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## 2016 Summer Mark-Selective Sport Fishery Marine Area 5

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 5 during the 2016 summer season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The summer Chinook MSF in Marine Area 5 will occur from July 1, 2016 through August 15, 2016. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total legal-sized Chinook encounters in Area 5 is 13,630 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). WDFW will ensure that the fishery does not exceed 16,356 predicted legal-sized Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Reduced Murthy' sampling design to monitor the Area 5 summer MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). WDFW will employ the appropriate number of staff during the Area 5 summer MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending July 22, 2016.

WDFW will compile a comprehensive post-season report for all summer Chinook MSFs conducted in Marine Areas 5-13 by February 1, 2016. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 5 summer MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## 2016 Summer Mark-Selective Sport Fishery Marine Area 6

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 6 during the 2016 summer season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The summer Chinook MSF in Marine Area 6 will occur from July 1, 2016 through August 15, 2016, only in the portion of the area west of a true north/south line through buoy #2 near the tip of Ediz Hook. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 6 summer MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 6 summer MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will compile a comprehensive post-season report for all summer Chinook MSFs conducted in Marine Areas 5-13 by February 1, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 6 summer MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 6 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

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## 2016 Summer Mark-Selective Sport Fishery Marine Area 7

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 7 during the 2016 summer season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The summer Chinook MSF in Marine Area 7 will occur from July 1, 2016 to July 31, 2016. Anglers will be allowed a daily limit of up to two hatchery Chinook.

### Fishery Controls

The preseason prediction of total legal sized Chinook encounters in Area 7 is 2,297 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Aerial Access' sampling design to monitor the Area 7 summer MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using test fishing data. WDFW will employ the appropriate number of staff during the Area 7 summer MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week of July 22, 2016.

WDFW will compile a comprehensive post-season report for all summer Chinook MSFs conducted in Marine Areas 5-13 by February 1, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 7 summer MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## 2016 Summer Mark-Selective Sport Fishery Marine Area 9

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement Chinook salmon non-retention (NR) and mark-selective fisheries (MSFs) in Marine Area 9 during the 2016 summer season. These fisheries will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of these fisheries on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate these fisheries.

### Fishery Regulations

The summer Chinook NR and MSF's in Marine Area 9 will occur between July 1 and August 15, 2016 with the MSF occurring between July 16 and August 15, 2016. Anglers will be required to release all salmon from July 1 to July 15, 2016 and allowed a daily limit of up to two hatchery Chinook from July 16 to August 15, 2016. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Thresholds

The preseason modeled encounters for the NR fishery in [July are XX] The expected catch for the MSF is 3,056 Chinook in Area 9 (FRAM 2916). WDFW will manage the NR fishery as a season and manage the MSF not to exceed the above catch quota. Upon reaching the quota, Area 9 will close to salmon fishing.

To be determined pending permit CB 5/26/16  
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### Sampling Design and Estimation Methodologies

WDFW will employ the 'Reduced Murthy' sampling design to monitor the Area 9 summer NR fishery and the 'Full Murthy' sampling design to monitor the Areas 9 summer MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using test fishing data. WDFW will employ the appropriate number of staff during the Area 9 summer NR and MSFs in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with NR fishery effort and encounter estimates beginning July 22 and provide the co-managers with weekly in-season catch and effort estimates for the MSF beginning July 29, 2016.

WDFW will compile a comprehensive post-season report for all summer Chinook NR and MSFs conducted in Marine Areas 5-13 by February 1, 2015. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 9 summer NR and MSFs, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## 2016 Summer Mark-Selective Sport Fishery Marine Area 10

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement Chinook salmon non-retention (NR) and mark-selective fisheries (MSFs) in Marine Area 10 during the 2016 summer season. These fisheries will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of these fisheries on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate these fisheries.

### Fishery Regulations

The summer Chinook NR and MSF's in Marine Area 10 will occur between June XX and August 15, 2016 with the MSF occurring between July 16 and August 15, 2016. Anglers will be required to release all salmon from June XX to July 15, 2016 and be allowed a daily limit of up to two hatchery Chinook from July 16 to August 15, 2016. Anglers participating in the NR fishery will only be allowed to fish north of a line from Meadow Point to Point Monroe in June and all of Area 10 starting July 1. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Thresholds

The pre-season modeled encounters for the NR fishery in June and July are XX. The expected catch for the MSF is 1,395 Chinook in Area 10 (FRAM 2916). WDFW will manage the NR fishery as a season and manage the MSF not to exceed the above catch quota. Upon reaching the quota, Area 10 will close to salmon fishing.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Reduced Murthy' sampling design to monitor the Area 10 summer NR fishery and the 'Full Murthy' sampling design to monitor the Areas 10 summer MSFs and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using test fishing data. WDFW will employ the appropriate number of staff during the Area 10 summer NR and MSFs in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with NR effort and encounter estimates beginning the Friday of the 3<sup>rd</sup> week following the start of the NR fishery. WDFW will provide the co-managers with weekly in-season catch and effort estimates for the MSF beginning July 29, 2016.

WDFW will compile a comprehensive post-season report for all summer Chinook NR and MSFs conducted in Marine Areas 5-13 by February 1, 2015. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 10 summer NR and MSFs, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

1) To be determined pending permit CB 5/26/16  
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## 2016 Summer Mark-Selective Sport Fishery Marine Area 11

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 11 during the 2016 summer season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The summer Chinook MSF in Marine Area 11 will occur from June 1, 2016 through August 31, 2016. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total legal-sized Chinook encounters in Area 11 is 2,122 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). However, if in-season estimates indicate that total Chinook encounters will exceed 80% of the preseason modeled legal-size encounters, WDFW will initiate co-manager discussion regarding potential fishery actions. WDFW will ensure that the fishery does not exceed 2,546 predicted legal-sized Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Reduced Murthy' sampling design to monitor the Area 11 summer MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). WDFW will employ the appropriate number of staff during the Area 11 summer MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending June 24, 2016.

WDFW will compile a comprehensive post-season report for all summer Chinook MSFs conducted in Marine Areas 5-13 by February 1, 2016. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 11 summer MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## **2016 Summer Selective Sport Fishery Marine Area 12**

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 12 during the 2015 summer season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The summer Chinook MSF in Marine Area 12 will occur from July 1, 2016 through September 30, 2016, only in the portion of the area located south of Ayock Point. Anglers will be allowed a daily limit of up to four hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 12 summer MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 12 summer MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will compile a comprehensive post-season report for all summer Chinook MSFs conducted in Marine Areas 5-13 by February 1, 2016. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 12 summer MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 12 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

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## 2016 Summer Mark-Selective Sport Fishery Marine Area 13

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 13 during the 2016 summer season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The summer Chinook MSF in Marine Area 13 will occur from June XX, 2016 through August 31, 2016. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 13 summer MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 13 summer MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will compile a comprehensive post-season report for all summer Chinook MSFs conducted in Marine Areas 5-13 by February 1, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 13 summer MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 13 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

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## 2016-2017 Winter Mark-Selective Sport Fishery Marine Area 5

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 5 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 5 will occur from February 16 to April 30, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-2017 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 5 winter MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 5 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 5 winter MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 5 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

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## 2016-17 Winter Mark-Selective Sport Fishery Marine Area 6

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 6 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 6 will occur from December 1, 2017 to April 15, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total Chinook encounters in Area 6 is 3,975 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). However, if in-season estimates indicate that total Chinook encounters are projected to be at 80% of the preseason modeled encounters, WDFW will initiate co-manager discussion regarding potential fishery actions. WDFW will ensure that the fishery does not exceed 4,770 predicted total Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Aerial Access' sampling design to monitor the Area 6 winter MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). WDFW will employ the appropriate number of staff during the Area 6 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending December 16, 2016.

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 6 winter MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## 2016-17 Winter Mark-Selective Sport Fishery Marine Area 7

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 7 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 7 will occur from October 1 to October 31, 2016 and from December 1, 2016 to April 30, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total Chinook encounters in Area 7 is 10,248 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). However, if in-season estimates indicate that total Chinook encounters are projected to be at 80% of the preseason modeled encounters, WDFW will initiate co-manager discussion regarding potential fishery actions. WDFW will ensure that the fishery does not exceed 12,298 predicted total Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Aerial Access' sampling design to monitor the Area 7 winter MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using test fishing data. WDFW will employ the appropriate number of staff during the Area 7 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending October, 21 2016.

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 7 winter MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## 2016-17 Winter Mark-Selective Sport Fishery Marine Areas 8-1 and 8-2

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement Chinook salmon mark-selective fisheries (MSFs) in Marine Areas 81 & 82 during the 2016-2017 winter season. This fisheries will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of these fisheries on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate these mark-selective fisheries.

### Fishery Regulations

The winter Chinook MSFs in Marine Areas 81 & 82 will occur from November 1, 2016 through April 30, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total Chinook encounters in Area 81 & 82 is 6,125 (FRAM2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). However, if in-season estimates indicate that total Chinook encounters are projected to be at 80% of the preseason modeled encounters, WDFW will initiate co-manager discussion regarding potential fishery actions. WDFW will ensure that the fishery does not exceed 7,350 predicted total Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Reduced Murthy' sampling design to monitor the Area 81 and 82 winter MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). WDFW will employ the appropriate number of staff during the Area 81 and 82 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending November 18, 2016.

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring programs during the Area 81 & 82 winter MSFs, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

## 2016-17 Winter Mark-Selective Sport Fishery Marine Area 9

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 9 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 9 will occur from November 1 to November 30, 2016 and from January 16 to April 15, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total Chinook encounters in Area 9 is 6,082 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). However, if in-season estimates indicate that total Chinook encounters are projected to be at 80% of the preseason modeled encounters, WDFW will initiate co-manager discussion regarding potential fishery actions. WDFW will ensure that the fishery does not exceed 7,298 predicted total Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Aerial Access' sampling design to monitor the Area 9 winter MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using test fishing data. WDFW will employ the appropriate number of staff during the Area 9 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending November 18, 2016.

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 9 winter MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

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## 2016-17 Winter Mark-Selective Sport Fishery Marine Area 10

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 10 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 10 will occur from November 1, 2016 through February 28, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

The preseason prediction of total Chinook encounters in Area 10 is 2,597 (FRAM 2916). WDFW plans to manage this fishery as a season, beginning and ending on the agreed-to dates (above). However, if in-season estimates indicate that total Chinook encounters are projected to be at 80% of the preseason modeled encounters, WDFW will initiate co-manager discussion regarding potential fishery actions. WDFW will ensure that the fishery does not exceed 3,116 predicted total Chinook encounters.

### Sampling Design and Estimation Methodologies

WDFW will employ the 'Reduced Murthy' sampling design to monitor the Area 10 winter MSF and estimate total encounters and associated mortalities of legal, sublegal, marked and unmarked Chinook (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using test fishing data. WDFW will employ the appropriate number of staff during the Area 10 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will provide the co-managers with bi-weekly in-season catch and effort estimates beginning the week ending November 18, 2016.

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 10 winter MSF, a full analysis of impact estimates (total encounters and mortalities by size and mark-status), and estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A.

## 2016-17 Winter Mark-Selective Sport Fishery Marine Area 11

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 11 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 11 will occur from February 1, 2017 to April 30, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 11 winter MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 11 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 11 winter MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 11 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

## **2016-2017 Winter Mark-Selective Sport Fishery Marine Area 12**

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 12 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### **Fishery Regulations**

The winter Chinook MSF in Marine Area 12 will occur from October 1, 2016 to April 30, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### **Fishery Controls**

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### **Sampling Design and Estimation Methodologies**

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 12 winter MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 12 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### **Reporting Schedule**

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 12 winter MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 12 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

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## 2016-17 Winter Mark-Selective Sport Fishery Marine Area 13

The Northwest Treaty Tribes and the Washington Department of Fish and Wildlife (WDFW) have reached agreement to implement a Chinook salmon mark-selective fishery (MSF) in Marine Area 13 during the 2016-2017 winter season. This fishery will be implemented consistent with management objectives defined by the co-managers' Puget Sound Chinook Harvest Management Plan, the WDFW-Tulalip management plan for hatchery origin fish, and established principles concerning the allocation of harvestable salmon and the exercise of treaty rights. The co-managers will seek to minimize or eliminate any unintended effects of this fishery on individual treaty fisheries, including dislocation and/or disruption. Therefore, treaty fisheries will not be modified in order to accommodate this mark-selective fishery.

### Fishery Regulations

The winter Chinook MSF in Marine Area 13 will occur from October 1, 2016 to April 30, 2017. Anglers will be allowed a daily limit of up to two hatchery Chinook. All sub-area closures included in the 2016-17 Co-Managers' List of Agreed Fisheries will remain in effect for the agreed-to dates.

### Fishery Controls

WDFW will manage this fishery as a season, beginning and ending on the agreed-to dates (above).

### Sampling Design and Estimation Methodologies

Sampling efforts will be conducted consistent with the 'Baseline Sampling Design' (see Attachment A). The size and mark-status composition of the targeted Chinook population will be estimated using Voluntary Trip Reports (VTRs). Total Chinook encounters and associated mortalities resulting from the Area 13 winter MSF will be estimated using the 'CRC for Encounters' methodology, described in Attachment A. WDFW will employ the appropriate number of staff during the Area 13 winter MSF in an effort to meet or exceed the sampling rate goal of 20%.

### Reporting Schedule

WDFW will compile a comprehensive post-season report for all winter Chinook MSFs conducted in Marine Areas 5-13 by November 30, 2017. This report will include a summary of the information collected as part of our sampling and monitoring program during the Area 13 winter MSF. A full analysis of impact estimates (total encounters and mortalities by size and mark-status) resulting from the Area 13 MSF, in addition to estimates of marked and unmarked mortalities of Double Index-Tagged (DIT) and other CWT stocks as described in Attachment A will be provided at a later date, as Catch Record Card estimates become available (see Attachment A).

## Puget Sound Chinook Mark-Selective Sport Fisheries

### Attachment A

Based on agreements between the State of Washington and the Northwest Treaty Tribes, the Washington Department of Fish and Wildlife (WDFW) has been conducting recreational mark-selective Chinook fisheries (MSFs) in the marine catch areas of Puget Sound since 2003. This attachment outlines the general intent, data needs, sampling and monitoring plans, estimation methodologies, and reporting schedules associated with these fisheries.

#### *Fishery Intent*

Agreed-to Chinook MSFs (see attached Fishery Management Plans for specific fisheries and dates) will be conducted in Marine Areas 5-13 during the summer and winter seasons to provide recreational fishing opportunity directed at hatchery Chinook salmon, while limiting impacts on wild stocks of conservation concern, particularly ESA-listed Puget Sound Chinook. Sampling and monitoring programs will be implemented along with these fisheries in order to provide the information necessary to evaluate and plan potential future Chinook MSFs. Prior to next fishing season, WDFW and the tribes will jointly review and analyze results of the sampling and monitoring programs for these fisheries to evaluate the effectiveness at achieving the intended objectives.

#### *Data Needs for Evaluating the Fishery*

Monitoring, sampling and reporting programs will be implemented by WDFW for the purpose of providing the data necessary to estimate the impact of these MSFs on unmarked Chinook and to support the evaluation of future MSFs.

These monitoring and sampling programs are designed to provide data to estimate the following parameters:

- Mark rate in the fishery – marked and unmarked encounters will be estimated using test fishing, voluntary trip reporting (VTR) or dockside sampling programs.
- Number of marked Chinook retained – estimated using dockside sampling programs
- Number of unmarked Chinook retained – estimated using dockside sampling programs
- Number of marked Chinook released – estimated using dockside sampling and test fishing or VTR programs
- Number of unmarked Chinook released – estimated using dockside sampling and test fishing or VTR programs
- Number of Chinook encounters of sublegal size - estimated using dockside sampling and test fishing or VTR programs
- Stock composition of mortalities – estimated using CWT data collected during dockside sampling
- Mortalities of marked and unmarked double-index tagged (DIT) and other CWT stocks

The co-managers agree to implement these fisheries with the understanding that the capability to estimate stock-specific unmarked fish mortalities is preserved. Methods for estimating unmarked mortalities of DIT-CWT stocks within these MSFs have been determined jointly by the co-managers, considering recommendations of the Selective Fisheries Evaluation Committee of the Pacific Salmon Commission.

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WDFW will be responsible for reporting the necessary fishery information and data to the Pacific States Marine Fishery Commission that allows these estimates to be generated.

Estimates of total fishery related mortalities, including the total exploitation rate or the Southern US exploitation rate, that represents the management objective for Puget Sound Chinook management units under the co-managers' Harvest Management Plan, will be made by combining the mortality estimate for each Marine Area's mark-selective fishery with mortality estimates in other selective and non-selective fisheries. To ensure that all information necessary to make these estimates is collected, plans for sampling and monitoring of all fisheries will be included as a component of the co-managers' annual pre-season agreement.

### ***Sampling Components***

#### Dockside Sampling

WDFW samplers collect biological data and information regarding effort and catch by conducting angler interviews at assigned access sites. During interviews, samplers acquire data on the number of anglers fishing in each boat, the Marine Catch Area(s) fished, trip duration, trip intent (targeted species) and fish encounter composition (kept and/or released by species). When an interviewed party possesses Chinook or coho salmon, samplers inspect the fish for CWTs using wand detectors and collect snouts from CWT-positive individuals for later lab processing. Samplers also take length measurements and collect scale samples from landed Chinook. Lastly, samplers attempt to obtain information on fishing method in order to inform test-fishing methodologies.

#### Effort Surveys

##### *On-the-Water Surveys*

On-the-water Interviews (Boat Surveys) are conducted to provide information on the proportion of effort in a fishery originating from certain access sites. During these surveys, samplers attempt to intercept all anglers on the water in a given fishery and determine where they intend to tie up or exit the fishery upon completing their trip. This provides us with a list of sites (ramps/launches) used to access the fishery as well as information on the relative amount of use (# of anglers) each site receives. Based on this information we designate a "sample-frame" of 5-6 of the highest use access sites for each fishery, from which we select sample sites for dockside creel sampling. Information from the boat surveys also allows us to estimate the total effort that originates from non-sampled sites and include it in our estimates.

##### *Aerial Surveys*

Aerial effort surveys are conducted in fisheries where Boat Surveys are infeasible due to large survey areas and unsafe boating conditions. During these surveys flights are conducted to count the total number of boats on the water in a fishery. The sample-frame (sites where we station samplers) consists of the three to four access sites expected to be of highest use in the fishery. Paired with interviews conducted at these sites, the aerial surveys provide information on the proportion of total fishery effort that originates from non-sampled sites, enabling expansion of observed dockside counts to fishery-wide totals.

#### Size/Mark-status Composition Estimates

##### *Test Fishing*

Test fishing is used to obtain accurate estimates of the size and mark-status composition of the Chinook population being targeted by a fishery. When included in the sampling design for a given fishery, it is

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conducted for the duration of the fishery. Test fishers spend approximately five days per week on the water attempting to mimic the behavior of the recreational fishing fleet. Fishing method information from dockside interviews is used to inform the methods used by test fishers and efforts are focused at locations that mirror choices made by the at-large private fleet. For each fish brought to the boat, test fishers record the encounter number, time sampled, species and mark-status. For all Chinook, test fishers record the fork length and total length and collect DNA and scale samples.

### *Voluntary Trip Reports*

Voluntary Trip Reports (VTRs) are completed and returned by a subset of private fleet anglers to obtain additional information on Chinook encounter rates by size class and mark-status. Anglers are asked to record the date, number of anglers, target species, Marine Catch Area, and for each Chinook or coho hooked, whether the fish was kept or released, legal or sublegal sized, and marked (adipose clipped) or unmarked.

### ***Sampling and Monitoring Plans***

For complete details regarding the following sampling plans and associated assumptions, see the WDFW Methods Report (WDFW 2012).

#### Full Murthy

The Full Murthy sampling design is the most intensive of the four sampling plans. It utilizes intensive dockside sampling, on-the-water effort surveys and test fishing data to provide precise estimates of Chinook catch and effort, along with total encounters and associated mortalities. VTRs are also collected to be used as supplements to test fishing data, if necessary.

Dockside sampling is conducted on five days during each week. Sampling strata are divided into weekday (Monday through Thursday) and weekend (Friday, Saturday and Sunday) strata. During each week,  $n=2$  out of  $N=4$  days are randomly selected for sampling from the Monday through Thursday stratum. In addition, every Friday, Saturday, and Sunday is sampled. Samplers are stationed at two ramps on each of the selected sampling days. Samplers achieve 100% sampling coverage at the assigned ramps from approximately dawn until dark in order to intercept all boats. All anglers and fish exiting the fishery through the sampled sites will be counted. Any boats that are missed at the sampled sites will be counted and recorded on the sampling forms.

Sites from the sample frame for a given fishery are selected for sampling via a weighted-random site selection process (probability proportional to size). Initially, site selection is based on site size measures calculated from on-the-water survey data obtained during the previous year's fishery. Once the initial surveys are completed during the current year, updated size measures of sites in our sample frame are calculated based on the current year's data.

#### Reduced Murthy

The Reduced Murthy sampling design is a scaled-back version of the Full Murthy sampling design. It utilizes intensive dockside sampling, on-the-water effort surveys and test fishery or VTR data, depending on the fishery.

The main difference between the Reduced Murthy and Full Murthy is a reduced dockside sampling frequency. Dockside sampling is conducted on  $n=6$  out of  $N=14$  days during each two week period. Sampling strata are divided into weekday (Monday through Thursday) and weekend (Friday, Saturday and Sunday) strata. During each two-week period,  $n=2$  out of  $N=8$  days are randomly selected for weekday sampling. In addition,  $n=2$  out of  $N=3$  days are randomly selected for sampling during each

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weekend. Samplers are stationed at two ramps on each of the selected sampling days. Samplers achieve 100% sampling coverage at the assigned ramps from approximately dawn until dark in order to intercept all boats. All anglers and fish exiting the fishery through the sampled sites will be counted. Any boats that are missed at the sampled sites will be counted and recorded on the sampling forms.

Sites from the sample frame for a given fishery are selected for sampling via a weighted-random site selection process (probability proportional to size). Initially, site selection is based on site size measures calculated from on-the-water survey data obtained during the previous year's fishery. Once the initial surveys are completed during the current year, updated size measures of sites in our sample frame are calculated based on the current and previous year's data.

Unlike the Full Murthy sampling design, where test fishing is a mandatory component, some fisheries sampled with the Reduced Murthy sampling design will utilize a test fishery while others will use VTR data to estimate the size and mark-status composition of the targeted Chinook population. For details regarding a specific fishery, see the attached management plan for that fishery.

### Aerial Access

The Aerial Access sampling design is a modified version of the Reduced Murthy sampling design that uses aerial effort surveys in place of on-the-water effort surveys. Dockside sampling frequencies are the same as those for the Reduced Murthy, however, instead of sampling at two sites (selected from the sampling-frame) on each sample day; samplers are stationed at all sites designated in the sample-frame (three to four sites of moderate to high effort). For each flight, the sample fraction is estimated by pairing the aerial total boat counts with the sample-frame total for boats active during the flight period (determined from dockside interviews). This allows for an expansion of estimates to account for out-of-frame effort.

As with the Reduced Murthy, fisheries monitored using the Aerial Access design may or may not include a test fishery. Those with no test fishery will use VTRs to provide an estimate of the size and mark-status composition of the targeted Chinook population.

### Baseline

The Baseline sampling design is a less intensive monitoring program that includes dockside sampling and interviews and the collection of VTR data. Baseline sampling is opportunistic in nature, with overall sampling effort allocated across space and time in a manner that maximizes the number of angler interviews obtained per sample effort. While dockside sampling procedures remain the same as in other sampling designs, the frequency of sample days may be slightly reduced. The main difference between Baseline and other, more intensive, sampling designs is the absence of effort surveys. Due to this, Baseline sampling data cannot be used to produce in-season or immediate post-season estimates absolute catch and effort. These estimates become available at a later date through the WDFW Catch Record Card system, allowing further fishery evaluation including total Chinook encounters and associated mortalities by size and mark-status.

### ***Estimation Methods***

For fisheries monitored using the Full Murthy, Reduced Murthy and Aerial Access sampling designs, WDFW will produce periodic in-season and post-season estimates of catch and effort. To estimate total Chinook encounters and associated mortalities by size and mark-status category, WDFW will use the agreed-to 'bias-corrected M2' methodology (Conrad & McHugh 2008, WDFW 2012).

Fishery-total catch and effort estimates for fisheries monitored using the Baseline sampling design will be available approximately 1 to 1½ years after the close of the fishery, via the WDFW Catch Record Card system. Once these estimates are available, the appropriate methods for estimation of total encounters

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and mortalities will be determined using the decision support schematic provided in the 'CRC for Encounters' report (WDFW & NWIFC 2013). For fisheries with adequate sample sizes of VTR encounters, this involves the 'bias-corrected M2' approach, as mentioned above. In situations where VTR sample sizes are insufficient, total encounters and mortalities will be estimated using an 'M1' approach, where the size and mark-status composition of the Chinook population is estimated using dockside sampling data (see WDFW & NWIFC 2013 for details).

### ***Reporting***

For some fisheries, WDFW will provide the co-managers with in-season updates of fishery performance (see attached Fishery Management Plans for details).

Following each summer and winter season, WDFW will compile a comprehensive post-season report for all Chinook MSFs conducted in Marine Areas 5-13. These reports will include a summary of the information collected as part of each fishery's sampling and monitoring program. In addition, for fisheries sampled using the Full Murthy, Reduced Murthy and Aerial Access sampling designs, the reports will also include:

- Weekly estimates of effort and number of Chinook caught and released, by mark-status
- Estimates of total Chinook encounters and associated mortalities by size and mark-status
- Comparisons of total encounters with pre-season FRAM modeled projections
- Comparisons of mortalities with pre-season FRAM modeled projections
- Estimated fishery-total mortalities of marked and unmarked DIT Chinook, by stock and age

### ***References***

Conrad R and McHugh P. 2008. Assessment of Two Methods for Estimating Total Chinook Salmon Encounters in Puget Sound/Strait of Juan de Fuca Mark-Selective Chinook Fisheries. Northwest Fishery Resource Bulletin, Manuscript Series Report No 2. <http://wdfw.wa.gov/publications/00492>

Washington Department of Fish and Wildlife (WDFW). 2012. Methods Report: Monitoring Mark-Selective Recreational Chinook Fisheries in the Marine Catch Areas of Puget Sound (Areas 5 through 13). Revised Draft Report: January 30, 2012. Olympia, Washington. <http://wdfw.wa.gov/publications/01357/>

Washington Department of Fish and Wildlife (WDFW) and Northwest Indian Fisheries Commission (NWIFC). 2013. Estimating Total Chinook Encounters using Catch Record Card-Based Estimates of Harvest. Draft Report: November 26, 2013. Olympia, Washington.