



# SHORELINE MASTER PROGRAM UPDATE



## Shoreline Master Program Regulations

January 22, 2009



# SHORELINE MASTER PROGRAM UPDATE



## Agenda

- Discuss topics & provide staff with policy direction on key issues
  - Shoreline Stabilization
  - Piers



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## Review of key State provisions:

- SMP must include standards regarding protection of SFR against damage or loss due to shoreline erosion. (RCW 90.58.100(6))
- SMPs should allow structural shoreline modifications only where necessary to protect allowed primary structure/existing use. (WAC 173-26-231(2)).
- SMPs must address shoreline stabilization and new and replacement structures. (WAC 173-26-231(3)(a)(iii))



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## Key Shoreline Stabilization Provisions:

- Show that nonstructural measures not feasible.
- Existing primary structure must be in danger from erosion caused by tidal action, currents or waves, not upland erosion.
- Danger must be documented by geotech analysis showing damage is likely within 3 years.
- Existing bulkhead may be replaced if there is demonstrated need to protect principal structures.
- If necessary, soft approaches must be used unless demonstrated to be not sufficient.
- Limit size of stabilization measures to minimum necessary.



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## SMP - Cumulative impacts analysis

- Analyze total predictable incremental effect on shoreline functions.
- Project amount of new and replacement bulkheads.
- Address continuing impacts from existing structures.
- Evaluate benefits derived from mitigation or impact minimization strategies.



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- Shoreline Stabilization
  - Last discussed by PC on 11/20
  - PC recommendations:
    - Establish SDP for new hard shoreline stabilization structures (in R-L, R-M/H, and UM)
    - Performance-based mitigation standards for new hard shoreline stabilization structures
      - Proposal: Shoreline plantings, nearshore enhancement, or alternative measures approved by state/fed agencies
    - Waive geotechnical report where possible by establishing additional criteria
      - Proposal:
        - » New/enlarged structures: waive if primary structure within 10'
        - » Replacement: require written narrative in lieu of geotechnical report, to be reviewed by City's consultant

Shoreline Stabilization Action	Submittal Information	Impact Minimization Techniques	Mitigation
New or Enlarged Hard Shoreline Stabilization Structure	<p>Requires Geotechnical Report, and demonstration that non-structural measures are not feasible or not sufficient. (WAC 173-26-231(3)(a)(iii)(B) and WAC 173-26-231(3)(a)(iii)(D))</p> <p><b>Proposal: Geo report except for primary structure w/in 10'</b></p>	<p>Required. (WAC 173-26-231(3)(a)(iii)(E))</p> <p><b>Proposal: Limit size, use soft measures where possible, shift of slope landward, construction timing provisions, use of BMPs</b></p>	<p>Required. (WAC 173-26-201(2)(e)).</p> <p><b>Proposal: Installation of native vegetation, nearshore enhancement, or other approved by state/fed agencies</b></p>
Replacement Hard Shoreline Stabilization Structure	<p>Requires evidence of a <b><i>demonstrated need</i></b> to protect principle uses or structures from erosion caused by currents, tidal action, or waves (WAC 173-26-231(3)(a)(iii)(E))</p> <p><b>Proposal: Written narrative with review by City's consultant</b></p>	<p>Required. (WAC 173-26-231(3)(a)(iii)(E))</p> <p><b>Proposal: Limit size, use soft measures where possible, shift of slope landward, construction timing provisions, use of BMPs</b></p>	<p>Not required (except as identified through mitigation sequencing).</p> <p><b>Proposal: Address short-term construction impacts.</b></p>
Repair of Shoreline Stabilization Structure	<p>Depends</p> <p><b>Proposal: Written narrative indicated if project qualifies as major repair</b></p>	<p>Required (WAC 173-26-231(a)(iii)(C)).</p> <p><b>Proposal: Major repair must meet same requirements as new or replacement.</b></p>	<p>Not required (except as identified through mitigation sequencing).</p> <p><b>Proposal: Address short-term construction impacts.</b></p>



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## Draft Shoreline Stabilization Standards (p. 39)

- Establish when new/enlarged structural shoreline stabilization measures permitted
  - Protect existing primary structure
  - Support new non-water dependent development, subject to conditions
  - Support water-dependent development, subject to conditions
  - For restoration/hazardous substance remediation



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## Draft Shoreline Stabilization Standards (p. 40)

- Provides standards for replacement or repair of existing measures
  - Major v. minor repair
    - Major = 15' has lost structural integrity or requires modification to toe rock/footings OR 75% of structure impacted by repair
  - Major repair/replacement treated same as new structure, except for requirement to submit geotech report



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## Draft Shoreline Stabilization Standards (p. 41)

- Submittal Requirements

- New/enlarged = geotechnical report, may be waived if primary structure w/in 10' of OHWM
- Major repair/replacement = Written demonstration of need, may be waived if primary structure w/in 10' of OHWM
- Fund review by City's consultant
- Construction plans
- Security device (e.g. bond)



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## Draft Shoreline Stabilization Standards (p. 44)

- Design Standards

- All =

- Address short-term construction impacts
    - If OHWM shifts, “vest” lot area and setback; cannot expand shoreline jurisdiction onto adjoining properties w/out permission
    - Other miscellaneous standards

- New/enlarged, major repair/replacement =

- Use soft measures to max. extent
    - Limit size
    - Shift measure or slope landward

- New/enlarged = Mitigate



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## Draft Shoreline Stabilization Standards (p. 45)

- Design standards for hard measures
  - Address connections to adjoining properties (with and w/out existing hard measures)
  - Standards for fill behind hard measure
- Design standards for soft measures
  - Address connections to adjoining properties
  - Size/arrangement to ensure that project remains stable



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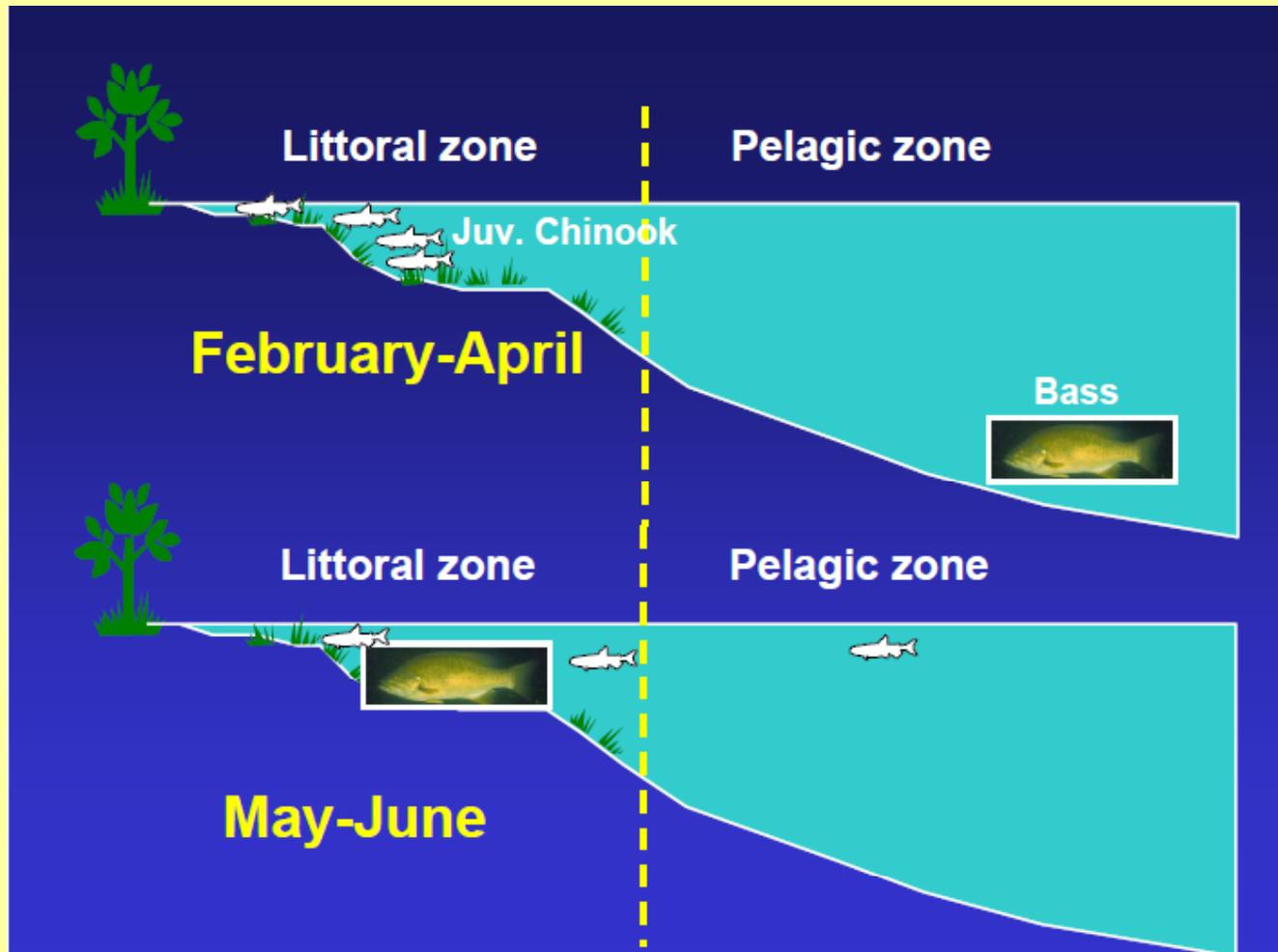


## ***How do traditional piers impact salmon?***

- Inhibit juvenile migration
- Sharp shade lines
- Shading inhibits aquatic vegetation
- Predator habitat (piles and cover)
- Nearshore habitat is compromised
- Introduction of contaminants
- Interfere with natural movement/accumulation of lakebed substrate



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Source: US Fish and Wildlife Service

Feb. – mid-May:

Inhabit nearshore area

- Shallow water (<1m)
- Gentle slope
- Small substrate

Mid-May – June:

Move into deeper water

Overlap with Smallmouth bass habitat

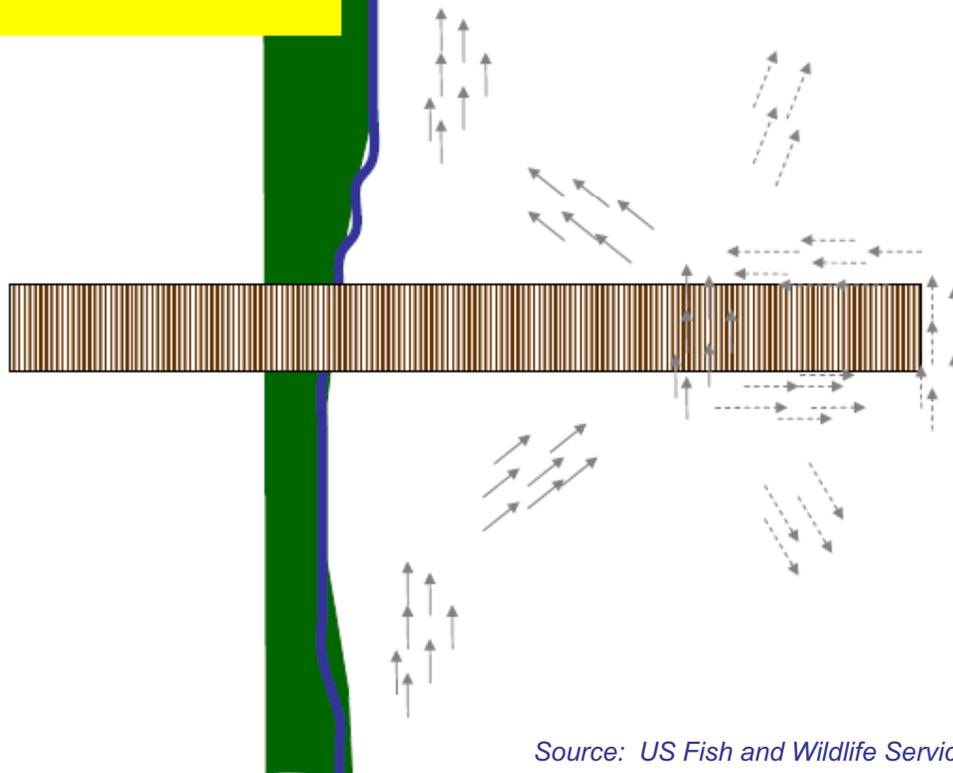


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Commonly observed behaviors of Chinook schools at boat docks:

1. Move to deeper water prior to swimming under structure
2. Swim completely around the perimeter of the structure
3. Return to shallower water once beyond the structure



Actively migrating fish appear to change course as they approach and move around structures

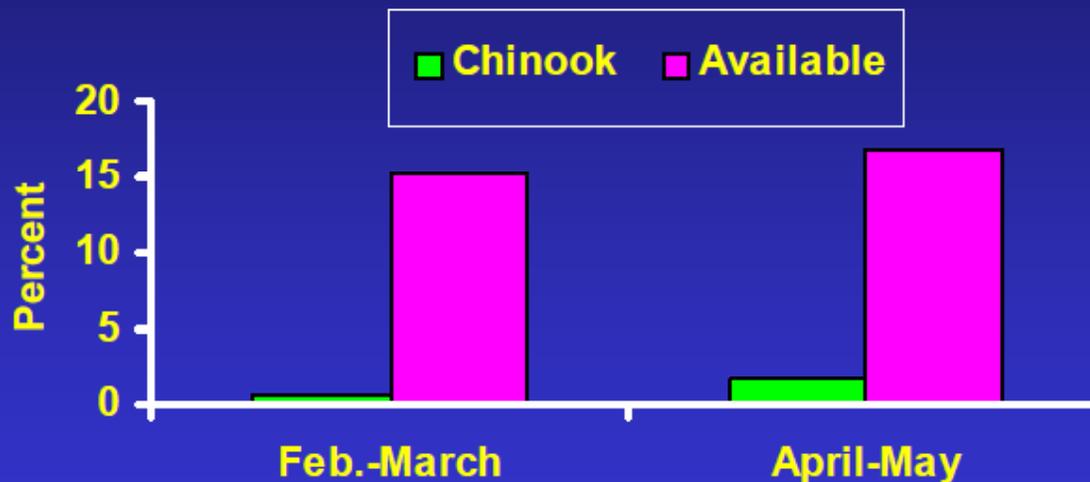
Source: US Fish and Wildlife Service



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## Overwater Structures Night surveys



Chinook salmon smolts generally avoid areas directly beneath overwater structures

Source: US Fish and Wildlife Service



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## Rainier Beach Restoration Site

Marina and rip rap replaced with gravel beach



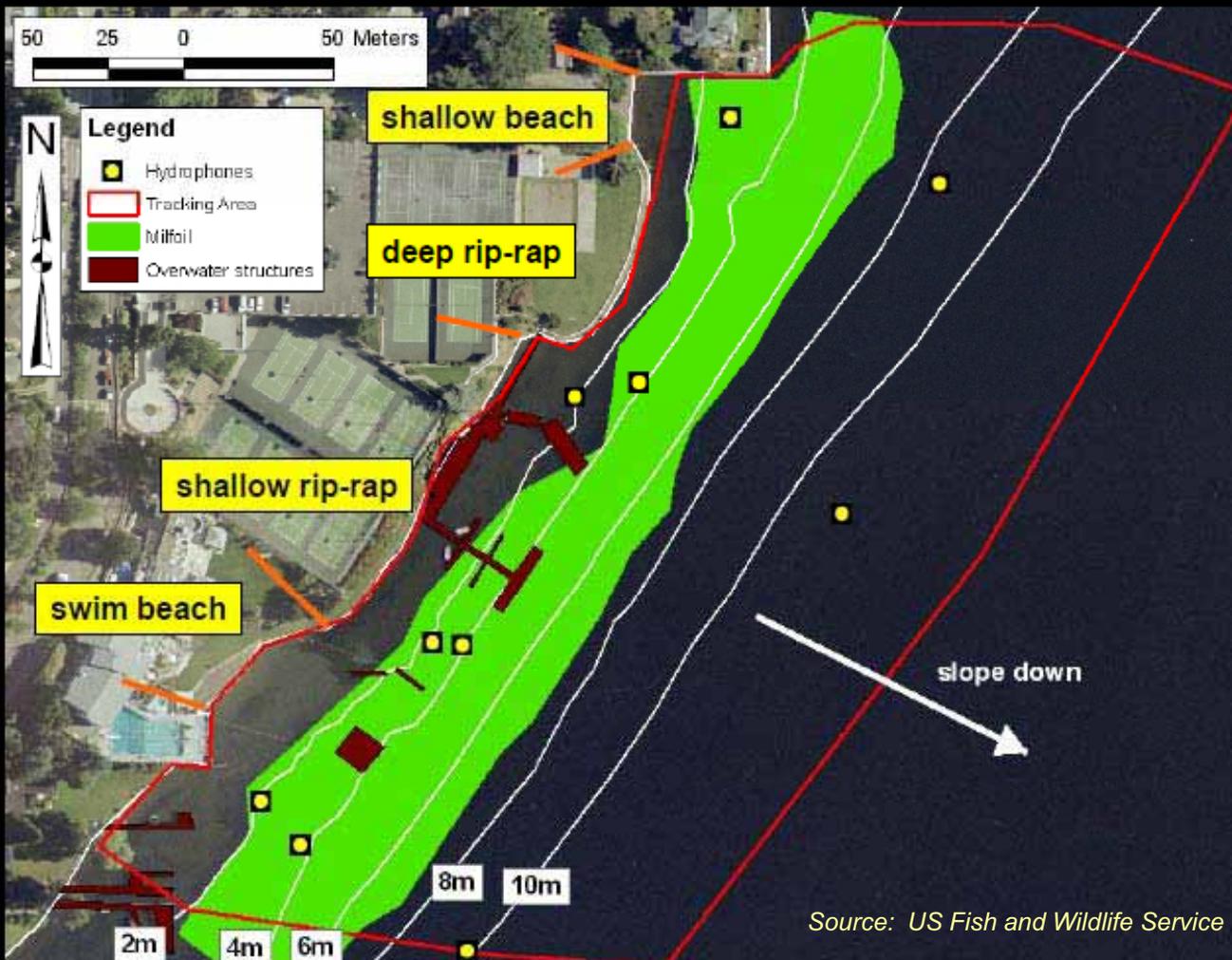
Source: US Fish and Wildlife Service



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## Seattle Tennis Club (2005)



Study used acoustic tracking system to document juvenile Chinook salmon migration patterns

Source: US Fish and Wildlife Service



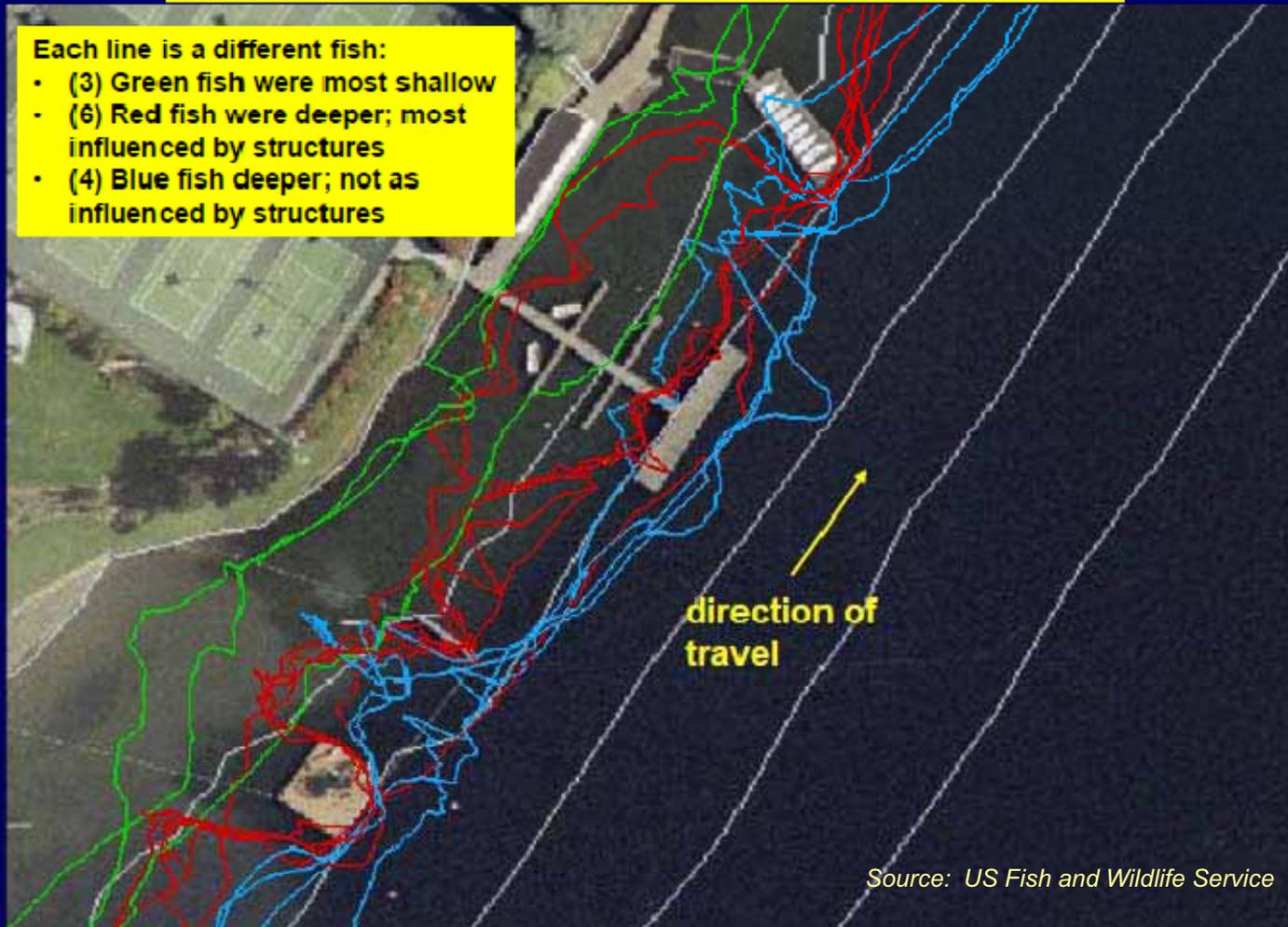
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## Behavior around structures Tennis Club

Each line is a different fish:

- (3) Green fish were most shallow
- (6) Red fish were deeper; most influenced by structures
- (4) Blue fish deeper; not as influenced by structures



Structure width and water depth appeared to influence degree of avoidance.

Source: US Fish and Wildlife Service



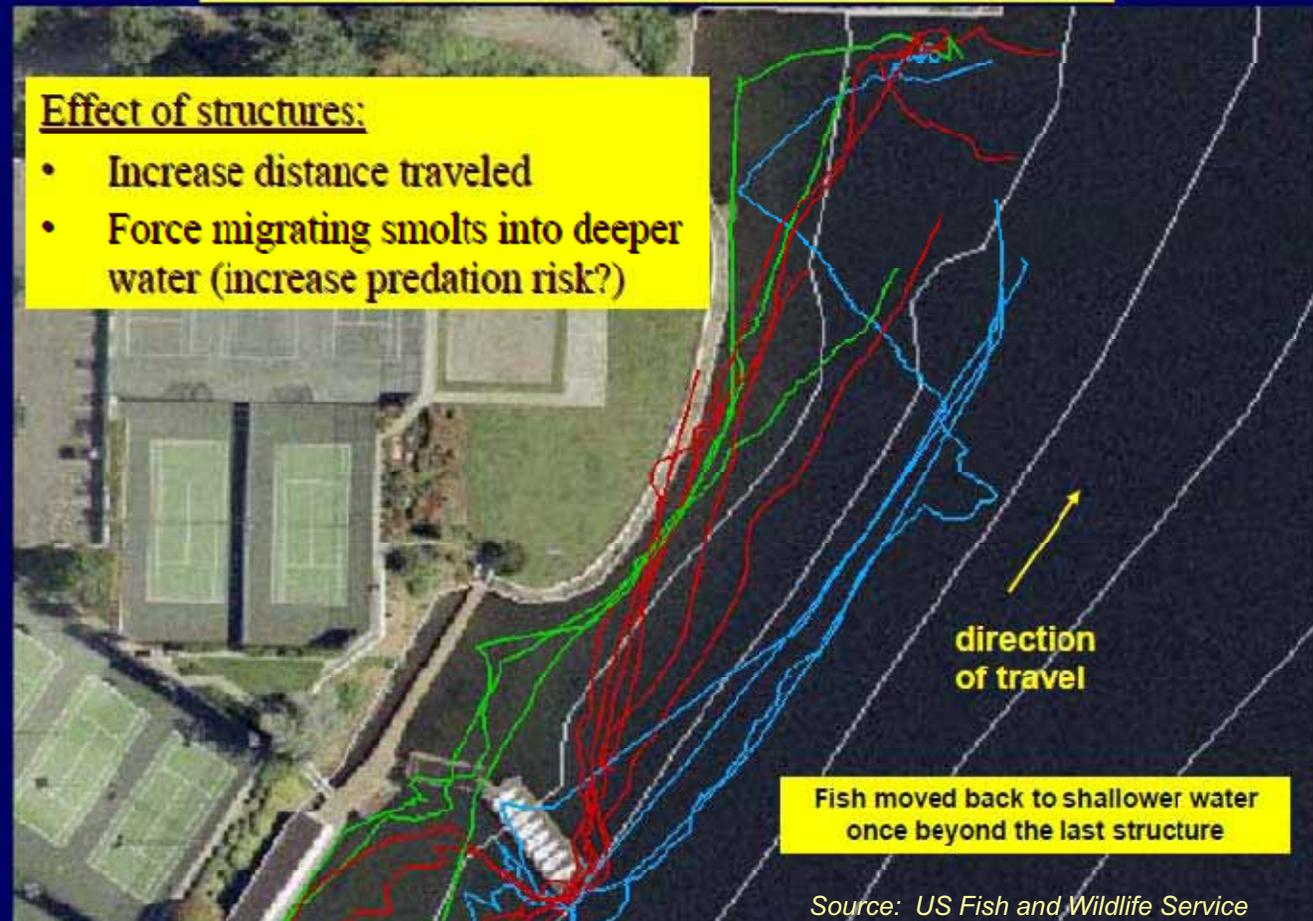
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## Tennis Club

### Effect of structures:

- Increase distance traveled
- Force migrating smolts into deeper water (increase predation risk?)

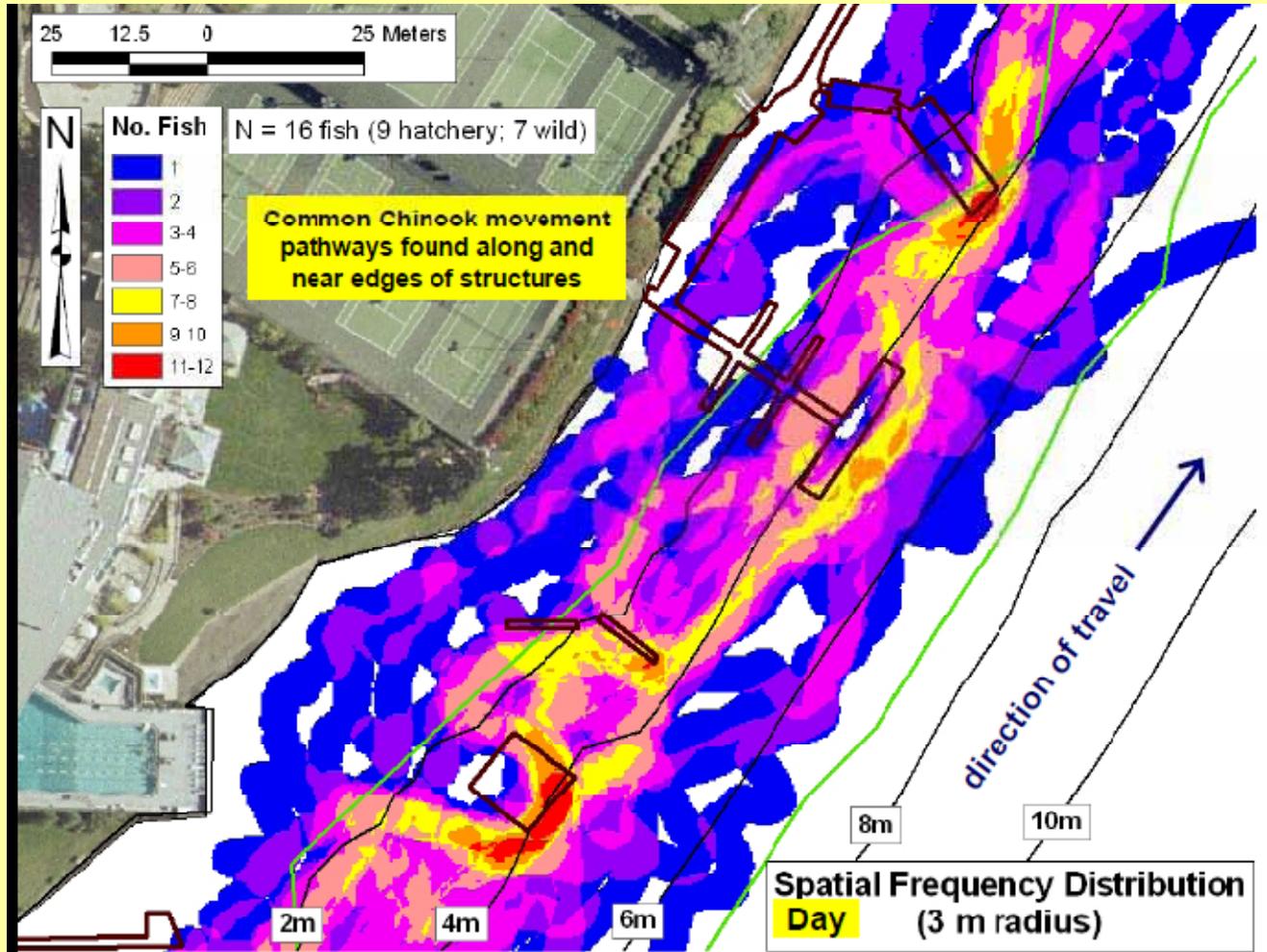


Fish moved back to shallower water once beyond the last structure

Source: US Fish and Wildlife Service



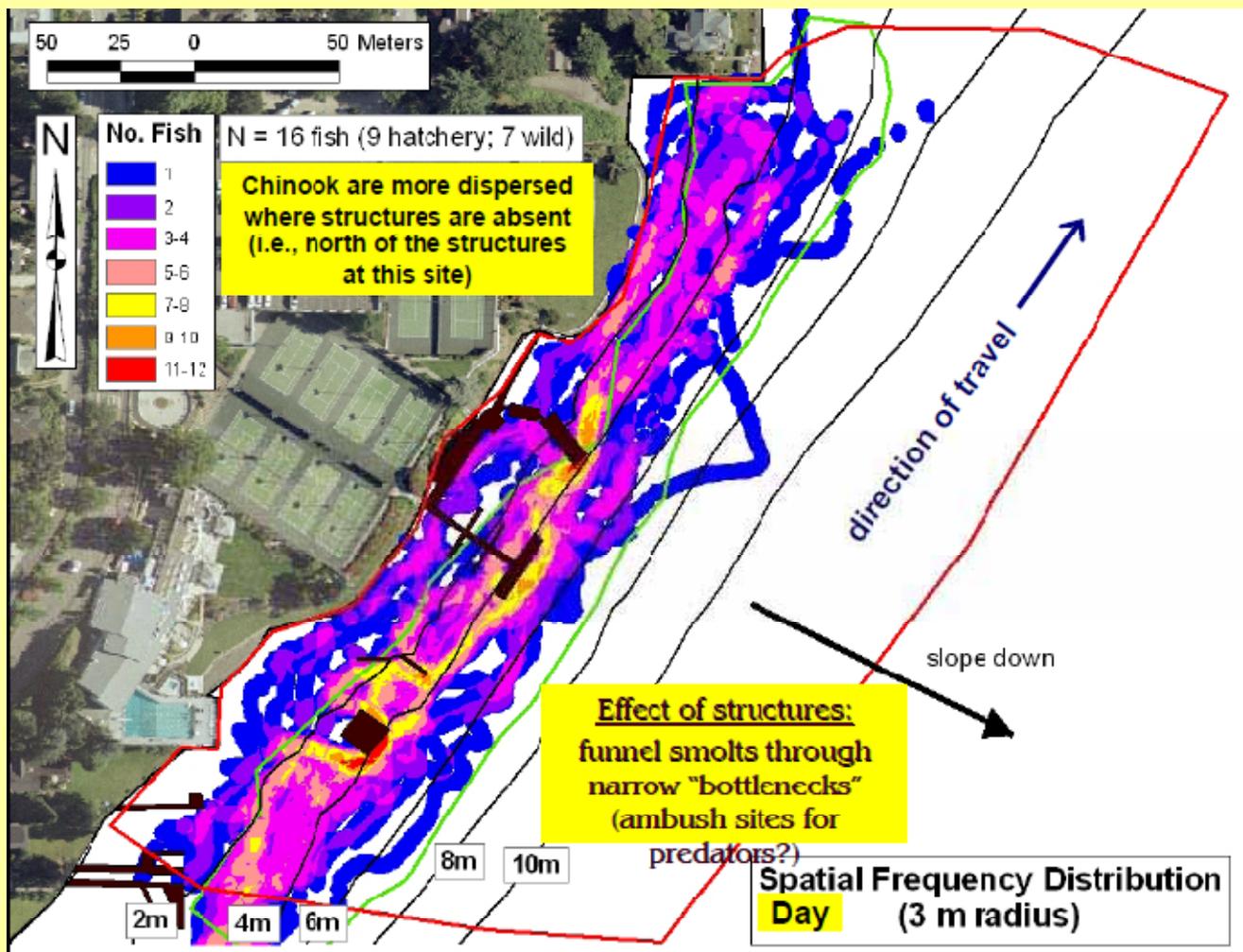
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Source: US Fish and Wildlife Service



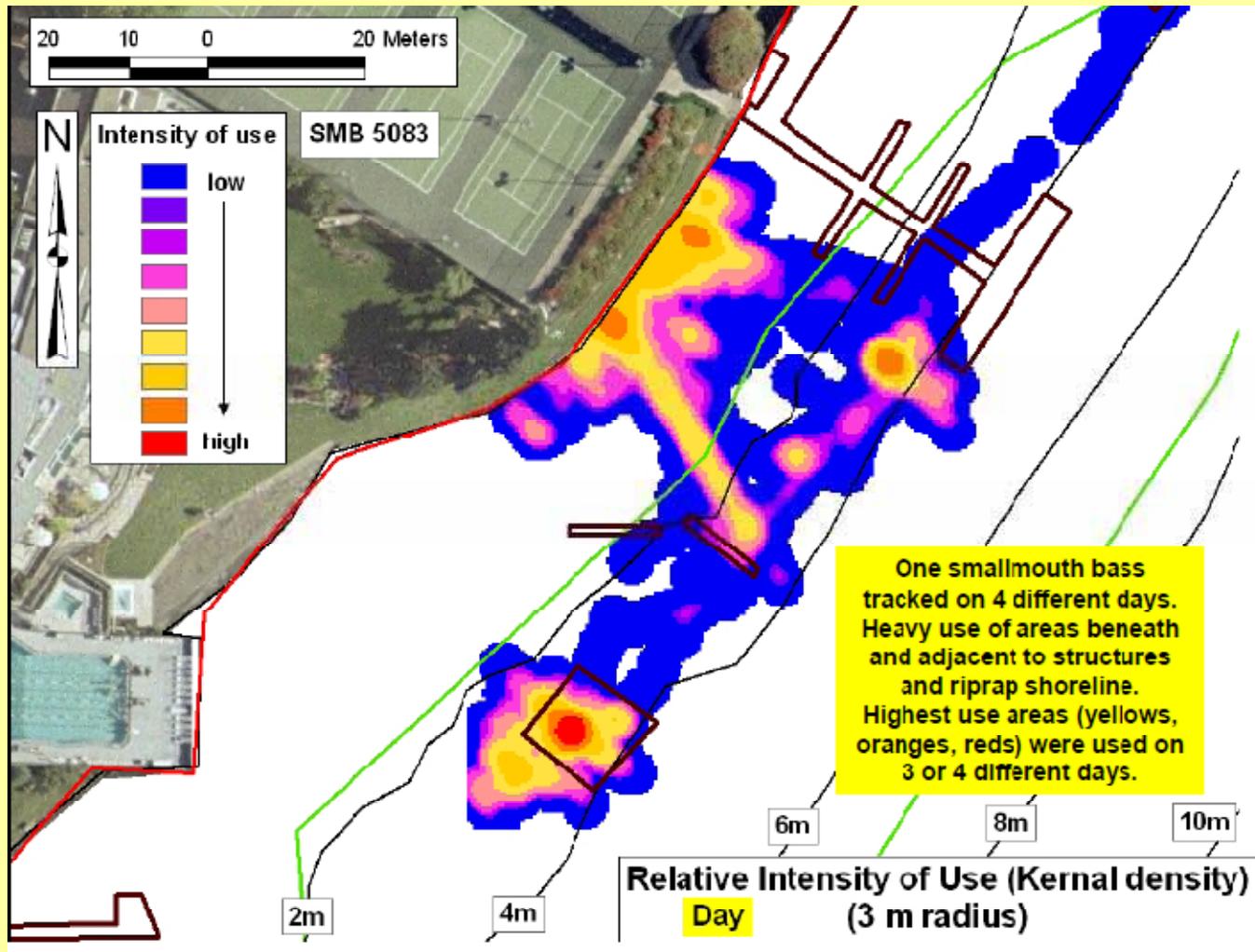
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Source: US Fish and Wildlife Service



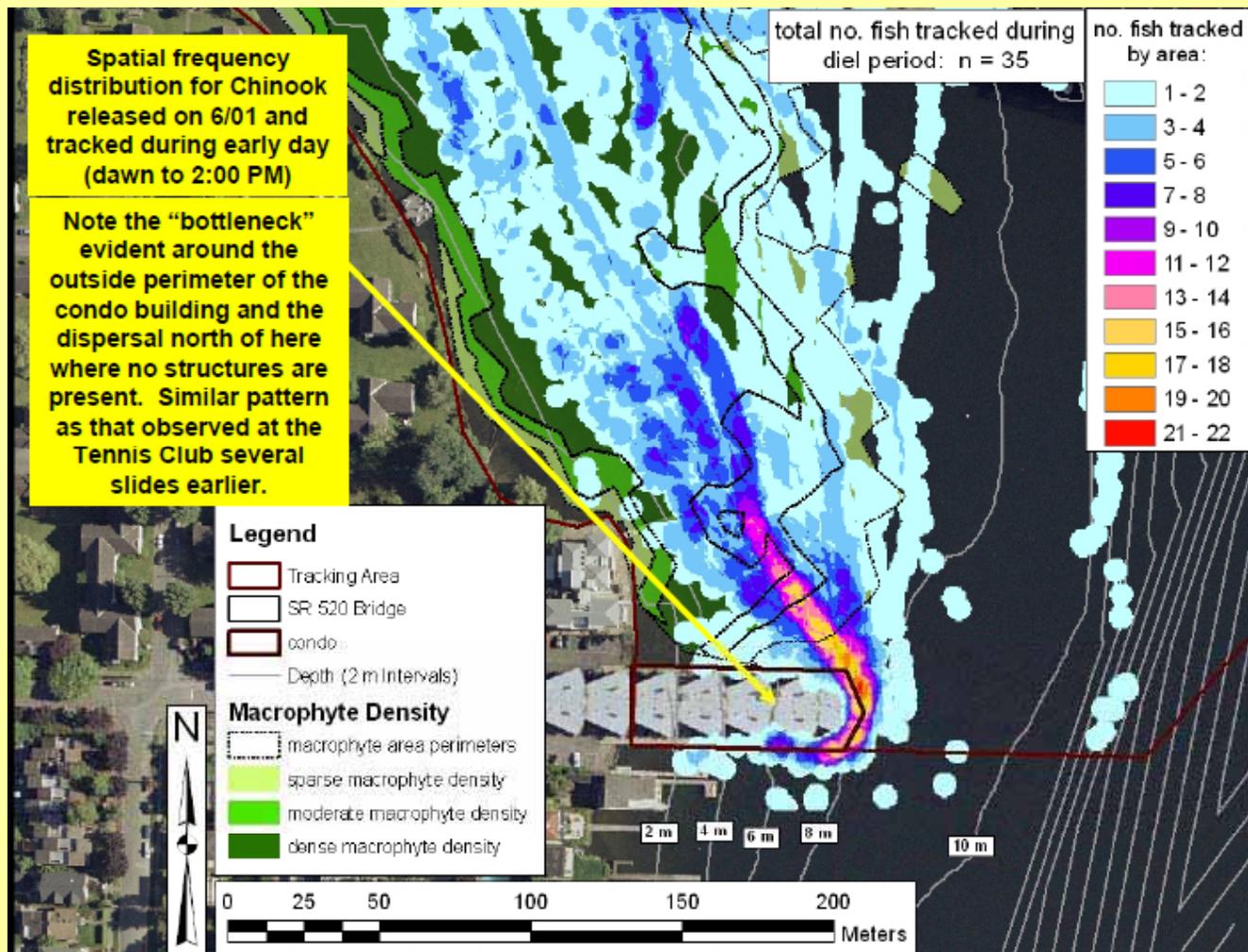
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Source: US Fish and Wildlife Service



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Source: US Fish and Wildlife Service



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## Key State Requirements (pg. 13):

- Must meet NNL
- Piers allowed for:
  - Water-dependent use (including SFR)
  - Public access
  - Must establish need (except SFR)
- Design Standards:
  - Minimum size necessary
  - Joint use, when feasible
  - Use mitigation sequencing
  - Use of approved materials
  - Minimize interference with navigation



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## Key WRIA 8 recommendations:

- Minimize overwater structures
- Support interagency development of pier specifications (RGP-3)
- Use of mesh surfaces/community docks



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## *How Much Overwater Coverage Does Kirkland Have?*

- Inventory shows:
  - Total coverage of approximately 395,440 square feet
  - Approximately 160 existing structures
  - Approximately 25 existing lots without piers



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## *Sharp shade line from pier*

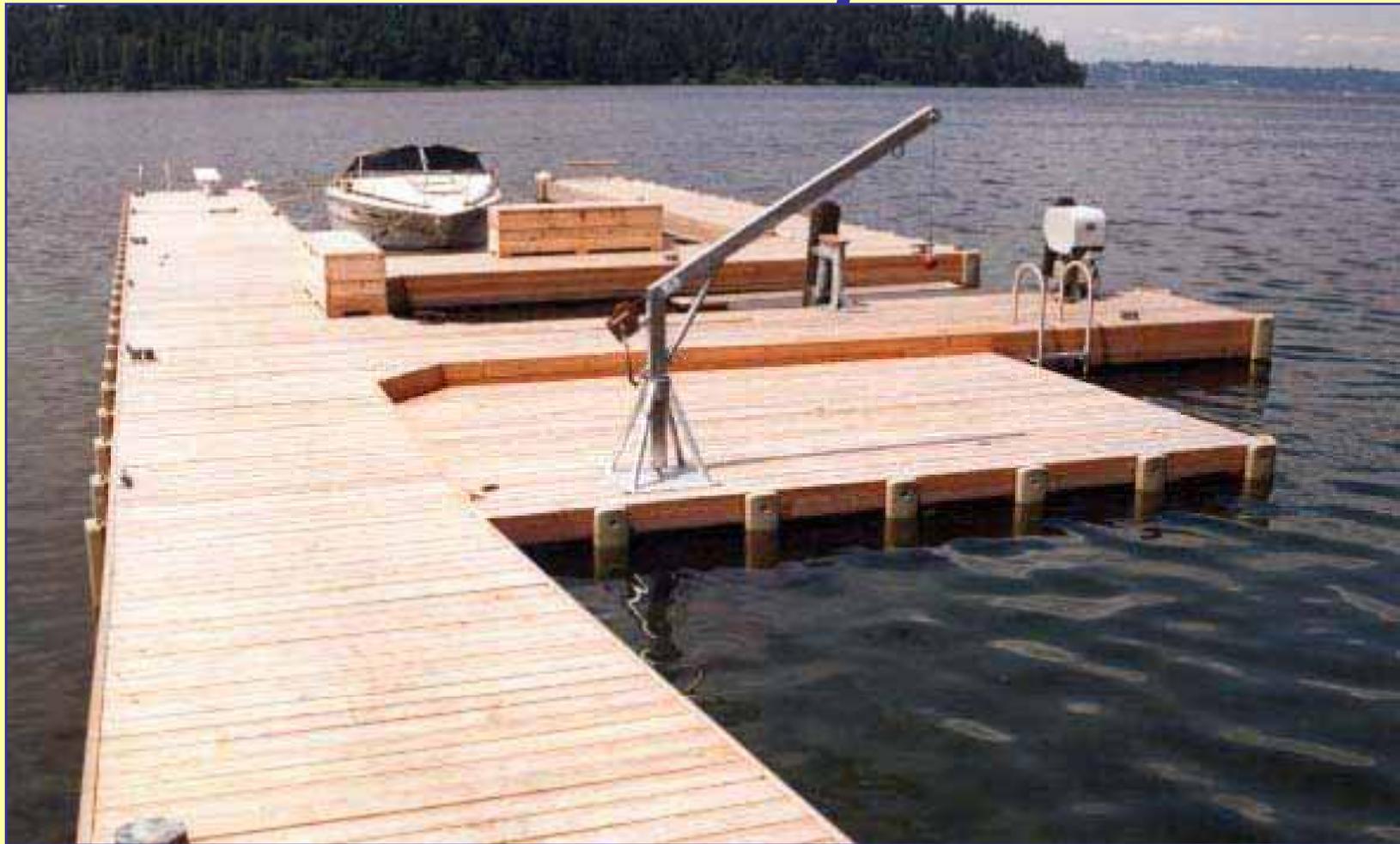




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## *Traditional pier*



# ***Pier Design Alternatives***

- Width reduction
- Grated decking
- Increase height off water
- Extend ells to deeper water
- Elevated nearshore walkways
- Longer pile spans
- Reduce pile size and number
- Remove unnecessary overwater structure in nearshore 30 feet
- Locate overwater coverage at end of pier
- Use of joint piers
- Materials (used approved aquatic treatments)



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## *Fiberglass grating*





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## *Ipe grating*





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## *Elevated pier height*





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## *Bridge spanning nearshore*





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## ***Bridge to a small pier***

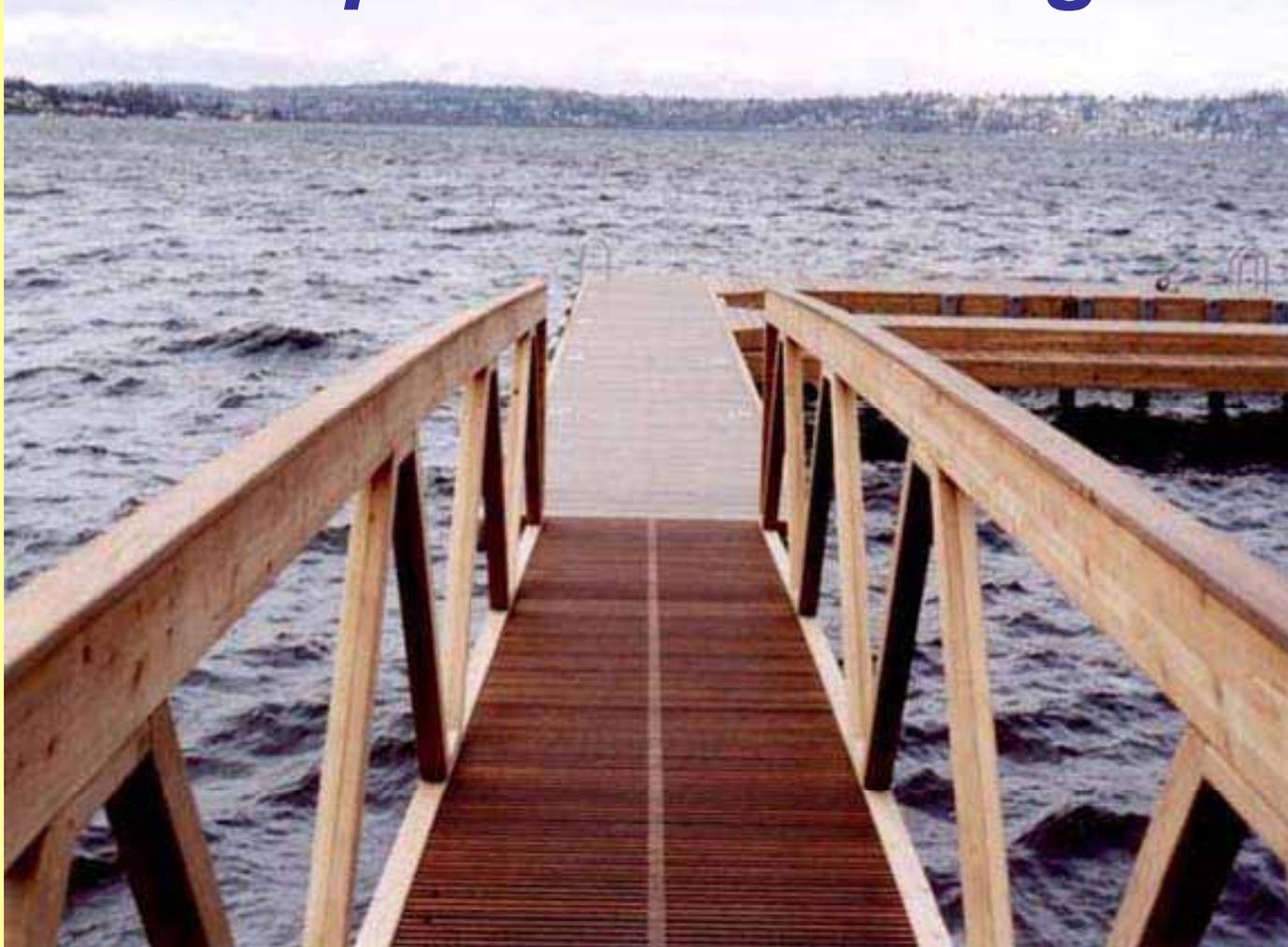




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***Narrow pier width and grating***





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## Conceptual Options for New Piers

Approach	Perceived Benefits	Potential Concerns
1. Require use of RGP-3 standards; otherwise variance	<ul style="list-style-type: none"><li>•Opportunity to streamline permitting at local, state, and federal agencies</li><li>•Responds to guidance re: minimize pier size</li></ul>	<ul style="list-style-type: none"><li>•Lack of flexibility</li><li>•Expense/time for shoreline variance</li></ul>
2. Require use of RGP-3 standards, with admin. approval of alternative design meeting state/fed standards	<ul style="list-style-type: none"><li>•More flexible/responsive to property owner</li></ul>	<ul style="list-style-type: none"><li>•Difficult to evaluate under Cumulative Impact Analysis</li><li>•More complicated review process</li><li>•Potential for inconsistency between local and state/fed provisions</li><li>•Lack of clear guidance at local level of expected standards</li></ul>



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## Conceptual Options for Replacement Piers

Approach	Perceived Benefits	Potential Concerns
<p>1. Require use of RGP-3 standards; otherwise variance</p>	<ul style="list-style-type: none"> <li>•Provides greatest opportunity for reduction in overwater coverage</li> <li>•Opportunity to streamline permitting at local, state, and federal agencies</li> <li>•Responds to guidance re: minimize pier size</li> </ul>	<ul style="list-style-type: none"> <li>•Lack of flexibility</li> <li>•Likely reduction in overall size from existing pier (with resulting concerns about loss of existing functionality)</li> <li>•Expense/time for shoreline variance</li> </ul>
<p>2. Require use of RGP-3 standards, with admin. approval of alternative design meeting state/fed standards</p>	<ul style="list-style-type: none"> <li>•More flexible/responsive to property owner</li> <li>•Provides reduction in overwater coverage (at property scale)</li> <li>•Responds to guidance re: minimize pier size</li> </ul>	<ul style="list-style-type: none"> <li>•Difficult to evaluate under Cumulative Impact Analysis (CIA)</li> <li>•More complicated review process</li> <li>•Potential for inconsistency between local and state/fed provisions</li> <li>•Lack of clear guidance at local level of expected standards</li> </ul>
<p>3. Require area of pier to be reduced by 10% or compliance with RGP-3. Require use of RGP-3 provisions for other specific dimensional/material standards</p>	<ul style="list-style-type: none"> <li>•More flexibility than Option 1, but greater predictability than Option 2</li> <li>•Provides reduction in overwater coverage (at property scale)</li> </ul>	<ul style="list-style-type: none"> <li>•Potential for inconsistency between local and state/fed provisions</li> <li>•Difficult to evaluate under CIA/may need to revise % reduction</li> <li>•More complicated review process</li> </ul>
<p>4. Allow replacement to existing dimensions, together with impact minimization measures such as grating, pile size, spacing, etc.</p>	<ul style="list-style-type: none"> <li>•Most flexibility</li> </ul>	<ul style="list-style-type: none"> <li>•Demonstration of NNL difficult to meet</li> <li>•Does not respond to guidance re: minimize pier size</li> <li>•Potential for inconsistency between local and state/fed provisions</li> </ul>



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## Conceptual Options for Pier Enlargements

Approach	Perceived Benefits	Potential Concerns
<p>1. Additions must meet RGP 3 dimensional, material and mitigation standards. Must demonstrate need (e.g. safety, depth of water)</p>	<ul style="list-style-type: none"> <li>•Responds to guidance re: minimize pier size for addition</li> <li>•Opportunity to streamline permitting at local, state, and federal agencies</li> </ul>	<ul style="list-style-type: none"> <li>•Likely does not mitigate for impacts</li> <li>•Lack of flexibility</li> </ul>
<p>2. Same as #1; in addition, must compensate for additional area with conversion of nearshore solid decking with grating.</p>	<ul style="list-style-type: none"> <li>•Provides greatest opportunity to mitigate for impacts in critical nearshore environment</li> <li>•Opportunity to streamline permitting at local, state, and federal agencies</li> </ul>	<ul style="list-style-type: none"> <li>•Additional expense to modify existing improvements</li> <li>•Lack of flexibility</li> </ul>
<p>3. Additions may match existing pier width and material. Must mitigate for impacts with nearshore improvements.</p>	<ul style="list-style-type: none"> <li>•Greatest flexibility</li> </ul>	<ul style="list-style-type: none"> <li>•Potential for inconsistency between local and state/fed provisions</li> <li>•Lack of clear standards/less predictable than other options</li> <li>•Difficult to evaluate under CIA</li> </ul>



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## Conceptual Options for Pier Repair

Approach	Perceived Benefits	Potential Concerns
1. May replicate current pier, except need to use approved materials (e.g. no creosote pilings)	•Likely preferred by property owners	•Does not avoid impacts that could be addressed •May not be consistent with state agency permit requirements
2. Require implementation of feasible avoidance/minimization techniques consistent with type of repair (e.g. convert to grating if replacing decking)	•Opportunity to improve conditions over time. •Maximizes implementation of all WAC provisions. •Consistency with state agency permit requirements.	•Perception that repairs may be more difficult to undertake.



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## Other issues:

- Threshold separating maintenance/repair and replacement?
  - Proposal: Over 5 year period, if 60% of piles or 60% of substructure replaced, activity is replacement
- Setbacks from property lines
  - Use current standards (minimum 10 feet, more for larger facilities)
- Separation between moorage structures
  - Use current standards (minimum 25 feet, more for larger facilities)



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- Setbacks from public parks (25'; for larger facilities, 100' or 45-degree angle)



Examples of 45-degree setback from Park



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- Setback from Natural Area or Stream Outlet?
- Joint Use
  - Current = encourages development of joint or shared moorage in SR environment
  - Proposal = continue, and add provisions to:
    - Address other shoreline environments (e.g. R-M/H)
    - Include demonstration of why joint use is not feasible
    - Address joint use for property to be subdivided



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## Boatlifts and Canopies

Last discussed by PC as part of Shoreline policies

PC recommendations:

- Allow boatlift and canopies, subject to standards

Key remaining issues:

- How many canopies should be permitted per pier?
- Should same provisions apply to piers serving multiple residences?
- Limit needed on number of permitted watercraft lifts?
- Continue existing standard limiting number of boats to be moored at piers in R-L environment?
- Mitigation standards needed for installation of lift or canopy?



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- Shoreline Property Owner's Forum
  - Saturday, February 28
  - 10 AM – 12 PM
  - Peter Kirk Community Center



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ANY QUESTIONS?