Land and Water Resources Division - Tasmania

FIRST NATIONAL ASSESSMENT OF RIVER HEALTH
HABITAT ASSESSMENT

❶ Conditions

PERSONNEL _____

DATE:_____TIME (24hr):_____ PICKER:_____ HABITAT: _____

LOCATION CODE:_____ SITE NAME:_____

WEATHER: _____ CLOUD COVER: _____%

SAMPLING CONDITIONS
( ) Good
( ) Average
( ) Poor

PICKING CONDITIONS:
( ) Good
( ) Average
( ) Poor

AIR TEMPERATURE: _____°C

RAIN IN LAST WEEK ?: YES / NO

❷ Habitat Assessment: *A) Description of 10m sample area*

RIFFLE or RUN: Collected by:_____ Picked by:_____ Time taken:_____

Substrate Composition :

Bedrock	_____%
Boulder	_____%
Cobble	_____%
Pebble	_____%
Gravel	_____%
Sand	_____%
Silt	_____%
Clay	_____%
	= 100%

Percentage Cover

Algae	_____%
Detritus	_____%
Silt	_____%
Moss	_____%
	> or < 100%

COMMENT: _____
_____
_____
_____

Photo #: _____

Mean depth: _____ cm

Residue preserved ? ( )

❷*B) Description of sample area/s*

EDGE/BACKWATER: Collected by:_____ Picked by:_____ Time taken:_____

Substrate Composition :

Bedrock	_____%
Boulder	_____%
Cobble	_____%
Pebble	_____%
Gravel	_____%
Sand	_____%
Silt	_____%
Clay	_____%
	= 100%

Percentage Cover

Algae	_____%
Detritus	_____%
Silt	_____%
Moss	_____%
	> or < 100%

COMMENT: _____
_____
_____
_____

Photo #: _____

Mean depth: _____ cm

Residue preserved ? ( )

Reference Information

Estimated ranking scales

Ranked scale	Examples	
(0) = 0%		
(1) = 1 - 10 %	Bedrock	
(2) = 10 - 25 %	Boulder (>256 mm)	>soccer ball
(3) = 25 - 50 %	Cobble (64 - 256 mm)	cricket ball - soccer ball
(4) = 50 - 75 %	Pebble (16 - 64 mm)	5c piece - cricket ball
(5) = 75 - 100 %	Gravel (4 - 16 mm)	raw sugar - 5c piece
	Sand (1 - 4 mm)	< raw sugar
	Silt or clay (<1 mm)	

❸ Site Assessment : *Description of 100m reach*

N.B. Left & Right banks facing UPSTREAM

VEGETATION

	Nil <5%	*Sparse* 6 - 25%	*Moderate* 26 - 50%	*Thick* 51 - 75%	*Extensive* >76%
Overhanging vegetation:- (Tick ✔)	( )	( )	( )	( )	( )
Trailing bank vegetation:-	( )	( )	( )	( )	( )

RIPARIAN VEGETATION

(Tick ✔)	Left	Right
Nil	( )	( )
Sparse	( )	( )
Moderate	( )	( )
Thick	( )	( )

COMPOSITION

Native Vegetation _____%

Exotic Vegetation _____%

EXOTIC SPECIES (Tick if present ✔)

Blackberries	( )
Pines	( )
Bracken Fern	( )
Gorse	( )
Willow	( )
Other _____	( )

WIDTH OF RIPARIAN ZONE

(Tick ✔)	Left	Right
>40m	( )	( )
30m - <40m	( )	( )
20m - <30m	( )	( )
10m - < 20m	( )	( )
5m - <10m	( )	( )
<5m	( )	( )

LAND USE (Tick ✔)

	Left	Right	
Native forest	( )	( )	Other: _____
Forestry	( )	( )	_____
Native pasture	( )	( )	_____
Grazing	( )	( )	_____
Cropped	( )	( )	
Urban	( )	( )	

	None	Some	Moderate	Heavy
EROSION:	( )	( )	( )	( )

DETAILS: _____

DAMS/WEIRS: upstream / downstream / none

POLLUTION: no evidence / potential / obvious

❸HABITAT DIVERSITY: All measurements over 100 m of stream length and within stream only.

A) Riffle area: ____%

Run area: ____%

Pool area: ____%

= 100%

	STREAM WIDTH	*BANK WIDTH*	*BANK HEIGHT*
B) 0 m:	_____m	_____m	_____m
50 m:	_____m	_____m	_____m
100 m:	_____m	_____m	_____m

❸ **COARSE WOODY DEBRIS**		**%**
None	No snags are visible at the measurement site.	
Few	Some visible branches in stream. Debris cover 10% or less of stream bed.	
Moderate	Visible branches and trees that have been relocated to be adjacent to the stream banks. Surface area of debris 30% or less of stream bed.	
Numerous	Large trees present all the way across the stream. Surface area of debris cover 30 to 50% of stream bed.	
Abundant	Numerous debris with surface area 50% or more of the stream bed. Large trees may be present right across the stream.	

❸ AQUATIC PLANTS

% Cover over 100 m = _____

Composition:

EMERGENT:	None	( )	Low	( )	Medium	( )	High	( )
SUBMERGED:	None	( )	Low	( )	Medium	( )	High	( )
FLOATING:	None	( )	Low	( )	Medium	( )	High	( )

❸ DISTURBANCE (Tick or circle the most accurate description)

1. EXTREME DISTURBANCE
Riparian Veg Absent or severely reduced. Vegetation if present is dominated by exotic species.(pines, willows etc...)Native species are rare or absent. Agriculture and/ or cleared both sides

2. VERY HIGH DISTURBANCE
Riparian Veg Some native vegetation present, but is severely modified both sides by grazing or intrusion of introduced species. Native species severely reduced in numbers (species richness) and cover. Agriculture and/ or cleared both sides

3. HIGH DISTURBANCE
Riparian Veg Moderately disturbed by stock or through the intrusion of introduced species, though native species remain in reasonable numbers. Agriculture and/ or cleared one side; native vegetation on the other is clearly disturbed

4. MODERATE DISTURBANCE
Riparian Veg. Native vegetation present on both sides of the river. The intrusion of introduced species is minor and of moderate impact.

5. LOW DISTURBANCE
Riparian Veg. Native vegetation present on both sides of the river in generally good condition with few introduced species present. Any disturbance is minor.

6. VERY LOW DISTURBANCE
Riparian Veg. Native vegetation on both sides of the river in an undisturbed state. Introduced species are rare or insignificant. Representative of pristine conditions.

NOTES _____

❹ PHYSICAL PARAMETERS

TEMPERATURE:_____°C DISSOLVED 02:_____mg/l

CONDUCTIVITY:_____uS/cm TURBIDITY: _____NTU

pH: _____ GAUGE HEIGHT:_____m

ALKALINITY _____

Dams/Weirs:		Distance	Discharge (at time of sampling)
	Downstream:	_____km	_____m^3/sec
	Upstream:	_____km	_____m^3/sec

Discharge Type: Power Station/ Riparian/ Spill/ None

Upstream Diversions:	in/out	_____km	Name	_____
	in/out	_____km	Name	_____
Guaging Station:	upstream	_____km	Name	_____
	downstream	_____km	Name	_____

❺ MAP BASED DATA (office based)

MAP SCALE: 1:25000 ( ) MAP NAME: _____
1:100000 ( )

GRID REFERENCE: NORTHING _____
DISTANCE FROM SOURCE_____ EASTING _____

ELEVATION: _____ STREAM CLASS: _____

CATCHMENT AREA: _____ BEDSLOPE: _____

❻ ACCESS SKETCH - *100m Reach*

Include a diagnostic representation of the sequence of pools, riffles and runs. Include the riffle and edgewater sampling locations, rough northing, flow direction, roads etc., surrounding land use, etc. plus other relevant details.

❼ LANDOWNER / MANAGER

Name _____

Address _____

_____

Phone _____ FAX _____

COMMENTS: _____

_____

Access:

Permission required ( )

Permission granted verbally ( )

Written permission ( )

Notification before each visit ( )

HABITAT ASSESSMENT FIELD DATA SHEET

Date:..... River:..... Location Code:.....

Name of recorder.....

	CATEGORY			
Habitat Variable	**Excellent**	**Good**	**Fair**	**Poor**
1. Bottom substrate/available cover	Greater than 50% rubble, gravel submerged logs, undercut banks or other stable habitat 20, 19, 18, 17, 16	30-50% rubble, gravel or other stable habitat. Adequate habitat 15, 14, 13, 12, 11	10-30% rubble, gravel or other stable habitat. Habitat avail-ability less than desirable 10, 9, 8, 7, 6	Less than 10% rubble, gravel or other stable habitat. Lack of habitat is obvious 5, 4, 3, 2, 1, 0
2. Embeddedness	Gravel, cobble and boulder particles are between 0 & 25% surrounded by fine sediment 20, 19, 18, 17, 16	Gravel, cobble and boulder particles are between 25 & 50% surrounded by fine sediment 15, 14, 13, 12, 11	Gravel, cobble and boulder particles are between 50 & 75% surrounded by fine sediment 10, 9, 8, 7, 6	Gravel, cobble and boulder particles are over 75% surrounded by fine sediment 5, 4, 3, 2, 1, 0
3. Velocity/depth category	Slow deep (<0.3 m/s & >0.5m); Slow shallow; Fast deep; Fast shallow; habitats all present 20, 19, 18, 17, 16	Only 3 of the four habitat categories present (missing riffles or runs receive lower score than missing pools) 15, 14, 13, 12, 11	Only 2 of the four habitat categories present (missing riffles/ runs receive lower score) 10, 9, 8, 7, 6	Dominating by one velocity/depth category (usually pool) 5, 4, 3, 2, 1, 0
4. Channel alteration	Little or no enlargement of islands or point bars and/or no channelisation 15, 14, 13, 12	Some new increase in bar formation, mostly from coarse gravel; and/or some channel-isation present 11, 10, 9, 8	Moderate deposition of new gravel, coarse sand, on old and new bars; pools partly filled w/silt; and/or embankments on both banks 7, 6, 5, 4	Heavy deposits of fine materials, increased bar development; most pools filled with silt; and/or extensive channelisation 3, 2, 1, 0
5. Bottom scouring and deposition	Less than 5% of the bottom affected by scouring and deposition 15, 14, 13, 12	5-30% affected. Scours at constrictions and where grades steepen, some deposition in pools 11, 10, 9, 8	30-50% affected. Deposits and scours at obstruction and bends. Some deposition in pools. 7, 6, 5, 4	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed 3, 2, 1, 0

HABITAT ASSESSMENT FIELD DATA SHEET (Continued)

Date:..... River:..... Location Code:.....

	CATEGORY			
Habitat Variable	**Excellent**	**Good**	**Fair**	**Poor**
6. Pool/riffle, run/bend ratio. *(Distance between riffles divided by stream width)*	0-7 Variety of habitat. Deep riffles and pools 15, 14, 13, 12	7-15 Adequate depth in pools and riffles. Bends provide habitat 11, 10, 9, 8	15-25 Occasional riffle or bend. Bottom contours provide some habitat. 7, 6, 5, 4	>25 Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 3, 2, 1, 0
7. Bank stability	Stable. No evidence of erosion or bank failure. Side slopes generally <30%. Little potential for future problem. 10, 9	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up to 40% on one bank. Slight potential in extreme floods 8, 7, 6	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme/high flows 5, 4, 3	Unstable. Many eroded areas. Side slopes > 60% common. "Raw" areas frequent along straight sections and bends. 2, 1, 0
8. Bank vegetative stability	Over 80% of the streambank surfaces covered by vegetation or boulders and cobble 10, 9	50-79% of the streambank surfaces covered by vegetation, gravel or larger material 8, 7, 6	25-49% of the streambank surfaces covered by vegetation, gravel or larger material 5, 4, 3	Less than 25% of the streambank surfaces covered by vegetation, gravel or larger material 2, 1, 0
9. Streamside cover	Dominant vegetation is of tree form 10, 9	Dominant vegetation shrub 8, 7, 6	Dominant vegetation is grass, sedge, ferns 5, 4, 3	Over 50% of the streambank has no vegetation and dominant material is soil, rock, bridge materials, culverts, or mine tailings 2, 1, 0

Column Totals				

Score

From US EPA RBA Protocols 1989