

SITE VERIFICATION MANUAL



Oregon Adult Salmonid Inventory and Sampling Project (OASIS)

Oregon Department of Fish and Wildlife

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Oregon Adult Salmonid Inventory and Sampling Project (OASIS) SITE VERIFICATION PROCEDURES MANUAL

INTRODUCTION

The Oregon Adult Salmonid Inventory and Sampling Project (OASIS) is one of four projects that compose the Western Oregon Research and Monitoring Program. The overall goal of these projects is to provide monitoring for the Oregon Plan for Salmon and Watersheds (OPSW), and other Oregon Department of Fish and Wildlife (ODFW) and State of Oregon activities. The remaining three projects are the Aquatic Inventories Project (Habitat), the Western Oregon Rearing Project (Juveniles), and the Life-Cycle Monitoring Project. The overall goal of the Western Oregon Research and Monitoring Program is to conduct monitoring and research to assess the status of wild stocks of Oregon's anadromous salmonid populations and their habitats, and to implement research to improve inventory methods. The OASIS project provides status and trend information on abundance, distribution, and the percent hatchery fish for naturally spawning populations of Oregon Coast and Lower Columbia adult salmon and steelhead.

Background

History

Since the 1950s naturally spawning populations of anadromous salmonids in Oregon have been monitored through hand selected "Standard" spawning ground surveys. This provided a relatively easy and inexpensive method to produce an index of abundance for these fish. Changing management and conservation programs for these species resulted in increased information needs. Reviews of the standard survey system in the 1980's provided recommendations to improve the system to meet these information needs.

In 1990, ODFW implemented a random sampling procedure for survey site selection to more accurately assess Oregon coastal natural (OCN) coho stocks. This approach consisted of randomly selecting survey sites and estimating spawner abundance by visual counts in these sites. Beginning in 1998, ODFW enhanced the program by shifting from a simple random to a spatially balanced random site selection process, and by integrating site selection for juvenile and habitat surveys with the surveys for spawning salmon.

In order to conduct spawner surveys, randomly selected sites need to be verified to determine whether or not they are accessible and contain coho spawning habitat. Site verification entails locating the target stream segment, securing landowner permission, evaluating the potential of the segment as spawning habitat, and marking and documenting the survey.

Objectives

The overall objective for the OASIS project is to provide status and trend information on abundance, distribution, and proportion of hatchery fish in adult salmon and steelhead spawning populations to state and federal management agencies. This information, in conjunction with information from other OPSW projects, is used extensively in reviews of these populations under both the Federal and State of Oregon Endangered Species Acts. This information is also used by ODFW staff in the monitoring and evaluation of management and conservation actions for salmon and steelhead populations in Oregon's Lower Columbia and Coastal basins.

The objective of OASIS site verification efforts is to evaluate, and where appropriate, establish spawning surveys at the randomly selected sites for the upcoming spawning season. Random spawner surveys are set up

from February through August; then surveyed according to project protocols in the September through May spawning season. Specific objectives for the OASIS site verification season are:

- Locate the segment of stream to be set up as a spawning survey.
- Contact all landowners for permission to access their property.
- Evaluate the potential of this site and adjacent tributaries as coho spawning habitat.
- Write a detailed description of the survey including directions to the survey, start and end point locations, length of survey, and exit instructions.
- Obtain and record the required data as listed on the Site Verification Form in Survey123.

SITE VERIFICATION PROCEDURES – PREPARATION

You will complete an evaluation and all needed paperwork (electronically and/or on paper) for all surveys assigned to you. Each survey is identified by three numbers. The first is the ID Number, which is the unique number assigned to the GRTS point (Generalized Random Tessellation Stratified) that selected this location as a potential spawning survey. These GRTS points are shared across all the OPSW projects. Points exist at a density of about two per mile, and a spawning survey may contain more than one point. The last two numbers (Reach ID and Segment) describe the specific spawning ground survey. A Reach is a stream section that extends between the confluence of coho bearing streams or from the confluence of a coho-bearing stream to the headwaters, however there are cases where reaches extend past coho bearing tributaries. Some streams will have multiple reaches. A Segment is the actual portion of the reach to be surveyed.

Review Site Binder

Each site packet contains a 24k-scale topographical map, tax lot map(s), and landowner sheets (Appendices F, H & I). Each map includes the Township, Range and Section as well as the UTM's of the GRTS point, which will be helpful when locating them on a map.

Find Site on the Map

Oregon Department of Forestry (ODF) fire suppression maps are a great resource for updated road information, and they can be obtained at your local ODF office. Locating your sites on these, or other, maps will help you group your sites for each week. You should organize your survey schedule by geographic location and access efficiency. Assistant project leaders can provide previous descriptions for other surveys in the vicinity. After reading previous descriptions and viewing the appropriate maps, it may seem apparent that the survey to be established will be too time consuming for weekly spawning ground surveys. You must still attempt to locate these surveys in order to verify whether they are or are not within spawning habitat and also verify past information and map accuracy. You should prepare alternate surveys each week to account for times when access to a selected segment is impossible or denied.

Survey Length

The target length for coho spawning surveys is approximately one mile (~1,600m). Though, circumstances in the field will dictate considerable variation around this goal. In general, survey segments should rarely exceed 1.2 miles (~1,900m) and may be no less than 0.1 miles (~150m). However, due the presence of existing surveys, landowner restrictions, barriers, or end of habitat, lengths can vary. If you have questions regarding survey length please contact one of the assistant project leaders, and they will help you determine the best way to handle specific situations.

Existing Surveys

It is possible that the new survey you will be setting up will be adjacent to an existing survey. This will be where your survey will either start or end. The boundaries of most existing surveys can be seen on the 24k maps provided in the site packet. The existing survey may no longer have a sign present, so it will be important to use not only the maps to determine the start or endpoint, but the description and boundary coordinates for these surveys as well.

Reverifications

Each site will either be a new site (not been previously surveyed), or a repeat site (surveyed in the past). Repeat sites that need to be verified again are referred to as a reverification, or “re-ver” for short. For a reverification, the survey has already been conducted in the past, but it has either been over nine years since being visited, or there is another reason for it to be verified again. The verification process is essentially the same, however, existing survey boundaries should be maintained when possible.

Supplemental Surveys

Supplemental sites will likely be included on your list within Survey123. These sites have placeholder Reach ID, IDNum’s and stream names. These records can be used if additional surveys are being set up, or the site you need is not included on your list. Whenever using one of these supplemental records, please update the stream name and include detailed comments indicating what survey it is within the *Miscellaneous Comments*. The Reach ID and Segment will be later assigned and updated by office staff.

Determine Landowners

All pending surveys have already been researched to determine ownership boundaries and landowner names. When the segments were researched it was not known exactly where they would start and end, so there may be landowners listed that will not need to be contacted. It is also possible that there may be landowners that are needed for the survey or access that are not included on the landowner sheet, so review each site carefully. Use the landowner list as a guide to get you started with the landowner contacts, but do not assume that it is completely accurate. County assessor information available online is a good source for current landownership information as you begin your landowner contacts.

There are three basic categories of landownership for what you are doing; Public Lands, Corporate Lands, and Private Lands. Each landownership category requires a different method of contact, which will be discussed in detail below.

Public Lands

You do not typically need to contact anyone for access permission on State and Federal lands, U.S. Forest Service, Bureau of Land Management, Oregon Department of Forestry, etc. These lands are open to public access. In these cases you do not need to record an OK date on your landowner sheet.

City and County lands are also usually open to the public and do not need access permission, however, this is not always the case. Contact your crew leader or supervisor about which county and city properties will need contacts for access permission.

Corporate Landowners

Your crew leader or OASIS staff in Corvallis will contact major corporate landowners for access permission. These companies get many requests from various groups, and to streamline the process, our requests are coordinated along with multiple ODFW projects. This minimizes the number of times and people that contact these landowners with access requests. **Please DO NOT contact corporate landowners unless instructed by your crew leader to do so.** If you have any question whether or not a specific landowner is a corporate contact, or if you should be contacting them, please ask your crew leader. If keys are needed to access corporate lands they should be available through your crew leader or duty station.

Your crew leader will inform you whether or not we receive access permission to corporate lands. If we are granted permission, your crew leader will provide you with the OK date for that company so that you can enter it on your landowner sheet. Some corporate landowners require a permit when you are on their property or have other access requirements, so be sure to abide by the landowner requirements.

Private Landowners

There are three primary ways to contact private landowners; in person, by phone, or by letter. In all methods of landowner contacts, introduce yourself in a professional manner and identify yourself as an ODFW employee. Explain your reason for being there; be clear on your intent, methods, and the future involvement of ODFW surveyors. You will be essentially asking for permission for up to three activities: A one-time visit to do the survey set-up; weekly visits during salmon season (October through January); and if the site is also a steelhead survey (noted on the landowner sheet), every other week visits during steelhead season (February through May). Inform them that we typically post signs at the start and end of the survey and that flagging is used to mark steelhead redds (removed at end of the season). Also let them know it is possible other ODFW projects (habitat or rearing projects) may intend activities at this site in the future and let them know that there is a chance they may be contacted again by someone else. Answer any questions they have and address any concerns. If they need more information than you have, or have concerns you are unable to address, you can ask if your crew leader or assistant project leader could contact them to discuss further.

The most common method of landowner contacts is by phone. It is personal, and also very efficient. Be sure to speak clearly over the phone, as some people may be hard of hearing. Phone numbers may be listed on your landowner sheets, however you may need to do some research to find a phone number for each landowner. Many landowners have their phone numbers publicly listed on various online white pages resources. You can leave a voicemail for landowners with some basic information and your phone number for them to get back to you. Make sure that your voicemail is set up with your name and instructions for them to leave their information.

The ideal method for landowner contacts is in person, however this is also the most time consuming method. It is good to give them a friendly face to go along with the ODFW insignia. You will have an ODFW uniform which you should always wear when contacting landowners. You should be courteous and professional when contacting them and your uniform should be clean. In rare occasions you may encounter a dangerous or hostile situation. Safety is always your first priority. Leave the area immediately if you feel uncomfortable, threatened or in danger. If there is a closed gate to private property, we are not authorized to open gates without prior permission, even if they are unlocked. Never trespass on private property, and respect no trespassing signs even those posted at driveways.

Mailing a letter and postcard is also an option to reach them. When sending letters, ensure that you are using the correct format for Site Verifications. Letter templates, envelopes, and postcards will be provided to you. Write the date at the top of the letter, fill in the creek name, and sign at the bottom in the space provided. Enclose a prepaid landowner reply postcard with the Reach ID, Segment, Taxlot, Landowner Name, and the name of the stream written on the card (see Appendix G for example). On the front of the envelopes be sure to write OASIS above the pre-printed return address.

Other contact options might include leaving a letter and postcard at a landowner's door or on their gate. You might also have an email address listed on the landowner sheet or provided to you by a landowner. It is reasonable to contact landowners via email if they have provided their email address for that reason, and you must use your official state employee email account.

In all cases when you attempt to contact a landowner, record notes in the comments section on the landowner sheets, including the following: the date(s) contact was attempted, the method of contact, and the address or phone number attempted. This is important for you to keep track of when and how you have attempted to reach

each landowner, and will be very valuable if someone else might also be working on the same landowner contacts at some point.

Verify the contact information that we have for the landowner, making sure that the names, address, and phone number are all correct. If there is a problem with the township, range, section number, map-number, or tax lot number, please note this in the comments. If any information on the landowner form is not correct, please update it and then highlight it on the form so we can update the database.

Cross out any landowners that are not on the survey and did not need to be contacted, and provide a comment of explanation. If you need the landowner to access a survey, but they are not located directly on the survey, please leave them on the landowner sheet but make a comment that they are only needed for access to the survey. Record any additional landowners you needed to contact to access the site on the Landowner Contacts form. Occasionally you will have a landowner that does not own property on the stream but requests data, leave them on the form and enter “requests data” in comments. Landowners often have renters living on their property, and the landowner may request that we make contact with the renter(s) prior to accessing/surveying a stream. Use the same professional manner in contacting a renter even though we have already gained permission from the landowner. Add notes to the comments field on the Landowner Contacts form regarding the renters and any instructions the renter(s) may provide or request.

- **GRTS point owner**

Time and effort can often be spared by attempting to first gain permission from the landowner’s property that encompasses the GRTS point. If this property is denied, the survey is deemed “denied”, no survey can be established, and remaining landowners will not need to be contacted.

- **Special instructions**

Accommodate any special requests and document them on the Landowner Form under comments as well as in the description of the Site Verification Form (Example: landowner requests surveyors not park in driveway, or call before surveying). You can’t have too much information. It is **critical** that this information is included in the landowner sheet comments and in the Special Instructions of the survey for the fall surveyors.

- **Safety/Denials**

Many of the landowners you will be contacting have dogs, goats, sheep, cattle, etc. When approaching the house, pay attention to signs that there may be animals. Leave the truck door open so that you are able to quickly return to your truck in case of an aggressive animal or any other threatening situation. Please do not contact landowners that have denied us within the past 3 years. Do not go through any gates until you have received permission from the landowner, though you can consider leaving a letter and postcard on a gate if other contact methods have not worked.

Occasionally landowners will not allow access through or onto their lands. When this happens, do not become argumentative, listen patiently, and respond calmly. Simply state your objectives and reasons for our request for access. If access is denied, thank the landowner for their time and record the information on the landowner sheet. **Do not conduct a survey if you have been denied permission or have not yet received permission.**

OK Dates and Data Requests

Make sure to record the date (OK Date) you were granted permission or denied permission from the landowner(s) and the name of the person giving you this information (Contact) and enter a “yes” or “no” if they request data (Data). Be sure to enter a date even if it is a denial. Clearly indicate the method used to obtain the response: i.e. postcard (PC), phone call (PhC), or in person (IP). If a landowner is non-responsive, do not write “no” in permission section; instead leave it blank. “No” should only be written if it is truly a denial. Brief notes about the landowners reason for denial are helpful to include in the comment field as well. We re-contact landowners after every three (3) years since the most recent denial, unless it has been clearly indicated that it is either unsafe or ineffective to re-contact them in the future. The more notes you can write on the landowner

contact sheet, the better. If this site is passed off to another surveyor before it is finished these clues will help alleviate wasted time trying to re-contact a landowner in the same methods that were previously attempted - Ex; sent letter (SL), left message (LM), door knock (DK), or left letter (LL). Also be sure to indicate which address or phone number you used and the date you made the contact. Including this info makes the landowner sheets useful for reference in the future.

SITE VERIFICATION PROCEDURES – IN THE FIELD

Drive to Site

Start by locating the nearest significant landmark found on the map. It is always best to start from a well-known or easily found landmark such as a town, freeway exit, or major highway intersection. Assume that the person reading the description has never been to the area before. Make use of your trip odometer, and keep detailed notes on the directions and mileage to the start point (the trip odometer on your vehicle will become your best friend).

You should try to find the most efficient access to the site. It may be necessary to evaluate multiple access points to find the most efficient one for fall surveyors to use on a regular basis. Remember, the survey crew will be visiting 8-10 sites per day. They will also be able to be picked up at a different location than where they started, so evaluate roads near the end of the survey as well.

Enter Site

Note access

Describe the best method you found for assessing the survey. Be sure to include detailed descriptions of site access, especially in areas where extensive hiking is required to reach the start of the survey. Flagging a trail can be an especially helpful tool, provided that there is landowner permission for such. You can include directions for alternate access if applicable. See further instructions on what information to include under **Descriptions** in the Survey Write-Up section.

Determine start point

The start of a survey, if possible, should be located at a permanent and identifiable location: the mouth of a stream, the entrance of a coho bearing tributary, the end of an existing survey, or at a permanent landmark like a highway bridge. After determining the start point, take some time to familiarize yourself with your present location, general surroundings, and potential end of survey location.

Location of start sign

▪ Sign information

Write survey information in the lower margin of the sign using a permanent ink pen. This information includes: whether it is the **start or end** of the survey, the **stream name**, the seven-digit **Reach ID**, the **Segment**, your **name** and the **date**. Example: Start Bob's Creek 23456.00 Seg. 3 J. Doe 6/20/99. This means J. Doe established the start of reach 23456.00 segment 3 of Bob's Creek on 6/20/99. If you find a sign from an adjacent survey, verify that you are in the correct segment and write the information for your segment on the upper margin of the sign. If you anticipate the survey may need a new Reach ID and Segment from what is on your map, leave those fields blank and make a note in the description for fall surveyors to enter the new information once obtained from the Corvallis office.

▪ Placement

Attach signs to a permanent object using aluminum nails. If a tree is used, drive nail no more than 2/3 into the trunk to allow for tree growth. Place signs where they are clearly visible, facing downstream and in as permanent a site as possible (avoid trees that have the potential to fall down). Place two signs if necessary to

ensure visibility from all angles and directions a surveyor may be approaching. Remember, these surveys will be conducted on a weekly basis in the winter when stream flows are much higher, and spawner surveyors may need to climb the banks to avoid hazardous obstacles or conditions, thus limiting line of sight. A clear and easily visible sign will be appreciated.

Note: Make sure you have landowner permission for posting a sign. If a landowner requests that no signs are to be posted be sure to include that information in the Special Instructions so future surveyors do not inadvertently post a sign.

Evaluate the Site

Conducting the Site-verification Survey

The following are key concepts, descriptions of the specific data (and data categories), and some special situations you will be collecting information about and evaluating as part of the survey set-up. Most of this information will be recorded using the Survey123 app (see Appendix A).

▪ **Left vs. Right Bank**

Surveys are usually conducted by walking upstream, but sometimes by walking downstream depending on access to the survey, or by floating downstream. When referring to the right bank vs. the left bank in your descriptions always describe it as looking upstream, even when describing the exit route or on a float survey.

▪ **Fish Presence**

Juvenile coho abundance is used to indicate the relative density of juvenile coho observed. Recording unknown is preferable to recording absent unless you are quite sure there are no coho juveniles present.

▪ **Substrate Composition**

Estimate the percentage of each substrate type within the stream reach segment (totaling 100%):

Silt - Cohesive fines, little or no grain structure, suspends in water column.

Sand - Non-cohesive grains, up to marble size, settles out of water column.

Gravel - Size ranges from marble to grapefruit (different from spawning gravel).

Cobble - Size ranges from grapefruit to basketball.

Boulder - Larger than a basketball.

Bedrock - Large, continuous, non-transported underlying rock.

▪ **Stream Width**

Measure the active channel width of the stream at the beginning, middle, and end of the survey using your pre-marked staff to establish the mean width in meters.

▪ **Gravel Quantity**

Estimate the quantity of **spawning gravel** to the nearest square meter throughout the survey. Ideal coho spawning gravel is categorized as having a mean diameter of 9 cm (about the size of a baseball). It should be mixed with less than 60% fines (sand or silt). Qualifying patches should equal an area of at least two square meters. Spawning gravel should be located in tail-outs or low gradient riffles in no more than 24 inches of water. It can be helpful to keep a running mental tally of the number of qualifying gravel patches as you walk the survey. Remember there can be multiple 2m² gravel patches within a larger area of continuous gravel.

▪ **Channel Features**

Pay attention to all features within the channel: eroding banks, beaver activity, culverts, etc.

▪ **Land Use**

List the three most prominent land uses within the basin associated with the segment. (e.g. Agriculture, mature timber, urban, etc.)

- **Gravel Comments**

State the quality and location of gravel and its role in the overall quality of coho spawning habitat. Examples include describing the size of the gravel in relation to preferred coho gravel size, location of coho sized gravel (in tail-outs, in glides, or is it dry), patterns of gravel distribution throughout the survey, and the amount of fines or larger substrates that are mixed in with the gravel.

- **Fish Comments**

This section is used for identifying the presence of juvenile coho and any trout species in the survey area (see Appendix D). This section should be used to describe in which areas of the survey juvenile coho were observed, juvenile coho abundance associated with habitat structures, or abundance of trout in the survey. You can also record any adult fish observed or any existing redds.

- **Misc. Comments**

This section should be used for any information about the survey that you feel might be helpful to the office staff or for any future reference to this survey. It can also include a basic summary of the survey, any special features or other notable information. Any information that the crews will need in the fall, such as “Call Joe Smith before every survey”, should be put into the special instructions.

- **Culverts**

From time to time you will encounter a culvert within your survey segment. All culverts should be noted in the *GPS Locations* section of your Site Verification Form. Any potential culvert barriers encountered should be considered temporary and the segment should be evaluated as if no barrier exists. This rule extends to culverts within a segment and those found on potential coho bearing tributaries. Descriptions for surveys containing potential culvert barriers should include notes describing their location and condition.

When entering *Culverts*, you will be asked to enter culvert height, width, length, slope, pool drop, pool depth, substrate, and upper (fish) distribution. This process must be completed for all culverts that are located within the survey (a paper backup copy is found in **Appendix L**). The categories listed are required information, so do not leave any entries blank. Refer to the illustrated description for where and which measurements need to be taken (**Appendix M**). It may be handy to have a copy of this schematic in the field with you. All units are to be measured in meters. Upper distribution is determined by visual observation of juvenile coho, a “yes” entry indicates the culvert is likely a passage barrier to anadromous fish at winter flows. The **UTM** coordinates should be recorded at the downstream end of the culvert using the GPS feature in the Survey123 app.

- **Tributaries**

Although our database is extensive, it does not include all potential coho bearing tributaries that exist. It is our intent to add these tributaries to the database as they are discovered. While conducting surveys, you need to examine incoming tributaries for potential coho spawning habitat. Describe all tributaries in terms of gradient, active channel width, what side of the parent stream it enters from, and UTM coordinates at the parent stream confluence. Describe if tributaries are or are not viable for coho spawning. Record a GPS point at the end of anadromous distribution if you are able to determine this. If spawning habitat exists, note how far up the tributary potential habitat extends. If greater than 150m, then it will likely be its own survey, while if less than 150m it will likely be a spur to the parent stream and survey. Include in the parent survey’s description the directions for spur tributary location and distance to survey up the spur. Include brief information on surveying spur, such as:

Example: Survey stream A upstream from mouth 1.0 mile to end point at bridge. Include spur tributary as a part of this survey, on right about 600m upstream from start of survey, marked with flagging in 2003. Survey spur from mouth upstream 40m to 3m falls.

If no coho habitat is present in the tributary, then it is considered to have a “Zero” status, and should be noted as such, or simply “no habitat”, in the GPS point comments.

- **Habitat Structures**

Make a note of human-placed habitat structures (logs, cabled boulders, boulder weirs, etc.) found within the survey, including the type of structure. Often, structures were placed many years prior to the set-up.

- **Landmarks**

Watch for landmarks throughout the system such as parking location, bridges, fence lines, houses, good location to split a survey or other noteworthy features.

End the Site

Determining the end point can be one of the more difficult tasks of site verification. Typically, the endpoint will be established during the survey by walking upstream 0.8 to 1.0 mile. Consider landmarks, designated lengths, sign visibility, landowner privacy, and exit route when making your judgment to end the survey. If there is a road along the reach segment, identify a potential endpoint before beginning the survey. Take into consideration that stream miles are usually longer than road miles and straight lines on a map, the accessibility of the exit point, presence of a permanent landmark, and the availability of trees or structures to post signs. Try to keep your surveys between 0.8 and 1.0 mile long, unless restricted by barriers, habitat, or access conflicts. Often it is helpful to end a survey at a coho bearing tributary junction, but this is not a requirement, particularly if there is limited distance to the end of distribution. When a segment ends at the stream's headwaters, ensure that all coho habitat is encompassed within the survey.

The endpoint may be determined for you by way of a barrier, end of viable spawning habitat, or abutting segment. With this scenario your choices are limited, do your best to post visible signs, find the easiest exit, and accurately mark the point in your PDA. Tributaries, unique stream channel features, or road crossings make excellent ending landmarks. If there are no obvious landmarks to end the survey, decide on the best spot available and describe it to the best of your ability.

As with the start sign, write survey information on the sign's lower margin using a permanent marker. Remember, if a survey might need a new Reach ID and Segment due to a reach break, leave those fields blank and make a note in the description for fall surveyors to enter the new information once obtained from the Corvallis office. Place signs where they have optimum visibility and some degree of permanence.

Exit the Site

Be aware as you are walking the survey of potential exit points. Game trails and old overgrown roads can make ideal exit routes. Exit via survey is usually the least desired route, though often and sometimes the only option. Keep in mind that fall surveyors work in teams and can often be picked up at an entirely different location than where they were dropped off, so be sure to evaluate all adjacent roads near the survey.

Invasive Species

Be sure to clean boots and waders according to cleaning protocol at the end of each survey to prevent spread of exotic species such as New Zealand Mudsnails (Appendix E).

SITE VERIFICATION PROCEDURES – IN THE OFFICE

Survey Write-up

Survey write-ups are done almost entirely on your smartphone using the Survey123 app. Some information is collected in the field, and the remainder can be completed upon return to the office. Detailed instructions on how to use Survey123 are included in Appendix A. Additionally, there are instructions for using the

Backcountry Navigator app in Appendix B, which is used for GPS navigation in the field. In the event that you are setting up a Supplemental survey, you should have supplemental records on your Survey123 list. You can also fill out a paper Site Verification Form if entering your data into Survey123 is not an option. Blank Site Verification Forms are available in your Site Verification Crew Box and in Appendix J. If ever you set up a survey under the wrong Reach ID or Segment number, note this in Miscellaneous Comments so that it can be updated appropriately upon review. Following are some key data fields, concepts, and considerations in doing a survey write-up.

- Date Completed - The date the survey was actually visited, rather than the date the write-up might have been completed.
- Surveyor ID - Enter your surveyor ID.
- Time to Survey - Calculate based on the time it should take the survey crew to conduct the survey on a regular basis and in normal survey conditions, rounded to the nearest 0.25 hour, from leaving the truck to getting back to the truck. Do not include the time it takes to evaluate habitat and other site verification activities.
- Map Length - Do not fill in this field. Corvallis staff will determine survey length using GIS.
- Survey Status (NOTE: Status **MUST** be defined for the section of stream containing the GRTS point.)
 - New - A New survey has viable spawning habitat and no barriers downstream and has not previously been conducted as a spawning survey.
 - Repeat - A Repeat survey has viable spawning habitat and no barriers downstream and has been previously verified. These sites are referred to as reverifications, or “re-ver’s”.
 - Zero - A survey is considered a Zero when the point falls outside of spawning habitat, such as downstream of spawning habitat (tidal areas, low gradient marshland, etc.), upstream of spawning habitat (above migration barrier or in high gradient headwater areas), or if there simply is no spawning gravel present.
 - Inaccessible - The survey should be deemed Inaccessible if the point falls in a location in which regular spawning surveys are not practical. If the proposed survey will take a surveyor crew more than four hours to complete or access is too dangerous, then the survey is considered inaccessible. However, if possible, the site should still be assessed to determine presence/absence of spawning habitat.
 - Denied – A Denied site has a GRTS point that falls on private property where access has been denied. We do not survey a Denied segment nor attempt to verify the stream habitat. Please do not contact landowners that have denied us within the past three years.
 - Other - There are other classifications available but seldom used, such as Dropped, Discard and Pzero. These classifications are typically made by Corvallis office staff during site reviews. For more instruction on these consult the Corvallis office staff.
- Survey Type
 - Random - Random surveys are chosen each year as part of the protocol to estimate OCN coho spawner escapement. Previous random surveys can be found in the site verification binders at the Corvallis Lab by Reach ID. These will make up the vast majority, if not all of your site verifications, and all Random surveys contain a GRTS point.
 - Standard - These surveys have been conducted consistently over a long period of time, and are used to index spawning abundance in the basin where they occur. These areas were selected as early as 1948 based on varied criteria, such as ease of access, and the assurance of observing some level of spawning activity. These data have been used in the past to determine OCN coho spawner

population estimates. Directions can be found in the database or in the actual spawning survey record binders.

- Supplemental - These are surveys typically selected to fill specific information needs, and may vary from year to year. Some supplemental surveys have a long history of being conducted, while others may have only been surveyed once.
 - Lake - These are the same as Standard Surveys, and are located on tributaries of three major coastal lake systems: Siltcoos, Tahkenitch, and Tenmile. They are used to estimate spawning escapement of coho to these systems based on historic methods.
 - Other - There are other classifications that you may come across. If you would like more information on these, speak with the staff at the Corvallis Lab.
- Description – there are three description fields:
 - Directions - The directions will provide future surveyors with detailed instructions: to drive to the site from a location that is easy to identify (from your office building, another town or a major highway intersection); to access or hike to the start of the survey, the survey length, location of the endpoint, and the best way to exit the survey. Alternate access or split information can also be included. Use proper grammar rules, and use complete, succinct sentences. The directions need to be clear enough for someone who has never been to the area to be able to find and conduct the survey. Start and end sign location is not needed in this field. Also, do not include landowner information in this field.
 - Survey Description - The survey description will describe how to conduct the survey itself, beginning with the start sign location, how to conduct the survey, description of any spurs or notable obstacles, survey length, and end sign location.
 - Special Instructions - The special instructions describe any landowner requests or important information about the survey. It is common that some landowners request contact prior to survey, so include contact name and method (phone number for call, or for text, email address, knock on door, etc.), and if a certain amount of advance notice is requested. Other information may include gate details (keys or instructions), permit requirements, pet or livestock info or any potential hazards on the survey. Include any other details that future surveyors should know or be aware of.
 - Map marking - Use the provided 24k map from the site packet to mark the start and end points of the survey. Also indicate whether the entering tributaries have spawning habitat or not, and the upper extent of spawning habitat if determined. It is also helpful to draw a trail indicating the entrance and exit routes as needed. Include other information that would be helpful, but please keep it organized and legible.

Error Checking

Before returning survey packets to the Corvallis office for review, complete the following checklist:

- Are all landowners contacted? Are extras marked out and new ones added?
- Are there special conditions applied by landowners? If so, did you note this on the landowner form and within the *Special Instructions* in Survey123?
- Did you mark “yes” or “no” for data requested on the Landowner Contact form?
- Did you go through ALL the landowners for each site and make sure you marked “not on survey” for any landowners you did not need for the finished survey.

- Are the directions to the survey detailed, easy to follow, and concise? Assume you are giving directions to someone who is not familiar with the site or area. If possible, use landmarks that are identifiable on maps.
- Do the survey boundaries include the GRTS point (ID Number)?
- Are start and end point UTM's acquired and labeled in your PDA?
- Do any tributaries coming into the survey area contain spawning habitat? If so, did you note these?
- Is the endpoint the end of coho habitat? If so, did you note this, as well as end of habitat on any tribs?
- Did you describe how to exit the survey?
- Did you complete all fields within the Survey123 form?
- Did you mark YES under *Survey Complete* in Survey123?
- Did you mark on the 24k map all pertinent information regarding the survey?

Office De-briefing

Upon completing the week's surveys, ensure all sites are completed, and then turn them in or mail in all completed packets. Your supervisor will review each survey. Completeness, clarity, and accuracy of your work will be evaluated. It is important that you return with enough detailed information about the survey to answer any questions that may come up. An accurate, well-documented survey will prevent a return trip by you! The goal is to give your supervisor enough information so that an accurate mental picture can be formed, and determine if appropriate judgment was used during the setup procedure.

APPENDICES

A. Entering Data into Survey123

- Open the Survey123 App on your PDA/phone
- Select *OASIS Site Verification Setup Form* and then tap the *Collect* button. Within the form in Survey123, each of the following sections can be open or collapsed by tapping on the section title.

SURVEY SELECT

- Select your Surveyor ID from the *Surveyor ID List* drop-down list.
- All sites assigned to you will be listed in the *Survey Select* drop-down list showing Reach ID, Segment, and Survey Name. Pay close attention to the Reach ID and Segment since there may be multiple sites with the same stream name.
- Click on the desired survey record. The *Survey Name*, *ReachID*, *Segment*, and *New or Repeat* fields will auto-populate at this point.
- Enter the date the survey setup was completed in the *Survey Date* field.
- If you are entering data for a supplemental site verification (ie. a site that is not on your list), update the *Survey Name* to the name of the stream after selecting the survey. If you know what the *ReachID* and *Segment* should be, those can be updated as well, or will be updated later by office staff upon review.

GPS RECORDS

- Within the *GPS Records* section, UTM coordinates can be recorded for survey start, survey end, tributary entries, barriers, culverts, and other stream features. To use this function, click on the “+” button to add a location and chose the corresponding *Feature Name* from the drop-down list, or select other if the feature you are marking is not available. When GPS position is acquired, the *UTM_E*, *UTM_N*, and *Horizontal accuracy* boxes will auto populate.
 - **Horizontal Accuracy** – If GPS reception is good, horizontal accuracy will often be below 10m. If the horizontal accuracy is more than 20m, you can record new coordinates by tapping the crosshair symbol in the *Location* box. With some patience and re-tapping the crosshair symbol, the best accuracy can be achieved given the limitations of the site’s topography. If after a couple minutes, horizontal accuracy has not improved to below 20m, it is reasonable to use the coordinates that are available and move on.
 - **Feature Description** - For every selected *Feature Name* a *Feature Description* box will be available for you to add any additional information and comments about the GPS recorded feature. If you selected “*Other*”, describe the feature you are marking in the *Feature Description*.
 - **Height, Width, Length, and Jump pool depth** – Depending on the *Feature Name* selected, , several additional data entry boxes may appear and be required, including: *Height*, *Width*, *Length*, and *Jump pool depth*. Record these as prompted by Survey123 to the nearest 0.1m or 0.5m, as indicated.
 - **Culverts** - Refer to the **Culvert Illustration Appendix M** for details on required measurements. Record *Yes* or *No* for whether there is natural substrate inside the full length of the culvert.
 - **Passage Status** – For culverts and potential natural barriers, *Passage status* drop-down list will be available and a selection is required. Passage status is your professional judgement on how whether the feature will or might impact of upstream movement to adult salmon.
 - **Feature Image** – This option allows you to capture a photo using your device’s camera. Tap the camera symbol to take a photo. The photo will display in the *Feature Image* box and be included with the feature GPS Record for office staff to review along with the data you collect. You will have the option to delete the photo, re-name the photo, and rotate the photo.

SURVEY DESCRIPTION

- The Survey Description tab consists of three sections: *Survey Description*, *Special Instructions*, and *Survey Directions*. This information will be directly used by fall spawning surveyors. Please refer to page 13 for details on what to include in each of the three description fields. You can begin completing these sections while in the field, however, the description sections are typically completed upon return to the office after the site visit. It can also be helpful to carry a field notebook to take notes about what to include in the survey descriptions.
 - ***Survey Description*** - The *Survey Description* will describe the survey itself.
 - ***Special Instructions*** - The *Special Instructions* describe any landowner requests or important information about the survey.
 - ***Directions*** - The *Directions* will provide future surveyors with detailed instructions to drive to the site from a known location or landmark, and how to access, conduct, and exit the survey.

SURVEY INFORMATION

- The Survey Information tab contains *Time to Survey*, *Mean Channel Width*, *Channel Features*, and *Land Use*. These data fields can be filled out while in the field or written in a notebook and filled out at the office.
 - ***Time to Survey*** – Type in the hours (to the nearest 0.25 hour) necessary for a surveyor to complete the survey.
 - ***Mean Channel Width*** – Enter the channel width from the average of the three widths measured at the start, middle, and end of the survey.
 - ***Channel Features*** – Check the boxes, from the drop-down list, for all features observed in the survey.
 - ***Land Use*** – Chose up to three land use categories present/impacting the stream survey from the drop-down list.

SUBSTRATE INFORMATION

- The Substrate Information tab is where the percent substrate totals and spawning gravel information is entered.
 - ***Percent substrate totals*** – The six substrate types are represented by individual entry boxes. Type the percent of each substrate type present in the survey. The categories should total 100%.
 - ***Spawning Gravel*** – Enter the square meters of qualifying spawning gravel (see page 9) found in the survey.
 - ***Gravel Comments*** – Enter the location, distribution, and quality of the spawning gravel (see page 10).

FISH INFORMATION

- Within the Fish Information tab, there are five data entry boxes to describe the presence of juvenile fish seen in the survey.
 - ***Juvenile Fish Observed*** – Select *Yes* or *No* from the drop-down box indicating whether juvenile fish were observed during the site verification.
 - ***Species Observed*** –Select from the list any fish species observed. Use *Unknown* if you are unsure of a species.
 - ***Redds Observed*** – Select *Yes* or *No* from the drop-down box indicating whether salmon or steelhead redds were observed during the site verification.
 - ***Juvenile Coho Abundance*** –Select the relative abundance level of juvenile coho observed during the site verification. “*Unknown*” is appropriate if juvenile coho were not observed, and it is uncertain whether coho are present or not. If it is clear that coho are precluded from the survey by a barrier downstream or complete lack of habitat, then “*Absent*” might be appropriate.

- **Fish Comments** – Describe the location and distribution of juvenile fish observed. Please comment on the absence or unknown presence of coho if that is the case. Any observed fish species not listed in the *Species Observed* data box or adult fish seen during the survey can be noted in this data field.

COMMENTS

- Describe any information or issues that office staff or future surveyors might need to know about the survey. This could include things such as incorrect routing on the maps, need for updating Reach ID/Segment, landowner issues, potential barriers in or downstream of the survey, access concerns/needs, etc. A general summary describing the survey segment is also very helpful and important.

FINAL REVIEW

- There are a series of *Yes/No* questions to ensure that the setup and associated write up is complete. Ensure that each has been addressed and completed before indicating that the site verification is complete and ready for review.
 - **Setup Status** – A drop-down list with five options for the status of the survey after the setup process: *Denied, Inaccessible, New, Repeat, or Zero* (see page 12). If *Denied, Inaccessible, or Zero* is selected; provide details in the *Miscellaneous Comments* section to inform or justify this choice.

SAVING and UPLOADING

- When all data fields for a site are completed (data fields with red asterisks are required to be filled out), tap the check mark symbol in the lower right corner of the PDA screen. A message appears asking if you want to “Send now”, “Continue this survey”, or “Save to Outbox”. Ensure that you have access to an internet connection, either with data cell signal or Wi-Fi connection prior to sending completed sites. If you do not have an internet connection, you can save an incomplete site to drafts or a completed site to the Outbox.
- If you have started a site verification, but have not complete all fields or are not yet ready to send the data, you can close the site with the “X” in the top-left – however, be sure to select *Save in Drafts*. After saving a draft, you will then be able to go back into a site, listed under **Draft**, to complete the site and send the data.
- If survey was completed and “Saved to Outbox”, an **Outbox** button will display at the bottom of the Site Verification Setup Form home page, and all sites saved to the **Outbox** are listed here. At the bottom of the screen is a button to send the survey. Make sure you have access to an internet connection, either with data cell signal or Wi-Fi connection, before sending any completed sites, then tap the “Send” button to upload completed sites.

UPDATING the FORMS

- Occasionally changes and additions to the Site Verification Setup Form occur in the form of an update. To get these updates, it is a good idea to regularly close and reopen the Suvey123 App. This will prompt the app to display that an update to the form is available on the **My Survey123 page** (this is not the same as a Survey123 application update). Click the circular arrow symbol indicating the form update to perform the update of the Site Verification Setup Form.

B. Backcountry Navigator

Backcountry Navigator Tutorial



A) GPS icon > "My Location" centers map on current GPS location, if satellites are available.

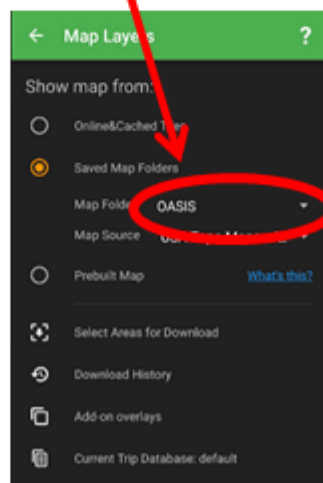
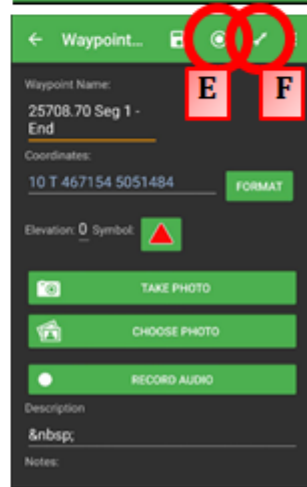
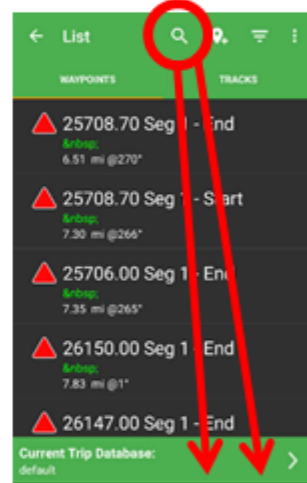
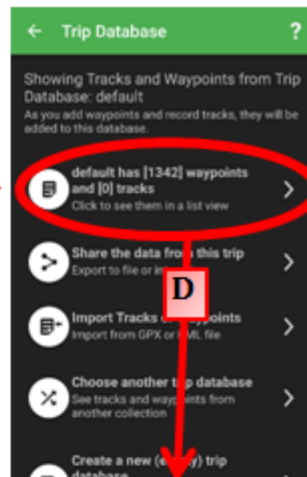
B) Map Layers icon > select base map file, file "OASIS" should be pre-loaded.

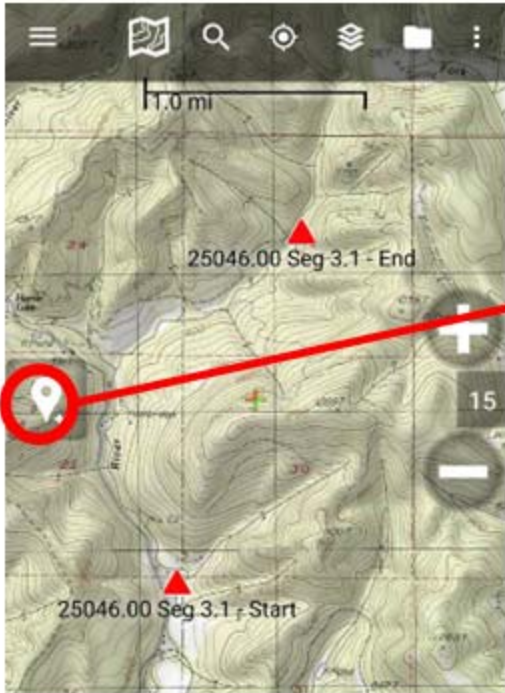
C) Trip Database > waypoints for start & end points of surveys, should be pre-loaded.

D) Waypoints List > lists all waypoints in the database file. You can search waypoints by reach ID to find the site you are looking for. Click on a waypoint to view details.

E) Center on Waypoint > Click the circle to center on the waypoint you selected.

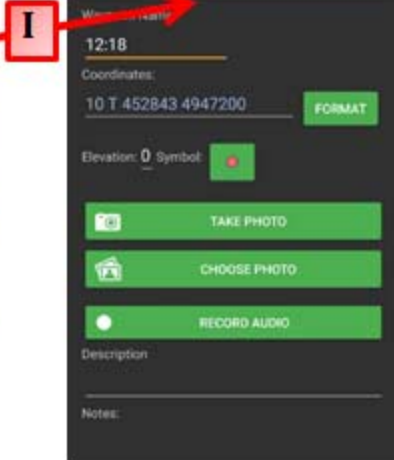
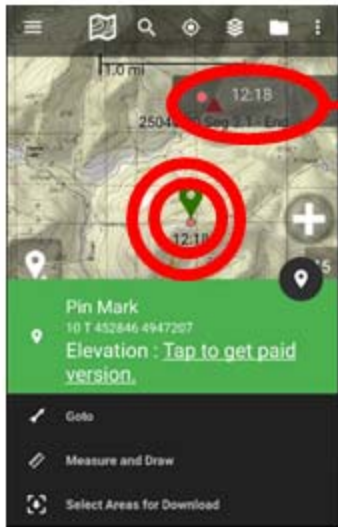
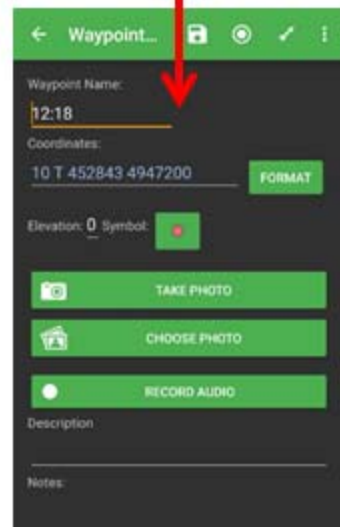
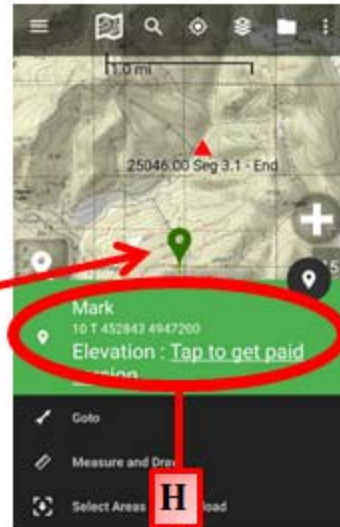
F) Go-To Waypoint > Click the arrow to start a Go-To to show distance and direction to selected waypoint from your current location.



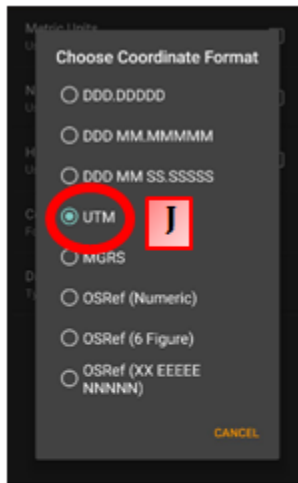


G) Create Waypoint > Click waypoint button to create a new waypoint at the crosshairs at the center of the screen.

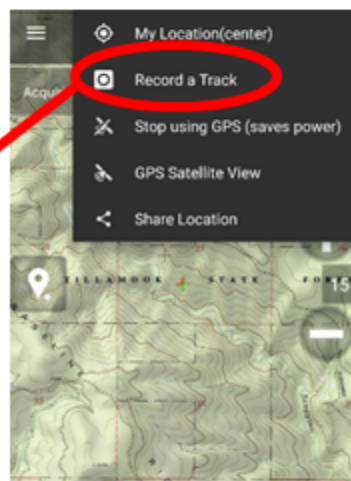
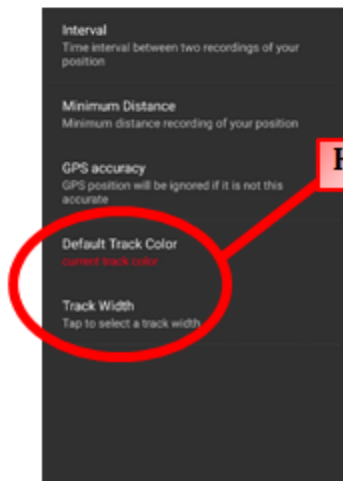
H) Edit Waypoint > Click the green bar to take you to the waypoint details, where you can edit the name and coordinates of the waypoint, as well as save, center on and start a Go-To.



I) Select Waypoint from Map > Hold down on an existing waypoint on the map to view the waypoint details, center screen on waypoint, or start a Go-To to the waypoint.



J) Coordinate Format > From the main screen, click on the Menu, Settings, Coordinate Options, Coordinate Format, and select **UTM**. Likewise, datum type can be selected from Menu, Settings, Coordinate Options, Datum Type, and select **WGS84/NAD83**. These settings should already be in place, but it is good to know how to access them.



K) Track > To record a track (a record of where you hiked and/or drove), go to Menu, Settings, Track Options, select a Default Track Color and select a Track Width. Then click on the GPS icon and select "Record a Track".



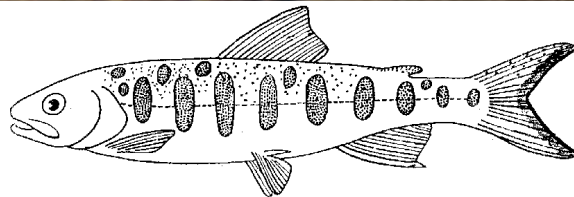
L) GPS and Stats > Under the Menu, there are two screens with additional resources. Compass screen uses the phone compass, and as with GPS location, should not be fully relied upon as it does sometimes malfunction. The other is the Stats screen which shows a variety of stats including current GPS coordinates, etc. A simplified version of these two resources can be accessed by dragging up from the bottom of the main map screen.

C. Equipment List

- Waders
- Wading boots with studs
- Rain jacket
- Machete with sheath
- Orange field vest
- Road, State Forestry, and Water Resources Department maps (as available)
- Polarized sunglasses
- ODFW uniform hat and shirt
- Cell phone with Aquapac & chargers (Survey123 & Backcountry Navigator loaded)
- Survey signs and black permanent markers
- Aluminum nails
- Flagging
- Wading staff
- First aid kit and poison oak care kit
- Extra key for vehicle (to be stored on the vehicle)
- InReach satellite messenger device
- Fire safety equipment (Pulaski, shovel, fire extinguisher, 5 gallons water)

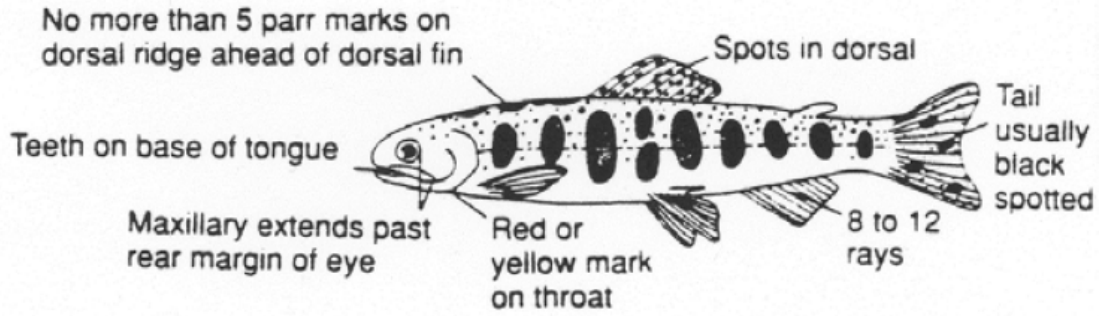
D. Juvenile Salmonid Identification

• Coho salmon (*Oncorhynchus kisutch*) •

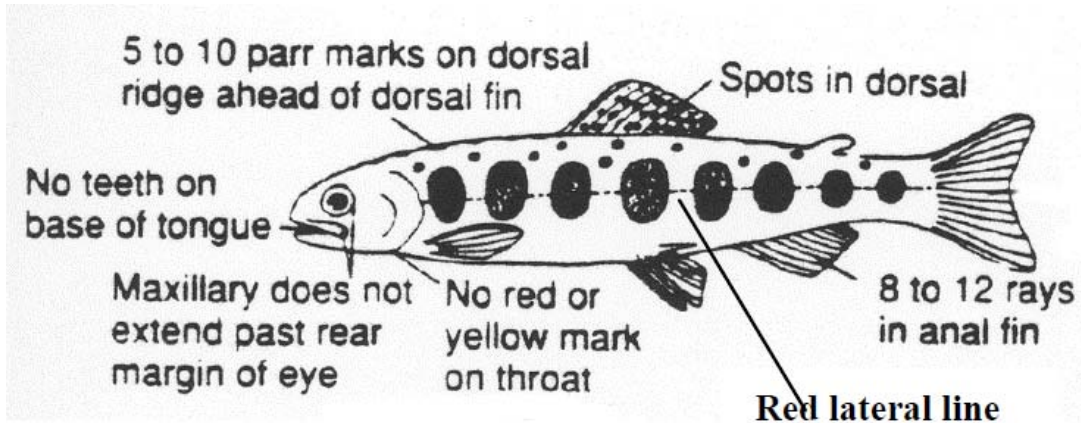


1. Caudal fin forked, usually tipped in black.
2. Parr marks are thin, vertical bars, narrower than the intervening spaces, and centered on the lateral line.
3. The anal fin is sickle shaped, formed by anterior rays being longer than the rest and usually pigmented white.
4. Small, round spots on the back, smaller than those on chinook.

• **Cutthroat (*Oncorhynchus clarkii*)** •

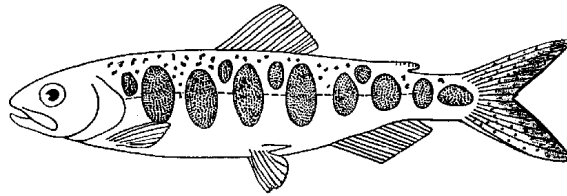


• **Steelhead (*Oncorhynchus mykiss*)** •



1. Caudal fin not forked, with rounded lobes.
2. Parr marks nearly round, centered on lateral line.
3. Head more rounded than salmon when viewed from the top.
4. Dorsal fin has distinct black pigmented spots. In general, more spotting on fish.

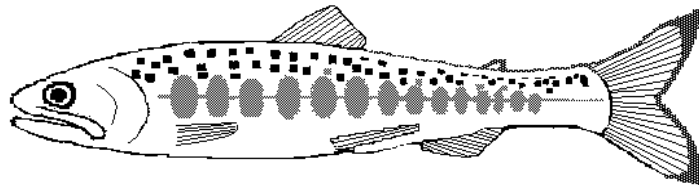
• Chinook salmon (*Oncorhynchus tshawytscha*) •



****NOTE**:** Similar physical characteristics of Spring and Fall Chinook

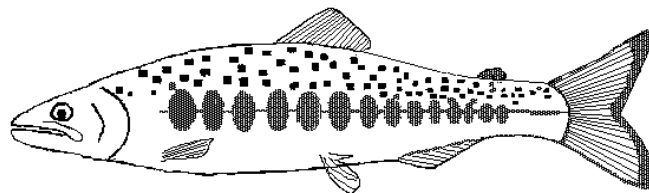
1. Caudal fin forked, usually tipped in black.
2. Parr marks are large, vertically oblong, wider than the intervening spaces, and centered on the lateral line.
3. Anal fin rays are short, wedge shaped, and usually not pigmented.
4. Large, oblong spots on the back.

Spring Chinook (*Oncorhynchus tshawytscha*)



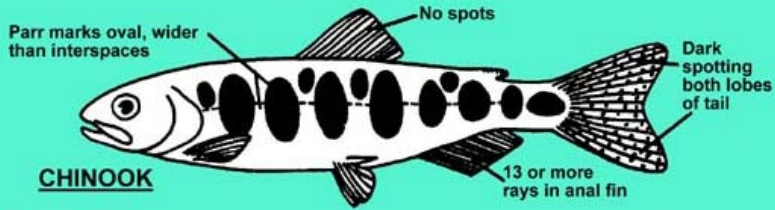
1. Large eye and pupil.
2. Larger, more blunt head.
3. Leaner body shape.
4. Longer, narrower caudal peduncle.

Fall Chinook (*Oncorhynchus tshawytscha*)



1. Smaller eye that tends to turn down in head.
2. Deeper body, "football shape".
3. Usually more silvery in appearance.

GENUS ONCORHYNCHUS - PACIFIC SALMON
IDENTIFICATION FEATURES OF JUVENILES

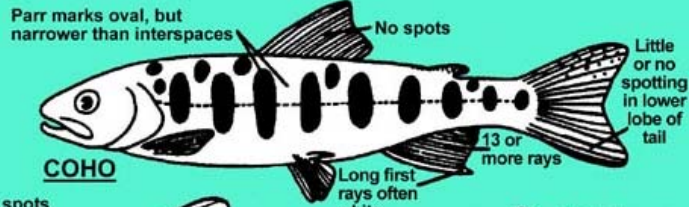


CHINOOK

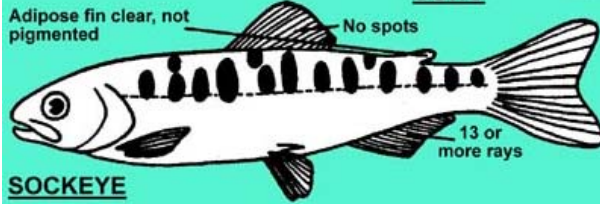
Faint parr marks, extend little, if any, below lateral line. Leaves fresh water as fry.



CHUM



COHO



SOCKEYE



PINK

E. Gear Sanitation Protocol

Disinfecting Field Gear to Reduce the Spread of Invasive Snails and Fish Pathogens ODFW / Oregon Adult Salmonid Inventory and Sampling Project (OASIS)

Background

Aquatic pathogens such as bacteria, viruses and parasites, and invasive species such as New Zealand mudsnails (NZMS) can adhere to or be trapped in field gear such as boots, waders, dry suits, nets, coolers, boats etc. New Zealand mudsnails (*Potamopyrgus antipodarum*) are an introduced species spreading rapidly among rivers and streams in the western United States. Since they were reported in the Snake River in Idaho in the 1980's, the snails have been discovered in at least ten western states. New Zealand mudsnails are parthenogenic, so a single introduced snail has the potential to start a new population. In Oregon, mudsnails have been found in tributaries of the lower Columbia River, Devil's Lake on the central coast, Garrison Lake near Port Orford, and several sites in the Snake River basin.

Researchers believe wading by recreational anglers may be a primary vector by which mudsnails are transported among streams. The ODFW Fish Health Management Policy (635-007-0965) states that it is the Department's responsibility to restrict the introduction, amplification and dissemination of disease agents in the natural environment. Because OASIS spawning survey crews wade in multiple watersheds during the field season, it is important that the Project take measures to minimize the spread of invasive snails and other pathogens. Mudsnails are resistant to desiccation and may survive for days out of water on moist waders and sampling gear.



In the western U.S., mudsnails can reach a max. length of 6mm.

Preventing Mudsnail Transport Between Watersheds

Whenever possible, OASIS crews should avoid surveying in more than one major river basin (e.g. Asea, Yaquina, Siletz) per day. To avoid mudsnail and pathogen transport among basins, crews should sanitize waders and boots daily when they return to their duty station (ODFW office) or between sites if they must survey in two major basins during one day. The sanitization procedure listed below effectively kills New Zealand mudsnails with minimal damage to wading gear (Hosea and Finlayson, 2005).

Required equipment:

- scrub brush
- dishwashing gloves
- Formula 409® (100% solution)
- clean water supply (not stream water)

1. Remove waders, boots, drysuits, and when possible remove insoles from wading boots.
2. Use the scrub brush to clean loose dirt or mud off boots, waders, and field gear.
3. Using a spray bottle of Formula 409® cleaning solution (do not dilute), spray waders, wading boots, boot insoles and the streambed contact end of wading staff with the cleaning solution to the point of saturation. Be sure to treat the inside of the wading boots as well as the outside, paying special attention to bootlace grommets, seams, felt soles, and any other places where mudsnails might cling.
4. Allow treated gear to sit for ten minutes.
5. Rinse gear in clean water. **DO NOT USE STREAM WATER.** Ideal rinse stations are outdoor hoses at ODFW offices. When sanitizing gear in the field a separate spray bottle filled with tap water should be used for rinsing, and the process should occur at least 100m from any waterway or runoff-drain.
6. When possible, store wading gear in a dry location for later use.

Crews should wear gloves while handling Formula 409® to minimize contact with skin.

Literature Cited

Hosea, R.C. and B. Finlayson. 2005. Controlling the spread of New Zealand Mudsnails on wading gear. California Department of Fish and Game Administrative Report 2005-02.

F. Landowner Sheet Example

Crew: _____

2022 LANDOWNER INFORMATION

Reach ID: 24319.00 Segment: 1 Reach: Oat Cr., Trib A

SURVEY TYPE AND TARGET SPECIES:	
Random	Coho
Random	Steelhead

Tax Lot	Landowner Info	Contact Details	Result Details	Comments
18S 07W 3900	Bureau of Land Management Situs: _____	Name: _____ Phone: _____ E-mail:	Date: 04/1/22 Result: Yes Data?: Yes	
18S 07W 34 100	Roseburg Forest Products Situs: _____	Name: _____ Phone: _____ E-mail:	Date: _____ Result: _____ Data?: _____	

3/24/2022

G. Landowner Postcard Example

Reach ID: _____ Seg: _____ TL: _____

Landowner Name: _____

Survey: Setup / Coho / Steelhead

ODFW surveyors may walk in _____ where it flows through or is adjacent to my property to census spawning salmon.

- Yes, to evaluate stream for possible spawning habitat (Mar – Sept)
- Yes, for Coho spawning season (weekly: Oct 1st - Jan 31st)
- Yes, for Steelhead spawning season (every two weeks: Feb 1st - May 31st)

Special instructions (if any): _____

Please call in advance. (Phone number : _____)

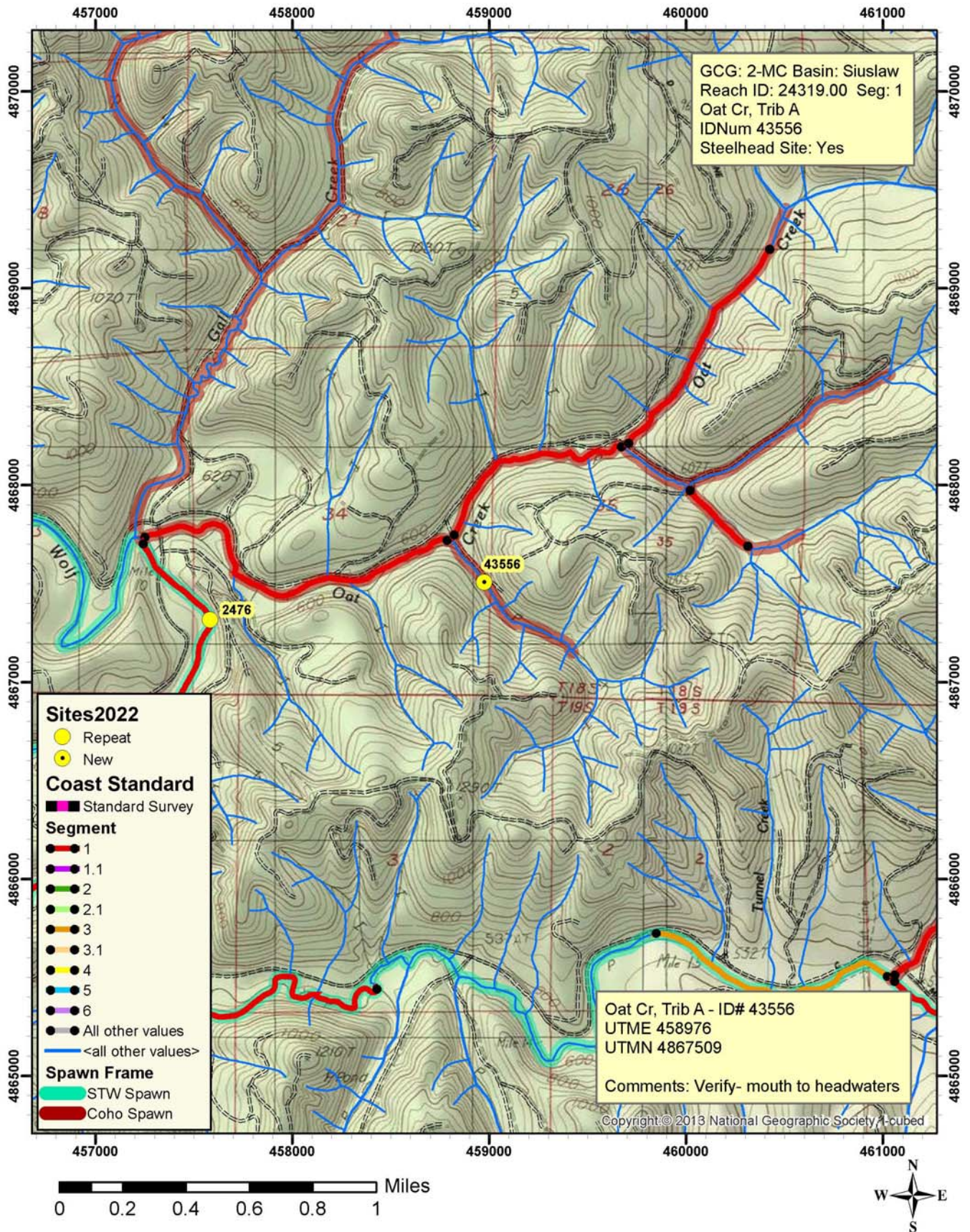
No, do not conduct salmon surveys on my property.

Comments: _____

Note: Adding a discrete date (MM/DD/YY) and your initials on the postcard may help determine which address was successful when sending multiple letters

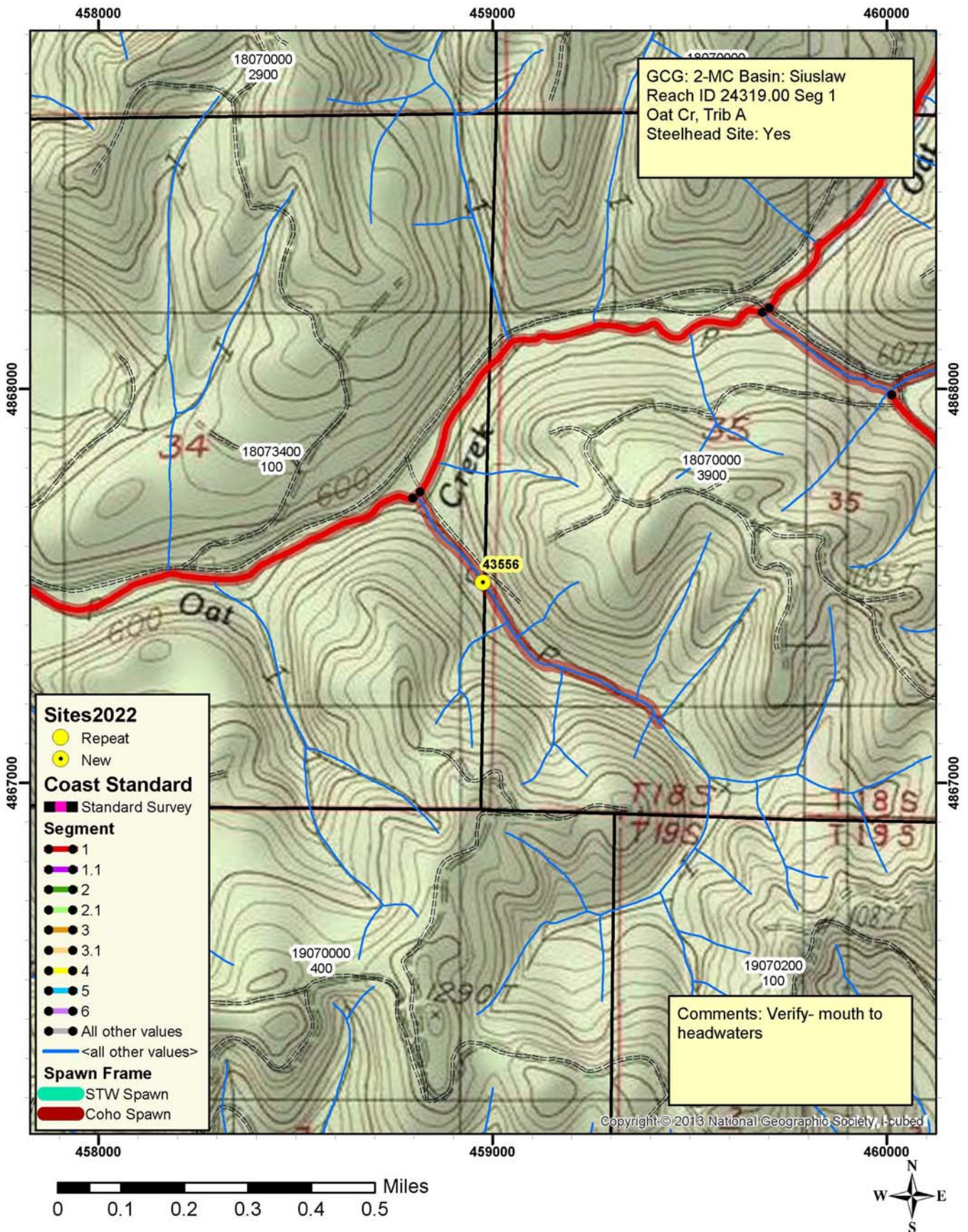
H. Site Map Example

2022-23 OASIS Spawning Survey



I. Taxlot Map Example

2022-23 OASIS Spawning Survey



J. Site Verification Form

ODFW RANDOM SPAWNING SURVEY SITE VERIFICATION FORM

FOR OFFICE USE ONLY: Reviewed By Date Reviewed Entered By Date Entered

Assume Zero Inaccessible Denied

REACH ID: Survey status: _____

District: _____

Basin: _____

Subbasin: _____

Reach Name: _____

START: _____

END: _____

TRIB OF: _____

COMMENTS: _____

ID Num: _____

QUAD: Time to survey: _____ Map Length (miles): _____ Segment Number: _____
 Gradient: _____ %

Estimated Juvenile Coho Abundance		Substrate Composition (%)	
Absent <input type="checkbox"/>	Low <input type="checkbox"/>	Silt <input type="checkbox"/>	Gravel <input type="checkbox"/>
Moderate <input type="checkbox"/>	High <input type="checkbox"/>	Cobble <input type="checkbox"/>	Bedrock <input type="checkbox"/>
	Unknown <input type="checkbox"/>	Boulder <input type="checkbox"/>	

GPS Coordinates	UTM easting	UTM northing	FOM
Downstream	10-		
Upstream	10-		

Township/Range/Section: _____

T		
R		
S		

Mean Width (ft): _____

Sp. Gravel (sq. m): _____

Surveyor: _____

CHANNEL FEATURES: (check any that apply to the area surveyed)

- BA -- Beaver Activity
- CB -- Pos. Culvert Barrier
- GB -- Pos. Gradient Barrier
- SP -- Pos. Step Barrier
- DB -- Pos. Debris Jam Barrier
- EB -- Actively Eroding Banks
- HS -- Habitat Structures
- PD -- Partial Dry Channel
- DC -- Dry Channel

LAND USE: (enter up to 3 codes in order of most to least importance)

- AG -- Agriculture
- TH -- Timber Harvest
- YT -- Young Trees
- ST -- Second Growth
- MT -- Mature Timber
- LG -- Light Grazing
- HG -- Heavy Grazing
- UR -- Urban
- RR -- Rural Residential
- IN -- Industrial
- MI -- Mining

NOTES: _____

K. Site Verification Form (Example)

ODFW RANDOM SPAWNING SURVEY SITE VERIFICATION FORM - 2005

FOR OFFICE USE ONLY: Reviewed By EB Date Reviewed 8/29/05

Entered By Y.F Date Entered 8/29/05

Assume Zero Inaccessible Denied

REACH ID: 25111.00 Survey status: New

District: 3 Lincoln

Basin: 20 Siletz River

Subbasin: 1 Mainstem

Reach Name: Ojala Cr

START: Mouth

END: Headwaters

TRIB OF: Siletz R

COHO SPAWNING MILES: 1.1 ESTIMATED WIDTH: 6.0

COHO REARING MILES: 1.3 Total Reach Length: 1.3

COMMENTS:

may be in seg 1

QUAD: Mowrey Landing Date Completed: 7/28/05 Segment Number: 2
 Time to survey: 0.5 Map Length (miles): 3 Gradient: 1 %

Estimated Juvenile Coho Abundance
 Absent Low High Unknown
 Substrate Composition (%)
 Silt 40 Sand 40 Gravel 20
 Cobble Boulder Bedrock

GPS Coordinates	UTM easting	UTM northing	FOM
Downstream	10-04-25-716	49-56-197	7.1
Upstream	10-04-25-731	49-55-865	5.9

Township/Range/Section:
 T 09S
 R 10W
 S 29

CHANNEL FEATURES: (check any that apply to the area surveyed)
 BA -- Beaver Activity
 CB -- Pos. Culvert Barrier
 GB -- Pos. Gradient Barrier
 SP -- Pos. Step Barrier
 DB -- Pos. Debris Jam Barrier
 EB -- Actively Eroding Banks
 HS -- Habitat Structures
 PD -- Partial Dry Channel
 DC -- Dry Channel

LAND USE: (enter up to 3 codes in order of most to least importance)
YT ST MI
 AG -- Agriculture
 TH -- Timber Harvest
 YT -- Young Trees
 ST -- Second Growth
 MT -- Mature Timber
 LG -- Light Grazing
 HG -- Heavy Grazing
 UR -- Urban
 RR -- Rural Residential
 IN -- Industrial
 MI -- Mining

Seg. Type	Species	Year(s) Surv	Miles	ID Num
1 Random	Steelhead	05	1.13	3514
1 Random	Coho	,00,01,02,03,04	1.13	3514
2				3513

NOTES:

1374 = .26

(Site verification form page 2)

Description (Example of format): 1) Directions from district office or some other major landmark to the start of survey, location of start sign; 2) "Survey from _____ miles to _____ (location of endpoint sign)"; 3) Describe best way to exit; 4) "***NOTE: (include special landowner instructions and/or specific warnings, etc.)"

From the town of Siletz, drive north on Hwy 229 2.9 miles to Ojala Road. Turn left onto Ojala Rd and drive 0.9 miles to the driveway [redacted]. Turn left onto the driveway and drive ~300m to the [redacted] house. Park near the house and access Dig Cr. via gate at back of [redacted] yard. Hike up creek ~400m to END Seg 1 / START Seg 2. SS signs posted on left bank (dier). Survey upstream .24 mi to SS sign posted on right bank and exit via survey. Bring sharp machete. (NOTE: Talk to [redacted] at start of survey location about picking gates, and stream access. This short segment is natural addition to Seg 1 (NOTE: Survey SPUR on right ~20m up to noisy culvert, SPUR is ~200m above START)

Comments:

Spawning Gravel:

Gravel is limited because stream is extremely narrow. Most gravel is in lower portion of segment in pool tailouts, embedded in silt.

Fish Presence:

Coho were seen rearing in low abundance in lower portion of segment.

UTM _e	UTM _n	FOM	Dist. (ft)	Landmark	UTM _e	UTM _n	FOM	Dist. (ft)	Landmark
04-25-692	49-56-036	14.7		SPUR rt (~20m to noisy culvert)					
04-25-728	49-55-592	5.7		as far up as I got					

Misc. Comments: GIS pt 3513 is definitely in Seg 2. I went above END of Seg 2 ~300m but stream here breaks down into many small silty channels as it flows through in a beaver meadow/marsh. I believe END Seg 2 is the end of viable coho spawning habitat.

M. Culvert Illustration

A = CULVERT LENGTH

B = MAXIMUM VERTICAL HEIGHT

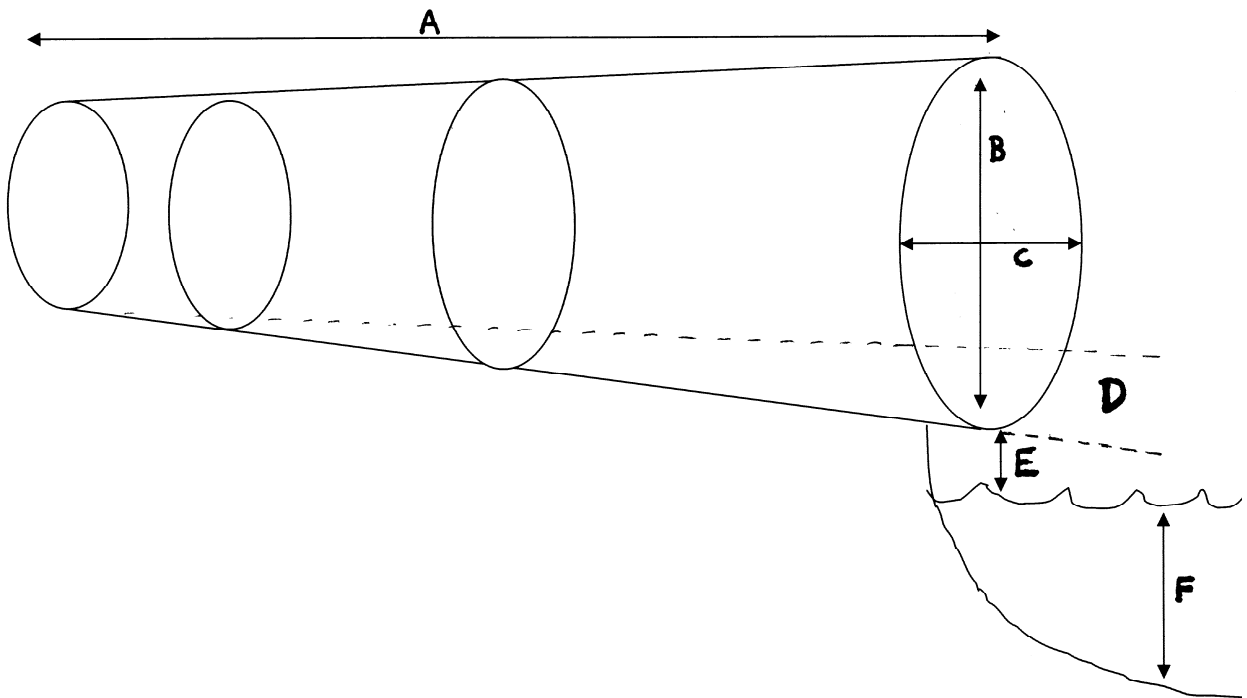
C = MAXIMUM HORIZONTAL WIDTH

D = CULVERT SLOPE (Rise over run)

E = DISTANCE OF DROP TO POOL

F = MAXIMUM DEPTH OF POOL

NOTE: Culvert slope can be estimated, if you have experience doing so, and included in the *Feature Description*. Culvert Slope is not a required field.





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