3.14 EAST STRAIT INDEPENDENT DRAINAGES RECOMMENDATIONS

Section 3.4 contains recommendations for instream flows and Section 3.3 contains other recommendations for small rural and urban streams, habitat restoration, salmon recovery, and related environments (e.g., riparian corridors, wetlands, estuaries) that are intended to be considered for all WRIA 18 streams and rivers. Sections 3.1 and 3.2 contain water quantity and water quality recommendations that also apply to all WRIA 18 subbasins.

3.14.1 Meadowbrook Creek (WRIA# 18-0020)

Issue: Meadowbrook Creek is a relatively small low elevation drainage immediately east of the mouth of the Dungeness River that historically drained either into the mouth of the Dungeness River or directly to Dungeness Bay. The stream is generally low gradient, with limited flushing capability. Coho salmon and winter steelhead are the only anadromous fish known to exist in Meadowbrook Creek. The Limiting Factors Analysis (LFA) (Haring, 1999) has identified water quality and/or habitat recommendations to address on this stream.

Existing Condition and Current Actions

Meadowbrook Creek is generally regarded to be in very poor condition. It is lacking in LWD and has poor riparian conditions, as well as uncontrolled animal access. Its estuarine and tidal conditions have been impacted by several factors, and the potential for restoration should be assessed. Meadowbrook Creek has bacterial pollution levels that exceed Washington state water quality standards as identified in the Lower Dungeness TMDL study. Poor riparian conditions, suspect septic systems, and inadequate animal-keeping practices are all considered potential sources of these bacterial levels. In addition to water quality problems associated with this animal access, it has experienced excessive water temperatures.

An additional concern in Meadowbrook Creek is the extensive presence of reed canary grass, found in several large patches throughout the lower watershed.

Desired Conditions and Outcomes

- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.

Recommendations

A. Water Quality:

1. Identify and correct areas affected by unrestricted animal access.
2. Investigate and address “septics of concern”.

B. Habitat:

1. Assess the potential for restoring estuarine and tidal processes.
2. Maintain functions of wetlands associated with lower Meadowbrook Creek.
3. Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
4. Restore functional riparian zones throughout watershed.
5. Restore the channel connection to the Dungeness Estuary.
6. Survey the watershed for location of reed canary grass presence and develop a long-term eradication program as component of riparian restoration activities.

Limiting Factors Analysis (LFA) Recommendations*

- Identify and correct areas affected by unrestricted animal access.
- Investigate and address "septics of concern".
- Maintain functions of wetlands associated with lower Meadowbrook Creek.
- Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
- Restore functional riparian zones throughout watershed.

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some area. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.

3.14.2 Cooper Creek (WRIA# 18-0017)

Issue: Cooper Creek is a relatively small independent drainage to salt water on the east side of the Dungeness plateau, entering salt water between Sequim Bay and the Dungeness River. Coho salmon and winter steelhead are the only identified anadromous fish known to exist in Cooper Creek. The Limiting Factors Analysis (LFA) (Haring, 1999) has identified water quality and/or habitat recommendations to address on this stream.

Existing Condition and Current Actions

Cooper Creek is a short, heavily altered stream. The lower reach of the creek remains channelized and ditches drain associated wetlands. There is inadequate LWD in the channel, other than that which was installed in the 1990s. Most of its floodplain and riparian areas have been significantly modified and degraded. Its estuarine function has been compromised by a tide gate that limits flux of tidal current and hinders fish passage. A tide gate at the mouth of the creek is functioning improperly and compromising natural tidal and estuarine function. These conditions have prompted several restoration efforts, with varying results. Cooper Creek has bacterial pollution levels that exceed Washington state water quality standards as identified in the Lower Dungeness TMDL study. It is also affected by significant reed canary grass infestation in the lower watershed.

Desired Conditions and Outcomes

- Natural flows and tidal flux throughout the estuary.
- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.

Recommendations

A. Water Quality:

1. Identify and mitigate sources of bacterial pollution.

B. Habitat:

1. Develop and implement a strategy for restoring estuarine processes and fish passage in Cooper Creek.
2. Restore the stream to a meandering configuration, utilizing historic natural channel, where practicable.
3. Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
4. Restore functional coniferous riparian zones.

LFA Recommendations:

- Modify the tidegate to allow significantly greater tidal flux into the Cooper Creek estuary
- Modify or remove the water level control structure in the estuary to allow unimpeded fish passage
- Restore the stream to a meandering configuration, utilizing historic natural channel, where practicable
- Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored
- Restore functional coniferous riparian zones

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some area. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.

3.14.3 Cassalery Creek (WRIA# 18-0015)

Issue: Cassalery Creek is a relatively small independent drainage to salt water on the east side of the Dungeness plateau, entering salt water between Sequim Bay and the Dungeness River. Coho and chum salmon and winter steelhead are the only identified anadromous fish known to exist in Cassalery Creek. The Limiting Factors Analysis (LFA)

(Haring, 1999) has identified water quality and/or habitat recommendations to address on this stream.

Existing Condition and Current Actions

Cassalery Creek has been heavily altered throughout much of its length and is becoming heavily developed in large portions of the watershed. Significant portions of the creek have been severely channelized, and isolated from its historic floodplain. Though some animal access control has been accomplished, some remains subject to unrestricted access and attendant water quality and sediment impacts. A culvert at the mouth of the creek has contributed to several problems including altered tidal influence, higher sedimentation and reduction in estuary size and function. Culvert plugging has also contributed to access obstruction for salmonids at key times. Periodically, the mouth of the creek closes due to natural littoral drift conditions, causing flooding in the lower portion of the creek. The creek is spring fed. Sunland development has a reclaimed water facility and has proposed to return the class A water to the creek instead of disposal via field application. It is also affected by significant reed canary grass infestation in the lower watershed.

Desired Conditions and Outcomes

- A stream with an effectively-functioning and integrated estuary.
- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.
- Remediation of the creek to reverse its 303(d) listing for bacterial pollution.

Recommendations

A. Water Quality:

1. Regularly monitor for water quality conditions upstream and immediately downstream of Sunland Sewage Treatment Plant; remediate if necessary.

B. Habitat:

1. Develop and implement a strategy for restoring estuarine processes and fish passage in Cassalery Creek.
2. Complete comprehensive barrier inventory for Cassalery Creek (particularly upstream of Woodcock Rd.), prioritize, and implement correction measures.
3. Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
4. Restore functional riparian zones throughout the watershed, and identify and correct areas affected by unrestricted animal access.
5. Depending on funding, the Department of Ecology should conduct a comprehensive assessment of water diversions from Cassalery Creek,

determine consistency with water rights, and enforce against unauthorized water withdrawals.

6. Land use management tools such as conservation easements and agricultural land preservation should be pursued.

Limiting Factors Analysis (LFA) Recommendations

- Develop and implement a strategy for restoring estuarine processes and fish passage in Cassalery Creek
- Complete comprehensive barrier inventory for Cassalery Creek (particularly upstream of Woodcock Rd.), prioritize, and implement correction measures
- Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored
- Restore functional riparian zones throughout the watershed, and identify and correct areas affected by unrestricted animal access
- Department of Ecology should conduct a comprehensive assessment of water diversions from Cassalery Creek, determine consistency with water rights, and enforce against unauthorized water withdrawals

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some area. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.

3.14.4 Gierin Creek (WRIA# 18-0004)

Issue: The Limiting Factors Analysis (LFA) (Haring, 1999) has identified water quality and/or habitat recommendations to address on this stream. Estuarine salt marsh has been significantly reduced and converted to freshwater marsh through installation of a tide gate and shortening of the creek. This loss of salt marsh habitat has been identified as limiting for Chinook.

Existing Condition and Current Actions

Gierin Creek is a relatively small independent drainage to salt water on the east side of the Dungeness plateau, entering salt water between Sequim Bay and the Dungeness Rive. Coho and chum salmon and winter steelhead are the only identified anadromous fish known to exist in Gierin Creek. It has had significant improvement in control of animal access along its lower length, with additional effort still needed in the watershed above Holland Road. This continuing animal access has been identified as the principal source of fecal coliform, nutrients, and sediment problems that are present. Some of its riparian zone has also been severely altered and there has been extensive loss of LWD. A particularly important issue is the significant alteration of the relationship between the creek and its large tidal marsh at Graysmarsh. Estuarine salt marsh has been significantly reduced and converted to freshwater marsh through installation of a tide gate and shortening of the creek. It may be susceptible to impacts associated with irrigation conservation measures and it is susceptible to the impacts of development throughout the watershed above the Graysmarsh area.

Desired Conditions and Outcomes

- A stream with an effectively-functioning and integrated estuary and tidal marsh.
- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies, local jurisdictions, and landowners.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.

Recommendations

A. Water Quality:

1. No new stream-specific recommendations developed.

B. Habitat

1. Study effects of tide gate on salmonids.
2. Pursue removal of the tide gate and restoration of saltmarsh habitat in the estuary, including returning Gierin Creek to its former meandering location, which essentially bisected the marsh.
3. Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
4. Restore functional riparian zones throughout watershed, particularly upstream of Holland Rd., and identify and correct areas affected by unrestricted animal access.

Limiting Factors Analysis (LFA) Recommendations

- Pursue removal of the tide gate and restoration of saltmarsh habitat in the estuary, including returning Gierin Creek to its former meandering location, which essentially bisected the marsh.
- Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
- Restore functional riparian zones throughout watershed, particularly upstream of Holland Rd., and identify and correct areas affected by unrestricted animal access.

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some area. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.

3.14.5 Bell Creek (WRIA# 18-0001)

Issue: The Limiting Factors Analysis (LFA) (Haring, 1999) has identified water quality and/or habitat recommendations to address on Bell Creek. It is significantly affected by irrigation operations and is channelized in many places. It is on the 303 (d) list for exceeding bacterial standards. Urban and residential land use throughout the watershed has resulted in significant stormwater impacts.

Existing Condition and Current Actions

Bell Creek is a relatively small independent drainage to salt water on the east side of the Dungeness plateau, entering Washington Harbor on the eastern marine shoreline near the mouth of Sequim Bay. Coho and chum salmon and winter steelhead are the only identified anadromous fish known to exist in Bell Creek. It has been significantly altered from its historic, natural condition. It has been rerouted along certain portions, and it has become incorporated into the area's irrigation network, leading to unnatural alterations to its flow regime. Except for where restoration projects have addressed such problems, much of its floodplain and riparian zone has been altered or eliminated and it is seriously lacking in LWD. Fisheries access appears to be satisfactory up to a natural blockage posed by a waterfall at RM 3.0. Water quality has been compromised by elevated fecal coliform levels and by the effects of increasing stormwater runoff. As a result it is on the 303(d) list. The loss of floodplain and increases in impervious surface and stormwater has contributed to increasing numbers of floods in recent years. The City of Sequim has recently produced a Surface Water Management plan that included Bell Creek. It receives reclaimed water discharge from the City of Sequim.

Desired Conditions and Outcomes

- A naturally-functioning stream with sufficient floodplain and riparian area to maintain those functions and cope with flood and stormwater impacts.
- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.

Recommendations

A. Water Quality:

1. Identify and mitigate sources of bacterial pollution.
2. Add septics of concern as identified in Sequim's Surface Water Management Plan to the County's Septics of Concern list.
3. Minimize and mitigate stormwater impacts to stream water quality in the Bell Creek watershed from planned development.

B. Instream Flows:

1. Conduct research to identify potential for irrigation flows in Bell Creek to attract fish to the creek.
2. Subject to available funding by appropriate state or local entities, investigate and address surface water diversions for relinquishment or illegal use.
3. Retain and manage stormwater on-site to maximize aquifer recharge.

C. Habitat:

1. Improve restricted estuarine function to Washington Lagoon by addressing the outfall's causeway and culvert.
2. Improve buffers along Bell Creek.
3. Manage stormwater quantity and quality to approximate the natural hydrograph of Bell Creek.

Limiting Factors Analysis (LFA) Recommendations

- County/City should continue efforts to adopt and implement a stormwater strategy for this rapidly developing watershed that will remediate current stormwater effects and minimize additional future effects.
- Improve the Highland Irrigation Ditch to ensure stability during high flow events to avoid potential for fine sediment contribution to Bell Creek.
- Restore the lower, channelized reach of Bell Creek (downstream of Schmuck Road) and properly integrate with the estuary. Restoration should include removal of dikes, meandering of the channel, excavation of pools, and additions of LWD.
- Assess LWD status in Bell Creek and tributaries; develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
- Restore functional riparian zones throughout the watershed, and identify and correct areas affected by unrestricted animal access.
- Complete a comprehensive barrier inventory for Bell Creek, prioritize, and implement correction measures.
- WDFW should actively enforce screening requirements on the irrigation diversion upstream.

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some area. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.