



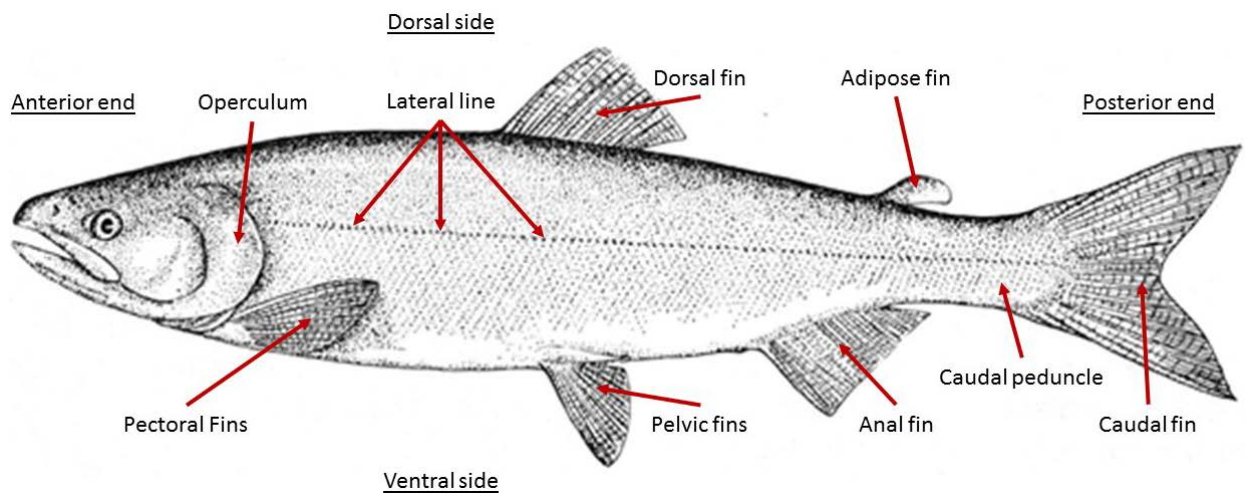
# Sampling Procedures for the PSC

## 1. Overview

This guide is meant to assist you in sampling salmon for the PSC, and to remind you what information is necessary to collect and how to properly collect it. If you have any questions or issues when sampling, please contact the PSC sampling coordinator.

## 2. Basic Salmon Anatomy

Figure 1 below shows the anatomy of a typical salmon. The parts shown in the figure will be referred to throughout these instructions, so make sure you are familiar with them.



**Figure 1.** Anatomy of a salmonid.

## 3. Types of Sample Collections

There are various types of samples and data that can be collected from salmon, including scale samples, DNA samples, and/or biological data. Biological data consists of fish length, weight, and sex. Depending on the location, species, and time of year, we may ask for various combinations of these biological samples and data. Combinations of samples and data that are generally collected can be grouped into several *types of collections*: matched scales and DNA, scales only, DNA only, or bulk DNA.

### a. Matched scales and DNA

This is often the preferred type of sample collection for test fisheries. A scale and DNA sample are both collected from the same fish, along with length, sex, and weight if possible. The scales are placed in a scale book along with all of the biological data from that individual salmon and the DNA sample number as well. This way all of the data can be analyzed and then matched to the correct fish. We will generally request this type of sampling at least a few times per week in test fisheries. Matched samples are valuable because they permit comparison of age, size, and sex of different stocks.

### b. Scales only

If you are asked to collect scales only there is no need to collect matching DNA samples, but you may still need to collect biological data. Scales are collected and placed in a book or an envelope. The book allows you to enter biological data beside each scale, while in the envelope all the scales are mixed together and there is no matching data for each individual scale. If we require matching biological data such as sex, weight, and length, we will ask for a “scales only book sample”. If we do not require matching biological data, we will request a “scales only envelope sample”. The differences between book and envelope samples will be further explained in the section on scale sampling. This type of sampling (scales only) might be used when stock of origin is known, when funds for DNA analysis are limited, or when time to sample is limited.

### c. DNA only

A DNA only sample includes DNA tissue samples and matching biological data but no scales. Since you would not use a scale book in this instance, matching biological data would be recorded in a notebook or on a data sheet. We use this type of sampling when time is limited or if scale samples are too difficult to collect. We often use this type of sampling for pink salmon (which have very small scales).

### d. Bulk

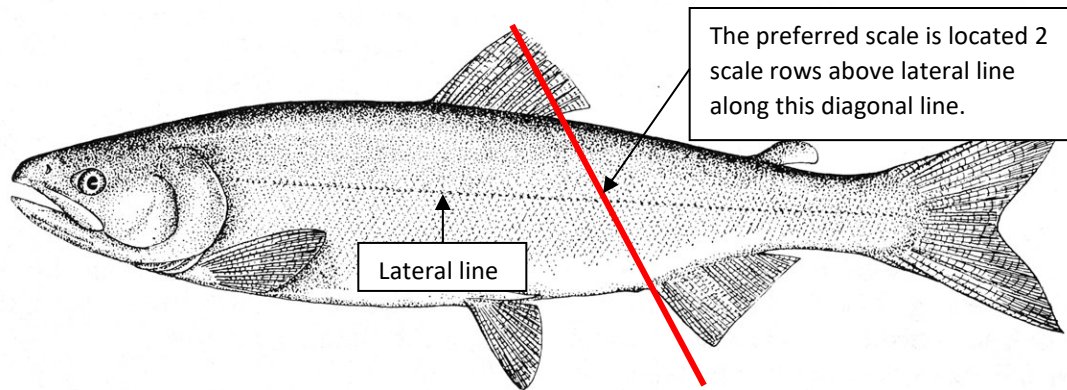
A bulk sample refers to a DNA-only sample where no matching biological data or scales are collected. These samples are stored all together in a single vial called a ‘bulk vial’. This type of sample may be requested for other species aside from pink and sockeye, or if time is very limited. Bulk sampling is also appropriate if only limited body parts are available (e.g. heads) because it would not be possible to collect other sample types in this case.

## 4. Scale Sampling

Scale samples provide information on the fish’s age and in many cases its stock of origin. Scales have rings much like the rings of a tree and the patterns within those rings show how long the salmon resided in freshwater, how fast it grew before heading out to the ocean as a smolt, and how many winters it spent at sea.

### a. Technique and preferred scale

Only one scale from each salmon needs to be taken. Ideally, you will collect the *preferred* scale. The preferred scale is located on the left side of the salmon, on the second scale row above the lateral line in a diagonal line from the posterior of the dorsal fin to the anterior of the anal fin (Figure 2).



**Figure 2.** Location of the preferred scale.

The preferred scale must be selected from each salmon unless it is missing or damaged, in which case a scale should be taken from the second scale row as close as possible to the left or right of the missing or damaged preferred scale. **Never** take scales higher than four scale rows above the lateral line, forward of the dorsal fin, or behind the adipose fin. The characteristics of the scales do not vary as much along the length of the fish (from head to tail) on a sockeye as they do dorso-ventrally (up and down). For example, scales change their shape higher on the body and scales taken too far above or too close to the lateral line cannot be properly analyzed by the scale lab.

If there are no preferred area scales available from the left side of the fish (figure 4), you can sample the right side of the salmon. If there are no viable scales on either side of the fish, collect the DNA and biological data as you normally would and note in the scale book the lack of suitable scales for that fish. If you are conducting a scale-only sample, discard the fish and choose another.

The scale is removed from the salmon using a pair of forceps (tweezers). If you drop a scale, select a new one, and make sure the scale you place in the book matches the DNA and biological data for that fish. If you suspect a mix-up, please make note of which Individuals are suspected to be mixed up in the scale book.

Avoid pressing scales too hard with the forceps as you risk damaging the rings and making the scale unreadable. After sampling, avoid leaving scale books or envelopes in plastic bags or in the sun for prolonged periods, either at sampling sites or in vehicles.

### b. Types of scale sample collections

There are two types of scale sample collections:

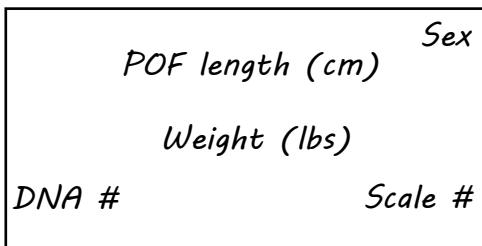
- **Book Sample** – scales are placed into the pockets of a scale book. Each page has 5 pockets, and the matching biological data must be written adjacent to the scale along with the DNA sample number, if applicable. Scale books can hold up to 115 scale samples, while DNA collections are usually 100 samples or less, so the last 15 scale samples often will not have matching DNA samples associated.
- **Envelope sample** – for these collections several scales are placed in the same envelope, and multiple envelopes may be used. Generally, there would not be any associated DNA samples or biological data. Envelopes are limited to 20 scales each (each scale from a different fish), and we

would often ask for 5 envelopes all together, which would total 100 scales per collection (from 100 different fish).

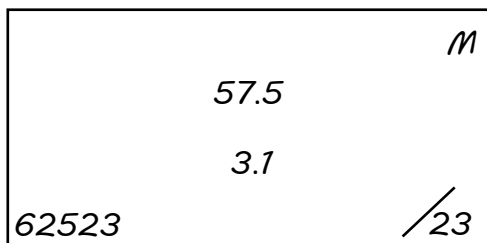
### c. Book samples

If scales are being collected **with** corresponding DNA and / or biological data ('matched scales and DNA' or 'scales-only book sample'), place each single scale into an individual pocket inside the scale book immediately as it is sampled using forceps. The pockets were created by stapling the pages of the scale book together near the spine of the book, and there are no pockets on the *first* page of the scale book. This first page is a good place to record some general information, but do not use it for scales. For days with low sample sizes, otolith pages can be used instead of an entire scale book. These are similar to the individual pages of a scale book, and each otolith page can hold up to 5 samples. **If you are sampling using otolith pages, make sure to tape the pockets shut after sampling.** The pockets on these pages are wider than scale books and the scales can fall out if they are not taped. Envelopes can also be used instead of otolith pages for days with low sample sizes (by using one envelope per scale).

Beside each scale pocket, record the matching biological data: sex, length, and weight. If DNA samples are being collected, record the sample number as well. Be sure to indicate the units of measurement in every book. To avoid writing the units in for every sample, **always include a legend** on the first page of the scale book (Figure 3). This legend should show the scale lab exactly which values in the scale book correspond to sex, length, and weight data, as well as DNA and scale numbers. Some scale books might already have a legend included, so please follow its format. There are several types of length measurements (more on that in the next section), so also be sure to indicate the type of length measurement in the legend (options include FRK, STD, POH, and POF). If there is a date or set change between samples in the same book, be sure to record that as well. Use pencil and do not erase if you make a mistake, neatly cross it out.



**Figure 3.** Legend to be included on the first page of every scale book so that the data and units being collected are clear to the scale lab.



**Figure 4.** Example of an entry for a scale sample in the scale book.

The front cover of the scale book should be filled out with information describing the entire sample collection, including statistical area, catch date, sample size, and gear type. If DNA samples are collected,

then the DNA sample collection code and sample numbers should be written on the front cover (Figure 5). The catch date, area and gear are essential to include on each scale book, and if left blank they can cause confusion and errors when entering data into our systems. On the inside of the cover please include any further information or comments, such as boat names and sample dates.

Please write on the *outside* of books with pen or permanent marker (such as a black Sharpie) as pencil does not show up well. Pencil should be used *inside* the scale book and on data forms. When the required sample size is reached, the books should be bound tightly with an elastic band to avoid losing scales. Please keep the books in chronological order when shipping or returning them.

Scale Samples	
Area	<u>Area 20</u>
	<u>Juan de Fuca</u>
Catch Date(s)	<u>June 28, 2014</u>
Sample Size	<u>115</u>
Gear Type(s)	<u>GN</u>
DNA Kit/Sheet #	<u>625</u>
DNA Sample #	<u>62501 to 62600</u>
POF	<input checked="" type="checkbox"/>
FRK	<input type="checkbox"/>
STD	<input type="checkbox"/>
POH	<input type="checkbox"/>
KGS	<input type="checkbox"/>
LBS	<input checked="" type="checkbox"/>
# of ADD and/or ADC	<u>2 ADC / 1 ADD</u>
# of Jacks	<u>2</u>
Sampler	<u>Sam Fish</u>
<b>Notes – please put on inside cover</b>	

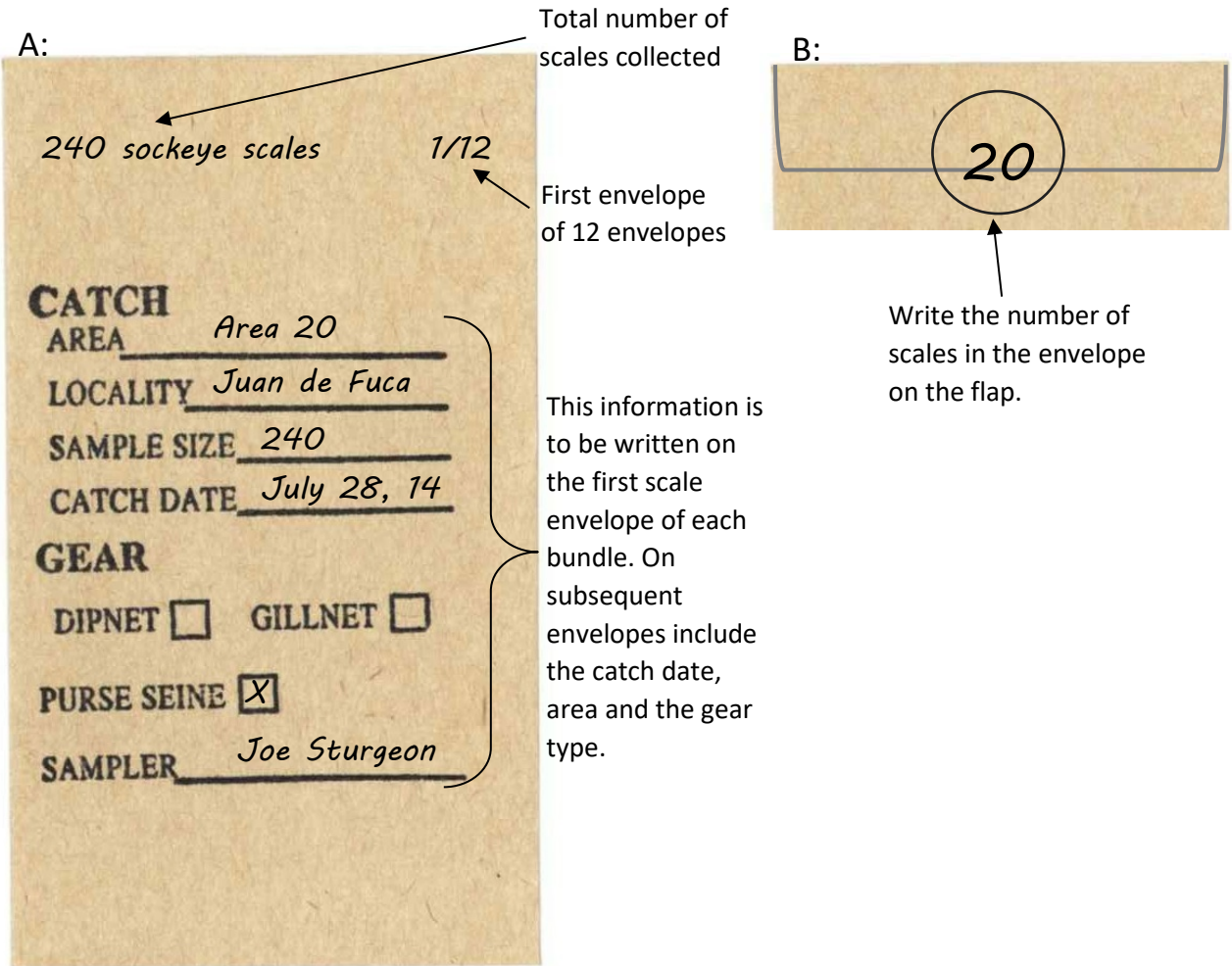
Figure 5. The front cover of a scale book with data filled in.

#### d. Envelope samples

If the scales are being collected **without** corresponding biological data or DNA samples (scales-only envelope sample), place each scale as it is sampled into a coin envelope until twenty different fish have been sampled, then seal the envelope. Make sure that only one scale from each fish is sampled and **no more than 20 scales** are placed in the envelope. Proceed with collecting the next twenty scales until the desired sample size is reached. (e.g. 240 scales would require 12 envelopes).

On the **first** envelope, all of the information shown in Figure 6 must be recorded. On each subsequent envelope, record the envelope number (2 of 12, etc.), the number of scales inside that envelope (on flap; especially when fewer than 20 scales are in the envelope), the area, the date on which the fish were caught, and the gear type. As the envelopes are separated in the lab, each envelope must have enough information on it so that its origin can be traced. When all of the necessary information has been recorded, **BIND** the group of envelopes tightly with an elastic band.

**NOTE:** Please ensure that your writing is legible. Write in pencil, and if you make a mistake, do not erase but neatly cross out the error.



**Figure 6.** A) An envelope sample with information filled in. B) Other side of the envelope with the number of scales written on the flap.

## 5. Biological Data

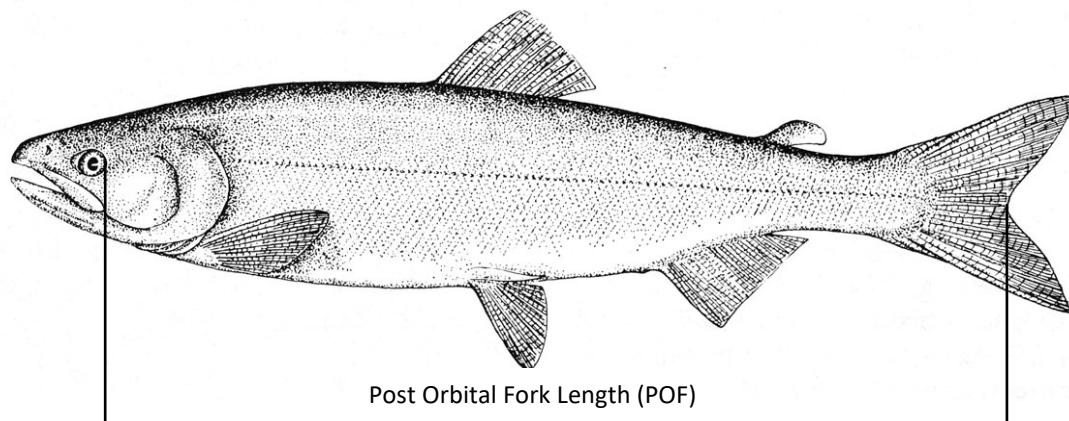
In most cases when sampling, we will ask you to record biological data along with collecting scale and DNA samples. This includes the length, sex, and weight of each salmon. This information is valuable because it allows us to estimate the condition of the fish, to assess the selectivity of the fishing gear, and to evaluate the timing and abundance of returning stocks.

### a. Recording biological data

The data should be recorded clearly and in pencil in the scale book. If you are not using a scale book for the collection, data can be recorded on the scale envelopes (using one envelope per fish), in your notebook, or on a datasheet. Be sure that your biological data is always clearly matched with scale and DNA information, as well as the date and location.

### b. Length

The PSC uses **post orbital fork (POF) length** for salmon, as shown in Figure 7. This is the length from the back (posterior) of the eye socket (orbit) to the fork of the tail. The reason that we record POF length is because as the male salmon begins to develop a kype, it becomes more difficult to reliably compare lengths between salmon (one will seem larger when it is in fact a similar size but more mature). All length measurements are recorded to the **nearest millimetre** (or centimetre with one decimal point, i.e. 52.5 cm or 525 mm). Most importantly, always record the type of length being measured and the units of measurement in the **legend** on the first page of the scale book.



**Figure 7.** Post orbital fork length.

### c. Weight

Whenever possible, please include the weight of the salmon along with the other biological data. Weight should be recorded to one decimal place (ex. 3.2 lbs); either kilograms or pounds are acceptable, but please be consistent and make sure that the units of measurement are clear (i.e. are you using ounces or decimal pounds?). If you cannot record individual weights record the bulk weight if possible. This is the weight of a number of fish all together, which you may be able to obtain when fish are offloaded. Make sure to record the number of fish associated with that bulk weight.



#### d. Sex

To determine the sex of the salmon, make a slit in the belly approximately 2 inches long from posterior of where the pectoral fins meet and along the midline of the stomach. Insert your finger following the curve of the outer wall along the outside of the internal organs. On the dorsal side, close to the spine, you will feel a bumpy texture if the fish is female (these are the egg sacs; Figure 8), or a smooth texture if the fish is male. As salmon get closer to spawning, it becomes easier to tell the male from the female due to the kype, the hump on the back of the male, and sometimes the coloration. Despite this, please **do not guess**. Slit each fish to be sure of the sex. Use a sharp knife and be aware that if you cause too much damage to the fish it may lower its value, so keep the slit as small and as neat as possible.



**Figure 8.** Image of sockeye salmon roe; these are the egg sacs you will feel inside the female salmon. Image from: [http://www.fishwatch.gov/seafood\\_profiles/species/salmon/species\\_pages/sockeye\\_salmon.htm](http://www.fishwatch.gov/seafood_profiles/species/salmon/species_pages/sockeye_salmon.htm)

## 6. DNA Sampling

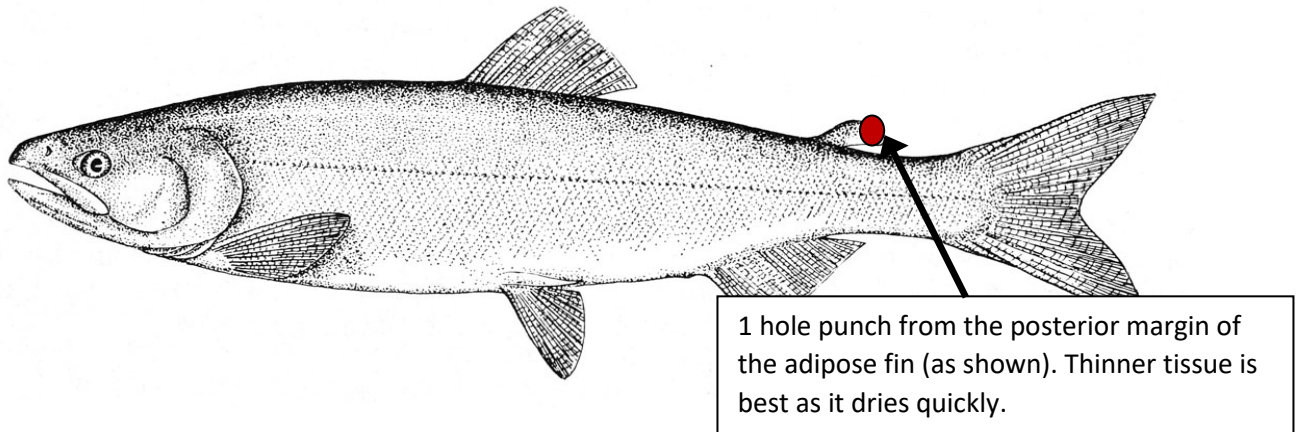
For most fisheries we will request 50 or 100 DNA samples per collection, including matching scales and biological data. It is important that DNA samples can be matched with the correct scale sample and biological data, so please be sure that DNA sample numbers are recorded clearly and accurately.

#### a. Sampling technique

DNA is collected using a one-hole punch on the margin of the adipose fin to collect one small tissue disk (Figure 9). The tissue does not have to fill the entire hole punch; half-discs of thin tissue are best as they preserve better and stick to the Whatman paper. Many samplers will punch the sample onto the tip of their finger and then use forceps to transfer the sample to the Whatman paper or vial. You may find a technique that better suits you but remember to limit contamination of the DNA sample as much as possible. If the fish is missing its adipose fin a piece of caudal fin tissue can also be taken; however, try to avoid bone in the caudal sample.

Samples are placed on Whatman sheets, in DNA vials, or in a bulk vial in order to preserve them. Be careful not to mix up DNA samples; keep your working area clean and if you drop a tissue sample, make a new hole punch so you can be sure the tissue came from the correct fish.





**Figure 9.** DNA sampling location on salmon.

### b. Whatman sheets

Whatman sheets are a special type of filter paper that quickly dries and preserves DNA samples. To successfully bind and preserve the sample, it is important that tissue samples are applied to the Whatman sheet immediately while they are still wet, otherwise they will fall off and get lost. Taking thin pieces of tissue from the margin of the adipose fin will also help the sample bind and preserve better. Use tweezers or your finger to press each sample firmly on to the appropriate grid of the Whatman sheet, right in the middle of the square. Fill the grids in order of increasing sample numbers, going from left to right and being careful not to skip any grids or rows.

Fill out the information at the top of the Whatman sheet, including dates, name(s), and the total number of samples (so we know if any get lost). You can use the same sheet over more than one day, but you must make a note of the date change, both on the Whatman sheet and in the scale book. Though it is okay to use the same sheet for more than one day, please avoid splitting a sample collection across multiple sheets. When selecting a Whatman sheet for the day's sample collection, choose a sheet that has enough room to fit the entire collection so that you don't have to split it across sheets. If you are unsure, just start a new Whatman sheet before sampling.

Make sure to write down the DNA sample number of each fish sampled in the scale book, next to the corresponding biological data (see Figure 10 for location of sample numbers on Whatman sheets). The Whatman sheet number (i.e. Sheet # 11) and the number of samples taken must also be written on the front cover of the scale book.

After sampling, place Whatman sheets in a secure, dry location at a moderate temperature. Do not leave them inside vehicles in the sunshine as the extreme heat will damage the tissue. Also, do not stack the sheets until they are completely dry, or samples will stick to other sheets and get lost. If you must stack the sheets or ship them before they are dry, cover the DNA with parchment paper to protect it.

Enter this information

DNA sheet #

Year: <u>2014</u>	Sheet #: <u>0011</u>	Catch Dates (dd-mmm-yy): _____ to _____
Fishery: <u>Test Fishery</u>	Species: <u>Sockeye</u>	Sample Dates (dd-mmm-yy): _____ to _____
Area: <u>Area 20, JDF GN</u>	Gear: <u>GN</u>	Samplers: _____
Place a piece of fin tissue, not larger than this circle  in the center of grid.		# of Samples _____

	1	2	3	4	5	6	7	8	9	1
A	001101	001102	001103	001104	001105	001106	001107	001108	001109	001110
	Note:	Note:	Note:				Note:	Note:	Note:	Note:
B	001111	001112	001113			001116	001117	001118	001119	001120
	Note:	Note:	Note:			Note:	Note:	Note:	Note:	Note:

DNA sample #'s

Samples go here

**Figure 10.** Sample Whatman sheet

### c. DNA vials

DNA vials use ethanol to preserve the tissue samples (Figure 12). Vials are used if Whatman sheets are not available, if heavy wind or rain make using Whatman sheets impossible, or for targeted sample kits. Collect a hole-punch from the adipose fin as with Whatman samples. **Close the vial tightly** so that ethanol doesn't leak or evaporate. Make sure the tissue sample falls into the ethanol and is not stuck in the lid or on the side. Individual vials should only hold tissue from a single fish, and it is important to record the sample number as you would for the Whatman sheet. Always use vials in order of increasing sample number. Make sure that the kit is clearly and correctly marked with the area, species, and gear. Kits may come pre-labelled with this information, or you might need to fill this in on the label.



**Figure 11.** DNA vial with salmon tissue.

### d. Bulk vials

A bulk vial is a single, larger vial with enough ethanol to preserve up to 50 samples (Figure 13). Each sample should be from a separate fish. Please ensure that the bulk vial is clearly marked with the date, gear, location, species, number of samples, and sampler's name. Close the lid tightly and do not allow bulk vials to stand open for long as the ethanol will evaporate. Do not overload the bulk vials or the samples will not be properly preserved.



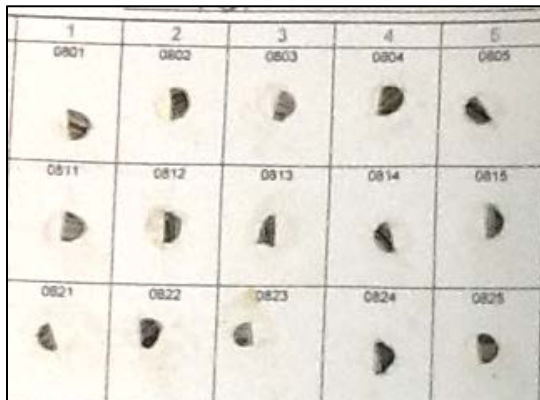
**Figure 12.** Bulk vials with and without tissue samples.

**e. Avoiding contamination**

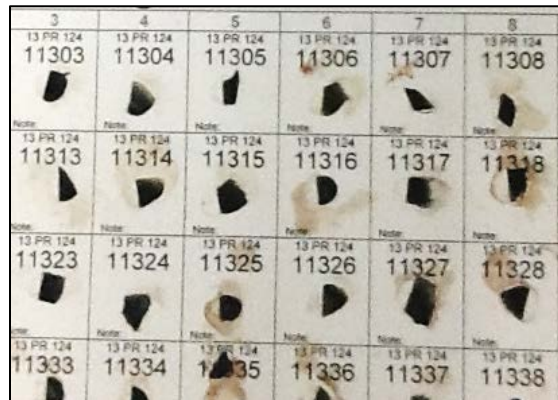
Contamination occurs when DNA from more than one fish can be detected on a single tissue sample. Every year, some of the samples we analyze are unusable due to contamination. There are several ways to avoid contamination:

- Keep a jar of water close by and rinse your tools regularly.
- Use the forceps to handle tissue samples instead of hands.
- Rinse hands often and keep a cloth or paper towel nearby to remove blood or slime.
- If available, have a second sampler with clean hands help by handling the scale book and Whatman sheet.
- If you drop a sample, take a new one instead of picking up the old one.
- Set up your workstation so that the Whatman paper cannot be accidentally splattered. Keep the Whatman paper as **clean** as possible, it should **not** be covered in blood or slime (this is true for the scale books as well; see Figure 14).

A:



B:



**Figure 13.** A) A clean Whatman sheet with less risk of contamination. B) A messy Whatman sheet with higher risk of contamination.

#### f. Missing adipose fin

You will sometimes find a salmon that is missing its adipose fin (Figure 15). Some hatcheries clip the adipose fin to signify that the fish is of hatchery origin. You should not purposely include **or** exclude these fish from samples but sample them if they come up as a part of a *random* sample. Since the adipose fin is missing, take the tissue sample from the upper part of the **caudal** (tail) fin - the thin tissue of the tail preserves easily because it is not too thick. Try to avoid bone in caudal samples. If you see a salmon that is missing its adipose fin but is **not** a part of the random sample, please sample it for the special 'Jacks and Adipose-clipped' collection (more on targeted sampling in the next section).

Make sure to note in the scale book if the fish was missing its adipose fin. If it appears that the fin was clipped, write '**ADC**' (short for 'adipose *clipped*'). Sometimes the fin might be missing because it was damaged. The edge might appear ragged, and it might not be a hatchery fish, or a fresh wound might be associated with this area of the body being missing. In these cases, you should record the fish as '**ADD**' (short for adipose *damaged*). Please record the number of ADC and ADD fish within a collection on the front cover of the scale book.

A:



B:



C:



**Figure 14.** A) An intact adipose fin. B) Absence of adipose fin with healed scar on hatchery Coho. C) Partially clipped adipose fin, would still be considered 'ADC'. Damaged adipose fin (ADD) not pictured, but would appear more ragged and possibly recently healed. (Photos from: [www.fishingwithrod.com](http://www.fishingwithrod.com) and [www.ifish.net](http://www.ifish.net)).

#### g. Jacks

Sometimes you will come across jacks as you are sampling sockeye (pink salmon do not have jacks). Jacks are predominantly three-year-old, male sockeye that return to the river after only one year in the ocean. They can be identified due to their small size (generally less than 43 cm). Do not purposely include **or** exclude jacks in a sample because the sample is meant to be representative of the overall population. Any jacks or adipose-clipped fish that are observed outside the random sample collection can be put aside to be included in a special 'Jacks and Adipose-clipped' collection (more on targeted samples in the next section).

Be sure to note in the scale book that the salmon was a jack, and also record the number of jacks in the collection on the front cover of the scale book.

## 7. Targeted Sampling

The large majority of test fishing sampling is meant to be random and representative of the overall catch. However, there are some samples that should be collected that are targeted towards particular fish and the sample is not random.

Generally, targeted samples are directed at jacks or adipose-clipped fish. Sockeye jacks offer valuable information because they return to the river a year earlier than the rest of the sockeye from that cycle

line and can therefore help in forecasting the size and composition of the following year's run. Adipose-clipped salmon are a result of some hatcheries removing the adipose fin of the fish they produce to mark them. By sampling these adipose-clipped fish, we gain valuable data which can be used to manage hatchery stocks and evaluate the hatchery stocking programs.

### b. Jack sampling

Jack samples for the PSC are almost always for sockeye salmon. Jacks *usually* have a POF shorter than 43 cm and weigh less than 1.5 kgs (3 lbs). Jacks are usually male, and may be hard to identify at first, but if you follow the species ID guide you should be able to find all of the usual features of sockeye salmon. Early-maturing females (sometimes called "jills") are observed less frequently than jacks, but are also of interest, so check and record the sex of individuals in your "jack" sample rather than assuming they are all male.

**If you come across a jack in your random sample, sample it as usual and include it in the random sample collection.** Make a note in the scale book that it was a jack. If you see a jack but it is **not** part of your random sample, include it in a targeted sample. This would be an extra sample to collect in addition to however many sockeye you usually sample each day for the random collection.

We will supply you with a DNA vial kit or a Whatman sheet labelled 'Jacks and Adipose-clipped'. Throughout the season, whenever you come across a jack or an adipose-clipped fish that is *not part of the random sample*, take a matched DNA and scale sample, along with biological data, and include it in this special kit/sheet. You should set aside a scale book for this purpose as well. This sample kit/sheet will span multiple days of sampling, so make sure to note the days in which samples were collected on the sheet or scale book. Keep the sampling coordinator updated on how many you are collecting throughout the season and, if the kit is full, return it to the sampling coordinator and request a new one.

### c. Adipose-clipped sampling

Adipose-clipped sockeye will be missing most or all of their adipose fin. As with jacks, **if they are already a part of the normal, random sample, simply include them as usual**, making a note that the fish was 'ADC' or 'ADD'. Since you cannot take tissue from the adipose fin, take it instead from the caudal (tail) fin where the tissue is thin. If you see ADC/ADD sockeye that are **not** a part of the random sample, include in the special 'Jacks and Adipose-clipped' collection in the same way as explained for jacks. Make sure to note whether each fish in this kit is a jack or adipose clipped sockeye.

## 8. Shipping

Careful and secure shipping is very important so that samples are not damaged or lost. Please follow these guidelines when sending samples or data to ensure that they will be protected during shipping:

- Wrap scale books or envelopes with an elastic so that scales do not fall out.
- If time permits, allow Whatman sheets to dry before shipping to ensure that the samples stick properly. If samples have not dried, they may stick to the shipping envelope and get pulled off the Whatman sheet. If a sample falls off, reattach it using a small piece of tape (this is not ideal, but better than losing the sample completely).
- Cover the samples on a Whatman sheet with a sheet of parchment paper.
- Place Whatman papers in a rigid shipping envelope that is properly addressed. Avoid bending Whatman sheets.
- Bulk vials and DNA vial kits should be placed in a baggie in case of spills and then placed in a properly addressed envelope or box.

- Be sure you know where the samples are supposed to be shipped (generally PSC or PBS) and double check the address.
- Record the sample numbers before sending, record all shipping invoice numbers, and ensure that this information is promptly communicated (call, text, or email) to the sampling coordinator. Proper communication allows missing samples to be identified quickly.

*Shipping address for **Pacific Salmon Commission**:*

Sampling Coordinator  
 Pacific Salmon Commission  
 600 – 1155 Robson St.  
 Vancouver, BC  
 V6E 1B5

*Shipping address for the **Pacific Biological Station**:*

Molecular Genetics Laboratory  
 Pacific Biological Station  
 3190 Hammond Bay Rd.  
 Nanaimo, BC  
 V9T 6N7

## 9. Forms and Communication

Miscommunication often results in problems with sample collections, so if you are unclear about any instructions don't hesitate to contact the sampling coordinator. Always fill out forms clearly and completely and keep the sampling coordinator updated on the status of sample collections and shipments. Although it may seem redundant to write the same gear and location on the scale books and data forms, these sheets often go to different places. If there is any missing information, hours can be lost in trying to correct the mistake, or the samples may simply become unusable.

**Please take the time to write legibly.** The people who enter the data must be able to read what you've written without struggling or guessing. If you are sending forms by fax or as an email attachment, light writing often will not show up, so make sure that the writing is very clear and dark enough to be read.

### a. Test fishing forms

For details on test fishing forms, please see the test fishing manual. When filling out test fishing forms always include the number of scale samples and DNA samples collected, as well as the DNA kit/sheet number and sample ID numbers (Figure 16). This tells us what to expect when planning the lab work, and it also lets us know immediately if any samples have gone missing.

<i>Number of scales collected: 109</i>
<i>DNA Collection code: Sheet # 427</i>
<i>DNA Samples: #42701 - #42800</i>

**Figure 15.** Example of section on test fishing form where samplers must enter data concerning sample collection. Please always fill this in, even if only scales were collected.



**b. Biological data form**

If you are only collecting DNA (no scales), or unmatched scale samples as for pink salmon, you can use a data form to record the biological data (Figure 17). Include all of the relevant sample information at the top of the form, and for each fish include the DNA sample number, the POF length, the sex, and the weight in the appropriate column. If you do not have a data form, you may record this information in a notebook in the same way as it is collected on the data form.

**Biological Data Form:** This form to be used for DNA-only samples (no scales).

Species: Pink Length:  POF  FRK  STD  POH  
 Catch Date(s): 23-Jul-15 Weight:  KGS  LBS  
 Area: 12 # of ADC / ADD: 1 ADC  
 Location: Blinkhorn # of Jacks: 2  
 Gear: PS Sampler(s): Joe Sturgeon  
 DNA Kit / Sheet #: 427 Sam Fish

Catch Date	Sex	Length (cm)	Weight	DNA Sample #	ADC / ADD	Comments
<i>03-Jul-14</i>	<i>M</i>	<i>56.5</i>	<i>2.3</i>	<i>23501</i>	<i>ADC</i>	<i>Example row</i>
<i>"</i>	<i>F</i>	<i>52.6</i>	<i>2.5</i>	<i>23502</i>	<i>N/A</i>	<i>Example row</i>
1 <u>23-Jul-15</u>	<u>M</u>	<u>55.7</u>	<u>2.7</u>	<u>42701</u>	<u>N/A</u>	
2						
3						
4						
5						
6						
7						

**Figure 16.** Biological data form. When collecting biological data without a scale book, you will either have a form similar to this, or you will enter this information into a notebook.

**c. Bulk DNA form**

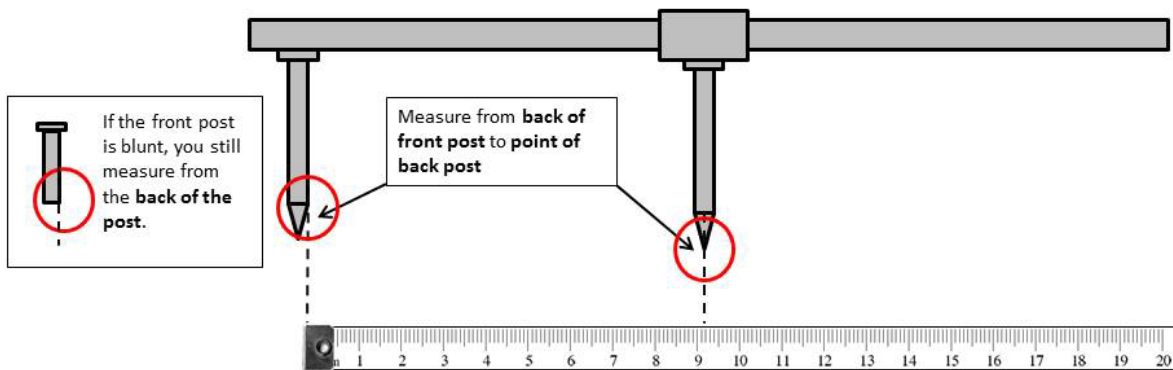
Bulk collections often occur on the spawning ground but might also occur if you are asked to collect DNA for other species, or if you are conducting non-lethal sampling and need to return the fish to the water as quickly as possible. Use the Bulk DNA data form to record all the information for each bulk vial, then send this in at the end of the season. If you do not have a data form, collect this information in your notebook. Be sure that all of the data is also recorded on the bulk vial itself.



## 10. Caring for POF Sticks and Other Gear

Be sure to clean your equipment regularly, and rinse with fresh water every day if you are working on salt water. **If you are running low on any sampling supplies, let the sampling coordinator know before you run out so they have enough time to ship new supplies.** If any of your equipment breaks, inform the sampling coordinator as well.

The POF measuring sticks can sometimes lose accuracy over time, especially if they are dropped. Use the measuring tape in your sampling kit to occasionally check the accuracy of the POF stick (Figure 19). If you find that it is inaccurate, do your best to repair the stick by tightening any loose screws. Make notes in the scale book or on data forms if you believe that length measurements may be biased.



**Figure 17.** Method to check accuracy of POF stick.