 2-41) were intended to apply in areas outside of the SFHA if the 170 foot RBZ extends beyond the SFHA. We assumed that FEMA intended to limit the applicability of FEMA's proposed development limitations to the SFHA and intended that the applicability of RPA Element 2.A be similarly limited.[3]

- FEMA's PBA also stated that the width of the RBZ could be modified in incorporated cities and designated urban unincorporated communities outside the urban growth boundary, to accommodate the "built out' environment, if a programmatic habitat assessment was carried out based on the best available science. Accordingly, the RBZ described in our RPA may be modified as long as any habitat assessment conducted can demonstrate that "the modified RBZ will result in an improved overall conservation, protection, and appropriate restoration of riparian habitat within the spatial scale of the assessment."

3) Development in Floodways, Channel Migration Zones, and Riparian Buffer Zones.
RPA Element 2 (Interim Measures) includes two components. Element 2.A provides appropriate mitigation ratios to compensate for the adverse effects of development, intended to achieve a "no net loss" standard. Element 2.B provides development limitations and performance standards for development within FEMA's proposed riparian buffer zone (RBZ). In some locations, both 2.A and 2.B will apply to new floodplain development.

- **Element 2.A** recommends two different sets of mitigation ratios for new development in the floodplain. The higher ratios apply in the larger of 10-year floodplain, floodway, or CMZ; however, if none of these measures is available, then the higher ratios apply within the RBZ described in FEMA's PBA (up to 170 feet from Ordinary High Water Mark (OHWM) or top of bank). If a jurisdiction has any of the other measures available, in

[3] If our understanding is incorrect, please let us know so that we may make the appropriate corrections to the RPA.

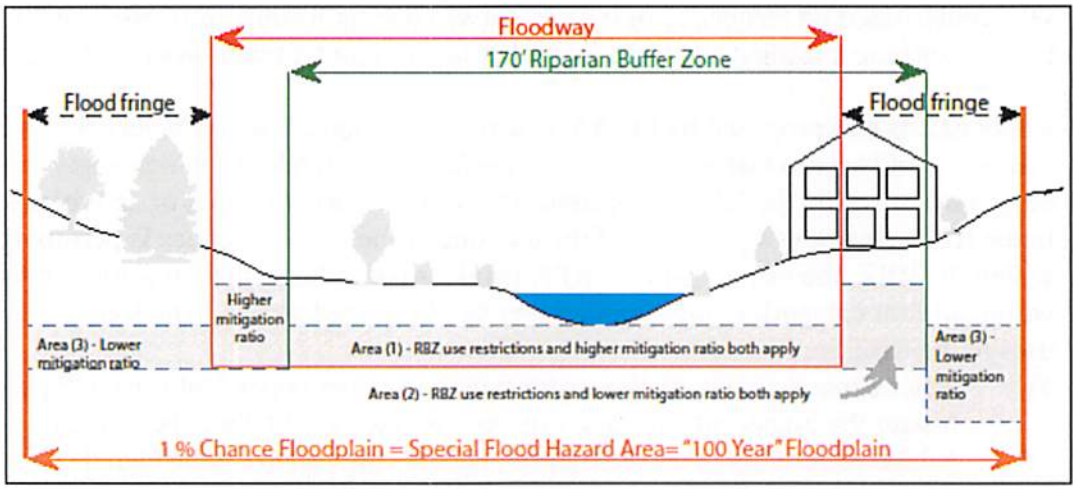
addition to the RBZ, but wishes to simply use the RBZ, they may, if the RBZ is the larger measure. The lower set of mitigation ratios applies in the remainder of the floodplain. The ratios are intended to reflect the value of different areas of the floodplain to salmonids, based on frequency of inundation and habitat forming processes, and to provide sufficient mitigation to ensure no net loss of habitat function in the floodplain.

- **Element 2.B** was proposed by FEMA as part of its proposed action in its PBA. It is comprised of two use restrictions and two performance standards, which apply to new development within the RBZ. This creates four options for the types of activities suitable in the RBZ. Any development that falls into one of the four categories is permissible within the RBZ; the use of "and" in RPA list does not indicate that an activity must fit within all four categories, and should rather be interpreted as "or." The four categories of uses in the RBZ are:
  1) water dependent uses (a use restriction; new water dependent uses will probably trigger the higher mitigation ratios because they are likely to be in the floodway);
  2) habitat restoration (a use restriction; habitat restoration is considered self-mitigating, and does not require mitigation per the ratios);
  3) uses that provide a beneficial gain (a performance standard; this allows any development, so long as it applies the correct mitigation ratios, and adds a beneficial gain component);
  4) uses that have no adverse effect (a performance standard; these will not require mitigation because they are designed to avoid adverse effects to habitat functions, e.g., development with a small footprint, such as stop sign or streetlight; or development/re-development that does not increase an existing footprint such as adding a second story on house).

NMFS adopted the "beneficial gain" standard from FEMA's PBA, which did not elaborate on how to apply this concept. NMFS likewise did not specify a definition of "beneficial gain" in the RPA, in order to allow FEMA and Oregon jurisdictions some flexibility in how they could implement this standard. Generally, NMFS believes this standard could be met by providing mitigation beyond that called for by Element 2.A, for example, by reducing the amount of existing impervious surface, improving stormwater detention and treatment, or increasing flood storage capacity.

The mitigation ratios in 2.A and the use restrictions in 2.B operate independently; that is, 2.A applies to all new development in the floodplain, and 2.B applies to all new development within the RBZ.

Per the illustration below, the Element 2.B development limitations apply everywhere within the RBZ, even if a 10-year flood interval or other measure subsumed within it has been depicted.



Additionally, if the 10-year flood interval, floodway, or CMZ has been depicted, the higher mitigation ratios apply within the largest area depicted (if 170 feet is larger than these 3 measures, then it may be used to identify the area where higher mitigation applies[4]). Outside of the relevant area, in the remainder of the floodplain, the lower mitigation ratios apply.

Referring again to the illustration, a property that stretches across all three areas may be developed as follows:

- In Area (1), new development must fit within one of the four options identified in Element 2.B, and apply the higher mitigation ratios of Element 2.A(i).
- In Area (2), new development must fit within one of the four options identified in Element 2.B, and apply the lower mitigation ratios of Element 2.A(ii).
- In Area (3), Element 2.B restrictions do not apply (i.e., any development allowed under other applicable requirements may occur), and the lower mitigation ratios of Element 2.A(ii) apply.

The Oregon Department of Land Conservation and Development (DLCD) and affected communities have specifically requested clarification of the applicable standards for redevelopment. Where floodplain areas have previously been developed, floodplain functions may be largely degraded, and absent functions do not require impact mitigation, except to the degree that may be necessary in the RBZ to qualify as "beneficial gain" development. The beneficial gain standard should be fairly easy for redevelopment projects to satisfy, because mitigation would only be required for any new adverse impacts, and new development frequently

[4] The Oregon RPA elements on mitigating the impacts of development in the flood fringe, and avoiding adversely affecting habitat where the floodplain is more frequently inundated or has flood related erosion risk is the same standard as required by FEMA in Western Washington. The mitigation ratios for the Oregon interim measures were crafted to reduce the burden on local governments and developers of undertaking comprehensive, site-specific habitat assessments and permit-by-permit evaluation of mitigation needs and to increase the reliability of the mitigation requirements.

incorporates practices that help reduce adverse effects to habitat (e.g., low impact development methods). Again, while there is some flexibility in how a "beneficial gain" is measured, generally development in this category should provide an increment of conservation benefit for listed species. The RPA was intended to allow for flexible approaches to accommodate new development in the RBZ that would result in an overall improvement of floodplain functions. NMFS understands that DLCD has put together a stakeholder work group to recommend approaches to achieve a beneficial gain for new development in the RBZ.

4) Agriculture/Silviculture Practices.
The RPA was intended to reflect that agriculture and silviculture practices carried out in compliance with applicable permits and regulations are suitable floodplain uses. The RPA glossary provides a definition of "development," which excludes "plowing and similar agricultural practices that do not involve filling, grading, or construction of levees or structures" (p. 298). The RPA's definition of development also excludes "removal of hazard trees," (p. 298) but does not otherwise expressly address forestry practices. This was an oversight, as it was NMFS' intent to treat agriculture and forestry similarly, as indicated in RPA Element 4.B(iv)(a) (which identifies agriculture and forestry as acceptable uses within the high hazard area).

Also, we understand that there has been some confusion regarding the applicability of RPA Element 4.B(iv)(a) with respect to forestry and agriculture activities within the 10-year flood interval. As explained above, we did not intend to include vegetation removal in the course of agriculture and forestry activities in the RPA's definition of "development,"[5] and therefore did not intend that Element 4.B(i)'s limitations on new "development" would apply to those activities, although it would apply to associated structures/infrastructure. We correct this in the attached Errata. Finally, although structures and infrastructure associated with forestry/agriculture are considered "development" under the RPA, existing structures/infrastructure fall within the RPA's grandfathering clause (Element 4.G) and therefore are not affected by the RPA. To summarize:

- Forestry and agriculture practices are not considered "development" under the RPA and are not limited by the RPA; however, associated structures and infrastructure are considered development under the RPA.
- Existing infrastructure/structures associated with forestry and agriculture fall within the RPA's Grandfathering Clause and are not affected by the RPA. New or substantially-improved infrastructure/structures to support agriculture/forestry should require mitigation per RPA Element 2 during the interim implementation period, and be placed outside the ten-year floodplain. per Element 4.F, when the interim measures have been replaced by the RPA's long-term measures.

[5] We note FEMA's comment (Memorandum from Mark Carey, FEMA, to Kim Kratz, NMFS, undated, received Nov. 1, 2016) that the NFIP's existing definition of "development" includes certain activities for permitting purposes that are excluded from the RPA's definition (*e.g.*, maintenance, repair, or remodeling of existing structures). For the RPA, NMFS provided a definition of "development" in order to identify activities likely to degrade floodplain habitat and therefore require mitigation, not for the purpose of determining which types of development should require a permit.

- Removal of vegetation on forest or agricultural lands for the purpose of converting the land to new uses (e.g., commercial or residential development) is considered development under the RPA. Therefore, in the interim implementation period, such conversion would be subject to the limitations and requirements in RPA Element 2(i)-(iii), as applicable, and in the long-term would occur only in non-high-hazard areas, and would be subject to the mitigation requirements of RPA Element 4.F.

5) Applicability of the "Grandfathering" Clause (RPA Element 4.G).
The RPA encourages FEMA to implement the interim measures contained in Element 2 as soon as possible, no later than 2 years of the date of the Opinion. Per FEMA's PBA, NMFS understood that FEMA intended to implement the interim measures expeditiously through guidance and technical support.[6] NMFS recognized that RPA implementation will take time, so RPA Element 4.G provides that development for which the start of construction[7] occurred before September 15, 2016 is grandfathered, meaning such development is not subject to any elements of the RPA.

Development that does not qualify for grandfathering should be subject to the RPA's interim requirements, e.g., the mitigation protocols. Based on FEMA's intent to require mitigation via its existing authorities, NMFS recommended clear mitigation protocols intended to apply to floodplain development after September 15th, 2016. In the absence of guidance from FEMA, and pending state regulations or local ordinances requiring such mitigation, NMFS encourages communities to adopt the mitigation provisions of the RPA; in RPA Element 6.A, we recommended that FEMA increase Community Rating System points to jurisdictions that are early adopters of the RPA. However, we recognize that decisions about how to implement the RPA ultimately lie with FEMA. Project proponents that couple mitigation with development consistent with the ratios of the interim measures may demonstrate that the no-net-loss goals of the RPA are being met. Clarifications of the RPA's mitigation ratios are below:

- **Interim Mitigation for Vegetation Removal (RPA Element 2.A(i)-(ii)):** The interim mitigation requirement for loss of vegetation is a per-tree requirement (3 to 1 replacement in 10-year interval, floodway, CMZ or RBZ; or 2 to 1 replacement in remainder of floodplain). This mitigation requirement applies when trees equal to or larger than 6 inches in diameter at breast height (dbh) are removed. For ease of implementation, the RPA does not require that replacement trees equal the size of the trees removed, but instead relies on the replacement ratios to restore lost functions. In other words, a mature tree can be replaced with saplings at the appropriate ratio.
- **Interim Mitigation for Loss of Floodplain Storage (RPA Element 2.A(i)-(ii)):** Lost storage can be due to placement of fill, placement of "dry floodproofed" structures, and by emplacement or improvement of levees[8]. In the 10-year flood

[6] In the 2013 PBA, FEMA stated: "FEMA has already notified communities of their responsibility to comply with the ESA via the standards set forth in 44 CFR Part 60.3, Section a.2. In general, this will require communities to either: (1) prohibit all NFIP-related actions in the SFHA during the implementation phase, or (2) determine the presence of fish or critical habitat and assess the permit application for potential impacts to species and habitat. Communities will require any such actions with potential adverse affects [sic] to be fully mitigated with no net loss of habitat function." PBA p. 2-46.
[7] "Start of construction" is defined in the RPA Glossary consistent with FEMA's definition at 44 CFR 59.1.
[8] Storage lost to levee footprint and to disconnection of a river from its floodplain both trigger mitigation.

interval, floodway, CMZ or RBZ, the replacement ratio for flood storage is 2:1; in the remainder of the floodplain the replacement ratio for flood storage is 1.5:1.

- **Mitigating New Impervious Surfaces (RPA Elements 2.A(iii) and Element 4.E-4.F)**: These RPA Elements recommend a mitigation sequence for the placement of new impervious surfaces in order to minimize the effects of increased stormwater. First, pervious surfaces should be used to the maximum extent practicable. If the use of pervious surfaces is not practicable, for example, due to a pattern of frequent inundation and deposition of fine sediment, then removal of an equal amount of impervious is preferred. Lastly, the capture and treatment of stormwater is appropriate for impacts that cannot otherwise be readily mitigated.

6) RPA Glossary.

In the RPA Glossary, the definition of the "High Hazard Area" inadvertently includes V zones and LiMWA, which had been considered for inclusion in an earlier draft of the RPA. We subsequently determined that additional protections of V zones and LiMWA were unnecessary to avoid jeopardy or adverse modification of critical habitat, given the limited use of ocean shores by the listed species addressed in our biological opinion.

7) Appendix 2-4.A, Comparison of Reasonable and Prudent Alternatives for the NFIP for the Puget Sound Region and for Oregon.

Appendix 2.4-A, which compares the Puget Sound and Oregon RPAs, contains an inadvertent error on page 383, which was based on an earlier version of the RPA. To add flexibility to RPA Element 4.C (minimization of development impacts), we modified the final RPA to provide that FEMA, in consultation with Oregon DLCD, should develop clear and measurable spatial standards governing minimal permissible lot size rather than carrying over the 5-acre minimum lot size included in the Puget Sound RPA. This mistake is corrected in the attached Errata.

We hope that you will find these clarifications and corrections helpful and would be pleased to provide additional clarifications as needed.

Sincerely,

Barry A. Thom
Regional Administrator

cc: Jim Rue, DLCD

Attached: January 24, 2017 Errata for NFIP Biological Opinion

ERRATA

Re: April 14, 2016 Endangered Species Act (ESA) Section 7(a)(2) Jeopardy and Destruction or Adverse Modification of Critical Habitat Biological Opinion and Section 7(a)(2) "Not Likely to Adversely Affect" Determination for the Implementation of the National Flood Insurance Program in the State of Oregon

NMFS Consultation Number: NWR-2011-3197

Errata Date: January 24, 2017

1. Correct RPA Element 2.A(i) (Opinion at 279) to read as follows:

   "Within the larger of: the 10-year floodplain (where an FIS has been performed), the floodway (if designated), the *channel migration zone (CMZ)** (if designated); or, if none of those areas have been designated by FEMA, then within all portions of FEMA's proposed *riparian buffer zone (RBZ)** that are within the SFHA; mitigate for lost flood storage and vegetation removal at the following ratios" . . . .

2. Correct the "Glossary of Terms as Used in this RPA" (Opinion Section 2.8.3, page 299) to read as follows:

   "High hazard area (HHA) – The area comprised of and measured to the farthest landward extent of: (1) floodway, the 10-year flood interval (as revised by this RPA); and (2) E Zones (as revised by this RPA)."

3. Correct the "Glossary of Terms as Used in this RPA" (Opinion Section 2.8.3, page 297-98) to read as follows:

   "*Development* – Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, storage of equipment or materials (44 CFR 59.1), and expanded for the purpose of this RPA to include removal of vegetation or other alteration of natural site characteristics (including any remnant natural characteristics existing in a degraded site). For this RPA, mitigation is not required for the maintenance, repair, or remodel of existing buildings, facilities, and utilities within their existing footprints (except for substantial repairs and improvements); resurfacing of roads; lawn care; gardening; removal of noxious weeds, replacement of non-native vegetation with native vegetation; removal of hazard trees; forest and agricultural practices that do not involve filling, grading, or construction of levees or structures."

4. Correct RPA Element 4.B.iv.a to read as follows:

   i. <u>Exceptions</u>
      a. The following uses may be allowed in the high hazard area: (1) open space* uses (see CRS Coordinator's Manual at 420-6 to -7); (2) habitat

restoration activities; (3) low intensity recreational uses*; (4) water-dependent uses,* and (5) bioengineered bank protection.* In that portion of the HHA outside of the 10-year floodplain, development associated with agriculture and forestry are additional uses that may be allowed.

5. In the table on page 383, remove and replace text as follows:

Second row, right-side column, remove "Retain 5 acre minimum lot size;" and replace with "Develop standards governing minimum permissible lot size;".

January 2017

NOAA FISHERIES

WEST COAST REGION

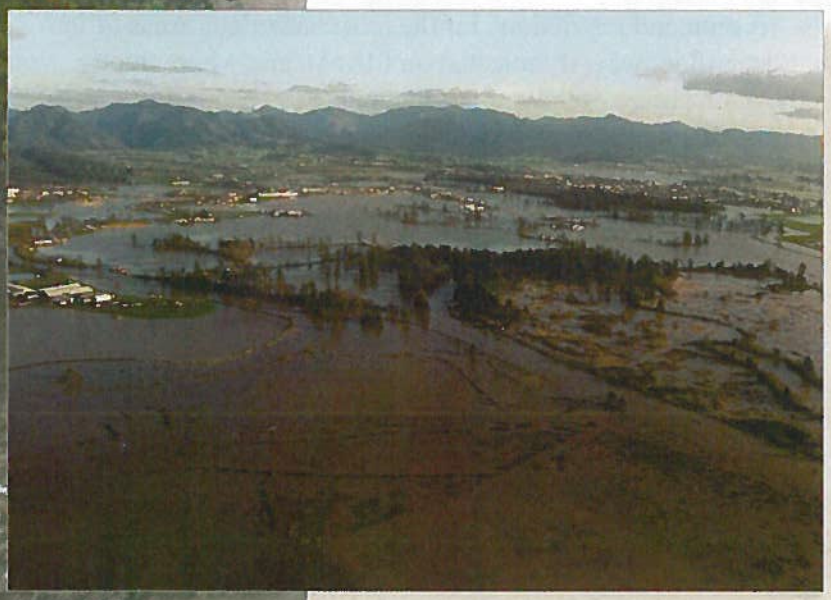
Technical Guidance: Oregon RPA for floodplain protection

In response to a 2010 lawsuit, the Federal Emergency Management Agency (FEMA) consulted with NOAA Fisheries on whether the National Flood Insurance Program (NFIP) affects salmon and steelhead protected by the Endangered Species Act (ESA) in Oregon. NOAA Fisheries found that the NFIP jeopardizes protected species. As the ESA requires, NOAA Fisheries provided FEMA with a Reasonable and Prudent Alternative (RPA) that includes recommendations to avoid jeopardizing the species. FEMA may adopt the RPA, or draft a different proposal. This technical guidance explains the intent and details of recommendations in the RPA.

Development in the floodplain:

The RPA is intended to apply only in mapped special flood hazard[1] areas. In the future, certain provisions of the RPA will also apply to mapped channel migration zones. The RPA *does not* recommend a prohibition of development in floodplains. It *does* recommend limitations on the types of development that can occur in certain portions of the floodplain, to better protect the natural floodplain functions needed to support threatened and endangered salmon. Coincidentally, these same measures improve safety for people and property by avoiding development in high risk areas.

FEMA's existing rules divide the floodplain in some locations into the floodway,[2] (the area near the flood source, which is to remain open to convey floodwaters), and the remainder of the floodplain. FEMA's rules already limit some floodway development to avoid increasing flood risk. The RPA follows that framework. The RPA recommends both a comprehensive long-term strategy for protecting floodplain habitat and interim strategies that apply in the near term.



Oregon, 2007

The RPA long-term provisions recommend that in areas at greatest risk of flooding and flood-related erosion, development should be limited to flood-compatible and water-dependent uses.[3]

In the near term, the RPA accommodates new development in or near floodways and erosion prone areas if it would not impact natural floodplain functions, or if development impacts are mitigated to achieve an overall conservation of natural floodplain function. Mitigation might include, for example, replacing removed trees, low-impact

development methods, and creation of replacement flood storage. The RPA also expressly allows for water-dependent uses.

The RPA recognizes that it would not be practicable to require modification of existing structures and applies to new development only.

Mitigating floodplain development impacts:

Salem, 1996. Photo: KOIN news

Interim measures: The fundamental component of the RPA interim measures is a mitigation strategy to ensure that, despite development demands, there is no net loss of natural floodplain functions. In the highest risk areas, where floodplains are frequently inundated (10-year flood interval, identified in a flood insurance study [FIS]) and where volumes are likely to be fast and deep (floodway, if indicated on flood insurance rate map [FIRM]), and where flood-related erosion is probable (channel migration zone [CMZ] areas) – the mitigation ratios for floodplain development are higher: 2 to 1 for displaced flood storage; 3 to 1 for removal of trees at or greater than 6-inch diameter at breast height (dbh). If none of those measures are available, then these mitigation ratios would apply in the area proposed in FEMA's Biological Evaluation–170 feet from the ordinary high water mark.

In floodplain areas further landward of these measures– sometimes called the flood fringe– but still bounded by the mapped special flood hazard area, the mitigation ratios are lower: 1.5 to 1 for displaced flood storage; 2 to 1 for trees of 6 inch dbh or greater.

In both areas, pervious surfaces should be used where practicable. Where new impervious surface is placed, an equal amount of impervious surface affecting the same water body should be removed. If neither method can be achieved, stormwater capture and treatment should be employed.

These measures were designed to be implemented within two years of the biological opinion being issued.

Long-term measures: These measures include a recommendation for FEMA to update maps with methods that predict inundation areas with more accuracy, and which more fully account for changing flood patterns due to land use and climate changes. These measures also recommend restrictions for the most hazardous areas of the floodplain, where volumes are likely to be fast and deep (floodway, if indicated on FIRM), and where flood-related erosion is probable (CMZ areas). It is the dynamic nature of these areas that make them simultaneously dangerous for development and valuable for species habitat needs. The most suitable uses in these areas are water dependent uses, light recreation, open space, habitat restoration, and silviculture and agriculture that does not involve buildings or other structures.

Other long-term standards of the RPA recommend preventing subdivision of lots in a manner that puts new lots completely inside the special flood hazard area, and minimizing building footprints inside the special flood hazard area.

The RPA long-term measures also include a proposal for mitigating development impacts, outlined in an appendix to the biological opinion. FEMA can use the mitigation protocols provided in the RPA until it adopts its own mitigation strategy that provides comparable protection of floodplain functions that species rely on.

The RPA includes provisions allowing local governments to work with FEMA and NOAA Fisheries to develop alternate measures for those circumstances where these criteria may be impossible to comply with due to unique circumstances of geography and jurisdiction.

Technical Guidance: Oregon RPA for floodplain protection

Agricultural and forestry activities:

Under the RPA, timber harvest and agriculture are suitable uses in the floodplain. The RPA won't affect harvest areas where these are established uses. Existing infrastructure or structures associated with agriculture or silviculture are grandfathered. Only new structures or infrastructure would trigger the RPA's mitigation requirements. Finally, tree removal conducted for the purpose of converting the land to new uses would be subject to the RPA's development limitations.

RPA Specificity/flexibility:

The RPA is specific enough to provide clear, comprehensible development standards, yet flexible enough to adapt to local circumstances. It is flexible in several ways.

First - the mitigation requirements vary depending on the actual condition of the landscape.

Example: If five wooded acres adjacent to a stream are turned into a housing development, mitigation would be required for removing the riparian vegetation, adding fill and structures that displace flood waters, and new impervious surfaces that create run-off, such as sidewalks, rooftops, roads, and driveways. But, if five waterfront acres of old warehouses and parking lots are redeveloped, there may be no mitigation required except as needed to create a net conservation benefit, which is a standard already proposed by FEMA. The "net benefit" standard might mean including a planting corridor next to the water, or adding bioswales to treat stormwater.

Second - the RPA allows for the development, in coordination with FEMA and NOAA Fisheries, of alternative mitigation standards for circumstances where the recommended mitigation may be difficult to provide within jurisdictional boundaries, such as in Beaverton.

Third - the RPA allows communities, in coordination with FEMA and NOAA Fisheries, to develop individualized compliance plans where the RPA's recommended measures would be impracticable – for example, in jurisdictions located entirely within the floodplain, such as Enterprise or Tillamook.

RPA implementation process and strategies:

The RPA is an alternative that NOAA Fisheries developed consistent with the ESA's requirements. However, FEMA ultimately determines how to modify their program to provide adequate protections for ESA-listed species and habitat. FEMA may implement the RPA, or may develop an alternative that provides equal protection. During the summer of 2016, FEMA and NOAA Fisheries participated in multiple information and outreach sessions around the state, hosted by the Department of Land Conservation and Development (DLCD). The federal agencies presented information on the RPA, took questions, and listened to concerns from local communities such as Springfield and Enterprise. These helped identify additional information needs, and DLCD has recently created workgroups, with local government participation, to help inform FEMA on implementation strategies, and technical concerns.

There are also other pathways to demonstrate ESA compliance. A community can choose to work with NOAA Fisheries directly to develop an ESA Section 10(a)(1)(B) Habitat Conservation Plan or a 4(d) rule as alternate pathways to ensuring that floodplain development does not jeopardize listed species. These alternate approaches are referenced in RPA element 4(H)(iii).

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[1] "Area of special flood hazard is the land in the flood plain within a community subject to a 1 percent or greater chance of flooding in any given year. The area may be designated as Zone A on the FHBM. After detailed ratemaking has been completed in preparation for publication of the flood insurance rate map, Zone A usually is refined into Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, or V1-30, VE, or V. For purposes of these regulations, the term 'special flood hazard area' is synonymous in meaning with the phrase 'area of special flood hazard'." 50 CFR 59.1

[2] "Regulatory Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height." 50 CFR 59.1

[3] For example, ports, docks, bridges are water dependent, parks, open space, light recreation, agriculture and silviculture are flood compatible.

January 2017

NOAA FISHERIES

WEST COAST REGION

Key details of the Oregon RPA for floodplain protection

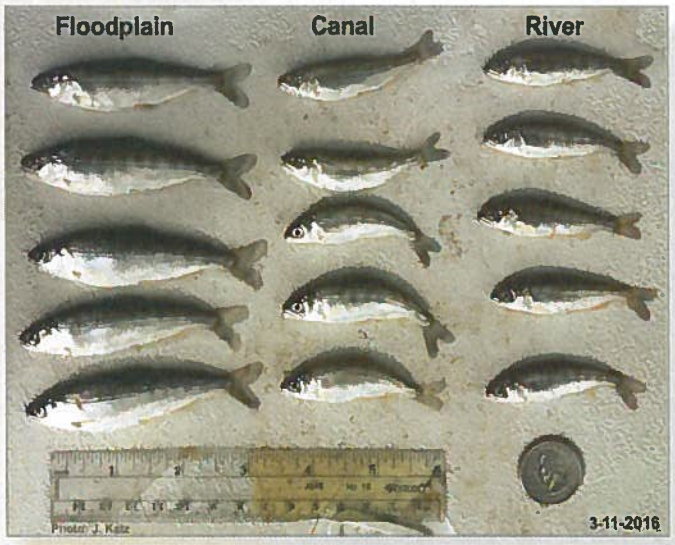
Background

In response to a 2010 lawsuit, the Federal Emergency Management Agency (FEMA) consulted with NOAA Fisheries on whether the National Flood Insurance Program (NFIP) affects salmon and steelhead protected by the Endangered Species Act (ESA) in Oregon. NOAA Fisheries found that the NFIP jeopardizes protected species. As the ESA requires, NOAA Fisheries provided FEMA with a Reasonable and Prudent Alternative (RPA) that includes recommendations to avoid jeopardizing the species. FEMA may adopt the RPA, or draft a different proposal. Key details of the RPA include:

1. Existing structures are grandfathered and would not be affected. The RPA applies only to new development.

2. The RPA does not prohibit development. In the near term, development in floodplains may proceed as long as it does not impair natural floodplain functions, or if it is mitigated to maintain or improve floodplain functions. Mitigation may

HEALTHY FLOODPLAINS = THRIVING SALMON



Healthy floodplains help juvenile salmon thrive. Studies have found that salmon and steelhead with access to floodplain habitat along rivers grow larger and faster than those remaining in the main river channels. That's because floodplains provide rich nursery habitat, full of vital insect prey for growing fish. Floodplains also provide refuge from rushing waters, especially in fall and winter when young fish need it most. Floodplains filter rainwater and runoff to replenish river flows with cool, clean water. They also provide shade and wood that cools water temperatures and offers essential shelter for young fish darting through the water.

But much of Oregon's floodplains have been lost, limiting the recovery of threatened and endangered salmon and steelhead. In its consultation with FEMA, NOAA Fisheries developed an alternative – the RPA – that would reduce further losses of floodplains, while providing flexibility for affected communities.

Above: Juvenile Chinook salmon reared for 21 days in either a rice field managed as an agricultural floodplain, a canal or a mainstem river. The caged hatchery fish were equal in size when the experiment began, and grew depending on which habitat they lived in. These are preliminary results from *Transect of Riverine Aquatic Habitat* by California Trout. The fish were stocked on February 19 and removed on March 11, 2016. Used by permission.

include actions such as replacing removed trees. In the longer term, new development in the highest hazard areas alongside rivers would be limited to uses less affected by flooding, such as parks and docks.

3. Redevelopment can proceed in rural and urban areas as long as it includes some improvement in floodplain function. Where development already exists in the floodplain, including cities, there may be little ecological value in terms of natural floodplain functions. The RPA does not limit redevelopment in such areas, as long as the work includes some improvement in floodplain function to benefit protected fish. This could include reducing the existing impervious surface, adding bioswales to treat stormwater or planting a buffer strip of riparian vegetation. This type of environmental mitigation is already commonly associated with construction projects in Oregon.

4. Agriculture and forestry may continue. The RPA does not consider planting and harvest of trees or crops to be development, so these activities may continue. Only new construction in the floodplain would be subject to the RPA. Parks and water-dependent uses such as docks and bridges could also continue.

5. New mapping under the RPA will benefit communities and species. The RPA recommends that FEMA update floodplain mapping to consider current and future risk. This will improve the accuracy of flood risk maps and will account for the expected effects of climate change.

6. The RPA gives communities flexibility to find solutions that work for them. The RPA calls for mitigation to offset the impacts of new development in a "no-net loss" approach to floodplain conservation. This means development may proceed in most of the floodplain as long as adverse effects to the floodplain's function are offset– resulting in no net loss to floodplain habitats that are essential for protected fish. Tighter restrictions exist only in the highest hazard flood and erosion zones next to rivers, where floodwaters are likely to be fast and deep. The measures provide dual benefits: protecting salmon habitat and improving safety for people and property. Communities can propose alternatives to the RPA's requirements, such as use of conservation banks, or pursue other alternative methods for protecting floodplain functions where RPA implementation would not be practicable.

7. NOAA Fisheries is working with FEMA and Oregon to address community concerns. NOAA Fisheries participated in outreach meetings across the state with FEMA and the Oregon Department of Land Conservation and Development (DLCD). The DLCD is assembling stakeholder workgroups, including community representatives, to help develop an approach for implementing the RPA. NOAA Fisheries remains committed to working with FEMA and Oregon communities to find solutions that support sustainable economies as well as threatened and endangered species.

Tillamook County