Pacific Islands Stream Visual Assessment Protocol 2 Summary Sheet

Owner's name _____ Evaluator's name _____

Stream name _____ Tributary to _____

HUC_____ TMK _____ Other location identifier_____

1. Preliminary Assessment

Useful web links: http://water.usgs.gov/osw/streamstats/ssonline.html
http://www.hawaiiwatershedatlas.com/; http://south.hydroguam.net/

A. Watershed Description

Ecoregion/MLRA/Island_____ Watershed Drainage area (ac) _____

Watershed management structures (no.): dams_____ water controls_____ irrigation diversions_____
water withdrawals (ground/stream)_____ roadway crossings_____

No. of miles of contiguous riparian cover/mile of entire stream in watershed (estimated)_____

Ownership along Stream (miles) Federal State Private

Agronomic (or other) practices in uplands include (%): crop _____ range _____
pasture _____forest_____ urban impacts _____ other (specify)_____

Additional comments:

Conservation (acres- ex WRP, CREP, TNC) _____

Fish, coral, and other animal species known to exist in stream or downstream, from stream assessment documents and/or personal contact with experts. Note their condition if known.

List any Endangered / Threatened / Proposed / Candidate / Sensitive Species (check The Nature Conservancy Heritage Database):

B. Stream/Reach Description:

Number of stream miles or feet on property_____ Number of total stream miles_____

Elevation range of reach _____ Elevation of Headwaters_____

Geomorphic separation within stream system: yes/no Within property boundaries: yes/no

Stream hydrology: _____ Intermittent; months of year wetted:_____

_____ Perennial; months of year at baseflow:_____

_____ Connected to the ocean at least 1x/yr.

Does this stream flow as it did historically, & if not what has changed?:

Flow data:
Stream Gage Location _____
Discharge range (ft3/s) _____

If available, attach USGS (or other) gauge data/graph.
http://maps.waterdata.usgs.gov/mapper/index.html

Reference Stream (if applicable):_____ Reference Stream Location: _____

Information Sources & notes:

2. Field Assessment

A. Preliminary Field Data

Date of assessment _____ Weather conditions today _____
(ambient temp.\ % cloud cover)

Weather conditions over past 2 to 5 days: _____
(No. of days precip/average daytime temp.)

Reach location (UTM or Lat./Long.) _____

Riparian Cover Type(s): Tree ____% Shrub ____% Herbaceous____% Bare____%

Bank Profile: Stratified Homogeneous Cohesive Soil Noncohesive Soil

Channel type/classification scheme: Source/Transport/Response.
Notes:_____

Gradient (✓ one): Low (<4%)_____ Moderate (5-9%) _____ High (>10%) _____

Bankfull channel width _____ ft Reach length (at least 12X BF or property boundary) _____ft

Flood plain width _____ft

Average riparian zone width _____ft Method used (e.g., Range finder, tape, visual estimate):

Average height of woody shrubs _____ ft Method used (e.g., Range finder, visual estimate):

Flood plain wetlands, if present _____ acres/reach

Dominant substrate:
_____% boulder (>250 mm, >10", basketball size & above)
_____% cobble (60-250 mm, 2 ½ -10", fist or baseball size to basketball size)
_____% gravel (2-60mm, ¼ - 2 ½", smaller than baseball to sand)
_____% sand (.06-2 mm)
_____% fine sediments (<.06 mm)

Macro invertebrate presence (✓):
Native: Damsel/Dragonflies_____ Hyposmoscoma (endemic moths)_____ 'Opae _____ Mollusks _____
Other non-native macroinvertebrates (list): _____
None present (✓) _____

Invasive fish species present (e.g. armored catfish, tilapia, mosquito fish). List:

Photo Point Locations and Descriptions:

Photo Pt. #	GPS Coordinates/Waypoints	Description
1		
2		
3		

SVAP Start Time/Water Temp: _____/_____ SVAP End Time/Water Temp:_____/_____

Notes:

Stream/Reach Name:

Landowner's Name: Evalulator's Name:

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Date_____.

1. Channel Condition									
Natural, stable channel with established bank		*If channel is incising (appears to be downcutting or degrading), score this element based on the descriptions in this upper section of the matrix:*							
Channelization or dredging absent or minimal, normal stream pattern, no discernible signs of incision or aggradation; active channel and floodplain connected throughout reach and flooded at natural intervals; streambanks with few or no bank failures; complex root matrix is holding channel form together.		Evidence of past incision and some recovery; some bank erosion possible; some channelization present, usually around bridge abutments; evidence of past channelization or dredging may be present; active channel and floodplain are connected in most areas, inundated seasonally; streambanks may be low or appear to be steepening; top of point bars are below active floodplain.			Channelization may be extensive, embankments/shoring structures present on both banks, 40-80% stream reach disrupted. Active incision evident, plants are stressed, dying or falling in channel; active channel appears to be disconnected from the floodplain, with infrequent or no inundation; steep banks; bank failures evident or imminent; point bars located adjacent to steep banks.			Banks shored with gabion or cement, >80% of stream reach channelized & disrupted. Headcuts or surface cracks on banks; active incision; vegetation very sparse; little or no connection between floodplain and stream channel, and no inundation; steep streambanks and failures prominent; point bars, if present, located adjacent to steep banks.	
10	9	*If channel is aggrading (appears to be filling in and is relatively wide and shallow), score this element based on the descriptions in this lower section of the matrix:*							
		Minimal lateral migration and bank erosion; a few shallow places in reach, due to sediment deposits.			Moderate lateral migration and bank erosion; deposition of sediments causing channel to be very shallow in places; one or 2 bars in channel.			Severe lateral channel migration, and bank erosion; deposition of sediments causing channel to be very shallow in reach; braided channels (3 or more channels).	
		8	7	6	5	4	3	2	1	0
Comments:										

2. Hydrologic Alteration									
No dams, dikes, development in the floodplain, or water control structures are present; AND natural flow regime prevails. Bankfull and higher flows occur according to the natural flow regime.		Development in the floodplain, stream water withdrawals, flow augmentation, or water control structures may be present but do not significantly alter the natural flow regime. Bankfull and higher flows occur less often than the local natural flow regime.			Development in the floodplain, stream water withdrawals, flow augmentation, or water control structures alter the natural flow regime. Bankfull and higher flows occur on a limited basis.			Stream water withdrawals completely de-water channel; and/or flow augmentation, stormwater or urban runoff discharges directly to stream and severely alters the natural flow regime. Bankfull and higher flows rarely occur or occur more frequently & rapidly due to urbanization.	
10	9	8	7	6	5	4	3	2	1	0
Comments:										

3. Bank Condition										
Banks are stable; protected by roots of natural vegetation, wood, and rock; no man-made structures present on bank; no bank failures; no recreational or livestock access.			Banks are moderately stable, protected by roots of natural vegetation, wood, rock or a combination of materials; limited number of structures present on bank; evidence of bank failures; recreational use and, or grazing do not negatively impact bank condition.			Banks are moderately unstable; very little protection of banks by roots of natural wood, vegetation, or rock; man-made structures cover more than half of reach or entire bank; active bank failures; evidence of burrowing in the banks by non-native species; recreational and/or livestock use contributing to bank instability.			Banks are unstable; no bank protection with roots, wood, rock or vegetation; riprap, and/or other structures dominate banks; numerous active bank failures; recreational and/or livestock use contributing to bank instability.	
Right Bank (looking d/s)	10	9	8	7	6	5	4	3	2	1	0
Left Bank (looking d/s)	10	9	8	7	6	5	4	3	2	1	0
Comments: Left & right bank determined by looking downstream. Score for this element = left bank score + right bank score divided by 2. IF the score of one bank is 7 or greater & the score of the other bank is 4 or less, subtract 2 pts from the final score.										

4. Riparian Area Quantity - Score each bank separately.										
Plant community extends at least two bankfull widths or covers the entire active floodplain and contiguous throughout property.			Plant community extends at least one bankfull width or covers 1/2 to 2/3 of active floodplain and is generally contiguous throughout property. Vegetation gaps do not exceed 10% of the estimated length of the stream on the property.		Plant community extends at least one-half of the bankfull width or covers at least 1/2 of active floodplain. Vegetation gaps do not exceed 30% of the estimated length of the stream on the property.		Plant community extends at least 1/3 of the bankfull width or covers ¼ of active floodplain. Vegetation gaps exceed 30% of the estimated length of the stream on the property.			Plant community extends less than 1/3 of the bankfull width or less than ¼ of active floodplain. Vegetation gaps exceed 30% of the estimated length of the stream on the property.	
Right Bank	10	9	8	7	6	5	4	3	2	1	0
Left Bank	10	9	8	7	6	5	4	3	2	1	0
Comments: Left & right bank determined by looking downstream. Score for this element = left bank score + right bank score divided by 2. IF the score of one bank is 7 or greater & the score of the other bank is 4 or less, subtract 2 pts from the final score.											

5. Riparian Area Quality – Rate entire property											
Native (or naturalized) diverse riparian vegetation with composition, density and age structure that maintains stream & riparian functions. **Must be a native plant community to score a 10**. Understory plants are intact at least 5 meters from water's edge for 75% to 100% of the reach. No concentrated flows through riparian area.			Diverse riparian vegetation with composition, density, and age structure maintaining stream & riparian functions. Understory plant species intact between 50 %- 75% of the reach. Little or no evidence of concentrated flows through the riparian area			Uniform composition, density and age structure of riparian vegetation beginning to compromise stream & riparian functions. Understory plant species intact between 30% - 50% of the reach. Evidence of concentrated flows running through the riparian area.			Little or no natural vegetation. Invasive species are are affecting stream and riparian function and/or encroaching (clogging) the stream channel. Understory plant species are intact < 30% of the reach. Evidence of concentrated flows running through the riparian area.		
Right Bank	10	9	8	7	6	5	4	3	2	1	0
Left Bank	10	9	8	7	6	5	4	3	2	1	0
Comments: Left & right bank determined by looking downstream. Score for this element = left bank score + right bank score divided by 2.											

6. Canopy Cover										
50 to 75% of water surface shaded within the length of the stream in landowner's property.			>75% of water surface shaded within the length of the stream in landowner's property.			49% to 20% of water surface shaded within the length of the stream in landowner's property.			<20% of water surface shaded within the length of the stream in landowner's property.		
10	9		8	7	6	5	4	3	2	1	0
Comments:											

7. Water Appearance										
Very clear, or clarity appropriate to site (3-6'). No oil sheen on surface; no evidence of metal precipitates in streams.			Slightly turbid, especially after storm event, but water clears rapidly (>1.5-3'); no oil sheen on surface; no evidence of metal precipitates in stream.			Turbid most of the time (0.5-1.5') and/or presence of metal precipitates and/or foam/oil present in slackwater areas.			High turbidity most of the time (<0.5') and/or considerable amount of metal precipitates and/or foam/oil present throughout reach.	
10	9	8	7	6	5	4	3	2	1	0
Comments:										

8. Nutrient Enrichment										
Clear water along entire reach; little algal growth present.			Fairly clear or slightly greenish water; moderate algal growth on substrates.			Greenish water particularly in slow sections; abundant algal growth, especially during warmer months; and/or slight odor of ammonia or rotten eggs; and/or sporadic growth of aquatic plants within slack water areas.			Pea green color present; thick algal mats dominating stream; and/or strong odor of ammonia or rotten eggs, and/or dense stands of aquatic plants widely dispersed.		
10	9		8	7	6	5	4	3	2	1	0
Comments:											

9. Manure or Human Waste Presence										
Livestock or feral animals do not have access to stream; no pipes or concentrated flows discharging animal waste or sewage directly into stream; litter or trash is not present or in limited amount			Livestock &/or feral animal access to stream is controlled and/or limited to small watering or crossing areas; no pipes or concentrated flows discharging animal waste or sewage directly into stream; litter or trash is evident but not prominent.			Livestock &/or ferel animals have unlimited access to stream during some portion of the year; manure is noticeable in stream; and/or pipes or concentrated flows discharge treated animal waste or sewage directly into stream; noticable amounts of litter present.			Livestock &/or ferel animals have unlimited access to stream during entire year; manure is noticeable in stream; and/or pipes or concentrated flows discharge untreated animal waste or sewage directly into stream or in stream; abundant trash & unsanitary waste, eg. animal carcass or excrement, diapers, or many dead fish.		
10	9		8	7	6	5	4	3	2	1	0
Comments:											

Landowner Name:

SVAP 2 Field Data Sheet

10. Barriers to Aquatic Species Movement										
No artificial barriers that prohibit movement of aquatic organisms during any time of the year.		Physical structures (e.g. undercut culverts or irrigation dams), water withdrawals and/or water quality seasonally restrict movement of aquatic species.			Physical structures (e.g. undercut culverts or irrigation dams), water withdrawals and/or water quality restrict movement of aquatic species throughout the year.				Physical structures (e.g. undercut culverts or irrigation diversions), water withdrawals and/or water quality prohibit movement of aquatic species.	
10	9	8	7	6	5	4	3	2	1	0
Comments:										

11. Fish Habitat Complexity										
7 or more habitat features available throughout the reach.		5 to 6 habitat features available throughout the reach.		4 habitat features available throughout the reach.		3 habitat features available througout the reach.		<3 habitat features available througout the reach .		
10	9	8	7	6	5	4	3	2	1	0
1) Pools >16" deep (either in flowing water or standing water) **2)**Secondary pools **3)**Cobble riffles **4)**Runs **5)**Cascades **6)**Large boulders **7)**Small boulder clusters **8)S**eeps/springs **9)**Other locally important habitat features. *(describe in comments field)*										
Comments:										

12. Riffle Embeddedness: Streambed Sediments										
Gravel or cobble substrates are <10% embedded.		Gravel or cobble substrates are 11-25% embedded.		Gravel or cobble substrates are 26-50% embedded.		Gravel or cobble substrates are 50-75% embedded.		Gravel or cobble substrates are >75% embedded.		
10	9	8	7	6	5	4	3	2	1	0
Comments:										

Element	Score	Element	Score
1. Channel Condition		11. Fish Habitat Complexity	
2. Hydrologic Alteration		12. Riffle Embeddedness	
3. Bank Condition		**A. Sum of all elements scored**	
4. Riparian Area Quantity		**B. Number of elements scored**	
5. Riparian Area Quality			
6. Canopy Cover		**Overall score: A/B** _____	
7. Water Appearance		1 to 2.9 Severely Degraded 3 to 4.9 Poor 5 to 6.9 Fair 7 to 8.9 Good 9 to 10 Excellent	
8. Nutrient Enrichment			
9. Manure or Human Waste			
10. Barriers to Movement			

Suspected causes for SVAP scores <5:

Recommendations for further assessment or actions:

Additional Information: