Responses to Questions from 2/28/09 Shoreline Workshop

There were many comments, questions and concerns raised at the shoreline workshop held on February 28, 2009. Staff has provided a draft response to the questions raised at the workshop.

The Planning Commission and staff will continue to discuss the concerns and comments raised at the workshop as the City works through the draft regulations for the shoreline. The SMP update is a work in progress and the responses to the questions can change over time as we work through the issues.

1. **Property owners need to understand implications of non-conforming provisions on their property**

   Staff Response: An interior remodel with no change to the structural supporting walls can occur and is not affected by a non-conformance on the property. For a complete replacement of a home or an addition to the home, the home must meet the setbacks, height and other development regulation in place at the time that the permit is submitted. Expansions may be added to nonconforming structures if they are outside of the shoreline setback and meet applicable regulations in the Zoning Code.

   Under the draft shoreline regulations, the City is considering the allowance of an addition in the shoreline setback to a home that has a portion of the structure already within the shoreline setback area. The size of the addition can be up to 10% of the existing gross floor area of the home provided that the addition is not located closer to the shoreline edge than the existing home.

   See below for discussion concerning major damage to a structure.

2. **Regarding piers, what are "minor repairs"? Clear and reasonable thresholds desired.**

   Staff Response: The questions posed about repair activities raise some very good points and highlight the need to provide clear definitions and criteria for minor repairs. The Department of Ecology's Guidelines and the State Shoreline Management Act do not provide a clear distinction between what constitutes a minor and a major repair, but leave it up to the jurisdiction to make the distinction.

   Staff is continuing to work on this area with the Planning Commission. In the draft presented to the Planning Commission, minor repairs are subject to different standards than are major repairs. Minor repairs would include repairs to piers where only decking or decking substructure or less than 50 percent of the existing pier-support piles is modified. If the project qualifies as minor repair, then the following standards are proposed to apply:
   - *Replacement pilings would need to meet new size standards (be constructed of steel 4 inches in diameter) and achieve the minimum 18-*

foot spacing to the extent allowed by site-specific engineering or design considerations.

- *Decking could generally be replaced in-kind, except that when 50 percent or more of the decking or decking substructure on the pier is replaced over a five (5) year time frame, any solid decking surface located within the nearshore 30 feet of the pier would need to replaced with a grated surface material.*

What does this mean? To try and explain how this would be applied, staff has applied these concepts to the following scenarios:

- *Property owner wants to replace everything above the pilings (e.g. decking, stringers, railings, etc.). In this scenario, the City would require that the nearshore 30 feet be replaced with a fully grated surface.*
- *Property owner wants to replace some deteriorating wood decking. As long as less than 50% of the decking has been replaced in a 5-year period, the City would allow replacement of the existing decking with similar materials.*
- *Property owner wants to replace several deteriorating piles. In this scenario, the City would require the new piles to be 4-inch steel piles and would require 18-foot separation between piles, where possible.*
- *Property owner wants to replace all components of existing pier, including pilings. In this scenario, the City would require the replacement pier to meet new dimensional and material standards.*

It is important to remember that in any of these scenarios, the property owner would also need to obtain appropriate approval from respective state and federal agencies with jurisdiction.

3. Be <u>clear</u> about what "no net loss" means.

<u>Staff Response</u>: Staff has prepared an information sheet that is designed to help improve the understanding of No Net Loss (see Attachment 1 at end of document).

4. **Is dock shade bad and vegetation shade good?**

<u>Staff Response</u>: In general, the answer is "yes." The amount and type of shade that is produced by piers as compared to that by vegetation does differ, with resulting different effects on habitat.

The type of shade and its location along the shoreline is greatly different between piers and vegetation. Piers and other overwater structures tend to produce sharp shade lines that extend perpendicularly from shore out into deeper water (see Photo 1 below). In contrast, nearshore vegetation tends to produce a softer shade line which, in the case of a vegetated shoreline, is located parallel to shore (Photo 2 below).

The way juvenile salmon use or avoid these shaded areas differs depending upon their age and rearing/migration strategy. Recent studies by Roger Tabor and Mark Celedonia of the U.S. Fish and Wildlife Service (2008) have found that small salmon fry, which are usually present from January through March, are typically found rearing near the mouths of tributary streams.

During the day, they tend to find areas of overhead cover, which may include both vegetation and piers. During the night, they tend to move into open water areas and prefer gentle sloping beaches with small gravels and sand. Larger salmon fingerlings, which are usually present from April through June, are less shoreline oriented and are actively migrating out of Lake Washington. During this migration stage, the salmon fingerlings have a much different reaction to shaded areas, tending to avoid areas of overwater cover. During migration along the Lake Washington shoreline, shade avoidance results in the fingerlings swimming around piers, forcing them into deeper water where predators are more likely to reside.

Photo 1

Photo 2

Also, as noted in the Final Kirkland Shoreline Analysis Report, "Piers and other overwater structures shade the lake bottom and inhibit the growth of aquatic vegetation." Overwater structures affect the size, density, and species composition of aquatic plants living directly beneath them. The magnitude of this effect on aquatic plants varies with the size (square footage) of the structure and the amount of sunlight it blocks. Changes in the physical structure of the aquatic plant community affect juvenile salmonids, as well as other native fishes that use this vegetation in the nearshore environment. Disruptions in the aquatic plant community tend to provide additional predator habitat. The combined effect of an overwater structure and a dramatic change in aquatic vegetation results in a behavior modification in juvenile salmonids moving along the shoreline.

As discussed above, Tabor's studies have found that juvenile salmonids migrating parallel to the shoreline will often change course to circumvent piers or other overwater structures rather than swimming beneath them. These behavior modifications disrupt natural patterns of migration and can expose juvenile salmonids to increased levels of predation. Minimizing or modifying overwater coverage and associated support structures to decrease shade impacts should benefit salmon migration. Structural modifications to reduce shade impacts, such as the use of grated decking, may lead to improved migratory conditions for juvenile salmon.

In addition, it should be noted that shade is only one small part of the role that shoreline vegetation can play in providing ecological functions. Other functions of vegetation include wildlife habitat, particularly for perching, nesting, and foraging birds; improved soil condition to allow infiltration of precipitation and to slow and biofilter runoff; and screens to separate the visual and noise impacts of human activity from wildlife, including fish, utilizing the nearshore.

5. **Regulations must be based on sound science (and "best available science" is not "sound science") that is reviewed and vetted. There are a lot of holes in the science. Has there been a study of fish coming out of Sammamish?**

<u>Staff Response</u>: The State Guidelines state that SMPs should "At a minimum, make use of and, where applicable, incorporate all available scientific information, aerial photography, inventory data, technical assistance materials, manuals and services from reliable sources of science. Local governments should also contact relevant state agencies, universities, affected Indian tribes, port districts and private parties for available information." The Guidelines also direct governments to "Recognize and take into account state agencies' policies, programs, and recommendations in developing use regulations."

The City is utilizing the available scientific information and agency recommendations developed by highly respected scientists in state and federal government, and from the University of Washington. It is certainly true that our

knowledge of issues continues to evolve as additional scientific studies are completed and findings are shared and vetted among peers in the scientific community – this is the nature of scientific research.

However, that does not relieve the City of the obligation to use the scientific information that is available and has resulted in an understanding by the scientific community that shoreline modifications, such as piers and bulkheads, have adverse affects on ecological functions and shoreline processes, as well as on sensitive fish species.

Salmon recovery within the Lake Washington/Cedar/Sammamish Watershed is organized around the needs of two distinct Chinook populations—Cedar River and North Lake Washington/Issaquah—as well as the migratory and rearing corridors used by those populations. The North Lake Washington/Issaquah population is described within the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan.

This plan makes references to several studies that focus on life history trajectories addressing the North Lake Washington population, as follows:

> *Jeanes, E. D. and P. J. Hilgert. 2002. Juvenile salmonid use of created stream habitats Sammamish River, Washington 2001 data report. U.S. Army Corps of Engineers, Seattle, Washington.*
>
> *Seiler, D., G. Volkhardt and L. Fleischer. 2004. Evaluation of Downstream Migrant Salmon Production in 2001 from the Cedar River and Bear Creek. Washington Department of Fish & Wildlife, Olympia, Washington.*
>
> *Seiler, D., G. Volkhardt, and L. Kishimoto. 2003. Evaluation of downstream migrant salmon production in 1999 and 2000 from three Lake Washington tributaries: Cedar River, Bear Creek and Issaquah Creek. FPA 02-07. Washington Department of Fish & Wildlife, Olympia, Washington.*

Regardless of where chinook salmon fry and fingerlings come from (i.e. north Lake Washington tributaries, local streams, Cedar River), juvenile chinook are present along the City of Kirkland shoreline, as evidenced by observations of scientists with which the City has been in contact. Therefore, conclusive scientific evidence of where these fish originate from is less relevant to the question of how to manage the shoreline environment for them.

6. **Bulkheads put into place before the Shoreline Management Act—how will these be handled? Under the provisions of RCW 90.58.270, are bulkheads that existed as of 1969 grandfathered?**

   <u>Staff Response</u>: Staff is working with the Department of Ecology to better understand how this provision would apply to any proposed new regulations.

7. **How is ordinary high water mark determined?**

Staff Response: It is the line where the water meets the land when the water level of Lake Washington is 21.8 feet above means sea level based on the Corps of Engineers Datum (OHWM) as defined in WAC 173-16-030 (10)). In most cases, if a bulkhead has been installed, the bulkhead is at the ordinary high water mark.

8. **Seems that regulations are focused on incremental improvement, rather than no net loss**

Staff Response: As stated in the Guidelines under WAC 173-26-201(3)(d)(i)(E) (see http://apps.leg.wa.gov/WAC/default.aspx?cite=173-26-201), the City must "prepare master program policies and regulations designed to achieve no net loss of ecological functions necessary to support shoreline resources and to plan for the restoration of the ecosystem-wide processes and individual ecological functions on a comprehensive basis over time." Simply stated, the no-net-loss standard is designed to halt the introduction of new impacts to shoreline ecological functions resulting from planned for and permitted new development. This means that the existing condition of shoreline ecological functions should remain the same, and should be improved as a result of restoration, as updated SMPs are implemented over time.

As a result of the City's developed shoreline conditions, restoration of impaired ecological functions will likely be needed to help offset impacts introduced from new shoreline development that is allowed in the updated SMP.

For example, when piers are added or changed, or homes are built or rebuilt, unavoidable impacts will occur. Incremental improvements to the shoreline will help to offset those impacts and achieve the No Net Loss standard overall along the shoreline.

Further, several sections of the Guidelines have specific requirements for different uses or modifications that may result in improvement in existing conditions at a particular site. For example, the shoreline stabilization provisions contained in WAC 173-26-231(3)(a) (http://apps.leg.wa.gov/WAC/default.aspx?cite=173-26-231) contain specific standards addressing replacement bulkheads or similar stabilization structures, requiring use of alternative shoreline protection measures, such as soft approaches, unless these measures are demonstrated not to be sufficient to protect primary structures, dwellings, and businesses. No net loss is just one of the requirements of the SMP; there are many others that must also be met.

9. **What will be the costs to individual homeowners?**

Staff Response: The cost of construction under the current shoreline regulations compared to the potential new regulations will vary depending on the nature and extend of redevelopment or development and the choices made by the property owners. One new cost that is required by the state guidelines is a geotechnical

report for construction of a new bulkhead. Shoreline vegetation is proposed to be required for certain types of development which should not cost more than typical landscaping or lawn already installed along the shoreline. The cost of hard versus soft shoreline stabilization should be comparable. Replacing solid wood pier decking with grating should be a similar cost or even cost less because of the price of wood. Maintenance of grating material should be less while lasting longer.

10. Will the SMP provide public access through private properties that have existing agreements with the City?

Staff Response: The existing agreement would dictate when a future public access trail had to be installed at a multi-family site rather than the new shoreline regulations.

11. Are there studies that show the percentage of the problem that is due to water quality and impacts from erosion and runoff?

Staff Response: The City of Kirkland is located within the Lake Washington/Cedar/Sammamish Watershed. The Lake Washington/Cedar/Sammamish Watershed is home to three populations of Chinook salmon: Cedar River, North Lake Washington, and Issaquah. Studies indicate that Chinook salmon in this watershed are in trouble; they are far less abundant now than they were even in recent decades, and all three populations are at high risk of extinction. In March 1999, the federal government listed Puget Sound Chinook salmon as threatened under the Endangered Species Act (ESA).

The salmon's decline is an indicator of the overall health of the watershed. Concerned about the need to protect and restore habitat for Chinook salmon for future generations, 27 local governments in the watershed, including Kirkland, signed an interlocal agreement in 2001 to jointly fund the development of a conservation plan to protect and restore salmon habitat. The Final Chinook Salmon Conservation Plan is the result of this collaborative effort.

While there are many factors that have contributed to the decline of Chinook and other salmon, four main factors have been identified as contributing to this decline in the Lake Washington/Cedar/Sammamish Watershed: habitat, hydropower, harvest, and hatcheries (Washington State Joint Natural Resources Cabinet, 1999). The Final Chinook Salmon Conservation Plan focuses on conservation of salmon habitat, because local jurisdictions have responsibility for and interact most closely with the habitat-based aspects of Chinook survival.

While the Lake Washington/Cedar/Sammamish Watershed contains different sorts of habitats, the habitat limiting factors can be summarized into general categories for the lakes, rivers, and creeks. The Limiting Habitat Factors and Impacts identified specifically for Lake Washington, which is the focus of the Shoreline Master Program, include the following:

- *The riparian shoreline of Lake Washington is highly altered from its historic state. Current and future land use practices all but eliminate the possibility of the shoreline to function as a natural shoreline to benefit salmonids;*
- *Introduced plant and animal species have altered trophic interactions between native animal species;*
- *The known historic practices and discharges into Lake Washington have contributed to the contamination of bottom sediments at specific locations;*
- *The presence of extensive numbers of docks, piers and bulkheads have highly altered the shoreline; and*
- *Riparian habitats are generally non-functional.*[1]

[1] *Kerwin, J. 2001. Salmon and steelhead habitat limiting factors for the Cedar-Sammamish Basin (Water Resource Inventory Area 8). Washington Conservation Commission. Olympia, WA.*

The most significant limiting habitat factors for the entire watershed were identified as:

- *Altered Hydrology*
- *Loss of Floodplain Connectivity*
- *Lack of Riparian Vegetation*
- *Disrupted Sediment Processes*
- *Loss of Channel and Shoreline Complexity; and*
- *Barriers*[2]

[2] *WRIA 8 Steering Committee. 2005. Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan. July 2005.*

While water quality from sources such as industrial effluent, sewer overflows, and urban runoff are important considerations, they are not identified as being the most significant issues to consider in terms of limiting habitat within the watershed.

Also of note, the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan listed Lake Union, the Ship Canal and the Sammamish River as waterbodies with degraded water quality, but did not include Lake Washington.

Finally, impacts from erosion and runoff are undeniably important in stream and river systems, where the quantity and timing of flows can have dramatic adverse affects, both direct and indirect, on aquatic life and their habitats. However, the scope of this SMP is limited to Lake Washington and limited adjacent lands, where management of lake elevation by the Corps eliminates water quantity concerns. Control of inputs to stream systems that are tributary to Lake Washington is another important environmental management component, and is addressed through the City's stormwater and critical areas regulations.

12. How will storm damage or fire emergency repair be addressed?

Staff Response: WAC 173-27-080 permits repair or reconstruction to pre-damage conditions if up to 75% of the structure is damaged. If damage is greater than 75%, then the repair or rebuild must meet the current shoreline regulations in place at the time of the damage. We are inquiring with the Department of Ecology to see if there is any flexibility in this standard.

13. Will there be credit given for "no net loss" (e.g. already have a natural shoreline, have reduced dock, etc.) and want to put in a new improvement?

Staff Response: The draft regulations do address recognition of prior enhancement activities in several different areas, as follows:

- *For the proposed shoreline landscape strip, existing vegetation can be used if it satisfies the requirements.*
- *For the proposed reductions allowed to shoreline setbacks, the City may accept previous actions that satisfy the reduction mechanism requirements, provided that the improvements were completed after December, 2006. The reduction allowance for previously completed reduction actions may only be applied once on the subject property.*
- *For the proposed mitigation plantings for new piers or shoreline stabilization structures, existing vegetation can be used if it satisfies the requirements.*

14. Concerned about the science/studies—does Watershed Company have a conflict of interest as they give advice and also provide service?

Staff Response: The Watershed Company does not do the studies that have been referred to in the Shoreline Master Program update, but rather help interpret the studies. Like many other cities, the City does not have an aquatic biologist on staff needed to provide technical support in preparation of the new shoreline regulations. Lastly, The Watershed Company is the City's consultant for sensitive areas and cannot do private work within the city unless it relates to a contract done through the City.

15. Can the City Council retract its resolution supporting WRIA 8 planning and implementation?

Staff Response: Yes it possibly could, but the City Council is committed to the planning and implementation of WRIA 8. This is an issue that you could address with the City Council.

16. Are there any measurable studies determining if in fact the Kirkland waterfront is impacting the migration of the salmonids?

Staff Response: As part of our update effort, the City has prepared a report which inventories and characterizes the City's shorelines (see the Final Shoreline Inventory, Analysis and Characterization Report). This report describes existing conditions and assesses ecological functions and ecosystem-wide processes

operating in the shoreline jurisdiction. Several specific topics addressed within the report focus on the effects of shoreline modifications to salmonids. This synthesis is based on a broader body of scientific information that has been generated for Lake Washington that has been conducted to address questions about Chinook salmon ecology in Lake Washington. This body of work is cited in the Final Shoreline Inventory, Analysis and Characterization Report as well as other scientific studies that the City has consulted, which are cited on the City's website for the Shoreline Master Program Update (http://www.ci.kirkland.wa.us/depart/Planning/Code_Updates/Shoreline_Master_Program_Update.htm).

These scientific studies that generally take place in other parts of Lake Washington have determined that juvenile salmon migration behavior is adversely affected by piers. It is also known that juvenile salmon are present along the City's shorelines (chinook have been collected along at least four sites in the City). The same ecological principles that are responsible for chinook behavior in these other areas are operating in Kirkland. Therefore, it is reasonable to conclude that Kirkland's overwater structures and shoreline modifications are affecting migrating juvenile salmon in the same way.

ATTACHMENT 1

No Net Loss of Shoreline Ecological Functions

The State Shoreline Management Act (SMA) provides a broad policy framework for protecting the shoreline environment. The Shoreline Master Program Guidelines adopted in 2003 establish the" no net loss" principle as the means of implementing that framework.

The standard of no net loss of ecological functions is to be achieved over the City's SMP planning horizon of 20 years by implementing the updated SMP policies and regulations.

What does no net loss mean?

- The no-net-loss standard is designed to stop new impacts to shoreline ecological functions resulting from new development. This means that the existing condition of shoreline ecological functions needs to remain the same, and should even be improved as a result of restoration, as the updated SMP is implemented over time.

- This standard is to be met by appropriately regulating public and private development, implementing a Restoration Plan, and improving practices that affect the shoreline.

- Resulting impacts of development should be identified and mitigated so as to maintain shoreline ecological function as it exists at the time of the City's 2006 shoreline inventory.

How is no net loss measured?

- No net loss is measured from a city wide, cumulative perspective, but met by project-level mitigation from both public and private development and redevelopment.

- Cumulative impacts consider current circumstances affecting the shoreline and relevant natural processes; reasonable foreseeable future development and use of the shoreline; and beneficial effects of any established regulatory programs under other local, state and federal laws.

- Because there are no easy tools to measure ecological function, indicators that are related to function and can be measured are used to assess possible change in ecological function over time (e.g, square feet of overwater cover, average structure setback, area of native vegetation).

Does that mean that an SMP must prohibit all development that will result in a loss of shoreline ecological functions?

- No. The "no net loss of ecological function" standard means that the updated SMP must contain provisions for mitigating these unavoidable impacts by restoring degraded shorelines and by avoiding or minimizing impacts.

When should impacts be avoided, and when may they be minimized?

- SMA policy and the guidelines recognize the need for both the appropriate shoreline use **and** protection of shoreline resources. Thus, the SMP must provide for preferred shoreline uses set forth in the State SMA. These include water-dependent uses, such as marinas; public access facilities; and owner-occupied single-family residences. Impacts resulting from these preferred shoreline uses, where they cannot be avoided, must be minimized by application of appropriate regulations.

- Achieving no net loss of ecological function relies on consistent application of mitigation sequencing. Mitigation sequencing sets a priority to first avoid, then minimize, rectify, reduce or compensate for impacts.

- All development must be carried out in a manner that limits further degradation of the shoreline environment. Uses or development, including preferred uses and uses exempt from a shoreline permit, cannot supersede the requirement for environmental protection.

What are current conditions affecting Kirkland's shoreline and the relevant natural processes?

- Lack of shoreline vegetation and inability to recruit organic material, which contributes to continuing degradation of fish and wildlife habitat.
- Steep shoreline conditions which lack ability to attenuate wave energy; waves reflect or bounce off the hard bulkhead surface, scouring away beach sediments. Changes in sediment size and distribution affect the plants and animals that can live there. Scouring can also lead to the loss of sand and gravel covering bulkhead footings, thereby causing these structures to become more vulnerable to failure.
- Shading from piers and other overwater structures interferes with migration of juvenile salmonids and provides habitat for non-native predators.
- Lack of upland water and sediment storage that reduce water quality and soil infiltration.
- Contamination of the lake from excessive nutrients and chemicals in runoff.
- Lighting and noise impacts.