Albion River

Location	•Mendocino County
Watershed Area	•43 Square Miles
Potential Habitat	•59.2 Stream Miles
Vegetation	•74% Coniferous, 8% Riparian or Hardwood Forest
Erodability	•Moderate
Ownership Patterns	•99% Private; 1% Public
Dominant Land Uses	•Timber Harvest
Housing Density	•Moderately Low
TMDL Pollutants	•Sediment, Temperature

Albion River estuary
Photo provided by Friends of the Gualala River, photographer Rixanne Wehren, and is used with permission. All rights reserved.

Albion River Coho Salmon: Persistent – Moderate Abundance

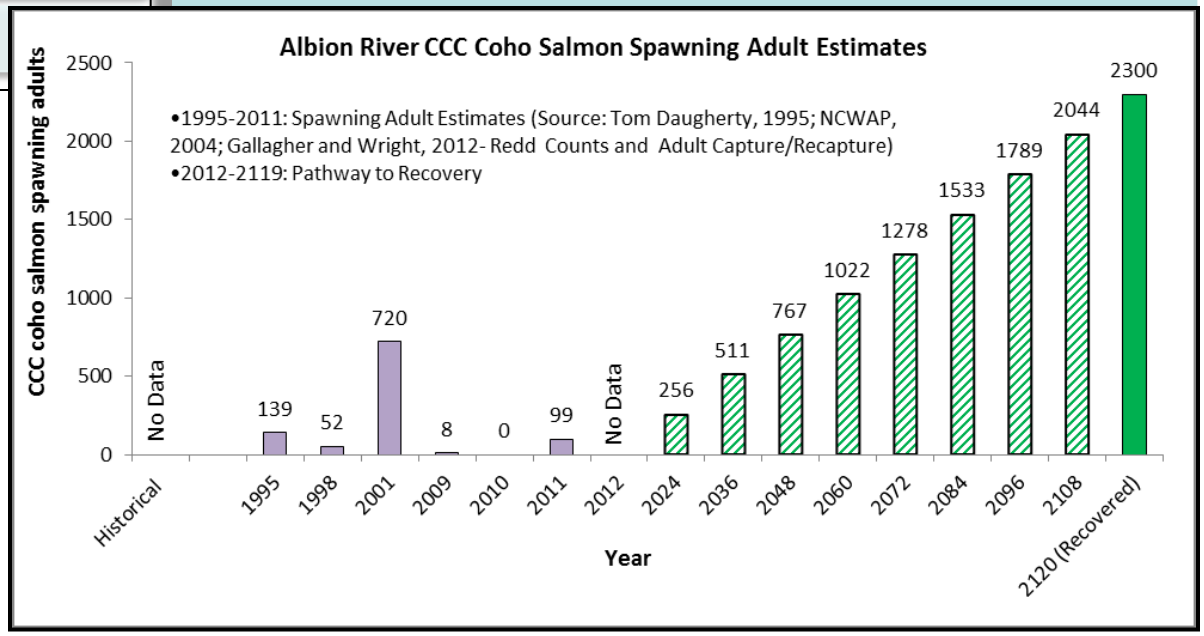
Recovery Goals

✓Consider establishment of life cycle monitoring station

Albion River
Adult Spawner Targets

Downlisting to Threatened
1,150

Delisting
2,300



STEELHEAD: YES
CHINOOK SALMON: YES

Albion River

Potential Habitat: 59.2 miles
Recovery Target: 2,300 Spawning Adult Coho Salmon

Current Instream, Watershed and Population Conditions

Estuary/Lagoon	Habitat Complexity	Hydrology	Passage & Migration	Riparian Vegetation	Sediment	Stream Temperature	Velocity Refuge	Water Quality	Viability	Landscape Patterns
FAIR	POOR	FAIR	GOOD	FAIR	POOR	FAIR	FAIR	GOOD	FAIR	FAIR

Preventing Extinction & Improving Conditions

Priority 1: Immediate Restoration Actions

- Retain, recruit and actively input large wood into streams
- Eliminate depletion of summer flows
- Treat high priority slides and landings to reduce sediment input
- Consider establishing a life-cycle monitoring station

Priority 2 & 3: Long-Term Restoration Actions

- Replace riprap with bioengineered solutions and LWD in the estuary
- Promote restoration projects designed to create or restore off channel habitat
- Promote off-channel storage
- Investigate the feasibility of removing the earthen dam on Marsh Creek
- Restore and protect riparian vegetation
- Conduct coho salmon carcass surveys

Recovery Partners

Photo courtesy from left to right: Josh Fuller, NMFS, Campbell Timberland, Campbell Timberland, Eli Asarian and Morgan Bond, SWFSC

Albion River

Potential Habitat: 59.2 miles
Recovery Target: 2,300 Spawning Adult Coho Salmon

Future Threats

Agriculture	Channel Modification	Disease & Predation	Fire & Fuel Management	Fishing & Collecting	Hatcheries & Aquaculture	Livestock & Ranching	Logging	Mining	Recreation	Urban Development	Roads & Railroads	Severe Weather	Diversions & Impoundment
LOW	LOW	LOW	MEDIUM	LOW	NA	LOW	MEDIUM	NA	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM

Reducing Future Threats

Priority 1: Immediate Threat Abatement Actions

- Prevent impairment of instream substrate and food productivity
- Minimize new road construction within floodplains, riparian areas, unstable soils or other sensitive areas
- Design new roads that are hydrologically disconnected from the stream network and use best management practices for maintenance, management and decommissioning

Priority 2 & 3: Long-Term Threat Abatement Actions

- Prevent increased landscape disturbance from logging
- Reduce the percent acres of the watershed harvested to less than 25 percent in a ten year period
- Discourage home building or other incompatible land use in areas identified as timber production zones
- Limit winter use of unsurfaced roads and recreational trails
- Pursue opportunities to acquire or lease water, or acquire water rights from willing sellers, for coho salmon recovery purposes

Wild coho salmon in Albion River. *Photo courtesy:Marilyn Stubbs*

Conservation Highlights

- The County of Mendocino has recently improved passage on the mainstem Albion by replacing a problematic culvert.
- The Mendocino Redwood Company has made road upgrades and improved passage by replacing old culverts with bridges that allow for improved passage for salmonids.

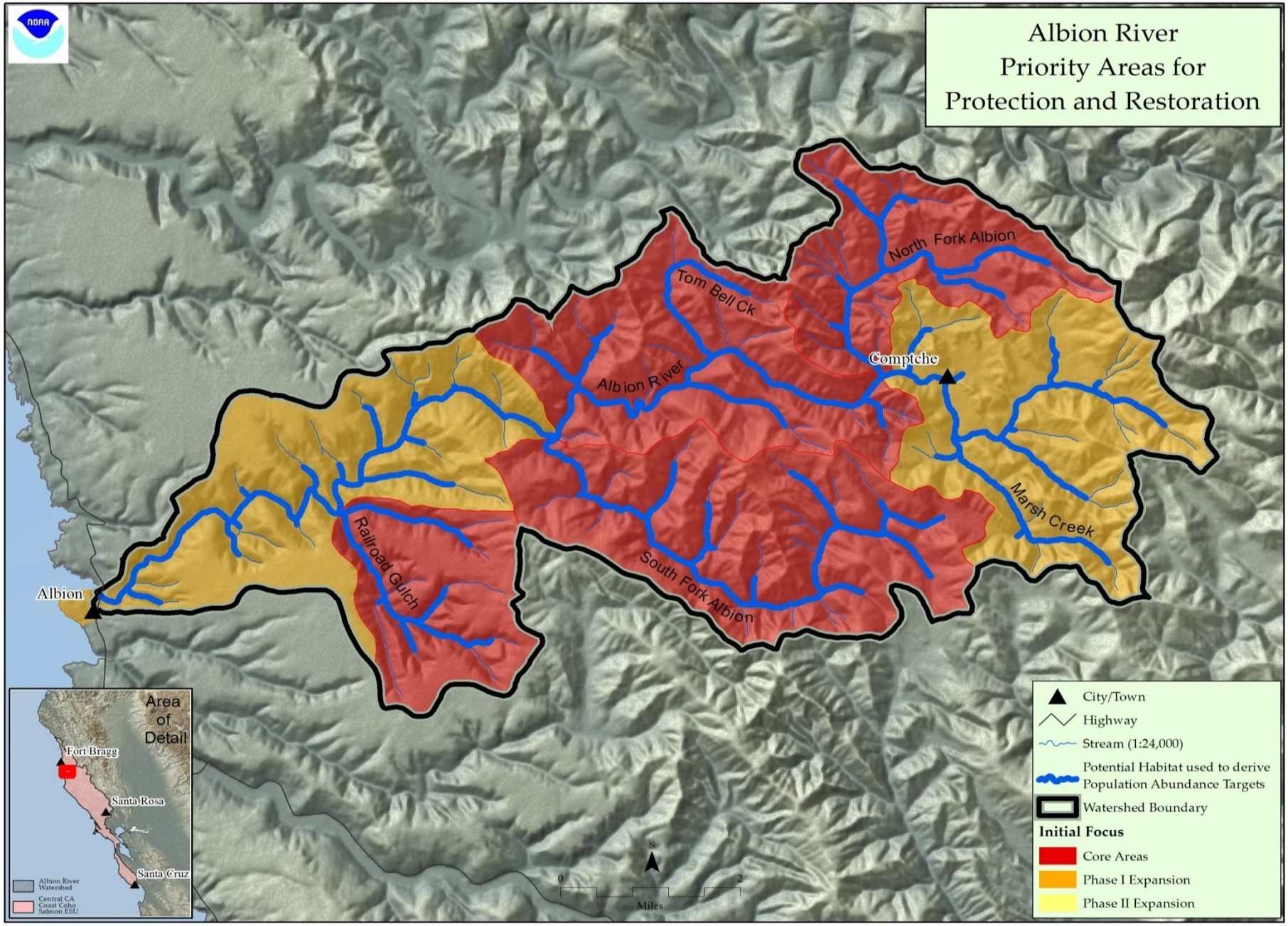


Figure 1: Map of Albion River

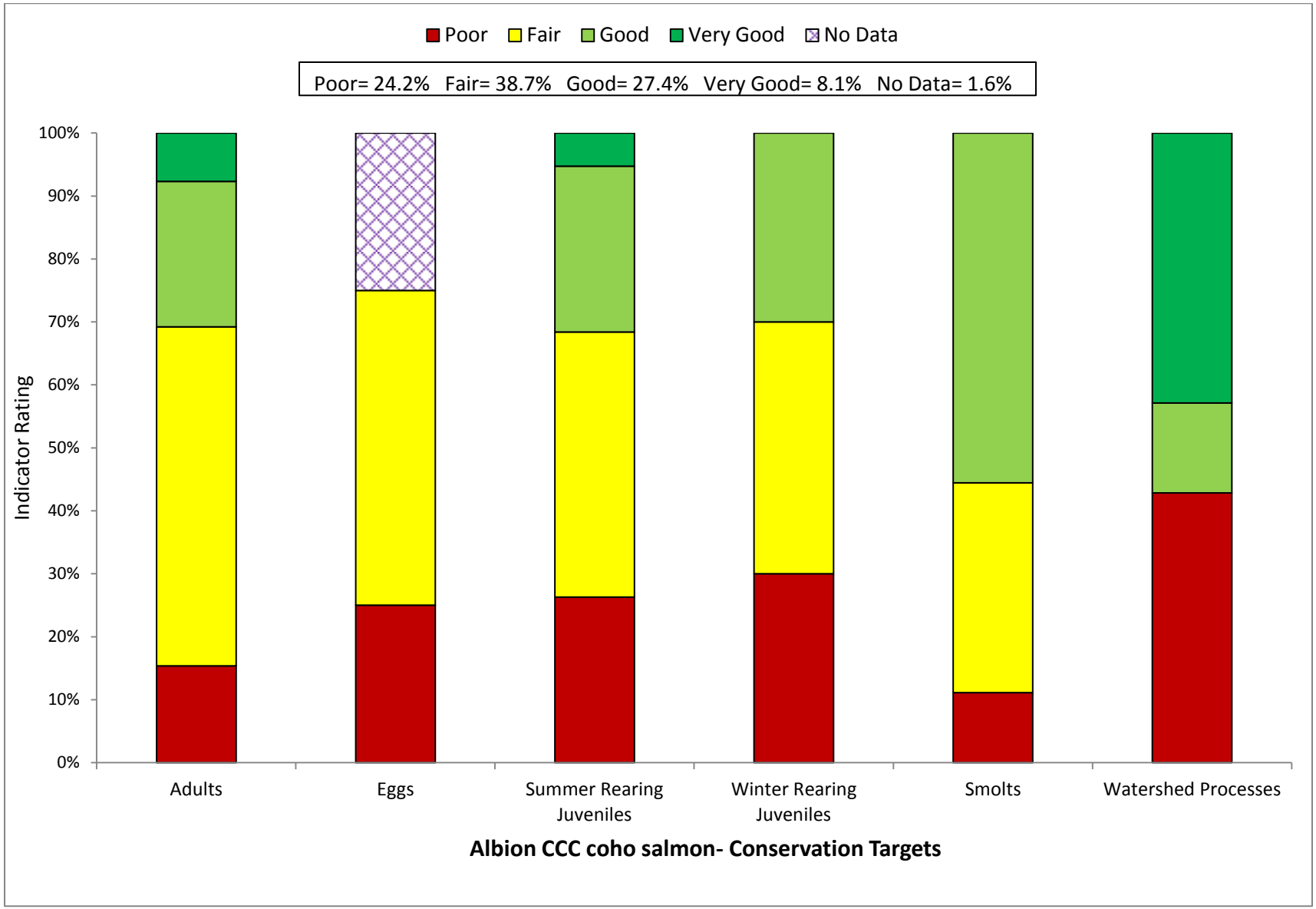


Figure 2: Viability Results by Lifestage

Table 1: CAP Viability Results ~ Albion River

Target	Attribute	Indicator	Result	Rating	Method	Desired Criteria
Adults	Habitat Complexity	Large Wood Frequency (BFW 0-10 meters)	**2.1 Key Pieces/100m**	Poor	NMFS Expert Estuary/Lagoon Panel	6 to 11 key pcs/100m
Adults	Habitat Complexity	Large Wood Frequency (BFW 10-100 meters)	**1-1.3 Key Pieces/100m**	Fair	NMFS Expert Estuary/Lagoon Panel	1.3 to 4 Key Pieces/100 meters
Adults	Habitat Complexity	Pool/Riffle/Flatwater Ratio	**50-74% of streams/ IP-km (>30% Pools; >20% Riffles)**	Fair	SEC Analysis/CDFG Data	75% to 90% of streams/ IP-Km (>30% Pools; >20% Riffles)
Adults	Habitat Complexity	Shelter Rating	**<50% of streams/ IP-km (>80 stream average)**	Poor	SEC Analysis/CDFG Data	75% to 90% of streams/ IP-Km (>80 stream average)
Adults	Hydrology	Passage Flows	**Risk Factor Score =35-50**	Good	SEC Analysis/CDFG Data	NMFS Flow Protocol: Risk Factor Score 35-50
Adults	Passage/Migration	Passage at Mouth or Confluence	**75% of IP-km to 90% of IP-km accessible**	Good	SEC Analysis/CDFG Data	75% of IP-Km to 90% of IP-km
Adults	Passage/Migration	Physical Barriers	**91% of IP-km accessible**	Very Good	SEC Analysis/CDFG Data	75% of IP-Km to 90% of IP-km
Adults	Riparian Vegetation	Tree Diameter (North of SF Bay)	**43% Class 5 & 6 across IP-km**	Fair	SEC Analysis/CDFG Data	55 - 69% Class 5 & 6 across IP-km
Adults	Riparian Vegetation	Tree Diameter (South of SF Bay)	**0**	0	SEC Analysis/CDFG Data	≥80% Density rating "D" across IP-km
Adults	Sediment	Quantity & Distribution of Spawning Gravels	**50% of IP-km to 74% of IP-km accessible**	Fair	SEC Analysis/CDFG Data	75% of IP-Km to 90% of IP-km
Adults	Velocity Refuge	Floodplain Connectivity	**50-80% Response Reach Connectivity**	Fair	SEC Analysis/CDFG Data	>80% Response Reach Connectivity
Adults	Water Quality	Toxicity	**No Acute or Chronic**	Good	SEC Analysis/CDFG Data	No Acute or Chronic
Adults	Water Quality	Turbidity	**50% to 74% of streams/ IP-km maintains severity score of 3 or lower**	Fair	SEC Analysis/CDFG Data	75% to 90% of streams/ IP-Km maintains severity score of 3 or lower
Adults	Viability	Density	**4.4 spawner/IP-km**	Fair	SEC Analysis/CDFG Data	low risk spawner density per Spence (2008)
Eggs	Hydrology	Flow Conditions (Instantaneous Condition)	**Risk Factor Score =58**	Fair	SEC Analysis/CDFG Data	NMFS Flow Protocol: Risk Factor Score 35-50
Eggs	Hydrology	Redd Scour	**Risk Factor Score =51-75**	Fair	SEC Analysis/CDFG Data	NMFS Flow Protocol: Risk Factor Score 35-50

Eggs	Sediment	Gravel Quality (Bulk)	**ND**	0	NMFS Instream Flow Analysis	12-14% (0.85mm) and <30% (6.4mm)
Eggs	Sediment	Gravel Quality (Embeddedness)	**<50% of streams/ IP-km (>50% stream average scores of 1 & 2)**	Poor	NMFS Instream Flow Analysis	75% to 90% of streams/ IP-Km (>50% stream average scores of 1 & 2)
Summer Rearing Juveniles	Estuary/Lagoon	Quality & Extent	**Impaired but functioning**	Fair	NMFS Instream Flow Analysis	Properly Functioning Condition
Summer Rearing Juveniles	Habitat Complexity	Large Wood Frequency (Bankfull Width 0-10 meters)	**2.1 Key Pieces/100m**	Poor	NMFS Instream Flow Analysis	6 to 11 key pcs/100m
Summer Rearing Juveniles	Habitat Complexity	Large Wood Frequency (Bankfull Width 10-100 meters)	**1-1.3 Key Pieces/100m**	Fair	NMFS Instream Flow Analysis	1.3 to 4 Key Pieces/100 meters
Summer Rearing Juveniles	Habitat Complexity	Percent Primary Pools	**22% streams; 2% IP-km (>49% of pools are primary pools)**	Poor	NMFS Instream Flow Analysis	75% to 89% of streams/ IP-Km (>49% of pools are primary pools)
Summer Rearing Juveniles	Habitat Complexity	Pool/Riffle/Flatwater Ratio	**33% streams; 44% IP-km (>30% Pools; >20% Riffles)**	Poor	NMFS Instream Flow Analysis	75% to 90% of streams/ IP-Km (>30% Pools; >20% Riffles)
Summer Rearing Juveniles	Habitat Complexity	Shelter Rating	**11% streams; 2% IP-km (>80 stream average)**	Poor	NMFS Instream Flow Analysis	75% to 90% of streams/ IP-Km (>80 stream average)
Summer Rearing Juveniles	Hydrology	Flow Conditions (Baseflow)	**Risk Factor Score =67**	Fair	NMFS Instream Flow Analysis	NMFS Flow Protocol: Risk Factor Score 35-50
Summer Rearing Juveniles	Hydrology	Flow Conditions (Instantaneous Condition)	**Risk Factor Score= 51-75**	Fair	NMFS Watershed Characterization	NMFS Flow Protocol: Risk Factor Score 35-50
Summer Rearing Juveniles	Hydrology	Number, Condition and/or Magnitude of Diversions	**1.1 - 5 Diversions/10 IP km**	Fair	NMFS Watershed Characterization	0.01 - 1 Diversions/10 IP km
Summer Rearing Juveniles	Passage/Migration	Passage at Mouth or Confluence	**>90% of IP-km accessible**	Good	NMFS Watershed Characterization	75% of IP-Km to 90% of IP-km
Summer Rearing Juveniles	Passage/Migration	Physical Barriers	**>90% of IP-km accessible**	Good	Population Profile/BPJ	75% of IP-Km to 90% of IP-km
Summer Rearing Juveniles	Riparian Vegetation	Canopy Cover	**75% to 90% of streams/ IP-km (>85% average stream canopy)**	Good	SEC or PAD/CDFG Data	75% to 90% of streams/ IP-Km (>85% average stream canopy)
Summer Rearing Juveniles	Riparian Vegetation	Tree Diameter (North of SF Bay)	**43% Class 5 & 6 across IP-km**	Fair	Population Profile/BPJ	55 - 69% Class 5 & 6 across IP-km
Summer Rearing Juveniles	Riparian Vegetation	Tree Diameter (South of SF Bay)	**0**	0	SEC or PAD/CDFG Data	≥80% Density rating "D" across IP-km
Summer Rearing Juveniles	Sediment (Food Productivity)	Gravel Quality (Embeddedness)	**50% to 74% of streams/ IP-km (>50% stream average scores of 1 & 2)**	Fair	SEC or PAD/CDFG Data	75% to 90% of streams/ IP-Km (>50% stream average scores of 1 & 2)

Summer Rearing Juveniles	Water Quality	Temperature (MWMT)	**50 to 74% IP km (<16 C MWMT)**	Fair	Population Profile/BPJ	75 to 89% IP km (<16 C MWMT)
Summer Rearing Juveniles	Water Quality	Toxicity	**No Acute or Chronic**	Good	NMFS Watershed Characterization/CWHR	No Acute or Chronic
Summer Rearing Juveniles	Water Quality	Turbidity	**>90% of streams/ IP-km maintains severity score of 3 or lower**	Very Good	NMFS Watershed Characterization/CWHR	75% to 90% of streams/ IP-Km maintains severity score of 3 or lower
Summer Rearing Juveniles	Viability	Density	**<0.2 fish/meter^2**	Poor	SEC Analysis/CDFG Data	0.5 - 1.0 fish/meter^2
Summer Rearing Juveniles	Viability	Spatial Structure	**75-90% of Historical Range**	Good	NMFS Watershed Characterization/CWHR	75-90% of Historical Range
Winter Rearing Juveniles	Habitat Complexity	Large Wood Frequency (Bankfull Width 0-10 meters)	**2.1 Key Pieces/100m**	Poor	NMFS Watershed Characterization/CWHR	6 to 11 key pcs/100m
Winter Rearing Juveniles	Habitat Complexity	Large Wood Frequency (Bankfull Width 10-100 meters)	**1-1.3 Key Pieces/100m**	Fair	NMFS Watershed Characterization/CWHR	1.3 to 4 Key Pieces/100 meters
Winter Rearing Juveniles	Habitat Complexity	Pool/Riffle/Flatwater Ratio	**<50% of streams/ IP-km (>30% Pools; >20% Riffles)**	Poor	NMFS Watershed Characterization/CWHR	75% to 90% of streams/ IP-Km (>30% Pools; >20% Riffles)
Winter Rearing Juveniles	Habitat Complexity	Shelter Rating	**<50% of streams/ IP-km (>80 stream average)**	Poor	CDF Vegetation Maps/BPJ	75% to 90% of streams/ IP-Km (>80 stream average)
Winter Rearing Juveniles	Passage/Migration	Physical Barriers	**75% of IP-km to 90% of IP-km accessible**	Good	Population Profile/BPJ	75% of IP-Km to 90% of IP-km
Winter Rearing Juveniles	Riparian Vegetation	Tree Diameter (North of SF Bay)	**43% Class 5 & 6 across IP-km**	Fair	Population Profile/BPJ	55 - 69% Class 5 & 6 across IP-km
Winter Rearing Juveniles	Riparian Vegetation	Tree Diameter (South of SF Bay)	**0**	0	SEC Analysis/CDFG Data	≥80% Density rating "D" across IP-km
Winter Rearing Juveniles	Sediment (Food Productivity)	Gravel Quality (Embeddedness)	**50% to 74% of streams/ IP-km (>50% stream average scores of 1 & 2)**	Fair	SEC Analysis/CDFG Data	75% to 90% of streams/ IP-Km (>50% stream average scores of 1 & 2)
Winter Rearing Juveniles	Velocity Refuge	Floodplain Connectivity	**50-80% Response Reach Connectivity**	Fair	SEC Analysis/CDFG Data	>80% Response Reach Connectivity
Winter Rearing Juveniles	Water Quality	Toxicity	**No Acute or Chronic**	Good	NMFS Watershed Characterization	No Acute or Chronic
Winter Rearing Juveniles	Water Quality	Turbidity	**75% to 90% of streams/ IP-km maintains severity score of 3 or lower**	Good	NMFS Watershed Characterization	75% to 90% of streams/ IP-Km maintains severity score of 3 or lower

Smolts	Estuary/Lagoon	Quality & Extent	**Impaired but functioning**	Fair	SEC Analysis/CDFG Data	Properly Functioning Condition
Smolts	Habitat Complexity	Shelter Rating	**<50% of streams/ IP-km (>80 stream average)**	Poor	Population Profile	75% to 90% of streams/ IP-Km (>80 stream average)
Smolts	Hydrology	Number, Condition and/or Magnitude of Diversions	**3.89 Diversions/10 IP-km**	Fair	Population Profile	0.01 - 1 Diversions/10 IP km
Smolts	Hydrology	Passage Flows	**Risk Factor Score =50**	Good	TRT Spence (2008)	NMFS Flow Protocol: Risk Factor Score 35-50
Smolts	Passage/Migration	Passage at Mouth or Confluence	**75% of IP-km to 90% of IP-km accessible**	Good	TRT Spence (2008)	75% of IP-Km to 90% of IP-km
Smolts	Smoltification	Temperature	**75-90% IP-km (>6 and <16 C)**	Good	TRT Spence (2008)	75-90% IP-Km (>6 and <16 C)
Smolts	Water Quality	Toxicity	**No Acute or Chronic**	Good	TRT Spence (2008)	No Acute or Chronic
Smolts	Water Quality	Turbidity	**75% to 90% of streams/ IP-km maintains severity score of 3 or lower**	Good	EPA/RWQCB/NMFS Criteria	75% to 90% of streams/ IP-Km maintains severity score of 3 or lower
Smolts	Viability	Abundance	**Smolt abundance which produces moderate risk spawner density**	Fair	Newcombe and Jensen 2003	Smolt abundance to produce low risk spawner density per Spence (2008)
Watershed Processes	Hydrology	Impervious Surfaces	**0.14% of Watershed in Impervious Surface**	Very Good	SEC Analysis	3-6% of Watershed in Impervious Surfaces
Watershed Processes	Landscape Patterns	Agriculture	**0.06% of Watershed in Agriculture**	Very Good	EPA/RWQCB/NMFS Criteria	10-19% of Watershed in Agriculture
Watershed Processes	Landscape Patterns	Timber Harvest	**41% of Watershed in Timber Harvest**	Poor	Newcombe and Jensen 2003	25-15% of Watershed in Timber Harvest
Watershed Processes	Landscape Patterns	Urbanization	**8% of watershed >1 unit/20 acres**	Good	EPA/RWQCB/NMFS Criteria	8-11% of watershed >1 unit/20 acres
Watershed Processes	Riparian Vegetation	Species Composition	**>75% Intact Historical Species Composition**	Very Good	Newcombe and Jensen 2003	51-74% Intact Historical Species Composition
Watershed Processes	Sediment Transport	Road Density	**7.7 Miles/Square Mile**	Poor	EPA/RWQCB/NMFS Criteria	1.6 to 2.4 Miles/Square Mile
Watershed Processes	Sediment Transport	Streamside Road Density (100 m)	**6.4 Miles/Square Mile**	Poor	Newcombe and Jensen 2003	0.1 to 0.4 Miles/Square Mile

Table 2: CAP Threats Results ~ Albion River

	Threats Across Targets	Adults	Eggs	Summer Rearing Juveniles	Winter Rearing Juveniles	Smolts	Watershed Processes	Overall Threat Rank
	Project-specific threats	1	2	3	4	5	6	
1	Agriculture	Low	Low	Low	Low	Low	Low	Low
2	Channel Modification	Medium	Low	Low	Low	Low	Low	Low
3	Disease, Predation and Competition	Low	-	Medium	Low	Low	Low	Low
4	Fire, Fuel Management and Fire Suppression	Low	Low	Medium	Low	Low	Medium	Medium
5	Fishing and Collecting	Low	-	Low	-	Low	-	Low
6	Hatcheries and Aquaculture	-	-	-	-	-	-	-
7	Livestock Farming and Ranching	Low	Low	Medium	Low	Low	Low	Low
8	Logging and Wood Harvesting	Medium	Medium	Medium	Medium	Low	High	Medium
9	Mining	-	-	-	-	-	-	-
10	Recreational Areas and Activities	Low	Low	Medium	Low	Low	Low	Low
11	Residential and Commercial Development	Low	Low	Medium	Low	Low	Medium	Medium
12	Roads and Railroads	Medium	High	Medium	Medium	Low	High	High
13	Severe Weather Patterns	Medium	Medium	Medium	Medium	Low	Medium	Medium
14	Water Diversion and Impoundments	Medium	Low	Medium	Low	Medium	Low	Medium
	Threat Status for Targets and Project	Medium	Medium	Medium	Medium	Medium	High	High

Central CA Coast Coho Salmon ~ Albion River

ACTIONS FOR RESTORING HABITATS

1. Restoration- Estuary

1.1. **Objective:** Address the present or threatened destruction, modification or curtailment of the species habitat or range

1.1.1. **Recovery Action:** Increase and enhance habitat complexity features

1.1.1.1. **Action Step:** Remove riprap and gabion rock within the estuary and restore with a bioengineering solution.

1.1.1.2. **Action Step:** Identify key locations to install LWD structures to improve shelter within the estuary.

2. Restoration- Floodplain Connectivity

2.1. **Objective:** Address the present or threatened destruction, modification or curtailment of the species habitat or range.

2.1.1. **Recovery Action:** Rehabilitate and enhance floodplain connectivity

2.1.1.1. **Action Step:** Delineate reaches possessing both potential winter rearing habitat and floodplain areas.

2.1.1.2. **Action Step:** Promote restoration projects designed to create or restore alcove, backchannel, ephemeral tributary, or seasonal pond habitats.

3. Restoration- Habitat Complexity

3.1. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range.

3.1.1. **Recovery Action:** Improve frequency of primary pools, LWD, and shelter ratings.

3.1.1.1. **Action Step:** Develop a Large Wood Recruitment Plan that assesses instream wood needs, and sites potentially responsive to wood recruitment or placement, and develop a riparian strategy to ensure long term natural recruitment of wood via large tree retention.

3.1.1.2. **Action Step:** Utilize information developed on LWD demand and recruitment potential in the MRC Albion Watershed Analysis.

3.1.1.3. **Action Step:** Improvement of in-channel LWD densities, and associated habitat benefits, could be most easily accomplished by the addition of large key pieces, conifer trees and root wads. It is recommended that this be achieved by cutting large trees and dropping them into the channel, or preferably by pulling them partially into the channel complete with rootwad, at appropriate upstream locations. Downed logs may be transported to proper location to be placed in the stream.

3.1.1.4. **Action Step:** Encourage landowners to implement restoration projects as part of their ongoing operations in stream reaches where large woody debris is lacking. Consider falling existing riparian trees as a method to increase complexity and LWD frequencies.

3.1.2. **Recovery Action:** Improve pool:riffle:flatwater ratio

3.1.2.1. **Action Step:** Increase the frequencies to 75% of the streams within the watershed

4. Restoration- Hydrology

4.1. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range.

4.1.1. **Recovery Action:** Improve flow conditions (baseflow conditions)

4.1.1.1. **Action Step:** Promote off-channel storage to reduce impacts of water diversion (storage tanks for rural residential users). Focus efforts in the Comptche area to minimize effects to the North Fork Albion and mainstem Albion.

4.1.1.2. **Action Step:** Provide incentives to water rights holders willing to convert some or all of their water right to instream use via petition change of use and §1707 (CDFG 2004).

4.1.2. **Recovery Action:** Improve flow conditions (baseflow conditions)

4.1.2.1. **Action Step:** Identify and eliminate depletion of summer base flows from unauthorized water uses.

4.1.2.2. **Action Step:** Require streamflow gaging devices to determine the level of impairment to natural flow. Determine sites appropriate for gaging below Comptche on the mainstem and the North Fork.

5. Restoration- Landscape Patterns

5.1. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range

5.1.1. **Recovery Action:** Reduce adverse impacts to watershed processes associated with road density

5.1.1.1. **Action Step:** Reduce road densities by 10 percent over the next 20 years, prioritizing high risk areas in historical habitats.

5.1.1.2. **Action Step:** Reduce adverse impacts to watershed processes associated with timber harvest

5.1.1.3. **Action Step:** Reduce the amount and rate of even aged management.

6. Restoration- Passage

6.1. **Objective:** Address the present or threatened destruction, modification or curtailment of the species habitat or range

6.1.1. **Recovery Action:** Identify and remove existing passage barriers.

6.1.1.1. **Action Step:** Investigate the feasibility of removing the earthen dam on Marsh Creek to increase habitat availability for coho salmon.

6.1.1.2. **Action Step:** Investigate a potential passage barrier for coho salmon on the South Fork Albion River below Bull Team Gulch. A low flow concrete structure placed in the mid-1990s may be causing passage problems for adult coho salmon.

6.1.1.3. **Action Step:** Continue to identify high priority barriers and restore passage per NMFS' Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001a).

7. Restoration- Pool Habitat

No species-specific actions were developed. See Habitat Complexity

8. Restoration- Riparian

8.1. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range

8.1.1. **Recovery Action:** Improve tree diameter

8.1.1.1. **Action Step:** Restore and protect riparian vegetation to improve migration and summer/overwintering habitat for coho salmon (CDFG 2004). Focus efforts on the Albion River and tributaries in the eastern part of the watershed.

8.1.1.2. **Action Step:** Promote streamside conservation measures, including conservation easements, setbacks, and riparian buffers (CDFG 2004). Investigate additional conservation easements with MRC, or other willing landowners in Core and Phase I stream reaches.

9. Restoration- Sediment

9.1. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range.

9.1.1. **Recovery Action:** Improve instream gravel quality

9.1.1.1. **Action Step:** Treat high priority slides and landings that are identified in the MRC Albion River Watershed Analysis or other credible assessments.

9.1.1.2. **Action Step:** Provide incentives to restore high priority sites as determined by watershed analysis, CDFG, or CalFire.

10. Restoration- Viability

10.1. **Objective:** Address the inadequacy of existing regulatory mechanisms.

10.1.1. **Recovery Action:** Increase spatial structure and diversity

10.1.1.1. **Action Step:** Monitor the response of population abundance and key habitat attributes to recovery efforts across the watershed.

10.1.1.2. **Action Step:** Conduct coho salmon carcass surveys in areas of the mainstem Albion, South Fork Albion, and the North Fork Albion, and selected tributaries.

10.1.1.3. **Action Step:** The Albion watershed should be considered for a coho salmon life-cycle monitoring station.

10.1.1.4. **Action Step:** Support a community based salmonid monitoring program in the Albion watershed.

10.1.2. **Recovery Action:** Increase spawner density

10.1.2.1. **Action Step:** Establish release imprinting stations, and other smolt release streams, so that smolts can be held for a minimum two week period prior to release. The holding period should allow for imprinting to occur on the parent release stream, increasing the potential for returns as adults which spawn naturally.

11. Restoration- Water Quality

No species-specific actions were developed.

THREAT ABATEMENT ACTIONS

12. Threat- Agricultural Practices

No species-specific actions were developed.

13. Threat- Channel Modification

No species-specific actions were developed.

14. Threat- Disease/Predation/Competition

No species-specific actions were developed.

15. Threat- Fire/Fuel Management

No species-specific actions were developed.

16. Threat- Fishing/Collecting

No species-specific actions were developed.

17. Threat- Hatcheries

No species-specific actions were developed.

18. Threat- Livestock

No species-specific actions were developed.

19. Threat- Logging

19.1. **Objective:** Address the inadequacy of existing regulatory mechanisms.

19.1.1. **Recovery Action:** Prevent increased landscape disturbance

19.1.1.1. **Action Step:** Assign NMFS staff to conduct THP reviews of the highest priority areas.

19.1.1.2. **Action Step:** Reduce the percent acres of the watershed harvested to less than 25 percent in a ten year period.

19.1.1.3. **Action Step:** Work with private landowners to achieve reductions in area harvested.

19.1.1.4. **Action Step:** Discourage Counties from rezoning forestlands to rural residential or other land uses (e.g., vineyards).

19.1.1.5. **Action Step:** Discourage home building or other incompatible land use in areas identified as timber production zones (TPZ).

20. Threat- Mining

No species-specific actions were developed.

21. Threat- Recreation

No species-specific actions were developed.

22. Threat- Residential/Commercial Development

No species-specific actions were developed.

23. Threat- Roads/Railroads

23.1. **Objective:** Address the inadequacy of existing regulatory mechanisms

23.1.1. **Recovery Action:** Prevent impairment to instream substrate/food productivity (impaired gravel quality and quantity)

23.1.1.1. **Action Step:** Minimize new road construction within floodplains, riparian areas, unstable soils or other sensitive areas until a watershed specific and/or agency/company specific road management plan is created and implemented.

23.1.1.2. **Action Step:** Limit winter use of unsurfaced roads and recreational trails to decrease fine sediment loads.

23.1.1.3. **Action Step:** For all rural (unpaved) and seasonal dirt roads apply best management practices for road construction, maintenance, management and decommissioning (e.g. Weaver and Hagans, 1994; Sommarstrom et al., 2002; Oregon Department of Transportation, 1999).

23.1.1.4. **Action Step:** Assess and implement actions that hydrologically disconnect roads or reduce sediment sources in Core CCC coho salmon areas within five years, Phase I within 10 years, and Phase II areas within 15 years (from 2010).

23.2. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range

23.2.1. **Recovery Action:** Prevent impairment to instream substrate/food productivity (impaired gravel quality and quantity)

23.2.1.1. **Action Step:** Assess and implement road upgrades on Docker Hill Road along the North Fork Albion River.

23.2.1.2. **Action Step:** Conduct road and sediment assessment on the Comptche Ukiah Road segment that drains to the Albion Watershed.

23.2.1.3. **Action Step:** Work with landowners to assess the effectiveness of erosion control measures throughout the winter period.

24. Threat- Severe Weather Patterns

24.1. **Objective:** Address the present or threatened destruction, modification, or curtailment of the species habitat or range

24.1.1. **Recovery Action:** Prevent impairment to stream hydrology.

24.1.1.1. **Action Step:** Identify and work with water users in the Comptche area to minimize depletion of summer base flows during droughts. Provide restoration funding for alternatives such as storage tanks and rainwater harvest to rural residential residents.

24.1.1.2. **Action Step:** Pursue opportunities to acquire or lease water, or acquire water rights from willing sellers, for coho salmon recovery purposes. Develop incentives for water right holders to dedicate instream flows for the protection of coho salmon (CDFG 2004)(Water Code § 1707).

25. Threat- Water Diversion/Impoundment

No species-specific actions were developed.

26. Threat- Watershed Process

No species-specific actions were developed.

Table 3: Implementation Schedule ~ Albion River

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-1.1	**Objective**	**Estuary**	**Address the present or threatened destruction, modification or curtailment of the species habitat or range**										
AIR-CCC-1.1.1	Recovery Action	Estuary	Increase and enhance habitat complexity features										
AIR-CCC-1.1.1.1	Action Step	Estuary	Remove riprap and gabion rock within the estuary and restore with a bioengineering solution.	2	5	California Coastal Conservancy, CDFG, Mendocino Redwood Company, NOAA RC, Private Landowners, Trout Unlimited							Cost determined by extent of riprap and gabion rock to be removed and suitable bioengineered solution to employ.
AIR-CCC-1.1.1.2	Action Step	Estuary	Identify key locations to install LWD structures to improve shelter within the estuary.	2	10	CDFG, Mendocino Redwood Company, NOAA RC, Private Landowners	125.00	125.00				250	Based on implementing 10 LWD at a rate of $25,000/mile.
AIR-CCC-2.1	**Objective**	**Floodplain Connectivity**	**Address the present or threatened destruction, modification or curtailment of the species habitat or range.**										
AIR-CCC-2.1.1	Recovery Action	Floodplain Connectivity	Rehabilitate and enhance floodplain connectivity										
AIR-CCC-2.1.1.1	Action Step	Floodplain Connectivity	Delineate reaches possessing both potential winter rearing habitat and floodplain areas.	2	2	CDFG, Mendocino Redwood Company, Private Landowners, Trout Unlimited	20.00					20	Use existing MRC watershed analysis, and channel typing information from habitat typing with field verification to determine floodplain restoration sites.
AIR-CCC-2.1.1.2	Action Step	Floodplain Connectivity	Promote restoration projects designed to create or restore alcove, backchannel, ephemeral tributary, or seasonal pond habitats.	2	10	CDFG, Mendocino Redwood Company, NOAA RC, Private Landowners	5.50	5.50				11	Use information from Action Step #1 to determine reaches for restoration. Cost based on treating 3 miles (assume 1 project per mile in 5% High IP) at a rate of $36,046/mile.
AIR-CCC-3.1	**Objective**	**Habitat Complexity**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range.**										

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-3.1.1	Recovery Action	Habitat Complexity	Improve frequency of primary pools, LWD, and shelter ratings.										
AIR-CCC-3.1.1.1	Action Step	Habitat Complexity	Develop a Large Wood Recruitment Plan that assesses instream wood needs, and sites potentially responsive to wood recruitment or placement, and develop a riparian strategy to ensure long term natural recruitment of wood via large tree retention.	1	2	CDFG, Mendocino Redwood Company, NOAA RC, Private Landowners, Trout Unlimited						In-Kind	Work with stakeholders to develop a Plan.
AIR-CCC-3.1.1.2	Action Step	Habitat Complexity	Utilize information developed on LWD demand and recruitment potential in the MRC Albion Watershed Analysis.	2	2	CDFG, Mendocino Redwood Company, NOAA RC, Private Consultants, Private Landowners, Trout Unlimited						In-Kind	This recommendation will direct other action steps.
AIR-CCC-3.1.1.3	Action Step	Habitat Complexity	Improvement of in-channel LWD densities, and associated habitat benefits, could be most easily accomplished by the addition of large key pieces, conifer trees and root wads. It is recommended that this be achieved by cutting large trees and dropping them into the channel, or preferably by pulling them partially into the channel complete with rootwad, at appropriate upstream locations. Downed logs may be transported to proper location to be placed in the stream.	2	10	CalFire, CDFG, Private Landowners	440.00	440.00				880	Cost based on treating 35 miles (assume 50% High IP) at a rate of $25,000/mile.
AIR-CCC-3.1.1.4	Action Step	Habitat Complexity	Encourage landowners to implement restoration projects as part of their ongoing operations in stream reaches where large woody debris is lacking. Consider falling existing riparian trees as a method to increase complexity and LWD frequencies.	3	50	CDFG, Mendocino Redwood Company, Private Landowners, Trout Unlimited						In-Kind	
AIR-CCC-3.1.2	Recovery Action	Habitat Complexity	Improve pool:riffle:flatwater ratio										
AIR-CCC-3.1.2.1	Action Step	Habitat Complexity	Increase the frequencies to 75% of the streams within the watershed	2	20	Campbell Timberland Management, CDFG, NMFS, NOAA RC						TBD	Cost should be accounted for in increase LWD frequency and primary pools.
AIR-CCC-4.1	**Objective**	**Hydrology**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range.**										

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-4.1.1	Recovery Action	Hydrology	Improve flow conditions (baseflow conditions)										
AIR-CCC-4.1.1.1	Action Step	Hydrology	Promote off-channel storage to reduce impacts of water diversion (storage tanks for rural residential users). Focus efforts in the Comptche area to minimize effects to the North Fork Albion and mainstem Albion.	2	5	NOAA RC, NRCS, Private Landowners, SWRCB	50.00					50	Cost based on small number of landowners participating in program during the first five years.
AIR-CCC-4.1.1.2	Action Step	Hydrology	Provide incentives to water rights holders willing to convert some or all of their water right to instream use via petition change of use and §1707 (CDFG 2004).	2	30	CDFG, NOAA RC, Private Landowners, SWRCB							
AIR-CCC-4.1.2	Recovery Action	Hydrology	Improve flow conditions (baseflow conditions)										
AIR-CCC-4.1.2.1	Action Step	Hydrology	Identify and eliminate depletion of summer base flows from unauthorized water uses.	1	60	CDFG Law Enforcement, NMFS OLE, SWRCB						In-Kind	Continued enforcement will likely be required.
AIR-CCC-4.1.2.2	Action Step	Hydrology	Require streamflow gaging devices to determine the level of impairment to natural flow. Determine sites appropriate for gaging below Comptche on the mainstem and the North Fork.	3	10	CDFG, Mendocino Redwood Company, NMFS HCD, Private Landowners, USGS	100.00	100.00				200	Based on 2 gages for 10 years.
AIR-CCC-5.1	**Objective**	**Landscape Patterns**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range**										
AIR-CCC-5.1.1	Recovery Action	Landscape Patterns	Reduce adverse impacts to watershed processes associated with road density										
AIR-CCC-5.1.1.1	Action Step	Landscape Patterns	Reduce road densities by 10 percent over the next 20 years, prioritizing high risk areas in historical habitats.	3	20	CalFire, Campbell Timberland Management, Private Landowners	300.00	300.00	300.00	300.00		1,200	Costs may be significant and benefits should be weighed against additional upland disturbance and overall costs. Indiscriminate road density reduction should be avoided so as not to preclude inhibiting future road realignments that could also effectively reduce sediment delivery. Cost based on decommissioning 93 miles of road network at a rate of $12,000/mile.
AIR-CCC-5.1.1.2	Action Step	Landscape Patterns	Reduce adverse impacts to watershed processes associated with timber harvest										
AIR-CCC-5.1.1.3	Action Step	Landscape Patterns	Reduce the amount and rate of even aged management.	3	100	CalFire, Campbell Timberland Management, Private Landowners						In-Kind	This recommendation should be considered standard practice.

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-6.1	**Objective**	**Passage**	**Address the present or threatened destruction, modification or curtailment of the species habitat or range**										
AIR-CCC-6.1.1	Recovery Action	Passage	Identify and remove existing passage barriers.										
AIR-CCC-6.1.1.1	Action Step	Passage	Investigate the feasibility of removing the earthen dam on Marsh Creek to increase habitat availability for coho salmon.	2	2	CDFG, NOAA RC, Private Consultants, Private Landowners	126.00					126	Cost based on treating non-structural element at a rate of $126,000/unit.
AIR-CCC-6.1.1.2	Action Step	Passage	Investigate a potential passage barrier for coho salmon on the South Fork Albion River below Bull Team Gulch. A low flow concrete structure placed in the mid-1990s may be causing passage problems for adult coho salmon.	2	5	CDFG, Mendocino Redwood Company, NOAA RC	75.00					75	Cost based on estimate by NMFS staff. Small concrete structure was constructed in early 1990's. This structure needs to be evaluated and may need to be removed or modified.
AIR-CCC-6.1.1.3	Action Step	Passage	Continue to identify high priority barriers and restore passage per NMFS' Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001a).	2	20	Campbell Timberland Management, CDFG, Mendocino Redwood Company, NMFS, Private Landowners						In-Kind	
AIR-CCC-8.1	**Objective**	**Riparian**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range**										
AIR-CCC-8.1.1	Recovery Action	Riparian	Improve tree diameter										
AIR-CCC-8.1.1.1	Action Step	Riparian	Restore and protect riparian vegetation to improve migration and summer/overwintering habitat for coho salmon (CDFG 2004). Focus efforts on the Albion River and tributaries in the eastern part of the watershed.	2	20	CDFG, Private Landowners	1,605	1,605	1,605	1,605		6,420	Cost based on treating 4 miles (assume 80 acres/mile in 5% High IP) at a rate of $20,057/acre.
AIR-CCC-8.1.1.2	Action Step	Riparian	Promote streamside conservation measures, including conservation easements, setbacks, and riparian buffers (CDFG 2004). Investigate additional conservation easements with MRC, or other willing landowners in Core and Phase I stream reaches.	3	20	CDFG, Private Landowners						TBD	Cost will depend on size and scope of easements, current market value, and rate of turnover.
AIR-CCC-9.1	**Objective**	**Sediment**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range.**										
AIR-CCC-9.1.1	Recovery Action	Sediment	Improve instream gravel quality										

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-9.1.1.1	Action Step	Sediment	Treat high priority slides and landings that are identified in the MRC Albion River Watershed Analysis or other credible assessments.	1	10	CDFG, Mendocino County, NOAA RC, Private Landowners						TBD	Need additional analysis to estimate. Cost for sediment assessment is estimated at 70,000.
AIR-CCC-9.1.1.2	Action Step	Sediment	Provide incentives to restore high priority sites as determined by watershed analysis, CDFG, or CalFire.	2	20	CDFG, FishNet 4C, NOAA RC, NRCS						TBD	Additional information needed.
AIR-CCC-10.1	**Objective**	**Viability**	**Address the inadequacy of existing regulatory mechanisms.**										
AIR-CCC-10.1.1	Recovery Action	Viability	Increase spatial structure and diversity										
AIR-CCC-10.1.1.1	Action Step	Viability	Monitor the response of population abundance and key habitat attributes to recovery efforts across the watershed.	3	24	CDFG, Mendocino Redwood Company, NMFS PRD, Private Landowners	250.00	250.00	250.00	250.00	200.00	1,200	Based on 50k per year for two 4 generation (12 year) periods, a total of 24 years , as suggested in Spence et al. (2008).
AIR-CCC-10.1.1.2	Action Step	Viability	Conduct coho salmon carcass surveys in areas of the mainstem Albion, South Fork Albion, and the North Fork Albion, and selected tributaries.	2	20	CDFG, Mendocino Redwood Company, NMFS PRD	83.25	83.25	83.25	83.25		333	Cost to conduct annual spawner survey for N. Central Coastal diversity stratum estimated at $16,650/year.
AIR-CCC-10.1.1.3	Action Step	Viability	The Albion watershed should be considered for a coho salmon life-cycle monitoring station.	1	20	CDFG, NMFS, Private Landowners	500	500	500	500		2,000	Cost based on $100k per year for 20 years.
AIR-CCC-10.1.1.4	Action Step	Viability	Support a community based salmonid monitoring program in the Albion watershed.	3	10	CDFG, NOAA RC, Private Landowners, Public							Cost accounted for in above action step. Cost could be less with community involvement.
AIR-CCC-10.1.2	Recovery Action	Viability	Increase spawner density										
AIR-CCC-10.1.2.1	Action Step	Viability	Establish release imprinting stations, and other smolt release streams, so that smolts can be held for a minimum two week period prior to release. The holding period should allow for imprinting to occur on the parent release stream, increasing the potential for returns as adults which spawn naturally.	3	15	CDFG, Private Landowners						TBD	Identify suitable imprinting stations and annual availability of smolts.
AIR-CCC-19.1	**Objective**	**Logging**	**Address the inadequacy of existing regulatory mechanisms.**										
AIR-CCC-19.1.1	Recovery Action	Logging	Prevent increased landscape disturbance	2	20	CalFire, CDFG, Mendocino County, NMFS, Private Landowners, Public, USFWS						TBD	Cost is expected to be the result of focused staff time directed at Mendocino BOS and various land use organizations.

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-19.1.1.1	Action Step	Logging	Assign NMFS staff to conduct THP reviews of the highest priority areas.	2	20	CalFire, CDFG, NMFS PRD, RWQCB						In-Kind	
AIR-CCC-19.1.1.2	Action Step	Logging	Reduce the percent acres of the watershed harvested to less than 25 percent in a ten year period.	2	20	CalFire, CDFG, Mendocino Redwood Company, NMFS PRD, Private Landowners, RWQCB						TBD	Work with private and corporate companies to reduce annual acres harvested.
AIR-CCC-19.1.1.3	Action Step	Logging	Work with private landowners to achieve reductions in area harvested.	2	20	CDFG, Mendocino Redwood Company, NMFS PRD, Private Landowners, RWQCB						In-Kind	
AIR-CCC-19.1.1.4	Action Step	Logging	Discourage Counties from rezoning forestlands to rural residential or other land uses (e.g., vineyards).	3	60	CalFire, CDFG, Mendocino County, NMFS HCD, NMFS PRD, Private Landowners						In-Kind	This recommendation should be considered standard practice.
AIR-CCC-19.1.1.5	Action Step	Logging	Discourage home building or other incompatible land use in areas identified as timber production zones (TPZ).	2	60	CalFire, Mendocino County, Mendocino Redwood Company, NMFS HCD						In-Kind	
AIR-CCC-23.1	**Objective**	**Roads/Railroads**	**Address the inadequacy of existing regulatory mechanisms**										
AIR-CCC-23.1.1	Recovery Action	Roads/Railroads	Prevent impairment to instream substrate/food productivity (impaired gravel quality and quantity)										
AIR-CCC-23.1.1.1	Action Step	Roads/Railroads	Minimize new road construction within floodplains, riparian areas, unstable soils or other sensitive areas until a watershed specific and/or agency/company specific road management plan is created and implemented.	1	20	CDFG, Mendocino Redwood Company, Private Landowners, RWQCB						TBD	Cost associated with increased costs for land managers is unknown at this time, additional analysis needed to determine.
AIR-CCC-23.1.1.2	Action Step	Roads/Railroads	Limit winter use of unsurfaced roads and recreational trails to decrease fine sediment loads.	2	5	CDFG, NOAA RC, NRCS, Private Landowners, RCD	50.00					50	Estimated cost for materials to block roads and trails, large rock and gates.

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-23.1.1.3	Action Step	Roads/Railroads	For all rural (unpaved) and seasonal dirt roads apply best management practices for road construction, maintenance, management and decommissioning (e.g. Weaver and Hagans, 1994; Sommarstrom et al., 2002; Oregon Department of Transportation, 1999).	1	20	Mendocino County, NOAA RC, NRCS, Private Landowners, RCD						TBD	Number of rural roads and associated costs are unknown at this time.
AIR-CCC-23.1.1.4	Action Step	Roads/Railroads	Assess and implement actions that hydrologically disconnect roads or reduce sediment sources in Core CCC coho salmon areas within five years, Phase I within 10 years, and Phase II areas within 15 years (from 2010).	2	15	CDFG, Mendocino Redwood Company, Private Landowners, RWQCB						TBD	Many road upgrades have been done in this watershed. Additional information needed on the remaining road segments that need work to estimate cost.
AIR-CCC-23.2	**Objective**	**Roads/Railroads**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range**										
AIR-CCC-23.2.1	Recovery Action	Roads/Railroads	Prevent impairment to instream substrate/food productivity (impaired gravel quality and quantity)										
AIR-CCC-23.2.1.1	Action Step	Roads/Railroads	Assess and implement road upgrades on Docker Hill Road along the North Fork Albion River.	1	10	Campbell Timberland Management, CDFG, Mendocino County, NOAA RC, Private Landowners						TBD	
AIR-CCC-23.2.1.2	Action Step	Roads/Railroads	Conduct road and sediment assessment on the Comptche Ukiah Road segment that drains to the Albion Watershed.	2	5	Mendocino County Department of Public Works, NOAA RC	50.00					50	May be possible to use some existing Mendocino County DOT road data.
AIR-CCC-23.2.1.3	Action Step	Roads/Railroads	Work with landowners to assess the effectiveness of erosion control measures throughout the winter period.	3	10	CDFG, Mendocino County Department of Public Works, Mendocino Redwood Company, Private Landowners, RWQCB						In-Kind	
AIR-CCC-24.1	**Objective**	**Severe Weather Patterns**	**Address the present or threatened destruction, modification, or curtailment of the species habitat or range**										
AIR-CCC-24.1.1	Recovery Action	Severe Weather Patterns	Prevent impairment to stream hydrology.			CDFG							

Recovery Strategy Number	Level	Targeted Attribute or Threat	Action Description	Priority Number	Action Duration (Years)	Recovery Partners	Costs ($K)						Comments
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	Entire Duration	
AIR-CCC-24.1.1.1	Action Step	Severe Weather Patterns	Identify and work with water users in the Comptche area to minimize depletion of summer base flows during droughts. Provide restoration funding for alternatives such as storage tanks and rainwater harvest to rural residential residents.		10	Mendocino County, NOAA RC, Private Landowners, Trout Unlimited	500	500				1,000	Estimate based on 100 land owners at 10k per water storage system.
AIR-CCC-24.1.1.2	Action Step	Severe Weather Patterns	Pursue opportunities to acquire or lease water, or acquire water rights from willing sellers, for coho salmon recovery purposes. Develop incentives for water right holders to dedicate instream flows for the protection of coho salmon (CDFG 2004)(Water Code § 1707).	2	20	CDFG, Private Landowners, SWRCB						TBD	The main benefit of this action is to improve flow conditions in the lower portion of the watershed where the majority of home owners and agricultural use occurs. Cost for a stream flow model estimated at $63,005. Acquiring or leasing water is contingent upon landowner participation and extent of protection for base flows.