Site Name:	Investigator & Date:

Tidal (T) Wetland Data Form. WESPAK-SE version 2.0

DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and explanations in last column below. Except where instructed otherwise, in the Data column change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form require 1-2 hours on a site. For a listing of functions to which each question pertains, see bracketed codes in column E. For detailed descriptions of each WESPAK-SE model, see Appendix F of the accompanying Manual. Codes for functions and values are: SR= Sediment Retention, CS= Carbon Sequestration, OE= Organic Export, FA= Anadromous Fish, WBF= Feeding Waterbirds, SBM= Songbirds, Mammals, & Raptors, PH= Plant Habitat, PU= Public Use & Recognition, Subsis= Subsistence, Sens= Sensitivity, STR= Stressors.

#	Indicators	Condition Choices	Data	Explanations, Definitions
T1	Outflow Confinement	Enter "1" for all that are true:		It is believed that many such pools were excavated by early settlers and Native Americans to trap salmon. [OE, FA]
		Due to impassible culverts, tidegates, or other physical infrastructure barriers (not glacial uplift or other natural factors), anadromous fish cannot access part of the AA **that currently is tidal.**	0	
		Due to impassible culverts, tidegates, or other physical infrastructure barriers (not glacial uplift or other natural factors), anadromous fish cannot access a **contiguous non-tidal wetland or stream** which can be assumed to have been tidally connected within the past 100 years.	0	
		Neither is true, or unknown.	0	
T2	Tidal Regime	For each condition listed in the rows in the table below, estimate how much of the AA's area (including its internal tidal channels) is likely to be accessible to small fish. Then select one number from each row, and sum the four numbers and enter the sum in the column to the right.	0	When visiting at low tide, look for wrack lines indicating elevation and extent of high tide, and consider topography Also consult series of aerial images which might show the same wetland or nearby areas at different tidal heights. The treeline often indicates the approximate maximum height of the highest monthly or annual tide (although under some conditions mature Sitka spruce but not hemlock or cedar will tolerate daily flooding by tidal waters with fresh or brackish salinity).[SR, CS, OE, FA, WBF, SBM, PH]

	Percent of AA that is Fish-Accessible:				
during:	0%	1-10%	10-50%	50-90%	>90%
Monthly low tide	0	4	5	6	7
Daily low tide	0	3	4	5	6
Daily high tide	0	2	3	4	5
Monthly high tide	0	1	2	3	4

T3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		When visiting at low tide, look for wrack lines indicating elevation and extent of high tide, and consider topography Also consult series of aerial images which might show the same wetland at different tidal heights. [SR, CS, OE, FA, WBF, SBM, PH]
		none, or <1%	0	
		1-10%	0	
		10-25%	0	
		25-50%	0	
		50-75%	0	
		75-90%	0	
		>90%	0	
T4	Width of Vegetated Zone at Daily Low Tide	At daily **low** tide, the average width of vegetated area in the AA that separates adjoining uplands from most open subtidal water within or adjoining the AA, or from the largest intersecting river or tributary (whichever is less), is:		If the AA is only part of a wetland and does not have an upland and/or subtidal edge, measure the distances between those edges that are closest to the AA. For most sites larger than 10 acres, measure the width using aerial imagery rather than in the field. [SR, CS, OE, FA, WBF]
		1-5 ft	0	
		5-25 ft	0	
		25-100 ft	0	
		100-300 ft	0	
		>300 ft	0	
T5	Width of Vegetated Zone at Daily High Tide	At daily **high** tide, the average width of vegetated area in the AA that separates adjoining uplands from most open subtidal water within or adjoining the AA, or from the largest intersecting river or tributary (whichever is less), is:		For most sites larger than 10 acres, measure the width using aerial imagery rather than in the field. When visiting at low tide, look for wrack lines indicating elevation and extent of high tide, and consider topography Also consult series of aerial images which might show the same wetland or nearby areas at different tidal heights. [SR, CS, WBF, SBM]
		1-5 ft	0	
		5-25 ft	0	
		25-100 ft	0	
		100-300 ft	0	
		>300 ft	0	
T6	Aquatic Cover	Within the part of the AA and its internal channels that remain underwater during daily low tide, the extent of fish cover provided at that time by partly submerged vegetation, inchannel pools, horizontally incised banks, and pieces of wood (thicker than 6 inches and longer than 4 feet, or smaller pieces in dense accumulations) is:		[FA]
		Little or none	0	
		Intermediate	0	
		Extensive	0	

T7	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that are **not inundated by tides** on most days, i.e., high marsh. Viewed **from 6 inches above the soil surface**, the condition in **most** of this area is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. [SR, CS, PH]
		little or no (<5%) *bare ground* or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by graminoids with great stem densities, or plants with ground-hugging foliage.	0	
		some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
		much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage.	0	
		mostly (>50%) bare ground or accumulated plant litter.	0	
T8	Groundwater Seeps	Select one:		[FA, PH]
		Part of the AA contains **strong evidence** of fresh groundwater discharges at the marsh surface: (a) Springs are observed, or (b) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
		Part of the AA has **less definitive evidence** of discharging groundwater during summer. Wetland is on organic, sandy, or gravelly soil AND is at the base of a natural slope of >5% (as averaged over a distance of 1000 ft or until the first opposing break in elevation occurs).	0	
		Neither of above is true, although some groundwater may discharge to or flow through the wetland, or groundwater influx is unknown.	0	
T9	Forb Cover	In parts of the AA that don't flood daily (i.e., "high marsh"), the areal cover of **forbs** reaches an annual maximum of:		**forbs** = flowering non-woody vascular plants (excludes grasses, sedges, ferns, mosses). Do not include non-wetland forb species (i.e., rating of FACU or UPL). [PH]
		<5% of the herbaceous cover, or the AA contains no high marsh	0	
		5-25% of the herbaceous cover	0	
		25-50% of the herbaceous cover	0	
		50-95% of the herbaceous cover	0	
		>95% of the herbaceous cover.	0	
T10	Herbaceous Species Dominance	Of just the herbaceous (non-woody) plant species:		Do not include eelgrass or seaweeds. [PH]
		One or two species together comprise **>50%** of the areal cover of herbaceous plants at any time during the year, and one or both are **non-native** species (see PlantList worksheet).	0	
		One or two species together comprise **>50%** of the areal cover of herbaceous plants at any time during the year, and both are **native** species.	0	
		There are **several** herbaceous species, **including some non-natives**, but **no species is dominan**t. That is, no two of the species together comprise >50% of the areal cover of herbaceous plants.	0	
		There are **several** herbaceous species but **no species is non-native or dominan**t. No two of the native species together comprise >50% of the areal cover of herbaceous plants.	0	

T11	Soil Texture	In parts of the AA that are not flooded at low tide, the texture of soil or sediment in the uppermost layer in **most** of that area is:		See chart in Appendix C of the Manual. Determine by examining soil in at least 3 widely-spaced locations within the AA. "Organic" includes muck, mucky peat, peat, and mucky mineral soils that comprise the "Oi" horizon. Duff layer= fallen leaves, woody material, live or dead roots, moss that has undergone partial decomposition. [CS, PH]
		Loamy: includes loam, sandy loam.	0	
		Fines: includes silt, glacial flour, clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam.	0	
		Organic, from surface to within 4 inches of surface only. Exclude live roots.	0	
		Organic, from surface to within 16 inches of surface only. Exclude live roots.	0	
		Organic, from surface to greater than 16 inch depth. Exclude live roots.	0	
		Coarse: includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash.	0	
T12	Large Woody Debris	Large woody debris that rises at least 3 ft above the marsh terrace or is present in tidal channels is:		[SBM]
		none or few (<1 per 10 acres)	0	
		intermediate	0	
		many (>5 pieces per 10 acres or per 10 channel widths)	0	
T13	Driftwood	On or near the AA's edge with upland (or the upper edge of tidal influence), the percent of the edge occupied by driftwood is:		If the AA is only part of a wetland and does not have an upland edge, measure this along the upland edge closest to the AA. [SBM]
		none	0	
		1-25%	0	
		25 - 50%	0	
		50 - 75%	0	
		>75%	0	
T14	N Fixers	The cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) along the AA's upland edge is:		Do not include algae. If the AA is only part of a wetland and does not have an upland edge, measure this along the upland edge closest to the AA. [CS, Sens]
		<1% or none, or AA has no upland edge	0	
		1-25%	0	
		25-50%	0	
		50-75%	0	
		>75%	0	
T15	Natural Cover in Buffer	Within **100 ft upslope** of the AA's wetland-upland edge, the percentage of the upland that contains ***natural*** (**not necessarily native**) land cover is:		**Natural land cover** includes wooded areas, peatlands, vegetated wetlands, and most other areas of perennial cover. It also includes low-intensity timber harvest areas. It does not include water, glaciers, annual crops, residential areas, golf courses, recreational fields, fields mowed >1x per year, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. **It can include areas with invasive plants**. If the AA is only part of a wetland and does not have an upland edge, measure this along the upland edge closest to the AA. [FA, SBM, SRv, PH, Sens]
		<5%	0	
		5 to 30%	0	
		30 to 60%	0	
		60 to 90%	0	
		>90%. **SKIP to T17.**	0	

T16	Type of Cover in Buffer	Within **100 ft upslope** of the AA's wetland-upland edge, the upland cover that is NOT natural or water is mostly:		[FA, SBM, PH]
		impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
		bare or semi-bare pervious surface, e.g., dirt road, dike, dunes, lawn, recent clearcut, landslide.	0	
T17	Slope from Disturbed Lands	Along the AA's wetland-upland edge and extending 100 ft uphill, or to the most potentially impacting **disturbance feature** (whichever is closer), the slope of the land averages:		**Disturbance feature** = building, paved area, recently cleared area, dirt road, lawn,annually-harvested row crops. Use judgment to decide if extent or proximity is more influential for a noted disturbance. If no disturbances are present, select the slope that predominates in the 100-ft zone, not the maximum slope. If the AA is only part of a wetland and does not have an upland edge, evaluate this along the upland edge closest to the AA. [OE, Sens]
		<1% (flat -- almost no noticeable slope)	0	
		2-5%	0	
		5-30%	0	
		>30%	0	
T18	Cliffs or Banks	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas.	0	[SBM]
T19	Core Area 1	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [*Note: Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 100 ft of the wetland edge. In that case include only the area occupied by the trail*].		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in the Manual. [WBF, PH, PU, STR]
		<5% and no inhabited building is within 300 ft of the AA	0	
		<5% and inhabited building is within 300 ft of the AA	0	
		5-50% and no inhabited building is within 300 ft of the AA	0	
		5-50% and inhabited building is within 300 ft of the AA	0	
		50-95%	0	
		>95% of the AA	0	
T20	Core Area 2	The part of the AA visited by humans **almost daily for several weeks** during an average year probably comprises: [*Note: Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 100 ft of the wetland edge. In that case include only the area occupied by the trail]*.		[WBF, PH, PU, STR]
		<5%	0	
		5-50%	0	
		50-95%	0	

T21	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public maintained trails that intersect, adjoin, or are within 300 ft of the AA (select one) is:		[WBFv, PU, STR]
		<25%	0	
		25-50%	0	
		>50%	0	
T22	Ownership	Most of the AA's upland edge is (select one):		[PU, Subsis]
		publicly owned (federal, state, municipal) and leases are mostly excluded.	0	
		other publicly owned or unknown.	0	
		owned by non-profit conservation organization or lease holder who allows public access.	0	
		other private ownership, including Tribes.	0	
T23	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select <u>all</u> statements that are true of this AA as it currently exists:		[PU]
		Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets.	0	
		Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat.	0	
		Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
		The AA adjoins or is within 0.5 mile of a **public** boat dock or ramp, ferry terminal, or airstrip -- or public lodge, campsite, snowmobile park, or picnic area.	0	
T24	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorized boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[WBF]
T25	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		Evidence of these consumptive uses may consist of direct observation, or presence of physical evidence (e.g.,fishing lures, shell casings), or might be obtained from communication with the land owner or manager. [Subsis]
		subsistence-focused harvesting of native plants, their fruits, or mushrooms	0	
		waterfowl hunting or furbearer trapping	0	
		fishing (including shellfish harvest)	0	
		None of the above	0	

The following (except T32-33) are best assessed by first reviewing aerial imagery, e.g., Google Earth, and then if possible confirming during a site visit.				
T26	Blind Channel Presence & Complexity	The AA contains one or more branching internal (blind) channels. These are channels that do not connect to streams originating in the uplands, except where those streams themselves are tidal. Do not count channels that merely loop around and rejoin their source channel. If blind channels present, enter 1. If not, enter 0 and **SKIP to T28.**	0	[OE, FA, WBF]
T27	Internal Channel Network Complexity	The largest number of visible channel junctions (forks where two channels join) belonging to any **single** blind channel network within the AA's wetland is:		If a channel loops around and rejoins its source channel, count this as only one junction. [OE, FA, WBF]
		<3	0	
		3-6	0	
		7-14	0	
		>14	0	
T28	Upland Edge Shape Complexity	Most of the edge between the AA's wetland and upland is (select one):		If the AA is only part of a wetland and does not have an upland edge, measure this along the upland edge closest to the AA. [SBM]
		Linear: a significant proportion of the wetland's upland edge is straight, as in wetlands bounded partly or wholly by dikes or roads.	0	
		Convoluted: many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers").	0	
		Intermediate: either (a) only mildly convoluted, or (b) mixed -- contains about equal lengths of linear and convoluted segments.	0	
T29	Nearby Fresh Ponded	A pond, lake, or **non-tidal** wetland **larger than 1 acre** and **with >30%** open water in summer is **within 1 mile** of the AA. If so, enter "1" and continue, otherwise END HERE.	0	[FA, WBF]
T30	Distance to Any Nontidal Pond or Wetland	The distance to the non-tidal ponded water identified above is:		[FA, WBF]
		<300 ft	0	
		300-1000 ft	0	
		1000 ft - 1 mile	0	
T31	Vegetation Connectivity to Non-tidal Wetland	On a direct overland route between the AA and the feature described in T29, there is (select ONE):		[SBM]
		mostly water, pavement, rock, glacier, or other unvegetated surfaces.	0	
		mostly natural vegetation, uninterrupted by water, pavement, rock, ice, or other unvegetated feature.	0	
		mostly natural vegetation, but interrupted by water, pavement, rock, ice, or other unvegetated feature.	0	
		mostly non-natural vegetation (lawn, landscaping, or invasive plants).	0	
T32	Water Connectivity to Non-tidal Wetland	The AA and the feature described in T29 above:		[FA]
		are connected by a channel or ditch that flows into the AA for at least 9 months annually.	0	
		are connected by a channel or ditch that flows into the AA less than 9 months annually.	0	
		are not connected by any visible channel or ditch. **END.**	0	
T33	Water Flow Restriction	Water exchange (not nececessarily fish access) via the connection described above is:		[FA]
		unrestricted by an artificial feature such as a berm, culvert, or tidegate	0	
		restricted by an artificial feature, at least during extreme water events	0	
		unknown if any artificial water restriction is present	0	