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FAQ: What are the Compliance Options available to my community and what is required to implement each?

What is the National Marine Fisheries Service 2008 Biological Opinion?

In 2004, FEMA entered into a consultation with the National Marine Fisheries Service (NMFS) to consult on the effects of implementation of the National Flood Insurance Program (NFIP) on endangered species and critical habitat. In September 2008 NMFS provided a Biological Opinion in which they concluded that development consistent with the NFIP jeopardizes threatened or endangered Chinook salmon, chum salmon, steelhead, and killer whales and adversely modifies critical habitat based on potential take of listed species.

Federal agencies are prohibited by the Endangered Species Act (ESA) from causing jeopardy to endangered species or adverse modification of critical habitat. Once a jeopardy determination is made, NMFS is obligated to provide a Reasonable and Prudent Alternative (RPA), which are measures FEMA can do to avoid jeopardy to endangered species and adverse modification of critical habitat. These measures outline steps FEMA and communities participating in the NFIP can do to minimize harm to Puget Sound Chinook salmon, Puget Sound steelhead, Hood Canal summer-run chum and Southern Resident killer whales.

What are the new species-protective standards that apply to floodplain development permits?

RPA #3 of NMFS' 2008 Biological Opinion requires that FEMA and all of the affected participating communities ensure that any type of floodplain development, as defined by 44 CFR § 59.1, does not have an adverse effect on listed species or their critical habitat. Specifically, the local jurisdiction must demonstrate to FEMA that any proposed development in the Protected Area (the designated floodway, the Channel Migration Zone (CMZ) plus 50 feet, and the riparian buffer zone (RBZ)) does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids.

Outside the Protected Area, any floodplain development shall avoid, rectify, or compensate for loss of floodplain storage. Additionally, any indirect adverse effects of development in the floodplain (effects to stormwater, riparian vegetation, bank stability, channel migration, hyporheic zones, wetlands, etc.) must be mitigated such that equivalent or better salmon habitat protection is



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provided. Appendix 4 of NMFS's 2008 Biological Opinion (attached) provides detail on how to comply with these criteria.

What are the compliance options available to my community?

Participating Communities have the option of complying with the Biological Opinion by one of the following three general pathways

A) Adopting the Model Ordinance (Door 1)

FEMA Region X developed an RPA compliant Model Ordinance that incorporates all the substantive provisions of the RPA and the minimum standards of the NFIP. Communities that adopt and enforce the ESA compliant Model Ordinance will be considered to be in compliance with the ESA. The Model Ordinance may be found on the NFIP ESA website at <http://www.fema.gov/national-flood-insurance-program-endangered-species-act>.

B) Using a Programmatic Approach that utilizes existing regulations and edits and supplements those regulations as needed (Door 2)

Washington State requires communities to adopt and enforce multiple state statutes that, when combined with the NFIP, could potentially achieve compliance with the ESA. Communities are required to enforce ordinances dealing with growth management, critical areas, and shorelines. When the combination of these individual programs can be shown to achieve the same protection to salmon habitat, communities will be considered to be in compliance with the ESA. FEMA has provided a checklist to help guide communities develop the documentation to show their suite of rules and regulations, when combined with the NFIP, will assure no adverse effect on salmon populations or their habitats. Another option under the Door 2 pathway is for communities to evaluate their suite of regulations that cover the regulated floodplain and describe existing habitat conditions and land-uses across all the land parcels that are located within the watersheds or sub-watersheds that comprise their jurisdiction (via GIS database queries) and conduct effects analyses that rigorously demonstrates how their regulations comply with the standards in the RPA. The NFIP-ESA Biological Opinion Checklist may be found on the NFIP ESA website at <http://www.fema.gov/national-flood-insurance-program-endangered-species-act>.

C) Utilizing a Permit-by-Permit Approach (Door 3)

Communities that elect not to adopt FEMA's RPA compliant Model Ordinance, and cannot demonstrate their suite of other rules and regulations meet the same standards under the Door 2 approach, must demonstrate that each and every floodplain development permit is compliant with the RPA and the "no adverse effect" standard of the RPA. FEMA grants the communities some discretion as to how to achieve that standard. The preferred approach is one that complies with the guidance provided by FEMA (i.e., the



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Habitat Assessment and Mitigation Guidance and the other FAQs on FEMA’s NFIP ESA website). For projects in the Protected Area where the community or the project proponent are using the FEMA Habitat Assessment and Mitigation Guidance to demonstrate the project has no adverse effects, the habitat assessment must address short- and long-term, direct, indirect, and cumulative effects to ESA-listed salmon and their habitats, including any impacts to designated critical habitat. Communities and project proponents do, however, have other options to demonstrate compliance with the required standard. They may initiate separate consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (collectively “the Services”). They may also seek ESA coverage under an ESA consultation that was already completed by another federal agency if that consultation covers the same activities and impacts as the current project proposal. Any consultation used needs to include an analysis of any interdependent or interrelated actions and the potential cumulative effects of other current or reasonably foreseeable future non-Federal projects within the defined action area.

Comparison of the Door 1, 2, and 3 options

FEMA considers that any communities that adopt and enforce the Model Ordinance (Door 1) are in full compliance with the RPA for the NFIP in Puget Sound. The programmatic option (Door 2) is presented to allow jurisdictions to utilize (to the extent possible) their existing regulations, and to potentially allow greater potential flexibility in the application of the RPA standards for those cases where jurisdictions can adequately address them via rigorous, funded, long-term management plan(s) across their entire watershed(s) jurisdictions may have part of such plans within their current planning documents. Communities need to describe current and estimated future land management actions, as well as the combined effects of all regulations upon Threatened and Endangered Species (TES) populations and their habitats within affected watersheds. They would also have to provide sufficient evidence that any proposed mitigation actions outside of the Protected Area would result in a net effect of maintaining or improving habitat conditions. No short-term or long-term adverse effects are allowed within the Protected Area. Jurisdictions must document to FEMA how project design criteria and implementation of mitigation efforts will be monitored, enforced, and adaptively managed. The Door 2 option provides a holistic assessment of all possible proposed actions across a landscape.

Projects located in the Protected Area must avoid adverse effects to species and habitat. An example of a potentially allowable action within the Protected Area would be to construct a project during summer when the water level is below the affected reach of the stream bank, and complete construction before flow levels increase in the fall and fish may be present. This example assumes that conditions can be fully repaired to pre-project levels. If that can’t occur, then the repair does not prevent all short- and long-term adverse impacts and the project is not compliant with the RPA, hence the project proposal would have to be abandoned. Please note that within the Protected Area that off-site compensatory mitigation is also not allowed to offset adverse effects at the site under Door 3 because of the difficulty in estimating and tracking their sufficiency and appropriateness on a permit-by-permit basis. This is because the overall effects to the watershed would not be assessed under a permit-by-permit approach, compared to a programmatic



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approach where such overall effects would be assessed. If a habitat assessment determines that the project does not meet the “no adverse effect” standard for the Protected Area, the project must either be abandoned, redesigned, or receive permission from the Services to allow the adverse effect to occur. Such permission may be sought through separate consultation with the Services pursuant to the ESA.

Some localized or short-term adverse effects are potentially allowable outside the Protected Area under Door 3, but the effects of these impacts must be fully mitigated so that the net result is that current conditions are either maintained or improved. Jurisdictions must analyze for any cumulative effects impacts from other current or reasonably foreseeable future, non-federal actions that overlap with any lingering observable or measureable effects of the proposed action, and fully mitigate those effects.

Requirements common to all Door options regarding actions within the Protected Areas

The following uses are allowed within the Protected Area:

- 1) “repair of existing building in its existing footprint , including damages by fire or other casualties;
- 2) removal of noxious weeds;
- 3) replacement of non-native vegetation with native vegetation;
- 4) ongoing activities such as lawn and garden maintenance;
- 5) removal of hazard trees;
- 6) normal maintenance of public utilities and facilities; restoration or enhancement of floodplains, riparian areas and streams that meets Federal and State standards” (NFIP BO Appendix 4, page 223).

In addition, the BO states that the following uses are not allowed within the Protected Area “unless shown not to adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmon:

new buildings, including accessory buildings; new impervious surfaces; removal of native vegetation; new clearing, grading, filling, land-disturbing activity or other ‘development’ (see definition) other than for the purpose of replacing non-native vegetation with native vegetation, and for other approved restoration work; septic tanks and drain fields, dumping of any materials, hazardous or sanitary waste landfills; receiving areas for toxic or hazardous waste or other contaminants, and stream relocations, unless the primary function of the action is to restore natural ecological function.”

See NFIP BO Appendix 4, pages 222 and 223. Please note that the acronym “RMZ” on page 223 of the BO should not be confused with the RBZ. This older acronym referred to the Riparian Management Zone, which is synonymous with the Protected Area.



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Some limited impacts to listed fish species and aquatic habitat functions and processes may be allowable if they are determined to be “beneficial”, “insignificant” or “discountable.” Those are the terms used by the Services in the consultation handbook to describe actions that do not constitute adverse effects. “Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects, or (2) expect discountable effect to occur.” (Endangered Species Consultation Handbook, USFWS and NMFS 1998, pages 3-12 and 3-13).

Some limited construction and disturbance within the Protected Area is allowed, as long as it can be rigorously demonstrated and documented that the result of all actions is that there are no short- or long-term adverse effects to ESA-listed species or their designated critical habitats. The only exceptions to this are those few categories of work that are listed as exempt in the BO (see list provided above).

Requirements common to all Door options regarding actions beyond (outside) the Protected Areas

No net adverse effects to ESA-listed populations or their designated critical habitats can occur, including no adverse effects to “water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmon” (NFIP BO Appendix 4, page 222). In addition, all indirect effects of actions outside of the Protected Area that impact stormwater, riparian vegetation, bank stability, channel migration, hyporheic zones, wetlands, or large woody debris (LWD)” must be mitigated (NFIP BO Appendix 4, page 223). Compliance with all the standards in the RPA is mandatory for all submittals through any of the door pathway options. Compliance with both the RPA standards and the additional criteria listed in Appendix 4 of the BO (attached) assures that the submittal will be compliant with the ESA.

Requirements for use of the Programmatic (Door 2) approach

Communities may be able to demonstrate compliance with Door 2 via a couple of options. The first option is to modify existing regulations to strictly conform to the performance standards in the Biological Opinion as demonstrated on the NFIP-ESA Biological Opinion Checklist.

Another approach that allows for some flexibility is for jurisdictions to complete something analogous to a watershed management plan, possibly largely contained within one or more of their current management plans. Such a plan would likely require stratification of a jurisdiction’s land-base by general site conditions and current habitat functions. The jurisdiction could then propose what mitigation measures it will use, where those actions will take place, and the methods proposed to use to estimate how the combined



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effects of all proposed actions will result in either maintaining or improving current habitat conditions for each affected watershed. Note that this does not require that habitat be restored to fully, properly functioning, natural conditions and functions. Temporal and spatial scales need to be defined for both negative and positive effects for each project for those habitat functions relevant for baseline conditions. See the FAQ regarding Habitat Analysis at an Appropriate Scale for more information.

Project actions within the Protected Area under the alternate Door 2 approach described above

All Door 2 submittals using the alternate approach described above within the Protected Area must abide by the following conditions:

- No short-term or long-term adverse effects to TES populations or their habitats due to project actions are allowed to occur except for those actions that are listed as exempt in the BO (see list on page 5 of this memo)
- Any mitigation plan must include viable methods that enable the jurisdiction to be able track and document implementation of mitigation measures and be able to demonstrate adequate effectiveness of those mitigation actions.
- Jurisdictions must be able to demonstrate adequacy of their enforcement program with respect to non-compliance with mitigation requirements.
- Acquisition of lands that currently have properly functioning conditions and functions (i.e. intact, mature, natural habitats) to offset proposed degradation at another site does not constitute adequate compensation since this would still likely result in continued additional incremental degradation relative to current baseline conditions.
- On-site compensation is far preferable to off-site compensation. Off-site compensation should only be considered in highly degraded (altered) reaches or sub-watersheds if the jurisdiction can provide sufficient evidence that avoidance, minimization, replacement, or on-site compensation is not possible, and that the net result in each watershed will be an improved trend in habitat conditions (via tracking of implementation and effectiveness monitoring, as well as records of enforcement). See the FAQ regarding Habitat Analysis at an Appropriate Scale for more information.
- Potential on-site compensation under a Door 2 programmatic approach assumes proof of implementation of projects, and evidence of the effectiveness of mitigation actions. Effectiveness monitoring would consist of a combination of the assessment of the success of past methods, along with monitoring and assessment of a statistically valid subset of ongoing projects. Jurisdictions are required to make the data and accompanying summary reports of implementation and effectiveness monitoring available to FEMA for review.



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- Off-site compensation is more difficult to justify and track than on-site compensation because it requires finding suitable, available parcels of partially degraded habitats (at least degraded in some aspects) to partially improve (restore), and demonstration of how the overall effect of all actions are beneficial over a mutually agreed upon time frame. Depending on what habitat functions are being compensated for, restoration actions at the compensatory sites may range from such things as purchasing riparian stands of immature trees and requiring those trees to be allowed to mature (i.e. passive restoration), to active restoration of riparian or instream habitat functions and processes.

Project Actions Outside of the Protected Area under the alternate Door 2 approach described above

All Door 2 submittals using the alternate approach described above outside the Protected Area must abide by the same conditions as within the Protected Area, except that outside of the Protected Area, some limited adverse effects may potentially be allowed to occur if the following conditions are also met:

- Current and reasonably potential future habitat functions must be protected from adverse effects associated with NFIP actions. Under the Programmatic Approach this determination can be made on the basis of all reasonably foreseeable, funded actions within the entire analysis area, which may include an entire watershed(s). Hence the impacts of projects that restore or improve conditions can be considered together with those actions that degrade some habitat variables in other locations within the same analysis area. This option to analyze the net effects of all actions within entire watersheds or sub-watersheds is not available under the permit-by-permit approach. The net effect within the Protected Area must, however, be to maintain or improve current baseline conditions. This analysis represents a significant undertaking in effort by a jurisdiction to document and analyze the impacts of all actions across a landscape, but can provide coverage for a suite of actions under one programmatic analysis.

- In all cases potential mitigation measures must be considered and justified in the following descending order of preference: avoidance, minimization, replacement, on-site compensation, off-site compensation.

- Appendix 4 of the Biological Opinion (NFIP BO Appendix 4 page 223) also states that fish habitat and flood storage within the floodplain but outside the Protected Area must be protected by mitigating impacts to stormwater regimes, bank stability, channel migration processes, hyporheic zones, wetlands, and large woody debris loadings and recruitment to rivers. Each of these variables must be considered when jurisdictions describe current conditions and assess the impacts of proposed actions.

Appendix 4: Minimum Criteria

It is the purpose of the following criteria to maintain streams and floodplains in their natural state to the maximum extent possible so they support healthy biological ecosystems, by: 1) assuring that flood loss reduction measures under the NFIP protect natural floodplain functions and riparian habitat, and the natural processes that create and maintain fish habitat, and 2) preventing or minimizing loss of hydraulic, geomorphic, and ecological functions of freshwater and estuarine floodplains and stream channels.

In all 100-year floodplain areas (SFHAs) the following criteria apply:

1. Restrict development in the Riparian Buffer Zone for all watercourses including off channel areas (areas outside this zone but within the Special Flood Hazard Area) to provide necessary protection to the RBZ. The RBZ is the greater of the following:

- 250 feet measured perpendicularly from ordinary high water for Type S (Shorelines of the State) streams, 200 feet for Type F streams (fish bearing) greater than 5 feet wide and marine shorelines, and 150 feet for Type F streams less than 5 feet wide, for lakes. For type N (nonsalmonid-bearing) perennial and seasonal streams a 150 foot or 225 foot buffer applies, depending on slope stability (the 225 foot buffer applies to unstable slopes), *[updated per the May 14, 2009, errata letter]*
- the Channel Migration Zone²² plus 50 feet; and
- the mapped Floodway.

The Riparian Buffer Zone is an overlay zone that encompasses lands as defined above on either side of all streams, and for all other watercourses including off channel areas. The RBZ is a no disturbance zone, other than for activities that will not adversely affect habitat function. Any property or portion thereof that lies within the RBZ is subject to the restrictions of the RBZ, as well as any zoning restrictions that apply to the parcel in the underlying zone.

[Footnote 22: The lateral extent of likely movement along a stream reach during the next one hundred years with evidence of active stream channel movement over the past one hundred years. Evidence of active movement can be provided from aerial photos or specific channel and valley bottom characteristics. A time frame of one hundred years was chosen because aerial photos and field evidence can be used to evaluate movement in this time frame. Also, this time span typically represents the time it takes to grow mature trees that can provide functional large woody debris to most streams. In large meandering rivers a more detailed analysis can be conducted to relate bank erosion processes and the time required to grow trees that function as stable large woody debris.

With the exception of shorelands in or meeting the criteria for the “natural” and “rural conservancy” environments, areas separated from the active channel by legally existing artificial channel constraints that limit bank erosion and channel avulsion without hydraulic connections shall not be considered within the CMZ. All areas, including areas within the “natural” and “rural conservancy” environments, separated from the natural channel by legally existing structures designed to withstand the 100-year flood shall not be considered within the CMZ. A tributary stream or other hydraulic connection allowing listed species fish passage draining through a dike or other constricting structure shall be considered part of the CMZ.]

Restrictions in this area apply to all development, per the definition of development.²³ Uses that are not permitted unless shown not to adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmon, include the following: new buildings, including accessory buildings; new impervious surfaces; removal of native vegetation; new clearing, grading, filling, land-disturbing activity or other “development” (see definition), other than for the purpose of replacing non-native vegetation with native vegetation, and for other approved restoration work; septic tanks and drain fields, dumping of any materials, hazardous or sanitary waste landfills; receiving areas for toxic or hazardous waste or other contaminants; and, stream relocations, unless the primary function of the action is to restore natural ecological function.

[Footnote 23: 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, or any other activity which results in the removal of substantial amounts of vegetation or in the alteration of natural site characteristics located within the area of special flood hazard.]

In the RBZ the following uses are allowed: [1] repair or remodel of an existing building in its existing footprint, including buildings damaged by fire or other casualties; [2] removal of noxious weeds; [3] replacement of non-native vegetation with native vegetation; [4] ongoing activities such as lawn and garden maintenance; [5] removal of hazard trees; [6] normal maintenance of public utilities and facilities; and [7] restoration or enhancement of floodplains, riparian areas and streams that meets Federal and State standards

2. Protect fish habitat and flood storage in the remaining 100-year floodplain (outside the RBZ) by either:

a.) Prohibiting development in the 100-year floodplain, OR

b.) Providing compensation for any adverse effects to floodwater storage and fish habitat function within the 100-year floodplain. *[updated per the May 14, 2009, errata letter]*

Any development in the 100-year floodplain must be compensated, for example, through the creation of an equivalent area and volume of floodwater storage and fish habitat through a balanced cut and fill program. The new flood storage/habitat area must be graded and vegetated to allow fish refugia during flood events and return to the main channel as floodwaters recede without creating stranding risks. In addition, equivalent area, if not located on site, must be located in priority floodplain restoration areas identified in the ESU Recovery Plan for listed species.

3. Mitigate for all adverse indirect effects of development in the floodplain (effects to stormwater, riparian vegetation, bank stability, channel migration, hyporheic zones, wetlands, LWD, etc.) such that equivalent or better salmon habitat protection is provided. *[updated per the May 14, 2009, errata letter]*

Stormwater. Reduce flood volumes and stormwater runoff from new development by ensuring that increased volumes of stormwater reach the river at the same frequency, timing, and duration as historical runoff. Low Impact Development (LID) methods are required to treat and infiltrate runoff as described in PSAT 2002. These methods generally include various practices for infiltrating stormwater to provide water quality treatment, match historical runoff durations, and preserve base flows.

Riparian vegetation: Maintain or replace riparian function by providing equivalent area, diversity, and function of riparian vegetation as currently exists on the site (per WDFW riparian management recommendations (Knutson and Naef 1997)).

Bank Stability: Bank stabilization measures along salmonid-bearing streams, channel migration zones, and along estuarine and marine shorelines must be minimized to the maximum extent possible. If bank stabilization measures are necessary, bioengineered armoring of streambanks and shorelines must be used (per the Integrated Streambank Protection Guidelines 2003 (for riverine shorelines) or the State Shorelines Guidelines on bank stabilization (2003) (for estuarine and marine shorelines)).

Channel migration. No activity is allowed that limits the natural meandering pattern of the channel migration zone, however, natural channel migration patterns may be enhanced or restored (see Rapp and Abbe 2003, for delineating channel migration zones).

Hyporheic zones. No activity is allowed that interferes with the natural exchange of flow between surface water, groundwater and the hyporheic zone, however, natural hyporheic exchange may be enhanced or restored (see Bolton and Shellberg. 2001 for hyporheic zone issues).

Wetlands. Wetland function must be maintained or replaced by providing equivalent function per Washington State Department of Ecology (McMillan 1998) regulations.

LWD. Any LWD removed from the floodplain must be replaced in kind, replicating or improving the quantity, size, and species of the existing LWD (per WDFW Aquatic Habitat guidelines).

In the 100-year floodplain outside the Riparian Buffer Zone the following apply:

1) For buildable lots partially in the floodplain, require structures to be located on the portion of the lot outside of the mapped floodplain. Where a buildable lot is fully in the floodplain, structures must be sited in the location that has the least impact on listed salmon, e.g., located as far from the stream or river as possible on the lot, placing structures on the highest land on the lot, orienting structures parallel to flow rather than perpendicular, and avoiding disruption of active hyporheic exchange on a site.

2) Require zoning to maintain a low density (e.g., 5-acre lots or greater) of floodplain development to reduce the damage potential within the floodplain to both property and habitat, and help maintain flood storage and conveyance capacity.

3) All structures must be set back at least 15 feet from the RBZ and shall be sited as close to the 100-year floodplain boundary as possible.

4) In an effort to site structures as far away from the watercourse and RBZ as possible, the applicant will be apprised of the elevations of the 10-year and 50-year floods in detailed study areas at the same time that the (city, county) provides the 100-year elevation as a part of the permit review. The applicant, in addition to plotting the 100-year elevation near the building site, will also plot the 10 and 50-year elevations on the land. The purpose is to show the applicant the significantly lower risk of placing the structure further away from the watercourse.

5) Structures built using post, pier, piling or stem wall construction may require less mitigation than structures built on earth fill, but must provide equivalent mitigation for lost fish habitat and indirect effects from development.

6) Creation of new impervious surfaces²⁴ shall not exceed 10 percent of the surface area of the portion of the lot in the floodplain unless mitigation is provided.

[Footnote 24: Any material or land alteration (i.e. clearing, grading, etc.) which reduces or prevents absorption of storm water into the ground. That hard surface area which either prevents or retards the entry of water into the soil, water that had entered under natural conditions prior to development; and/or that hard surface area that causes water to run off the surface in greater quantities or at an increased rate of flow from that present under natural conditions prior to development. Common impervious surfaces include, but are not limited to: roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, and packed earthen materials.]

7) Removal of native vegetation must leave 65 percent of the surface area of the portion of the lot in the floodplain in an undeveloped state; the 65 percent pertains to the entire portion of the lot in the floodplain, including that area in the RBZ, where removal of native vegetation is generally prohibited.

8) The proposed action must be designed and located so that it will not require new structural flood protection (e.g., levees).

9) During the floodplain permit review process, applicants shall be notified that their property contains land within the Riparian Buffer Zone and/or 100-year floodplain, and that the applicant is required to record a Notice on Title on the property before a permit may be issued. Applicants shall be further notified that development in the RBZ and 100-year floodplain can only occur according to the above criteria.

10) New road crossings over streams are prohibited.

11) Concepts of cluster development, density transfer, credits and bonuses, planned unit development, and transfer of development rights shall be employed wherever possible.

12) Any flood information that is more restrictive or detailed than the FEMA data can be used for flood loss reduction and/or fisheries habitat management purposes, including data on channel migration, more restrictive floodways, maps showing future build-out and global climate change conditions, specific maps from watershed or related studies that show riparian habitat areas, or similar maps.

In the RBZ and the floodplain the following re-development criteria apply:

1) Require that expansion to existing buildings in the floodplain be limited to no more than 10 percent of the existing footprint (i.e., when building and other structures such as garages are substantially damaged or expanded in the floodplain), unless mitigation for any adverse effects to floodplain habitat is provided, as described above .

4. Communities choosing to implement the mitigation option (2.b. above) must track the projects for which they issue floodplain development permits, including effects to flood storage, fish habitat, and all indirect direct of development. The expected development effects, the equivalent mitigation provided, and the success of the mitigation in replacing the affected fish habitat and flood storage functions shall be reported to FEMA on a semi-annual basis (according to the monitoring requirements in RPA element 3.D)