

KLAMATH STRAW FISH MONITORING SCENARIO

“CORE” PROGRAM EXAMPLE¹

1	QUESTION: ARE FISHERY HARVESTS SUSTAINABLE?.....	2
2	QUESTION: WHAT ARE THE STATUS & TRENDS OF FISH & LIMITING FACTORS FOR ESA SPECIES?	3
3	QUESTION: WHAT ARE THE STATUS & TRENDS OF FISH & LIMITING FACTORS FOR NON-ESA SPECIES?	4
4	QUESTION: WHAT ARE THE EFFECTS OF DAM REMOVAL ON ANADROMOUS FISH DISTRIBUTION, ABUNDANCE & PRODUCTIVITY?.....	4
5	QUESTION: ARE WATER MANAGEMENT & MITIGATION MEASURES BEING IMPLEMENTED EFFECTIVELY?.....	4
6	QUESTION: ARE HATCHERY PROGRAMS ACHIEVING ESTABLISHED OBJECTIVES?.....	5
7	QUESTION: WHAT HABITATS ARE CRITICAL TO FISH, WHAT RESTORATION MEASURES ARE EFFECTIVE & HAS RESTORATION IMPROVED FISH STATUS?	5
8	QUESTION: WHAT ADDITIONAL INFORMATION DO WE NEED TO ADDRESS CRITICAL UNCERTAINTIES, ANTICIPATE EMERGING ISSUES OR ADAPT NEW TOOLS?	5
9	QUESTION: HOW TO WE OPTIMIZE COOPERATIVE IMPLEMENATION & COORDINATION TO OPTIMIZE EFFICIENCIES AND EFFECTIVENESS OF MONITORING EFFORTS?	5

¹ Questions in this example are organized around applications/decision processes for related information.

1 QUESTION: ARE FISHERY HARVESTS SUSTAINABLE?

1.1 Objective: Fall Chinook

1.1.1 Task: Stock assessment – Monitor annual abundance & age composition of Fall Chinook needed to estimate run size, fishery impact rates & the next year's run forecast.

- 1.1.1.1 Activity: Fall spawning ground redd & carcass surveys in mainstem Klamath downstream from Iron Gate site. [core]
- 1.1.1.2 Activity: Spawning ground redd & carcass surveys in mainstem Klamath upstream from Iron Gate site during fall. [core]
- 1.1.1.3 Activity: Adult weir counts in Trinity River mainstem during fall. [core]
- 1.1.1.4 Activity: Adult video weir counts in Shasta & Scott Rivers during fall. [core]
- 1.1.1.5 Activity: Hatchery swim-ins to Trinity & Fall Creek facilities. [core]
- 1.1.1.6 Activity: Spawning ground redd & carcass surveys during fall in other Klamath tributaries. [important]

1.1.2 Task: Harvest assessment – Monitor annual harvest & catch composition needed to estimate run size & fishery impact rates in relation to target levels.

- 1.1.2.1 Activity: Annual harvest survey of Yurok Tribe fall fisheries. [core]
- 1.1.2.2 Activity: Annual harvest survey of Hoopa Valley Tribe fall fisheries. [core]
- 1.1.2.3 Activity: Annual harvest survey of other tribal fall fisheries. [core]
- 1.1.2.4 Activity: Annual harvest survey of non-tribal tribal fall fisheries. [core]

1.1.3 Task: Fishery evaluation – Run reconstruction, megatable & forecast.

- 1.1.3.1 Desk exercise.

1.2 Objective: Spring Chinook

1.2.1 Task: Stock assessment – Monitor annual abundance & age composition of Spring Chinook needed to estimate run size, fishery impact rates & the next year's run forecast.

...

1.2.2 Task: Harvest assessment – Monitor annual harvest & catch composition needed to estimate run size & fishery impact rates in relation to target levels.

...

1.2.3 Task: Fishery evaluation – Run reconstruction, megatable & forecast.

...

1.3 Objective: Coho

1.3.1 Task: Stock assessment – Monitor annual abundance & age composition of Spring Chinook needed to estimate run size, fishery impact rates & the next year's run forecast.

...

1.3.2 Task: Harvest assessment – Monitor annual harvest & catch composition needed to estimate run size & fishery impact rates in relation to target levels.

...

1.3.3 Task: Fishery evaluation – Run reconstruction & forecast.

...

2 QUESTION: WHAT ARE THE STATUS & TRENDS OF FISH & LIMITING FACTORS FOR ESA SPECIES?

2.1 Objective: Lost River Sucker & Shortnose Sucker

2.1.1 Task: Status assessment – Abundance, productivity, spatial structure, diversity

- 2.1.1.1 Activity: Annual adult sampling in upper Klamath Lake by trammel net to evaluate population characteristics & tag fish for population estimation (core)
- 2.1.1.2 Activity: Annual juvenile sampling in upper Klamath Lake by trap net to evaluate juvenile production (core)
- 2.1.1.3 Activity: Operate PIT tag arrays continuously throughout upper Klamath Lake and tributaries for capture-recapture population estimates (core)
- 2.1.1.4 Activity: Annual weir sampling in Williamson River in spring for population assessment (important?).
- 2.1.1.5 Activity: Annual population assessments in Clear Lake by trammel and trap net (important?)
- 2.1.1.6 Activity: Complete comprehensive periodic stock status updates. (important?)

2.1.2 Task: Factors assessment – Habitat, disease, mortality, etc.

- 2.1.2.1 Activity: Disease monitoring
- 2.1.2.2 Activity: Monitoring/evaluation of suckers in new places

2.1.3 Task: Action effectiveness – Hatchery reintroduction evaluation

- 2.1.3.1 Activity: Annual juvenile sampling in upper Klamath Lake to collect juveniles for hatchery-assisted rearing (core)
- 2.1.3.2 Activity: In-hatchery evaluations of effective for hatchery-assisted rearing practices. (important?)
- 2.1.3.3 Activity: Post-release assessment of hatchery contributions. (core)

2.1.4 Task: Critical Uncertainties /Research

- 2.1.4.1 Activity: Research to identify why suckers are dying and what can be done about it. (core)

2.2 Objective: Coho Salmon

2.2.1 Task: Status assessment – Abundance, productivity, spatial structure, diversity

- 2.2.1.1 Activity: Fall spawning ground redd & carcass surveys in mainstem Klamath downstream from Iron Gate site during late fall. [core]
- 2.2.1.2 Activity: Spawning ground redd & carcass surveys in mainstem Klamath upstream from Iron Gate site during late fall. [core]
- 2.2.1.3 Activity: Adult weir counts in Trinity River mainstem during late fall. [core]
- 2.2.1.4 Activity: Adult video weir counts in Shasta & Scott Rivers during late fall. [core]
- 2.2.1.5 Activity: Hatchery swim-ins to Trinity River facility. [core]
- 2.2.1.6 Activity: Spawning ground redd & carcass surveys during late fall in other Klamath tributaries. [important]

2.2.2 Task: Factors assessment – Habitat, disease, mortality, etc.

- 2.2.2.1 Activity: Coho habitat condition & utilization

2.3 Objective: Bull Trout**2.3.1 Task: Status assessment – Abundance, productivity, spatial structure, diversity**

2.3.1.1 Activity:

2.3.2 Task: Factors assessment – Habitat, disease, mortality, etc.

2.3.2.1 Activity:

3 QUESTION: WHAT ARE THE STATUS & TRENDS OF FISH & LIMITING FACTORS FOR NON-ESA SPECIES?

3.1 Objective: Spring Chinook**3.1.1 Task: Status assessment – index monitoring**

3.1.1.1 Activity

3.2 Objective: O. mykiss**3.2.1 Task: Status assessment – index monitoring****3.3 Objective: Lamprey****3.3.1 Task: Status assessment– index monitoring****3.4 Objective: Green Sturgeon?****3.4.1 Task: Status assessment– index monitoring****4 QUESTION: WHAT ARE THE EFFECTS OF DAM REMOVAL ON ANADROMOUS FISH DISTRIBUTION, ABUNDANCE & PRODUCTIVITY?**

4.1 Objective: Upper Klamath Mainstem & Tributaries Fish Status Assessment**4.1.1 Task:****4.2 Objective: Keno & Link River Dam Passage Effectiveness****4.2.1 Task: Adults****4.2.2 Task: Juveniles****4.3 Objective: Klamath Headwaters Fish Status Assessment****4.3.1 Task:**

5 QUESTION: ARE WATER MANAGEMENT & MITIGATION MEASURES BEING IMPLEMENTED EFFECTIVELY?

5.1 Objective: Trinity River projects

5.1.1 Task: Juvenile Migrant Trapping

5.1.2 Task: S3 Modeling

5.1.3 Task: Comprehensive retrospective analysis

5.2 Objective: Klamath River projects

5.2.1 Task: Juvenile Migrant Trapping

5.2.2 Task: S3 Modeling

5.2.3 Task: Comprehensive retrospective analysis

6 QUESTION: ARE HATCHERY PROGRAMS ACHIEVING ESTABLISHED OBJECTIVES?

6.1 Objective: Trinity River Hatchery

6.2 Objective: Fall Creek Hatchery

7 QUESTION: WHAT HABITATS ARE CRITICAL TO FISH, WHAT RESTORATION MEASURES ARE EFFECTIVE & HAS RESTORATION IMPROVED FISH STATUS?

(might also go under focal species - habitat improvements have multi-species benefits but might be better to tie to ESA where applicable to funding priority)

8 QUESTION: WHAT ADDITIONAL INFORMATION DO WE NEED TO ADDRESS CRITICAL UNCERTAINTIES, ANTICIPATE EMERGING ISSUES OR ADAPT NEW TOOLS?

8.1 Objective:

9 QUESTION: HOW TO WE OPTIMIZE COOPERATIVE IMPLEMENTATION & COORDINATION TO OPTIMIZE EFFICIENCIES AND EFFECTIVENESS OF MONITORING EFFORTS?

9.1 Objective: Work Groups / Coordination

9.2 Objective: Data archiving & Sharing