

1 genetics and physiology, salmon habitat productivity, and other matters related to the salmon,
2 sturgeon, and lamprey lifecycles.

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4 I have a Bachelor of Science in Fisheries Science from Oregon State University. I have been
5 employed by CRITFC since 2000 as a fishery management biologist. Before that, I was
6 employed as a fishery harvest management biologist by the Northwest Indian Fisheries
7 Commission beginning in 1995. I have at various times served as the rotating chair of the
8 *U.S. v. Oregon* Technical Advisory Committee (hereinafter TAC). The TAC is comprised of
9 fishery biologists representing all the parties to the *U.S. v. Oregon* case, including the
10 Commission's member tribes, the states of Oregon, Washington, and Idaho and the United
11 States government. TAC is tasked through the 2008-2017 *U.S. v. Oregon* Management
12 Agreement with among other responsibilities forecasting salmon returns, doing post season
13 run reconstructions for managed stocks as well as tracking mainstem harvest and reporting
14 harvest impacts to managed stocks. These tasks help ensure compliance with the *U.S. v.*
15 *Oregon* Management Agreement as well as with terms of Biological Opinions adopted by
16 NOAA Fisheries that implement Endangered Species Act (ESA) requirements.

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18 **Q. HOW ARE MAINSTEM COLUMBIA RIVER FISHERIES MANAGED?**

19 **A.** Mainstem Columbia River Fisheries are managed under the terms of the court ordered 2008-
20 2017 *U.S. v. Oregon* Management Agreement. Among the elements to this agreement are
21 provisions for abundance-based harvest rates that apply to various stocks of salmon and
22 steelhead. Harvest rates increase when run sizes are large and decrease when run sizes are
23 small. These harvest rates are designed to address the conservation needs of fish. They are

1 compliant with biological opinions adopted by NOAA Fisheries pursuant to the ESA. The
2 harvest rates are intended to provide for harvest opportunity on abundant hatchery origin fish
3 and certain abundant runs of wild fish. The controls placed on fisheries ensure that overall
4 fishery impacts are compatible with the management obligations of tribal, state, and federal
5 governments. The states of Oregon and Washington and the treaty tribes implement specific
6 fisheries to achieve various social and legal objectives within the constraints of the
7 Management Agreement.

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9 **Q. WHAT IS THE TRIBAL FISHERY?**

10 **A.** Members of the treaty tribes fish for salmon, steelhead, and sturgeon in the mainstem
11 Columbia River from just upstream of Beacon Rock to McNary Dam. Other species may be
12 harvested generally incidental to fisheries targeting these species. The area between
13 Bonneville and McNary Dam is commonly referred to as “Zone 6” which refers to a
14 geographic catch recording area. Fisheries are conducted for ceremonial, subsistence, and
15 commercial purposes under regulations adopted by the treaty tribes.

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17 **Q. WHERE DO TRIBAL MEMBERS FISH?**

18 **A.** Tribal fishing has historically been a place oriented activity. For centuries, fishers and fishing
19 families have occupied various locations to engage in their fishing activities. Village and
20 fishing sites historically were concentrated around tributary mouths and at cascades and
21 rapids along the river. These historic sites have been disrupted but not eliminated by both the
22 development of the hydrosystem and by development of the railroad lines along the river.
23 Fishers still maintain a system of site based fishing activity. Fishers often have several sites

1 that they use for different types of fishing throughout the year. These sites carry with them
2 what can be thought of as a property right because other fishers normally cannot use a
3 fisher's site without the "owner's" permission. Fishing sites can be handed down through
4 families and transferred through marriage much like other property. Each tribe currently
5 maintains a system where fishers have the option of registering both their platform and
6 gillnet sites with their tribe as a way of documenting their claim to that site. If a fishing site
7 becomes unusable for any reason including the development of that site for other purposes, a
8 fisher may not have access to another equally productive fishing site or even access to
9 another site at all.

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11 **Q. WHAT ARE THE DIFFERENT PURPOSES OF THE TRIBAL FISHERIES?**

12 **A.** Tribal ceremonial fishing is done to provide fish for specific ceremonial and/or cultural
13 purposes. Ceremonial fishing is done predominately in the spring and is typically managed
14 through a system of permits. Each tribe has slightly different processes for managing
15 ceremonial permit fisheries. Tribal subsistence fishing includes fishing for personal and
16 family use and can also include barter among Federally recognized tribes. Subsistence
17 fishing can occur using any gear type allowed by tribal regulations although some gear types
18 may not be allowed at certain times of the year. The tribes manage fisheries with the intent to
19 have at least some subsistence fisheries open all year. Tribal commercial fishing is done for
20 the purpose of trade with non-Indians. Commercial fishing and the trade of salmon is deeply
21 rooted in and continues to play an important role in tribal cultures. Commercial fishing also
22 has important economic benefits to tribal fishers. As an example, wholesale dealers in recent
23 years have paid approximately \$2.50 to over \$3.00 per pound for bright summer and fall

1 chinook. In years with spring chinook sales, prices can be more than \$5.00 per pound.
2 Fishers who sell fish direct to the public can get prices ranging from \$5 to more than \$10 per
3 pound for whole fish. Prices have generally increased in the past 15 years, especially as
4 fishers have adopted improved fish handling practices and ice has become more readily
5 available. There is also consumer demand for local wild caught salmon in the Pacific
6 Northwest along with consumer perception that Columbia River salmon and steelhead are a
7 wholesome food source. Issues with water quality such as from an oil spill would likely have
8 a significant negative impact on the marketability of Columbia River salmon and steelhead.
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10 **Q. WHEN DO THE COMMERCIAL FISHERIES OCCUR?**

11 **A.** Commercial fisheries occur in the winter, summer, and fall and occasionally in the mid to
12 late spring. Various gear types can be authorized for commercial fishing, but most
13 commercial fish are caught using gillnet gear.
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15 **Q. WHAT ARE “FISHERY SECTORS”?**

16 **A.** There are two primary gear sectors for the tribal salmon and steelhead fisheries, the platform,
17 hook and line sector and the gillnet fishery. These sectors are grouped because of generally
18 similar regulations.
19

20 **Q. DESCRIBE THE PLATFORM, HOOK AND LINE SECTOR**

21 **A.** One sector is the platform and hook and line sector. Fishers build wooden platforms along
22 the river bank and typically fish with hoop nets which are a large bag shaped nylon mesh net
23 attached to a large metal hoop which is lowered in to the river off the platform. Fishers in
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1 this sector can also fish from their platforms or from the bank using hook and line gear
2 similar to sport angling. While some platform sites are easily accessible from roads and trails,
3 many platform sites are difficult to access due to railroad lines on both the Oregon and
4 Washington shore of the Columbia River with heavy rail traffic and limited safe crossing
5 points. Platform and hook and line fishing is generally open continuously except for the
6 Yakama Nation which does not allow fishing on Sundays.

7
8 **Q. DESCRIBE THE GILLNET FISHERY.**

9 **A.** The other sector is the gillnet fishery. This fishery involves the use of two types of gillnets.
10 Gillnets consist of a panel of nylon mesh with square or diamond shape openings. The
11 openings can be of different size, but all are designed to capture the target fish around the
12 head and gills. The panel is suspended between a rope with corks called the “cork line” and
13 a lead core rope or weighted rope called a “lead line”.

14
15 **Q. ARE THERE DIFFERENT TYPES OF GILLNETS?**

16 **A.** Yes. One is referred to as a set net. The other is referred to as a drift net.

17 **Set nets** are anchored to at least one point which typically is the shoreline or to an anchor
18 buoy. Anchor buoys consist of a substantial weight such as a large rock or concrete block
19 tied to a rope with a float that sits on the surface of the water. Fishers often place anchors out
20 to mark their fishing sites and leave these anchors in place throughout several fishing
21 periods. A set net is attached to the anchor buoy during active fishing and removed during
22 periods of fishing closures. A set net may be removed during active fishing for repairs,
23 cleaning, or to prevent fouling by aquatic plant life. By tribal regulations, set nets cannot be
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1 more than 400 feet in length. The vertical depth of the mesh panels in set nets varies
2 depending on the characteristics of the particular sites where they are fished. Set nets may
3 vary in depth from 8 feet to more than 60 feet.

4
5 **Drift Nets.** Drift nets are a gill net that is deployed from a boat and is usually attached to the
6 boat. The boat and net fish by drifting downstream with the current sometimes for 30
7 minutes to an hour. At the end of the drift, the net is retrieved. The fisher then travels
8 upstream and repeats the process.

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10 **Q. WHAT ARE THE FISHING METHODS WITH GILLNETS?**

11 **A.** In spring, summer, or fall commercial fisheries, gillnet fishing periods typically last from 1.5
12 to 4.5 days per week. These periods normally begin at 6:00 AM on the first day of the fishing
13 period and end at 6:00 PM on the final day of the fishing period. Fishers are organized into
14 crews. A crew chief normally “owns” the sites for set nets and often owns the boats and gear.
15 The crew often consists of family members, but may include other tribal members who work
16 for the crew chief. Gillnets are fished by boat. Boat launch sites are limited due to geography
17 and development along the river including the railroad lines. Rail traffic can impede access to
18 some launch sites. Reduced access to launch sites can delay getting fish to market.

19
20 **Q. ARE THE FISHING METHODS DIFFERENT BETWEEN SET NETS AND DRIFT**
21 **NETS?**

22 **A.** Yes. The fishers typically put a net out at the beginning of the period and leave it in place for
23 most of or the entire open fishing period. Fishing crews will put out different numbers of
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1 nets in different parts of the river. In the Bonneville Pool, fishing crews tend to fish smaller
2 numbers of nets (less than 10 in many cases). In parts of the John Day Pool, some crews can
3 fish more than 25 nets. The crews will check each net periodically to collect fish and clean
4 debris from the net and make adjustments in the net placement so it fishes effectively. If nets
5 aren't catching fish, they are sometimes moved or removed during the course of the fishery.
6 Most fish are caught at night presumably because the fish cannot detect the net as well in the
7 dark. This varies in different sections of the river. Crews tend to check their gear beginning
8 very early in the morning in most areas. In some parts of the river debris and aquatic
9 vegetation can create problems and foul the net making it ineffective at catching fish. Fishers
10 will sometimes remove the net each day and replace it at night. Fishers attempt to place set
11 nets outside of the shipping channel. But in some cases especially where the river bends or is
12 narrow, tugs and barges can and do run over nets. A fully rigged gillnet can cost more than
13 \$1000. Losing a net is expensive to replace and also means a lost potential for catch during
14 that fishery.

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16 Most drift net fishing is also done at night for the same reason that fish appear to have more
17 difficulty detecting the net in the dark. Drift net fishing usually occurs in the shipping
18 channel because it is deeper and has less obstacles that could snag a net. Drifting in the
19 channel also helps avoid other fisher's set net sites. Drifting has become increasingly popular
20 in recent years. Drift net fishing can be more difficult when there is more river traffic
21 because fishers must retrieve their gear and get out of the path of any passing tugs or barges
22 to avoid losing their nets and for personal safety reasons. Some commercial fish buyers pay
23 higher prices for drift net caught fish. Many years ago, some tribes had more restrictions on
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1 drift net fishing such as a requirement for permits. Fewer restrictions are in place currently.
2 Also competition for sites to place set nets has increased. These factors have resulted in
3 increased drift net fishing in the past 10 years.
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5 **Q. HOW ARE HARVEST RATES COORDINATED AND HOW IS THE DATA**
6 **ACQUIRED?**

7 **A.** The catch in tribal fisheries is determined through estimating effort along with catch per unit
8 of effort over time. Harvest data are shared regularly with the states and federal government
9 and fisheries are adjusted in season in a coordinated process to ensure fisheries remain within
10 management limits.
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12 During each commercial gillnet fishery an aerial survey is done to count the number of set
13 gillnets used in that fishery opening. The numbers of drift nets are estimated from fishery
14 monitoring data. The number of active fishing platforms is also estimated through fishery
15 monitoring data. The treaty tribes have not chosen to limit the effort in their commercial
16 fisheries and in fact encourage participation as a way to provide cultural and economic
17 opportunities for tribal members. Actual participation varies with fish abundance, prices, and
18 other factors. The tribes do not make precise counts of the numbers of individual participants
19 in the commercial or subsistence fisheries. Based on estimates of estimates of typical crew
20 sizes and the number of nets fished per crew on average, the number of direct participants in
21 commercial gillnet fisheries may be as high as 500 to 600 tribal members at peak fishing
22 times. Additionally, a 2014 survey of fishing platforms counted 400 platforms between
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1 Bonneville and McNary Dams. Not all platforms are used all year, but many are. Some
2 platform fishers also participate in commercial gillnet fisheries but some do not.

3
4 The catch in tribal fisheries is determined through a combination of several methods a creel
5 census process and commercial sales receipts. The creel census methods are based on
6 sampling fishers to determine the harvest per unit of effort per unit of time. The harvest per
7 unit of effort is multiplied by the effort and by the time period to estimate the total catch.
8 Separate estimates are made for each gear type. These methods are similar to standard creel
9 estimates used in many recreational fisheries. For the set gillnet portion of the total harvest, a
10 count of nets ins used as an index of fishing effort. Separate net counts are made for each
11 week of commercial fishing. For summer season fisheries, set net counts have peaked at over
12 400 nets per week with average counts of over 300 nets per week. Typically, there have been
13 4 to 7 summer fishery gillnet openings. In the fall season, fish abundance is higher and net
14 counts have peaked at over 750 nets in the past 10 years. Average counts have been between
15 500 and 600 nets in the main part of the fall season. Usually there are 7 commercial gillnet
16 openings in the fall, but there have been as many as 9 openings in recent years.

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18 **Q. IS THE NUMBER OF FISH CAUGHT INCREASING?**

19 **A.** Fish runs are cyclic, but since 2000, there has been a general increase in abundance of fish
20 returns to the Columbia River compared to the previous 10 years. The increased abundance
21 of fish along with higher prices has resulted in more participation in fisheries and greater
22 catch when compared to the 1990's. As additional progress is made in rebuilding salmon and
23 steelhead runs, there should be additional opportunities to expand fisheries over time.

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**Q. HOW COULD THE TESORO SAVAGE, LLC, OIL TERMINAL PROJECT
DIRECTLY AFFECT THE TRIBAL FISHERY?**

A. Two important potential effects include increased rail traffic and the potential impacts of an oil spill that would produce both negative biological impacts to the fish and reduced marketability of commercially caught fish. Increased rail traffic may impede access to boat launches and platform fishing sites and may cause delays in fishing activity and could produce safety risks. An oil spill could produce long term impacts on the ecosystem used by migrating salmon and steelhead as well as greatly diminish the economic value of the catch and the perception of Columbia River salmon as high quality fish.

END OF DIRECT TESTIMONY

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge. Executed this 13th day of May, 2016.



Stuart R. Ellis