



# R & E Grant Application 17-19 Biennium

Project #: 17-005

## *Evaluating Tillamook Chinook with Radio Telemetry*

### ***Project Information***

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**Requested Cycle:** 17-6  
**R&E Project Request:** \$58,500  
**Other Funding:** \$225,042  
**Total Project:** \$283,542  
**Spending Start Date:** 7/1/2017  
**Spending End Date:** 7/30/2017  
**Project Start Date:** 7/1/2017  
**Project End Date:** 6/30/2018  
**Organization:** Oregon Department of Fish and Wildlife

### ***Applicant Information***

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**Name:** Shannon Richardson  
**Address:** 28655 Highway 34  
Corvallis, OR 97333  
**Telephone:** 541-757-5121  
**Telephone 2:** 541-953-8803  
**Email:** shannon.richardson@oregonstate.edu

### ***Past Recommended or Completed Projects***

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This applicant has no previous projects that match criteria.

### ***Authorized Agent***

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**Name:** Brian Riggers  
**Email:** Brian.Riggers@oregonstate.edu

## **Location Information**

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### **Where is it?**

The project will occur on public land owned or managed by the applicant  
The project will occur on private land owned or managed by the applicant

### **Site Description**

*Street Address, nearest intersection, or other descriptive location.*

Tillamook Bay, Kilchis River, Wilson River, Tillamook River, Miami River, Trask River

*Directions to the site from the nearest highway junction.*

*Following project completion, public anglers will be allowed the following level of access to the project site:*

*Please describe what leases, easements, agreements are in place to ensure angler access to the project site, and what is the length of each agreement.*

Access allowed as is typical

*Dominant Land Use Type:*

Forest  
Range/pasture  
Rural residential  
Marine

### **Project Location**

*General Project Location.*

**County:** TILLAMOOK  
**ODFW Dist:** North Coast  
**Stream/Lake/Estuary Name:** Kilchis, Miami, Tillamook, Wilson, Trask  
**Sub-basin:** 17090010  
**Tributary of:** Devils Lake Fork

*Specific Project Location.*

Latitude		Longitude	
	45.51744		-123.66234

## **Project Summary**

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### **Project Summary**

*Please provide a couple sentence summary of the proposal.*

We propose to capture adult fall Chinook returning to Tillamook Bay, install radio tags, and track fish to account for their contribution either to the bay/river fishery or escapement by tributary.  
This may provide a better understanding of the fishery, and help inform management decisions.

### **Overall Project Goals**

*Describe the primary goals or outcomes of the entire project, including elements not requesting*

*funding from R&E.*

Describe the disposition of adult fall Chinook that enter Tillamook Bay by contribution to the bay or river fisheries or to spawner escapement.

Develop capture methods and locations for adult fall Chinook in Tillamook Bay.

Install up to 250 radio tags into adult fall Chinook salmon that have entered Tillamook Bay and track tagged fish to determine their disposition.

Evaluate current forecasting methods for Tillamook Bay returns for possible improvements.

Primary objectives of R&E funding

*Please describe the measurable objectives for the R&E portion of the funding request.*

Purchase up to 250 radio telemetry tags.

Purchase 2 radio receivers.

Current Situation/Justification

*Please describe the current situation and explain why this funding is needed.*

Currently, fisheries management is based on a hypothesis that approximately 1/3 of the Tillamook Bay adult fall Chinook are harvested in ocean sport and commercial fisheries, 1/3 are harvested in the bay and river sport fishery and 1/3 escape to spawn. While this hypothesis has some coded wire tag data to support it, escapement estimation is neither rigorous, nor precise and we may be managing too conservatively for the actual conditions. This project would allow us to begin to explore methodology to support accurate, timely and precise abundance and escapement estimates, thereby promoting management decisions rooted in sound science. Work that we undertake with R&E funding would address some gaps in fundamental data needed to help develop a cost-effective, robust estimation method by sub-basin, similar to that which we have developed in other basins by allowing us to establish reaches within each sub-basin that are calibrated to a highly accurate abundance estimate derived from mark-recapture studies.

Recreation and Commercial Benefit

*This project will provide benefits to:*

Recreational fisheries

Commercial fisheries

*Explain how this project will contribute to current (and/or potential) fishing opportunities, access, or fisheries management.*

Benefits to the recreational and commercial fishery will come from greater certainty in forecasting and estimations of abundance, which will support data-based management and lend an additional level of certainty to management within the Tillamook basin. Abundance estimates that are more accurate and precise will also help safeguard Oregon's salmon against excessive ocean harvest by other entities. There is guidance currently under development by the Chinook Technical Committee of the Pacific Salmon Treaty that calls for increased rigor in estimation and forecasting and this directly addresses that need. Additionally, ODFW's Coastal Multispecies Management Plan indicates that fishing pressure in the Tillamook basin is higher than in any other coastal basin, emphasizing a need for more precision in estimation and management.

*Percent benefit split between Commercial and Recreational anglers:*

50 % Commercial

50 % Recreational

*Please explain, or justify, how the percentage split was determined:*

Beginning with the working assumption that the return contributes in roughly thirds to each of ocean harvest, recreational harvest and escapement, we think it's reasonable to split escapement evenly and assign approximately half of the total benefit to each of commercial and recreational.

*This project has been identified as an ODFW priority for:*

Local/watershed

*Does this project directly support implementation of the ODFW Strategic Plan and/or current Fish Division priorities?*

*Please briefly explain when this was identified as a priority and what process or workgroup was used to identified this as an ODFW priority.*

*Identify any plan or other document that identifies this priority.*

Correspondence with watershed and district staff

Pacific Salmon Commission Joint Chinook Technical Committee Chapter 3 Performance Evaluation Report (TCChinook (16)-2), May 2016

Oregon Department of Fish and Wildlife. 2014. Coastal Multi-Species Conservation and Management Plan. June 2014. Oregon Department of Fish and Wildlife, Salem, OR.

*Is this project part of an approved Salmon-Trout Enhancement Program (STEP) activity?*

No

*This project is intended to benefit the following species:*

Fall Chinook Salmon

*This project will benefit anglers or fishery by providing:*

Monitoring/Research

#### Monitoring/Research

*This project will be used to evaluate:*

Population composition (i.e age, species, survival, size, or genetics)

Out migrant/return rates

Fishery contribution

Distribution (i.e. presence, absence, abundance)

*Has this project been reviewed or developed by an individual with appropriate qualifications (i.e ODFW biometrician, research professor)?*

Yes

Project design will be developed in consultation with ODFW biometrician.

*Is this study critical to fishery management decisions?*

Yes

Does current fishery management appropriately reflect abundance and distribution of coastal fall Chinook in the tributaries of Tillamook Bay?

Yes

Current methods assume that return is split evenly between escapement, river/bay fishery and commercial fisheries. More accurate robust estimates may ensure that harvest goals are appropriate while allowing for escapement.

*Is there a plan to repeat this monitoring or research in the future?*

No

*Will the data be reported or published?*

Yes

If CCRMP is successful in securing funding through the PSC, required reporting will occur on a quarterly and final basis. Further, results will be included in an ODFW Progress Report.

## ***Project Description***

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### ***Schedule***

Activity	Date	RE Funding
Solicit quotes	07/2017	No
Purchase equipment and other field gear	07/2017	Yes
Hire field staff	7/2017	No
Local outreach	2016-17	No
Field staff start	9/2017	No
capture and tag fish	Sep-Nov. 2017	No
track fish, collect bio data on spawning grounds	Oct-Dec. 2017	No
Field staff ends	Dec. 2017	No
Data QA/QC and analysis	Jan-March 2018	No
reporting	June 2018	No

### ***Permits***

Permit	Secured?	Date Expected
	No	

### ***Project Design and Description***

*Please describe in detail the methods or approach that will be used to achieve the project objectives.*

Since the program began, CCRMP has conducted a broad suite of studies using a variety of methods including creel, spawning ground survey, radio telemetry, adult mark-recapture and juvenile trapping. We are adept at capturing adult fish to mark and/or collect data and pride ourselves on a handling mortality rate that is close to zero. To conduct this study, we will use methods typical for adult capture for live marking and releasing. Capture will occur at night to minimize impact to and interaction with members of the angling public and to capitalize on periods of fish movement and activity. We will use entanglement nets set with lights from small boats and will stay with the nets whenever they are set. When we observe a fish in the net, we will immediately remove the fish to a holding tank on board one of our boats. The following biodata will be observed: sex, fin mark, length, scale sample. For fish that indicate good condition, we will install a gastrointestinal radio tag following typical methods and hold the fish to ensure adequate recovery before releasing it upstream of the netting location. We will attempt to tag fish throughout the run, given weather conditions. Once we have tagged 25 fish, we will begin radio tracking to "resight" tagged fish. We will track several times a week during the remainder of tagging, and once all tags intended for use have been deployed, will transition to tracking and spawning ground surveys. The spawning ground surveys will allow us to collect additional biological data from tagged and untagged fish and will help us ground truth our existing knowledge of spawning habitat.

We have identified the duration of this project to be approximately one calendar year from start. The field work that will occur during this time will be directly supported by funds from R&E through the purchase of telemetry hardware. Complete analysis of associated data may extend beyond this period and data collected during this study may be used to inform future studies.

Establishing calibrated spawning ground surveys will be an ideal long-term management tool, but the scope of that work is outside of this specific project and would be part of a much larger multi-year effort.

R&E funds would be used only to purchase radio telemetry hardware. Having dedicated receivers will enhance efficiency for the project and ensure that we have access to high quality equipment when needed for tracking. If our proposal is accepted, R&E funds will be used as match to pursue funding for field and project management staff.

The bay and river fisheries are popular and this project is likely to be high profile. We would request an exception to the rule that prohibits taking a fish with a radio tag and may make some tags eligible for a reward upon return. We recognize that there may be some concern about the effect of our research on the fishery. We feel that the potential benefits of the study will appeal to many anglers, however, and are working closely with district staff to keep lines of communication with local anglers and other members of the public open.

### Engineering

*Does the project involve capital improvement, engineering, site grading or other construction?*  
No

### Project Management and Maintenance

*What is the life expectancy of R&E funded construction, structures, equipment, supplies, data or fishery?*

This project is intended to last one year, although recovered tags that have battery life may be reused on a different project. Radio receivers would be available for use by other projects within ODFW and may be used by CCRMP for future projects. Data will be valid indefinitely.

*Who is responsible for long term management, maintenance, and oversight of the project beyond what is funded by R&E.*

The Project Leader of CCRMP will be responsible for the long term maintenance and repair of equipment and stewardship of data collected with support from R&E.

*Will the project require ongoing maintenance?*  
No

*Is there a plan to collect baseline data and to conduct monitoring efforts to measure the effectiveness of the project?*  
Not necessary

### Project Funding

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#### Funding

*Have you applied for OWEB funding for this project?*  
No

*Has this proposal, or similar proposal for this project location, previously been denied by OWEB or other funding source?*

[{"source": "Pacific Salmon Commission through Chinook Technical Committee LOA

funds","type":"Cash","secured":"Pending","dollarValue":225000,"comments":""}]

Other Funding Source	Type	Secured	Dollar Value	Comments
Pacific Salmon Commission through Chinook Technical Committee LOA funds	Cash	Pending	225000	
		Total	225000	

## Budget

Item	Unit Number	Unit Cost	In-kind or non-cash contributions	Funding from other sources	R&E Funds	Total Costs
PROJECT MANAGEMENT						
Program Leader (SFWB)	480	51.00	0	24255	0	24255
		SUBTOTAL	0	24255	0	24255
IN-HOUSE PERSONNEL						
Analyst (NRS 3)	480	59.00	0	28320	0	28320
Assistant Project Leader (NRS 3)	480	48.00	0	23265	0	23265
Project Assistant (OS 2)	480	33.00	0	15810	0	15810
Crew Lead (NRS 1)	800	38.00	0	30400	0	30400
Field staff (EBA)	800	26.00	0	20825	0	20825
Field staff (EBA)	560	23.00	0	13090	0	13090
Field staff (EBA)	560	23.00	0	13090	0	13090
		SUBTOTAL	0	144800	0	144800
CONTRACTED SERVICES						
	0	0.00	0	0	0	0
		SUBTOTAL	0	0	0	0
TRAVEL						
vehicles (2 Pickups from DAS motorpool)	8	500.00	0	4000	0	4000
mileage	4000	0.74	0	2960	0	2960
per diem	1500	0.00	0	1500	0	1500
		SUBTOTAL	0	8460	0	8460
SUPPLIES/MATERIALS						
Field Supplies	4	500.00	0	2000	0	2000
tablets for data collection	2	500.00	0	1000	0	1000
cell phones/service	2	500.00	0	1000	0	1000
radio transmitter tags	250	210.00	0	0	52500	52500
radio receivers	2	3000.00	0	0	6000	6000
		SUBTOTAL	0	4000	58500	62500
EDUCATION/OUTREACH						
	0	0.00	0	0	0	0
		SUBTOTAL	0	0	0	0
EQUIPMENT						
	0	0.00	0	0	0	0
		SUBTOTAL	0	0	0	0
FISCAL ADMINISTRATION						
Overhead	0	0.23	0	43527	0	43527
		SUBTOTAL	0	43527	0	43527
		BUDGET TOTAL	0	225042	58500	283542



## ***Internal Review Results***

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**Review Score:** 1.8 out of 3

(0 = Do Not Fund, 1 = Strengthen Proposal, 2 = Recommend, 3 = Strongly Recommend)

### ***Summary of Review Team Comments***

The review team generally supported the concept of this proposal but the team was not clear on the methods, management outcomes, and justification behind the proposal. The applicant needs to provide more context and justification for the project. Scores include three 1s, four 2s, and one 3.

### ***Specific Review Team Comments***

This was recommended by PSC to add rigor to estimation methods. PSC funding (\$225k) is pending; project is contingent upon PSC/LOA funding coming through. Exception to allow harvest of radio-tagged fish; possibly reward for return of tag.

### ***Specific Review Team Questions***

*Would provide useful information on fish movements, but you need to explain why this is only a one year study vs longer term. What are the plans beyond 2017?*

*Are existing radio receivers available on loan from other projects? There are likely receivers out there not being used (for a one year project).*

*This seems to be a research project that aims at giving ODFW some better information for management. Does the district feel this information is necessary and/or valuable considering the cost? Is there ODFW District support?*

*Please add more detail to the application that describes how this proposal fits into the larger context. Is this a new approach or part of a larger effort? What are the expected outcome ore decisions resulting from the data. What are the next steps once this is completed.*

*Is this more for ODFW, PFMC, compact/treaty, or other use? Please explain who will use, what management questions will be answered, and how management will be affected by this study.*

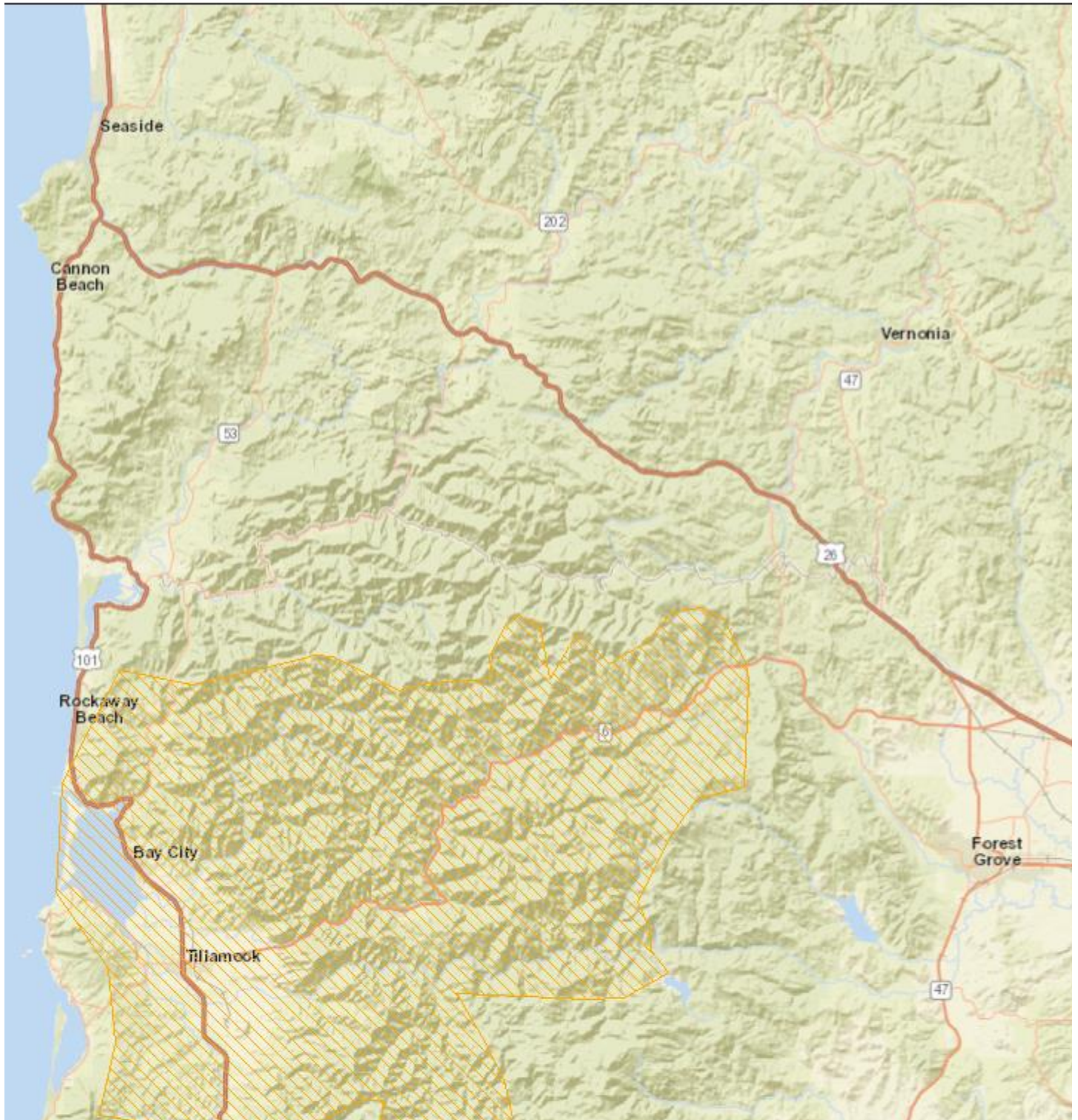
*Could thee results of this affect fisheries in a negative way? If so, explain.*

*Is radio tagging the best way to determine harvest? Why not PIT, floy, or other tagging technique?*

*Is this needed for Match? Why do you have funding for staffing without the necessary equipment to complete the project? What would happen if RE did not provide funding?*

## Project Map

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## ***Additional Files***

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Budget Information

Maps

[Project Map](#)

*Map image of project location*

Photos

Design Information

Management Plans and Supporting Documents

[Racial and Ethnic Impact Statement](#)

[TCCHINOOK Evaluation Report 2016](#)

*PST Chapter 3 Evaluation Report*

Permits and Reviews

Partnerships

Public Comment

Administrative Documents

[Authorization Page](#)

*signed authorization*

## ***Completion Report***

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A completion report has not been submitted for this project.