





## RESULTS OF THE PILOTS OF THE MRC RIVERINE PLASTIC MONITORING OF THE WET SEASON IN THAILAND

On

#### Wet Season Pilots of the Mekong River Commission Protocols on Riverine Plastic Monitoring Programme (RPM)

Submitted by

**Faculty of Environment and Resource Studies** 

**Mahidol University** 

#### **Pilot National Line Agency**

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#### **Team Members**

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Riverine Macroplastic Monitoring: Sampling by fish net at community level

# The Result of Riverine Macroplastic Monitoring: Sampling by fish net at community level

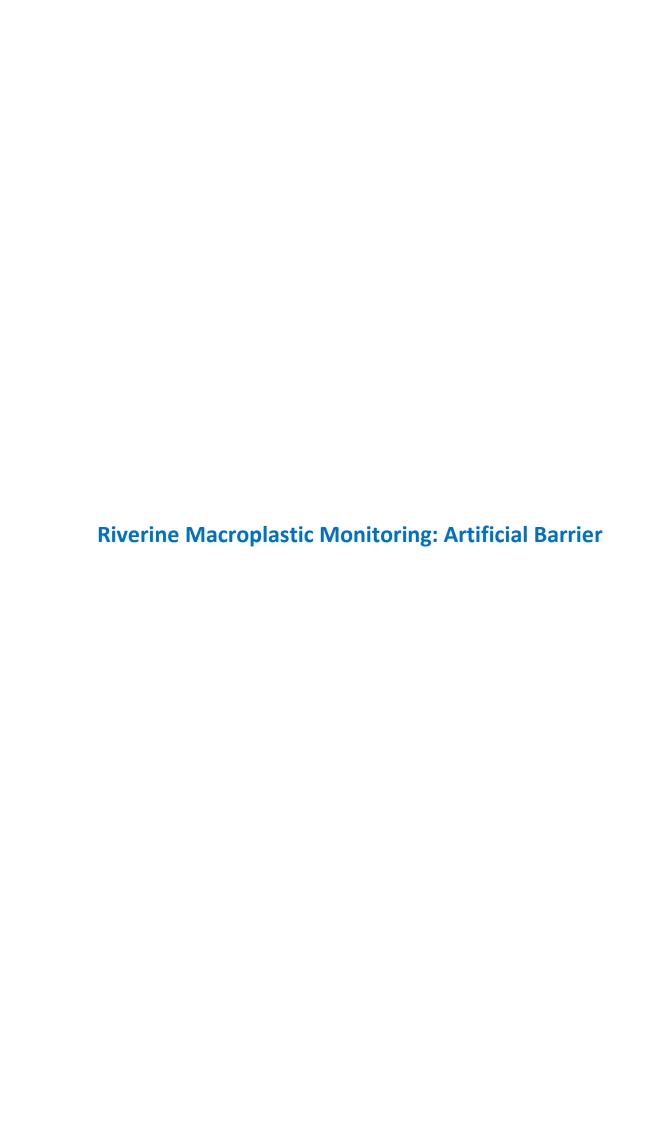
	Survey Profile Examples											Input						
	Name of Community												Wernbuek Village					
		ocati	on of	the	fisher	v con	amatu	nity					Latit	tude:				15.31957
		.UCati	011 01	uie	lisilei	y con	IIIIu	illy					Long	gitude				105.55401
			. Dat										Fron	n:				9/9/2022
	Survey Date To:											16/09/2022						
	Survey Results																	
Date	Date Number of collected times and fishing method											No. of Collected times						
1 <sup>st</sup>								G										1
2 <sup>nd</sup>								G	D									2
3 <sup>rd</sup>								G										1
4 <sup>th</sup>								G										1
5 <sup>th</sup>								G										1
6 <sup>th</sup>								G										1
7 <sup>th</sup>								G	D									2
8 <sup>th</sup>	G	G						G				G			G	G		6
9 <sup>th</sup>	G	G	G	G	G	Т	G	G	L	G	L	G	G	L	G	G		14
10 <sup>th</sup>	G	G	G	G	G	Т	G	G	L	L		G	D	L	G	G		15
11 <sup>th</sup>	G	G	G	G	G	Т	G	G	L	L		G	G		G	G		14
12 <sup>th</sup>	G	G	G	G	G		G	G		L		G	G		G	G		12
13 <sup>th</sup>	G	G	G	G	G		G	G		L	G	G	G		G	G		13
14 <sup>th</sup>	G	G	G	G	G	Т	G	G		L		G	G		G	G		14
15 <sup>th</sup>	G	G	G	G	G	Т	G	G	L	L		G	G		G	G		13
16 <sup>th</sup>	G	G	G	G				G				G	G		G	G		10
17 <sup>th</sup>								G										1
18 <sup>th</sup>								G										2
19 <sup>th</sup>								G										2
20 <sup>th</sup>								G										2
21 <sup>st</sup>								G										2
22 <sup>nd</sup>								G										1
23 <sup>rd</sup>								G	D									2
24 <sup>th</sup>								G	D									2
25 <sup>th</sup>								G										2
26 <sup>th</sup>								G										2
27 <sup>th</sup>								G										1
28 <sup>th</sup>								G										2
29 <sup>th</sup>								G										2
30 <sup>th</sup>								G										1
31 <sup>st</sup>																		
							Tota	al Nu	mber	of co	ollece	d tin	nes (I	Vlont	hly F	reque	ncy)	144

#### **Results of Plastic waste found in Wernbuek**

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)			
MOST LI	KELY TO FIND ITEMS:					
1	Food Wrappers (candy, chips, etc.)	86	223.01			
2	Take Out/Away Containers (Plastic)	5	26.4			
3	Take Out/Away Containers (Foam)	11	21.02			
4	Bottle Caps & Lids	2	7.06			
5	Straws/Stirrers	15	15.78			
6	Forks, Knives, Spoons	4	10.96			
7	Beverage Bottles (Plastic)	8	203.36			
8	Grocery Bags (Plastic)	7	43.76			
9	Other Plastic Bags	5	120.02			
10	Cups & Plates (Plastic)	21	99.47			
11	Cups & Plates (Foam)	0	0			
PACKAG	ING MATERIALS:					
12	4/6-Pack Holders	0	0			
13	Other Plastic/Foam Packaging	10	135.11			
14	Other Plastic Bottles (oil, bleach, etc.)	О	0			
15	Strapping Bands	8	51.71			
FISHING	FISHING GEAR:					
16	Fishing Buoys, Pots & Traps	0	0			
17	Fishing Net & Pieces	9	460.85			
18	Fishing Line (1 yard/meter = 1 piece)	0.3	0.24			
19	Rope (1 yard/meter = 1 piece)	14.8	903.05			
OTHER T						
20	Appliances (refrigerators, washers, etc.)	0	0			
21	E-waste	1	29.54			
22	Cigarette Butts/Tips	0	0			
23	Construction Materials	0	0			
24	Fireworks	1	0.01			
25	Tires	0	0			
26	Other Plastic Material (Specify: )	286	806.83			
PERSON	AL HYGIENE:					
27	Condoms	0	0			
28	Diapers	0	0			
29	Medical Items (syringe, etc.)	1	39.95			
30	Tampons/Tampon Applicators	0	0			
31	Cotton Bud Sticks	0	0			
TINY TRA	ASH LESS THAN 2.5 CM:					
32	Foam Pieces	0	0			
33	Plastic Pieces	3	0.01			
	Total	498.1	3198.14			

#### summary of the result

Location	Wernbuek Village
Starting date	8/9/2022
Duration (day)	7
Collected time (-)	144
Total number (piece)	498.1
Totalweight (g)	3198.14
Average Weight (g/piece)	6.42
Average plastic collected per collection	3.46



#### **Datasheet Macroplastic Artificial Barrier at Pak Mun Dam**

	Value
Name of Artificial Barrier	Pak Mun Dam
Agency Responsible for	2017
Maintenance/Cleanup	EGAT
Last cleaning was conducted on	-
Location of Barrier (Latitude)	15.282088
Location of Barrier (Longitude)	105.46706
Length of Barrier	27 m
Date	10/8/2022
Time	13:45
Characteristics of the barrier	Near Dam (ริมเขื่อน)
Total accumulation volume [L] (This is automatically calculated after you enter the necessary data in other sheets)	(1-2) 40 L / (1-3) 33.48 L
Sketch of the observed area (photo of hand-drawn sketch, PPT file, etc.)	Top Man £2 m.
Photos (at least 3 (three) from various direction)	

#### Estimation the amount by

#### virtually filling up 20 L garbage bags

	Value	Accumulation Volume [L]
Number of 20 L garbage bags	2	40
Percentage of the area observed [%]	100%	-
Total accumulation vo	40	

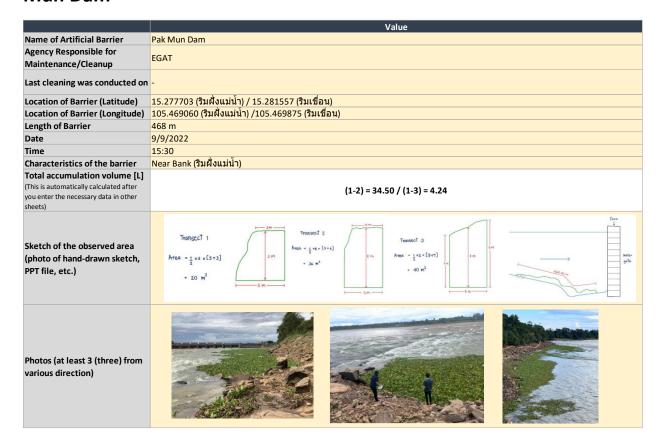
#### comparison with benchmark photos

Transect ID  (For the convinience in counting, you can split the area)	Level of plastic accumulation	Area of accumulation [m²]	Accumulation Volume [L]
1	3	167.4	33.48
2			0
3			0
4			0
5			0
6			0
7			0
8			0
9			0
10			0
11			0
12			0
13			0
14			0
15			0
SU	33.48		
Percentage of th	100%		
Total accumu	33.48		

#### Results of Plastic waste by counting at Pak Mun Dam

No.	Plastic Product Item	Total Piece (pieces)					
MOST LI	KELY TO FIND ITEMS:						
1	Food Wrappers (candy, chips, etc.)	13					
2	Take Out/Away Containers (Plastic)						
3	Take Out/Away Containers (Foam)	1					
4	Bottle Caps & Lids						
5	Straws/Stirrers	2					
6	Forks, Knives, Spoons	1					
7	Beverage Bottles (Plastic)	11					
8	Grocery Bags (Plastic)	6					
9	Other Plastic Bags						
10	Cups & Plates (Plastic)	2					
11	Cups & Plates (Foam)						
PACKAG	ING MATERIALS:						
12	4/6-Pack Holders						
13	Other Plastic/Foam Packaging	2					
14	Other Plastic Bottles (oil, bleach, etc.)						
15	Strapping Bands	1					
	FISHING GEAR:						
16	Fishing Buoys, Pots & Traps						
17	Fishing Net & Pieces						
18	Fishing Line (1 yard/meter = 1 piece)						
19							
OTHER T							
01112111	Appliances (refrigerators, washers,						
20	etc.)						
21	E-waste						
22	Cigarette Butts/Tips						
23	Construction Materials						
24	Fireworks						
25	Tires						
26	Glass bottles	4					
27	Rubber materials						
28	Other Plastic Material (Specify: )	16					
PERSON.	AL HYGIENE:						
29	Condoms						
30	Diapers						
31	Medical Items (syringe, etc.)						
32	Tampons/Tampon Applicators						
33	33 Cotton Bud Sticks						
TINY TRA	ASH LESS THAN 2.5 CM:						
34	Foam Pieces						
35	Plastic Pieces						
	Total	59					

#### Datasheet Macroplastic Artificial Barrier at Near bank of Pak Mun Dam



#### Estimation the amount by

#### virtually filling up 20 L garbage bags

	Value	Accumulation Volume [L]
Number of 20 L garbage bags	1	20
Percentage of the area observed [%]	58%	-
Total accumulation vo	34.31	

#### comparison with benchmark photos

Transect ID  (For the convinience in counting, you can split the area)	Level of plastic accumulation	Area of accumulation [m²]	Accumulation Volume [L]
1	1	20	1
2	1	36	1.8
SU	2.8		
Percentage of th	66%		
Total accumu	lation volume [I	L]	4.24

# Results of Plastic waste by counting at Near bank of Pak Mun Dam

No.	Plastic Product Item	Total Piece (pieces)			
MOST LI	KELY TO FIND ITEMS:				
1	Food Wrappers (candy, chips, etc.)				
2	Take Out/Away Containers (Plastic)				
3	Take Out/Away Containers (Foam)				
4	Bottle Caps & Lids				
5	Straws/Stirrers				
6	Forks, Knives, Spoons				
7	Beverage Bottles (Plastic)	14			
8	Grocery Bags (Plastic)				
9	Other Plastic Bags				
10	Cups & Plates (Plastic)				
11	Cups & Plates (Foam)	1			
PACKAG	ING MATERIALS:				
12	4/6-Pack Holders				
13	Other Plastic/Foam Packaging				
1.4	Other Plastic Bottles (oil, bleach,				
14	etc.)				
15	Strapping Bands				
FISHING	GEAR:				
16	Fishing Buoys, Pots & Traps				
17	Fishing Net & Pieces				
18	Fishing Line (1 yard/meter = 1 piece)	2			
19					
OTHER T	RASH:				
20	Appliances (refrigerators, washers, etc.)				
21	E-waste				
22	Cigarette Butts/Tips				
23	Construction Materials				
24	Fireworks				
25	Tires				
26	Glass bottles	6			
27	Rubber materials	2			
28	Other Plastic Material (Specify:				
PERSON	AL HYGIENE:				
29	Condoms				
30	Diapers				
31	Medical Items (syringe, etc.)				
32					
33					
	ASH LESS THAN 2.5 CM:				
34	Foam Pieces	10			
35	Plastic Pieces	2			
	Total	37			
35					

Riverine Macroplastic Monitoring: Sampling by Tow Net

#### **Datasheet MacroTowNet At DWR #1**

		The data-input	form for	riverin	e mac	ropla	istic	s m	onitorir	ng.
Name of observer	Dr.Achara Ussawaruji kulchai	Ussawaruji		Jssawaruji		Faculty of Environmental		Crui	se name	
	It	tems			Result	s Inpu	ıt		Unit	Explanation/ Input Examples
	Sample name/	ID		DWR1					-	
	Enter time diffe	erence from GMT.			7:00				-	
	Sampling date			9/10/2022					-	date/ month/ year
	Sampling time	(Initial)		13	40	0			-	hour / minute / second
	Sampling time	(Final)		14	1	0			-	
impling date and	Season	,			Wet S	eason			-	
cation	Sampling Locat	ion (Name)			H 01380	1 : DWR			-	e.g., Tokyo Bay (Tama Riv. estuary)
	GPS Log	• Input style			Decimal				-	Select "sexagesimal (base 60) notation" or "decimal notation" to input coordinates.
		GPS Log (Initial position)	- Latitude	15 °	19.590 '	0 "			N	Enter the coordinates in sexagesimal (base 60) or decima
			- Longitude	105 °	29.640 '	0 "			E	notation.
		GPS Log (Final position)	- Latitude	15 °	19.603 '	0 "			N	
			- Longitude	105 °	29.527 '	0 "			E	
	Classification	Type of net frame     Model number and manufactu	•					-	Manta, Neuston or other nets. e.g., JMA Neuston net, RIGO Co., Ltd., No.5552	
	of net frame Net aperture	Shape of net aperture	Rectangle				-	Rectangular, square, circular, others		
	Net aperture	Size of net aperture	- Width	1				m	Nectangular, square, circular, others	
		- Size of fict aperture	- Height					m		
ampling equipment			0.50					m²		
	Length of net		2					m		
	Mesh	Openings	2.5					mm		
		Model number and manufactu						-	Select one side length or diagonal length	
	Tow distance	Distance	irer	2308.554					m	Distance relative to water
	Tow distance	Calculation method	Flow meter					-	Describe the method used to calculate the tow distance, such as:  1: Flow meter,  2: GPS (Recorded only initial and final points),  3: Vessel speed and duration time	
		Calculation formula		Distance=		rounds*26	5873/99	9999	-	
	Trawl sweep	Sweep area			0.3				m <sup>2</sup>	Report sweep area and the equations used to calculate i
	area Filtered water	Calculation formula     Water volume		Area=	577.	h*Submerg 1385	ged Area		m <sup>3</sup>	Report filtered water volume and the equation used to calculate it
	volume	Calculation formula		Volume=	Distance*Are	а				eureure re
ow .	Tow duration				2				min	
arameter	Vessel speed			1.9					m/s	Speed relative to water e.g., 1.5 m/s
	Tow position			Side						The side of a vessel or the stern of a vessel
	Distance from v	vessel			1.	0			m	
	Net immersion	Net immersion depth			0.				m	
		Percentage of net immersion of			5	0			%	
		Whether or not there was any	change in the						-	
	Tow direction				Current – Win				-	e.g., direction relative to land, wind, ocean current, source (reverse, etc.)
	Blank tests	Whether or not blank tests we     Results	ere conducted						- particles/	Evaluate the effect of contamination on sea-surface pla

#### Results of Plastic waste found in DWR Net Towing #1

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)
MOST LI	KELY TO FIND ITEMS:		
1	Food Wrappers (candy, chips, etc.)	1	0.1
2	Take Out/Away Containers (Plastic)		
3	Take Out/Away Containers (Foam)		
4	Bottle Caps & Lids	3	10.12
5	Straws/Stirrers	1	0.3
6	Forks, Knives, Spoons		
7	Beverage Bottles (Plastic)	1	15
8	Grocery Bags (Plastic)		
9	Other Plastic Bags		
10	Cups & Plates (Plastic)		
11	Cups & Plates (Foam)		
<b>PACKAG</b>	ING MATERIALS:		
12	4/6-Pack Holders		
13	Other Plastic/Foam Packaging	1	0.35
14	Other Plastic Bottles (oil, bleach, etc.)		
15	Strapping Bands		
<b>FISHING</b>	GEAR:		<u>'</u>
16	Fishing Buoys, Pots & Traps		
17	Fishing Net & Pieces	4	0.11
18	Fishing Line (1 yard/meter = 1 piece)		
19	Rope (1 yard/meter = 1 piece)		
OTHER T			
20	Appliances (refrigerators, washers, etc.)		
21	E-waste		
22	Cigarette Butts/Tips		
23	Construction Materials		
24	Fireworks		
25	Tires		
26	Other Plastic Material (Specify:	6	0.08
PERSON.	AL HYGIENE:		
27	Condoms		
28	Diapers		
29	Medical Items (syringe, etc.)		
30	Tampons/Tampon Applicators		
31	Cotton Bud Sticks		
TINY TRA	ASH LESS THAN 2.5 CM:		
32	Foam Pieces	2	0.54
33	Plastic Pieces	4	0.44

#### **Datasheet MacroTowNet At DWR #2**

# The data-input form for riverine macroplastics monitoring. Dr.Achara Ussawaruji kulchai Organization Usawaruji kulchai Organization

	l+	ems			Results	Inn	ut	Unit	Explanation/ Input
	"	.01115			nesuit	, iiih	ut	Oilit	Examples
	Sample name/	ID		DWR2				-	
	Enter time diffe	Enter time difference from GMT.						-	
	Sampling date			9/10/2022				-	date/ month/ year
	Sampling time	Sampling time (Initial)			4	0		-	hour / minute / second
	Sampling time	14	24	0		-			
impling date and	Season				Wet S	eason		-	
cation	Sampling Locat	ion (Name)			H 01380	1 : DWR		-	e.g., Tokyo Bay (Tama Riv. estuary)
	GPS Log	• Input style			Decimal			-	Select "sexagesimal (base 60) notation" or "decimal notation" to input coordinates.
		• GPS Log (Initial position)	- Latitude	15°	19.590 '	0 "		N	Enter the coordinates in sexagesimal (base 60) or decima
			- Longitude	105°	29.521 '	0 "		E	notation.
		GPS Log (Final position)	- Latitude	15°	19.697 '	0"		N	
	01 10 11	- T f	- Longitude	105°	29.445 '	0 "		E .	Marcha Marchan and Abanda
	Classification	Type of net frame     Model number and manufactur			-			-	Manta, Neuston or other nets. e.g., JMA Neuston net, RIGO Co., Ltd., No.5552
	of net frame Net aperture	ilei ilaile				ngle		-	Rectangular, square, circular, others
	Net aperture	Size of net aperture	- Width	1				m	
			- Height		0.	5		m	
			- Area		0.5	0		m <sup>2</sup>	
	Length of net				2			m	
	Mesh	Openings		2.5			mm		
							-	Select one side length or diagonal length	
		Model number and manufactur     Distance	2137.937				- m	Distance relative to water	
	Tow distance	Calculation method	Flow meter				-	Describe the method used to calculate the tow distance, such as:  1: Flow meter, 2: GPS (Recorded only initial and final points), 3: Vessel speed and duration time	
		Calculation formula		Distance= Rotation rounds*26873/999999				-	5. Vesser speed and duration time
	Trawl sweep	Sweep area			0.			m <sup>2</sup>	Report sweep area and the equations used to calculate it
	area	Calculation formula		Area=	widt	h*Subme	rged Area	-	
	Filtered water volume	Water volume		534.48425				m³	Report filtered water volume and the equation used to calculate it
ow		Calculation formula		Volume=	Distance*Are				
arameter	Tow duration				21	0		min	
arameter	Vessel speed				1.			m/s	Speed relative to water e.g., 1.5 m/s
	Tow position				Sic				The side of a vessel or the stern of a vessel
	Distance from v			1.0				m	
	Net immersion	Net immersion depth		0.25				m	
		Percentage of net immersion de			50	J		%	
	Tow direction	Whether or not there was any or	change in the		Current —			-	e.g., direction relative to land, wind, ocean current, source (reverse, etc.)
	Blank tests	Whether or not blank tests wer     Results	e conducted		-			- particles/	Evaluate the effect of contamination on sea-surface pla
					-			sample	concentrations during onboard sampling.

#### **Results of Plastic waste found in DWR Net Towing #2**

		Total	Total
No.	Plastic Product Item	Piece	Weight (g)
MOSTIL	KELY TO FIND ITEMS:	(pieces)	
1	Food Wrappers (candy, chips, etc.)		
2	Take Out/Away Containers (Plastic)		
3	Take Out/Away Containers (Foam)		
4	Bottle Caps & Lids	1	2.52
5	Straws/Stirrers	_	2.32
6	Forks, Knives, Spoons		
7	Beverage Bottles (Plastic)		
8	Grocery Bags (Plastic)		
9	Other Plastic Bags		
10	Cups & Plates (Plastic)		
11	Cups & Plates (Foam)		
PACKAG	ING MATERIALS:		
12	4/6-Pack Holders		
13	Other Plastic/Foam Packaging		
14	Other Plastic Bottles (oil, bleach,		
	etc.)		
15	Strapping Bands		
FISHING			
16	Fishing Buoys, Pots & Traps		
17	Fishing Net & Pieces		
18	Fishing Line (1 yard/meter = 1 piece)	1.3	0.29
19	Rope (1 yard/meter = 1 piece)	0.3	
OTHER T	RASH:		
20	Appliances (refrigerators, washers, etc.)		
21	E-waste		
22	Cigarette Butts/Tips		
23	Construction Materials		
24	Fireworks		
25	Tires		
26	Other Plastic Material (Specify: )	15	1.87
PERSON.	AL HYGIENE:		
27	Condoms		
28	Diapers		
29	Medical Items (syringe, etc.)		
30	Tampons/Tampon Applicators		
31	Cotton Bud Sticks		
TINY TRA	ASH LESS THAN 2.5 CM:		
32	Foam Pieces		
33	Plastic Pieces	6	0.03

#### **Datasheet MacroTowNet At DWR #3**

# The data-input form for riverine macroplastics monitoring. Dr.Achara Ussawaruji kulchai Organization kulchai Cruise name

	Kuichai								
	lt	ems			Result	s Inp	ut	Unit	Explanation/ Input Examples
	Sample name/	ID		DWR3				-	
	Enter time diffe	erence from GMT.			7:00			-	
	Sampling date							-	date/ month/ year
	Sampling time	(Initial)		14	42	0		-	hour / minute / second
	Sampling time			15	9	0		-	
ampling date and	Season		Wet S						
cation	Sampling Locat	ion (Namo)			H 01380				e.g., Tokyo Bay (Tama Riv. estuary)
cation		• Input style			1101300	I . DVVII		-	Select "sexagesimal (base 60) notation" or "decimal
	GPS Log	• input style			Decimal			-	notation" to input coordinates.
		GPS Log (Initial position)	- Latitude	15 °	19.632 '	0 "		N	Enter the coordinates in sexagesimal (base 60) or decima
			- Longitude	105°	29.441 '	0 "		Е	notation.
			GPS Log (Final position)	- Latitude	15 °	19.682 '	0 "		N
			- Longitude	105°	29.346 '	0 "		E	
	Classification	Type of net frame						-	Manta, Neuston or other nets.
	of net frame	Model number and manufactur	rer					-	e.g., JMA Neuston net, RIGO Co., Ltd., No.5552
	Net aperture	Shape of net aperture		Recta			-	Rectangular, square, circular, others	
		Size of net aperture	- Width					m	
			- Height		0.			m	
			- Area		0.5			m <sup>2</sup>	
	Length of net	-						m	
	Mesh	Openings			2	5		mm	
			_				-	Select one side length or diagonal length	
	- "	Model number and manufactur	2140.678				-	District the second sec	
	Tow distance	Distance     Calculation method	Flow meter				m	Distance relative to water  Describe the method used to calculate the tow distance,	
		Calculation metrod					-	1: Flow meter, 2: GPS (Recorded only initial and final points), 3: Vessel speed and duration time	
		Calculation formula		Distance=	Rotation	rounds*2	6873/999999	-	
	Trawl sweep	Sweep area			0.2			m <sup>2</sup>	Report sweep area and the equations used to calculate i
	area	Calculation formula		Area=	widt	h*Subme	rged Area	-	
	Filtered water volume			535.1695				m³	Report filtered water volume and the equation used to calculate it
ow		Calculation formula		Volume=	Distance*Are				
arameter	Tow duration				2	2		min	
arameter	Vessel speed				1.			m/s	Speed relative to water e.g., 1.5 m/s
	Tow position				Sie				The side of a vessel or the stern of a vessel
	Distance from v	vessel			1.			m	
	Net immersion	Net immersion depth			0.			m	
		Percentage of net immersion de			5	0		%	
		Whether or not there was any or	change in the					-	
	Tow direction				Current – Win			-	e.g., direction relative to land, wind, ocean current, source (reverse, etc.)
	Blank tests	Whether or not blank tests were	re conducted					-	Evaluate the effect of contamination on sea-surface pla
		Results						particles/ sample	concentrations during onboard sampling.

#### **Results of Plastic waste found in DWR Net Towing #3**

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)
MOST LI	KELY TO FIND ITEMS:		
1	Food Wrappers (candy, chips, etc.)		
2	Take Out/Away Containers (Plastic)		
3	Take Out/Away Containers (Foam)		
4	Bottle Caps & Lids	1	2.25
5	Straws/Stirrers		
6	Forks, Knives, Spoons		
7	Beverage Bottles (Plastic)		
8	Grocery Bags (Plastic)		
9	Other Plastic Bags		
10	Cups & Plates (Plastic)		
11	Cups & Plates (Foam)		
PACKAG	ING MATERIALS:		
12	4/6-Pack Holders		
13	Other Plastic/Foam Packaging		
14	Other Plastic Bottles (oil, bleach, etc.)		
15	Strapping Bands		
<b>FISHING</b>	GEAR:		
16	Fishing Buoys, Pots & Traps		
17	Fishing Net & Pieces		
18	Fishing Line (1 yard/meter = 1 piece)		
19	Rope (1 yard/meter = 1 piece)	0.2	0.03
OTHER T	RASH:		
20	Appliances (refrigerators, washers, etc.)		
21	E-waste		
22	Cigarette Butts/Tips		
23	Construction Materials		
24	Fireworks		
25	Tires		
26	Other Plastic Material (Specify: )	5	0.03
PERSON	AL HYGIENE:		
27	Condoms		
28	Diapers		
29	Medical Items (syringe, etc.)		
30	Tampons/Tampon Applicators		
31	Cotton Bud Sticks		
TINY TRA	ASH LESS THAN 2.5 CM:		
32	Foam Pieces		
33	Plastic Pieces	3	0.01

### **Summary of the result of Macroplastic Net Towing at DWR**

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)
MOST LI	KELY TO FIND ITEMS:		
1	Food Wrappers (candy, chips, etc.)	1	0.1
2	Take Out/Away Containers (Plastic)	0	0
3	Take Out/Away Containers (Foam)	0	0
4	Bottle Caps & Lids	5	14.89
5	Straws/Stirrers	1	0.3
6	Forks, Knives, Spoons	0	0
7	Beverage Bottles (Plastic)	1	15
8	Grocery Bags (Plastic)	0	0
9	Other Plastic Bags	0	0
10	Cups & Plates (Plastic)	0	0
11	Cups & Plates (Foam)	0	0
PACKAG	ING MATERIALS:		
12	4/6-Pack Holders	0	0
13	Other Plastic/Foam Packaging	1	0.35
14	Other Plastic Bottles (oil, bleach, etc.)	0	0
15	Strapping Bands	0	0
FISHING	GEAR:		
16	Fishing Buoys, Pots & Traps	0	0
17	Fishing Net & Pieces	4	0.11
18	Fishing Line (1 yard/meter = 1 piece)	1.3	0.29
19	Rope (1 yard/meter = 1 piece)	0.5	0.03
OTHER T	RASH:		
20	Appliances (refrigerators, washers, etc.)	0	0
21	E-waste	0	0
22	Cigarette Butts/Tips	0	0
23	Construction Materials	0	0
24	Fireworks	0	0
25	Tires	0	0
26	Other Plastic Material (Specify: )	26	1.98
PERSON	AL HYGIENE:		
27	Condoms	0	0
28	Diapers	0	0
29	Medical Items (syringe, etc.)	0	0
30	Tampons/Tampon Applicators	0	0
31	Cotton Bud Sticks	0	0
TINY TRA	ASH LESS THAN 2.5 CM:		
32	Foam Pieces	2	0.54
33	Plastic Pieces	13	0.48

## Summary of the result of Macroplastic Net Towing at DWR

Survey Results	Abbrev iation	Calculation	Value	Unit
Total No. of Plastic Samples	Р	To be measured	55.8	piece
No. of Plastic Samples per unit Volume	NPV	= P / Vs	0.034	piece/ m³
Total Weight of Plastic Samples	W	To be measured	0.034	kg
Weight of Plastic Samples per unit Volume	WPV	= W / Vs	2.1E-05	kg/m³

#### **Datasheet MacroTowNet At WB #1**

	Dr.Achara	The data-input for	orm for	riverin	Fa	aculty of		cs m	onitorii	ng.						
Name of observer	Ussawaruji		Organ	ization	Enviro	nmental		Cruise name								
	kulchai		- 0			niversity										
Kalenai						/										
	It	ems			Result	s Inp	out		Unit	Explanation/ Input Examples						
	Sample name/	ID		WB1					-							
	Enter time diffe	erence from GMT.			7:00											
	Sampling date			10/10/2022					-	date/ month/ year						
	Sampling time	(Initial)		13	11	0			-	hour / minute / second						
	Sampling time			13	31	0			-							
mpling date and	Season					Season	-		-							
cation	Sampling Locati	ion (Name)			Wernb	uek : WB			-	e.g., Tokyo Bay (Tama Riv. estuary)						
	GPS Log	• Input style			Decimal				-	Select "sexagesimal (base 60) notation" or "decimal notation" to input coordinates.						
		GPS Log (Initial position)	- Latitude	15 °	19.239 '	0 "			N	Enter the coordinates in sexagesimal (base 60) or decima						
			- Longitude	105 °	33.206 '	0 "			E	notation.						
		GPS Log (Final position)	- Latitude	15 °	19.212 '	0 "			N							
			- Longitude	105 °	33.138 '	0 "			E							
	Classification	Type of net frame     Model number and manufactur							-	Manta, Neuston or other nets. e.g., JMA Neuston net, RIGO Co., Ltd., No.5552						
	of net frame	Shape of net aperture	er		Por	tangle				Rectangular, square, circular, others						
	Net aperture	Size of net aperture		1				m	Rectangular, square, circular, others							
		• Size of net aperture		0.5				m								
impling equipment								m²								
	Length of net			2				m								
	Mesh	Openings		2.5				mm								
							-	Select one side length or diagonal length								
		Model number and manufactur	-				-									
	Tow distance	• Distance			18	06.8			m	Distance relative to water						
		Calculation method											Flow meter  Rotation rounds*26873/999999		-	Describe the method used to calculate the tow distance, such as:  1: Flow meter,  2: GPS (Recorded only initial and final points),  3: Vessel speed and duration time
	Travel avec an	Calculation formula     Sweep area		Distance=		).4	208/3/9	99999	m <sup>2</sup>	Report sweep area and the equations used to calculate it						
	Trawl sweep area	Calculation formula		Area=			erged Are	а	m	report sweep area and the equations used to calculate i						
	Filtered water volume				width*Submerged Area 722.72			m <sup>3</sup>	Report filtered water volume and the equation used to calculate it							
	volume	Calculation formula		Volume=	Distance*	Area										
ow .	Tow duration					20			min							
rameter	Vessel speed				1	1.5			m/s	Speed relative to water e.g., 1.5 m/s						
	Tow position				S	ide				The side of a vessel or the stern of a vessel						
	Distance from v					1.0			m							
	Net immersion	Net immersion depth				0.4			m							
		Percentage of net immersion de				80			%							
		Whether or not there was any or	change in the		C				-	and discretize relative to least 100 to 100						
	Tow direction					$\rightarrow$ countend $\rightarrow$	er .		-	e.g., direction relative to land, wind, ocean current, sour (reverse, etc.)						
	Blank tests	Whether or not blank tests wer	re conducted		VVII	-										
	D.L.III CCSCS	Results	-				particles/	Evaluate the effect of contamination on sea-surface pla								

#### Results of Plastic waste found in WB Net Towing #1

MOST LIKELY TO FIND ITEMS:  1 Food Wrappers (candy, chips, etc.)  2 Take Out/Away Containers (Plastic)  3 Take Out/Away Containers (Foam)  4 Bottle Caps & Lids  5 Straws/Stirrers  6 Forks, Knives, Spoons  7 Beverage Bottles (Plastic)  1 19.9  8 Grocery Bags (Plastic)  9 Other Plastic Bags  10 Cups & Plates (Plastic)  11 Cups & Plates (Foam)  PACKAGING MATERIALS:  12 4/6-Pack Holders  13 Other Plastic/Foam Packaging  Other Plastic Bottles (oil, bleach, etc.)  15 Strapping Bands  FISHING GEAR:  16 Fishing Buoys, Pots & Traps  17 Fishing Net & Pieces  18 Fishing Line (1 yard/meter = 1 piece)  OTHER TRACELLY	
Take Out/Away Containers (Plastic)  Take Out/Away Containers (Foam)  Bottle Caps & Lids  Straws/Stirrers  Forks, Knives, Spoons  Beverage Bottles (Plastic)  Grocery Bags (Plastic)  Other Plastic Bags  Cups & Plates (Plastic)  Cups & Plates (Foam)  PACKAGING MATERIALS:  4/6-Pack Holders  Gother Plastic/Foam Packaging  Other Plastic/Foam Packaging  Other Plastic Bottles (oil, bleach, etc.)  Strapping Bands  FISHING GEAR:  Fishing Buoys, Pots & Traps  Fishing Line (1 yard/meter = 1 piece)  Rope (1 yard/meter = 1 piece)	
3 Take Out/Away Containers (Foam) 4 Bottle Caps & Lids 5 Straws/Stirrers 6 Forks, Knives, Spoons 7 Beverage Bottles (Plastic) 1 19.9 8 Grocery Bags (Plastic) 9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam) PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
4 Bottle Caps & Lids 5 Straws/Stirrers 6 Forks, Knives, Spoons 7 Beverage Bottles (Plastic) 1 19.9 8 Grocery Bags (Plastic) 9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam) PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
5 Straws/Stirrers 6 Forks, Knives, Spoons 7 Beverage Bottles (Plastic) 1 19.9 8 Grocery Bags (Plastic) 9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam) PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
6 Forks, Knives, Spoons 7 Beverage Bottles (Plastic) 1 19.9 8 Grocery Bags (Plastic) 9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam) PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
7 Beverage Bottles (Plastic) 1 19.9 8 Grocery Bags (Plastic) 9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam) PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging  14 Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
8 Grocery Bags (Plastic) 9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam)  PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands  FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
9 Other Plastic Bags 10 Cups & Plates (Plastic) 11 Cups & Plates (Foam)  PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands  FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
10 Cups & Plates (Plastic) 11 Cups & Plates (Foam)  PACKAGING MATERIALS: 12 4/6-Pack Holders 13 Other Plastic/Foam Packaging  14 Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands  FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
11 Cups & Plates (Foam)  PACKAGING MATERIALS:  12 4/6-Pack Holders  13 Other Plastic/Foam Packaging  Other Plastic Bottles (oil, bleach, etc.)  15 Strapping Bands  FISHING GEAR:  16 Fishing Buoys, Pots & Traps  17 Fishing Net & Pieces  Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
PACKAGING MATERIALS:  12  4/6-Pack Holders  13  Other Plastic/Foam Packaging  Other Plastic Bottles (oil, bleach, etc.)  15  Strapping Bands  FISHING GEAR:  16  Fishing Buoys, Pots & Traps  17  Fishing Net & Pieces  18  Fishing Line (1 yard/meter = 1 piece)  19  Rope (1 yard/meter = 1 piece)	
12 4/6-Pack Holders 13 Other Plastic/Foam Packaging  14 Other Plastic Bottles (oil, bleach, etc.) 15 Strapping Bands  FISHING GEAR: 16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
13 Other Plastic/Foam Packaging  Other Plastic Bottles (oil, bleach, etc.)  15 Strapping Bands  FISHING GEAR:  16 Fishing Buoys, Pots & Traps  17 Fishing Net & Pieces  Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
14 Other Plastic Bottles (oil, bleach, etc.)  15 Strapping Bands  FISHING GEAR:  16 Fishing Buoys, Pots & Traps  17 Fishing Net & Pieces  18 Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
etc.)  15 Strapping Bands  FISHING GEAR:  16 Fishing Buoys, Pots & Traps  17 Fishing Net & Pieces  18 Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
FISHING GEAR:  16 Fishing Buoys, Pots & Traps  17 Fishing Net & Pieces  18 Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
16 Fishing Buoys, Pots & Traps 17 Fishing Net & Pieces 18 Fishing Line (1 yard/meter = 1 piece) 19 Rope (1 yard/meter = 1 piece)	
17 Fishing Net & Pieces  18 Fishing Line (1 yard/meter = 1 piece)  19 Rope (1 yard/meter = 1 piece)	
Fishing Line (1 yard/meter = 1 piece)  Rope (1 yard/meter = 1 piece)	
piece)  19 Rope (1 yard/meter = 1 piece)	
OTHER TRACH.	
OTHER TRASH:	
Appliances (refrigerators, washers, etc.)	
21 E-waste	
22 Cigarette Butts/Tips	
23 Construction Materials	
24 Fireworks	
25 Tires	
26 Other Plastic Material (Specify: 4 0.02	
PERSONAL HYGIENE:	
27 Condoms	
28 Diapers	
29 Medical Items (syringe, etc.)	
30 Tampons/Tampon Applicators	
31 Cotton Bud Sticks	
TINY TRASH LESS THAN 2.5 CM:	
32 Foam Pieces	
33 Plastic Pieces 2 0.01	

#### **Datasheet MacroTowNet At WB #2**

	The data-input for	m for riverine	macroplastic	s monitori	ng.
Dr.Achara Name of observer <mark>Ussawaruji</mark> <mark>kulchai</mark>		Organization	Faculty of Environmental and resource study Mahidol University	Cruise name	

	kulchai				Ui	niversity	'			
	lt	ems			Result	s Inp	ut		Unit	Explanation/ Input Examples
	Sample name/	ID		WB2					-	-
		erence from GMT.			7:00				-	
	Sampling date									date/ month/ year
	Sampling time (Initial)			10/10/2022	44	0				hour / minute / second
ampling date and ocation	Sampling time (final)				5	0				Illoury Hilliate y Second
	Season					Season				
		! (NI)				uek : WB				T   0 /T   0:   )
	Sampling Locat				werno	uek: WB		Т	-	e.g., Tokyo Bay (Tama Riv. estuary) Select "sexagesimal (base 60) notation" or "decimal
	GPS Log	• Input style			Decimal				-	notation" to input coordinates.
		GPS Log (Initial position)	- Latitude	15°	19.286 '	0 "			N	Enter the coordinates in sexagesimal (base 60) or decima
		, and any (	- Longitude	105°	33.669 '	0"			Е	notation.
		GPS Log (Final position)	- Latitude	15 °	19.340 '	0 "			N	
			- Longitude	105°	33.595 '	0 "			E	
	Classification	Type of net frame				-			-	Manta, Neuston or other nets.
	of net frame	Model number and manufactu	rer			-			-	e.g., JMA Neuston net, RIGO Co., Ltd., No.5552
	Net aperture	Shape of net aperture	Rectangle					-	Rectangular, square, circular, others	
		Size of net aperture	- Width	1					m	
			- Height	0.5					m	
			- Area			.50			m <sup>2</sup>	
	Length of net					2			m	
	Mesh	Openings     Model number and manufacturer			2	2.5			mm -	
										Select one side length or diagonal length
	Tow distance	Distance	1762.816					m	Distance relative to water	
	Tow distance	Calculation method							Describe the method used to calculate the tow distance,	
									such as:	
			Flow meter				-	1: Flow meter,		
		- Calculation formula						2: GPS (Recorded only initial and final points),		
				Distance= Rotation rounds*26873/999999				00000		3: Vessel speed and duration time
	T	Calculation formula     Sweep area		Distance=		n rounus ).3	208/3/5	199999	- m <sup>2</sup>	D
	Trawl sweep	Sweep area     Calculation formula		Area=		i.a ith*Subm	orgod Ar	0.3	m	Report sweep area and the equations used to calculate i
	area Filtered water			Alea-			crgcu ru			Report filtered water volume and the equation used to
	volume	- vater volume			528	.8448			m <sup>3</sup>	calculate it
	voiuiile	Calculation formula		Volume=	Distance*A	Area				
DW .	Tow duration					21			min	
arameter	Vessel speed				1	L.4			m/s	Speed relative to water e.g., 1.5 m/s
	Tow position				Si	ide				The side of a vessel or the stern of a vessel
	Distance from v	vessel			1	L.0			m	
	Net immersion	Net immersion depth			C	0.3			m	
		Percentage of net immersion d	epth to size of		(	60			%	
		Whether or not there was any	change in the						-	
	Tow direction					→ counte	r		_	e.g., direction relative to land, wind, ocean current, sour
		- W.bab				nd →				(reverse, etc.)
	Blank tests	Whether or not blank tests we     Results	re conducted						- particles/	Evaluate the effect of contamination on sea-surface pla

#### **Results of Plastic waste found in WB Net Towing #2**

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)
MOST LI	KELY TO FIND ITEMS:		
1	Food Wrappers (candy, chips, etc.)		
2	Take Out/Away Containers (Plastic)		
3	Take Out/Away Containers (Foam)		
4	Bottle Caps & Lids		
5	Straws/Stirrers		
6	Forks, Knives, Spoons		
7	Beverage Bottles (Plastic)		
8	Grocery Bags (Plastic)		
9	Other Plastic Bags		
10	Cups & Plates (Plastic)		
11	Cups & Plates (Foam)		
	ING MATERIALS:		
12	4/6-Pack Holders		
13	Other Plastic/Foam Packaging		
14	Other Plastic Bottles (oil, bleach,		
15	etc.)		
15 FISHING	Strapping Bands		
16	Fishing Buoys, Pots & Traps		
17	Fishing Net & Pieces		
18	Fishing Line (1 yard/meter = 1 piece)		
19	Rope (1 yard/meter = 1 piece)		
OTHER T	1 - 1 - 1		
20	Appliances (refrigerators, washers, etc.)		
21	E-waste		
22	Cigarette Butts/Tips		
23	Construction Materials		
24	Fireworks		
25	Tires		
26	Other Plastic Material (Specify: )	1	0.01
PERSON.	AL HYGIENE:		
27	Condoms		
28	Diapers		
29	Medical Items (syringe, etc.)		
30	Tampons/Tampon Applicators		
31	Cotton Bud Sticks		
	ASH LESS THAN 2.5 CM:		
32	Foam Pieces		
33	Plastic Pieces	4	0.01

#### **Datasheet MacroTowNet At WB #3**

	The data-input form for riverine macroplastics monitoring.							
Name of observer	Dr.Achara Ussawaruji kulchai	Organization	Faculty of Environmental and resource study Mahidol University	Cruise name				

'	kulchai				U	niversity				
	Items				Result	s Inp	ut		Unit	Explanation/ Input Examples
	Sample name/	ID		WB2						
		erence from GMT.			7:00				_	
	Sampling date	rence from divir.		10/10/2022						date/ month/ year
	Sampling time	(Initial)		14	12	0				hour / minute / second
	Sampling time			14	31	0				nour / minute / second
ampling date and	Season	(Filial)		24		Season			-	
cation	Sampling Locat	ion (Namo)				uek : WB				e.g., Tokyo Bay (Tama Riv. estuary)
cation		• Input style			uek. WB			-	Select "sexagesimal (base 60) notation" or "decimal	
	GPS Log	• Iliput style			Decimal				-	notation" to input coordinates.
		GPS Log (Initial position)	- Latitude	15 °	19.340 '	0 "			N	Enter the coordinates in sexagesimal (base 60) or decima
			- Longitude	105°	33.595 '	0 "			E	notation.
		<ul> <li>GPS Log (Final position)</li> </ul>	- Latitude	15 °	19.341 '	0 "			N	
			- Longitude	105°	33.586 '	0 "			E	
	Classification	Type of net frame				-			-	Manta, Neuston or other nets.
	of net frame	Model number and manufactur	- Rectangle					-	e.g., JMA Neuston net, RIGO Co., Ltd., No.5552	
	Net aperture	Shape of net aperture     Size of net aperture	- Width	Rectangle 1					m m	Rectangular, square, circular, others
		• Size of flet aperture	- Height			0.5			m	
			- Area			.50			m²	
	Length of net					2			m	
	Mesh	<u> </u>				2.5			mm	
	IVICSII							-	Select one side length or diagonal length	
		Model number and manufacture	rer	-					-	
	Tow distance	Distance		1653.95					m	Distance relative to water
		Calculation method	n method			Flow meter				Describe the method used to calculate the tow distance, such as:  1: Flow meter,  2: GPS (Recorded only initial and final points),  3: Vessel speed and duration time
		Calculation formula		Distance=	Rotation roun		ounds*26873/999999		-	
	Trawl sweep	Sweep area			0	1.3			m²	Report sweep area and the equations used to calculate it
	area	Calculation formula		Area=	wid	th*Subme	erged Are	a	-	
	Filtered water volume					.4875			m <sup>3</sup>	Report filtered water volume and the equation used to calculate it
ow		Calculation formula		Volume=	Distance*A					
arameter	Tow duration					19			min	Consideration to contact
l	Vessel speed					1.5			m/s	Speed relative to water e.g., 1.5 m/s
	Tow position					ide				The side of a vessel or the stern of a vessel
	Distance from v					1.0			m	
	Net immersion	Net immersion depth				.25			m	
		Percentage of net immersion de Nathana and thoras				50			%	
	Tow direction	Whether or not there was any	cnange in the			→ counte	r			e.g., direction relative to land, wind, ocean current, source
	Blank tests	Whether or not blank tests we	re conducted			na → -				(reverse, etc.)
				Wind →						Evaluate the effect of contamination on sea-surface pla

#### **Results of Plastic waste found in WB Net Towing #3**

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)
MOST LI	KELY TO FIND ITEMS:		
1	Food Wrappers (candy, chips, etc.)		
2	Take Out/Away Containers (Plastic)		
3	Take Out/Away Containers (Foam)		
4	Bottle Caps & Lids		
5	Straws/Stirrers		
6	Forks, Knives, Spoons		
7	Beverage Bottles (Plastic)		
8	Grocery Bags (Plastic)		
9	Other Plastic Bags		
10	Cups & Plates (Plastic)		
11	Cups & Plates (Foam)		
	ING MATERIALS:		
12	4/6-Pack Holders		
13	Other Plastic/Foam Packaging		
14	Other Plastic Bottles (oil, bleach, etc.)		
15	Strapping Bands		
FISHING	GEAR:		
16	Fishing Buoys, Pots & Traps		
17	Fishing Net & Pieces		
18	Fishing Line (1 yard/meter = 1 piece)		
19	Rope (1 yard/meter = 1 piece)	0.15	0.01
OTHER T	RASH:		
20	Appliances (refrigerators, washers, etc.)		
21	E-waste		
22	Cigarette Butts/Tips		
23	Construction Materials		
24	Fireworks		
25	Tires		
26	Other Plastic Material (Specify: )	1	0.01
PERSON.	AL HYGIENE:		
27	Condoms		
28	Diapers		
29	Medical Items (syringe, etc.)		
30	Tampons/Tampon Applicators		
31	Cotton Bud Sticks		
TINY TRA	ASH LESS THAN 2.5 CM:		
32	Foam Pieces		
33	Plastic Pieces	4	0.02

### **Summary of the result of Macroplastic Net Towing at WB**

No.	Plastic Product Item	Total Piece (pieces)	Total Weight (g)
MOST LI	KELY TO FIND ITEMS:		
1	Food Wrappers (candy, chips, etc.)	0	0
2	Take Out/Away Containers (Plastic)	0	0
3	Take Out/Away Containers (Foam)	0	0
4	Bottle Caps & Lids	0	0
5	Straws/Stirrers	0	0
6	Forks, Knives, Spoons	0	0
7	Beverage Bottles (Plastic)	1	19.9
8	Grocery Bags (Plastic)	0	0
9	Other Plastic Bags	0	0
10	Cups & Plates (Plastic)	0	0
11	Cups & Plates (Foam)	0	0
PACKAG	ING MATERIALS:		
12	4/6-Pack Holders	0	0
13	Other Plastic/Foam Packaging	0	0
14	Other Plastic Bottles (oil, bleach, etc.)	0	0
15	Strapping Bands	0	0
FISHING	GEAR:		
16	Fishing Buoys, Pots & Traps	0	0
17	Fishing Net & Pieces	0	0
18	Fishing Line (1 yard/meter = 1 piece)	0	0
19	Rope (1 yard/meter = 1 piece)	0.15	0.01
OTHER T	RASH:		
20	Appliances (refrigerators, washers, etc.)	0	0
21	E-waste	0	0
22	Cigarette Butts/Tips	0	0
23	Construction Materials	0	0
24	Fireworks	0	0
25	Tires	0	0
26	Other Plastic Material (Specify:	6	0.04
PERSONA	AL HYGIENE:		
27	Condoms	0	0
28	Diapers	0	0
29	Medical Items (syringe, etc.)	0	0
30	Tampons/Tampon Applicators	0	0
31	Cotton Bud Sticks	0	0
TINY TRA	ASH LESS THAN 2.5 CM:		
32	Foam Pieces	0	0
32			

## **Summary of the result of Macroplastic Net Towing at WB**

Survey Results	Abbrev iation	alculatio	Value	Unit
Total No. of Plastic Samples	Р	To be measur ed	17.15	piece
No. of Plastic Samples per unit Volume	NPV	= P / Vs	0.010	piece/ m <sup>3</sup>
Total Weight of Plastic Samples	W	To be measur ed	0.020	kg
Weight of Plastic Samples per unit Volume	WPV	= W / Vs	1.2E-05	kg/m³

Riverine Macroplastic Monitoring: Sampling by Tow Net

#### **Datasheet Microplastic Tow Net at DWR**

Name of observer	Dr.Achara Ussawarujikulchai		Organiza	ation		f Environme rce study M University	ahidol	Crui	se name	
	ltems				F	Results Inpu	t		Unit	Explanation/ Input Examples
	Sample name/ ID			DWR2-Mic					-	
	Enter time difference fro	m GMT.			7:00	ı			-	
	Sampling date			9/10/2022					-	date/ month/ year
	Sampling time (Initial)			10	38				-	hour / minute / second
	Sampling time (Final) Season			10	50	_			-	
						Wet Season			-	
	Sampling Location (Nam	e)			н	013801 : DW	/R		_	e.g., Tokyo Bay (Tama Riv.
Sampling date and										estuary)
location	GPS Log	• Input s	style		Decimal				-	Select sexagesimal (base 60) notation or decimal notation to input coordinates.
		• GPS	- Latitude	15 °	19.555 '				N	Enter the coordinates in
		Log (Initial	- Longitude	105 °	29.445 '				E	sexagesimal (base 60) or decimal notation.
		• GPS	- Latitude							acciniai notation.
		Log	- Lantade - Longitude	15 °	19.455 °				N	-
		(Final		105°	29.670 °				E	
	Classification of net frame		f net frame			Neuston			-	Manta, Neuston or other nets.
		Model     manufac	number and turer						-	e.g., JMA Neuston net, RIGO Co., Ltd., No.5552
	Net aperture	• Shape	of net aperture		Rectangle					Rectangular, square, circular, others
impling equipment			- Width			1			m	
		net aperture	- Height			0.5			m m²	
	Length of net	apertare	Aicu			2			m	
	Mesh	Openii	ngs	0.2					mm	
				-					-	Select one side length or diagonal length
	Tow distance	Model     Distan	number and			278.136			-	Distance relative to water
	Tow distance	Calcula	ation method	Distance=		Flow meter	s*26873/99995	Q	- -	Describe the method used to calculate the tow distance such as:  1: Flow meter,  2: GPS (Recorded only initial and final points),  3: Vessel speed and duration time
	Trawl sweep area	Sweep		Distance-	NOTE	ition round	5 200/3/33333	5	-	
						0.4			m <sup>2</sup>	Report sweep area and the equations used to calculate it.
			ation formulas	Area=		width*Subn	nerged Area		-	
Гоw	Filtered water volume	Water	volume			102.91			m³	Report filtered water volume and the equation used to
Parameter					B					calculate it
	Tow duration	Calcula	ation formulas	Volume=	Distance*A	rea 12			min	+
	Vessel speed					1.8			m/s	Speed relative to water e.g., 1.5 m/s
	Tow position					Side				The side of a vessel or the stern of a vessel
	Distance from vessel					1.0			m	
	Net immersion		mersion depth			0.37			m	
			tage of net er or not there			74			% -	-
	Tow direction	- Micti	or not there		Curr	rent → Cour Wind →	nter		-	e.g., direction relative to land, wind, ocean current, sources
	Blank tests	e Whath	or or not blank							(reverse, etc.)
	Blank tests	Wnetn     Results	er or not blank						particles /	Evaluate the effect of contamination on sea-surface
									sample	plastic concentrations during

Name of observer	Dr.Achara Ussawarujikulchai	Organiza	Faculty of Environmental and resource study Mahidol Cr University	uise name	
Laboratom, analysis	Items		Results Input	Unit	Explanation/ Input Examples
Laboratory analysis	Whether or not density s	eparation was conducted	Conducted	-	Record "Conducted" or "Not conducted".
Density separation	Type of solution used for	density separation	NaCl	-	e.g., NaCl, ZnCl <sub>2</sub>
	Concentration of solution	used for density	30	%	
	Processing Time.		1440	min	Optional.
	Whether or not biologica treatment was conducte	d	-	-	Record "Conducted" or "Not conducted".
Biological digestion and chemical treatment	Methods used for digesti	ng organic matter .		-	Acid treatment, alkali treatment, enzyme treatment, oxidation treatment, etc.
	Temperature during proc	essing	75	°C	
	Reaction time		1920	min	
Sample splitting	Whether or not sample s		Conducted	-	Record "Conducted" or "Not conducted".
	Method or equipment of Estimated relative error r			- %	e.g., Folsom
	Whether or not pretreatr				Record "Conducted" or "Not
	particles conducted		Conducted	-	conducted".
Picking of microplastic particles	cking of microplastic Type of pretreatment		removing non-plastic particles, size classification of plastics using sieves	-	e.g., removing non-plastic particles, size classification of plastics using sieves
	Whether or not picking w	as conducted under	Used	-	Record "Used" or "Not used"
Counting and measuring sizes of particles			Sieves	-	Whether maximum diameter was measured or sieves were used
	Whether or not composit conducted	ion analysis was	Conducted	-	"Conducted" or "Not conducted".
Identification of microplastics	Method of composition a		FTIR 100	- %	e.g., FTIR, Raman spectroscopy, etc.  When using methods other than spectroscopy to check the material (pricking with a heated needle, grinding with a forceps, etc.), describe them.
	Temperature of sample d		80	°C	
	Humidity of sample dryin			%	
Weight measurement	Processing time of sample Methods of weight measu		-	min -	e.g., weighing the particles directly on a scale, weighing the mass of the vial and microplastics together and subtracting the mass of the tared vial to provide the mass of the microplastics.
	Blank tests	Whether or not blank tests were conducted		-	"Conducted" or "Not conducted".
		• Results	-	particles/ sample	Outline procedure and results of blank tests in the laboratory analysis.
QA/QC	Spiked recovery tests	Whether or not spiked recovery tests were			"Conducted" or "Not conducted".
		Results		particles/ sample	Outline procedure and results of spiked recovery tests in the laboratory analysis.

Name of observer	Dr.Achara Ussawarujikulchai		Organiza	ation		of Environme rce study M University		Crui	se name	
. "	Items				F	Results Inpu	t		Unit	Explanation/ Input Examples
Result	Maximum Feret's diameter 1.0≤d<5.0	Numbe	r of particles			33			particles/ sample	Record data in at least one of the three units given on the left, and provide information for converting data, if possible.
			density (per rater volume)			0.32			particles/m³	
		Particle trawl swe	density (per ept area)			89.19	particles/m²			
Weight and number of	Maximum Feret's diameter d<1.0		r of particle		150					Please note that for particles less than 1 mm, final results could be regarded as underestimated (See pp.15~18, pp 47~48 in the Guidelines).
eight and number of astic particles		filtered w	density (per ater volume) density (per			1.46			particles/m <sup>3</sup>	
		Particle     trawl swe     Total w	ept area)			405.41			particles/m²	
	Maximum Feret's diameter		r of particle			0			g particles/ sample	
	d <u>&gt;</u> 5.0		density (per ater volume)			0.00			particles/m³	
		trawl swe				0.00			particles/m <sup>2</sup>	
	Total	Total w     Numbe	eight r of particle			183		g particles/		
		Particle density (per filtered water volume)		1.78					sample particles/m³	
		Particle density (per     Total weight				494.59			particles/m <sup>2</sup>	
		• Shapes	- Category	Fragment	Fiber	Film			Total	
		micropla	- Percentage	31.0%	33.0%	36.0%			100.0%	
		stic  •  Material	- Category	PP	Polyester	Acrylic	LDPE		Total	-
		of micropla	- Percentage	73.0%	22.0%	0.0%	5.0%		100.0%	
		• Colors of	- Category	Blue	Green	White	Black	Red	Total	
		stic	- Percentage	45.0%	18.0%	18.0%	18.0%	1.0%	100.0%	Please input the top five categories in descending orde
	d<1.0	of	- Category	Fragment	Fiber	Film			Total	of the observed characteristic
		micropla stic	- Percentage - Category	91.0%					100.0%	particles in each sample. Whe entering, please also enter the
		Material of	- Percentage	PP	Polyester		LDPE		Total	percentage (%) data.
		micropla • Colors	- Category	96.0% Blue					100.0% Total	<shape> Fragments, beads, foam,</shape>
		of micropla	- Percentage	60.0%	Green 17.0%	White 7.0%	Orange 2.0%	Red 2.0%	88.0%	pellets and fibers are classification categories by
Properties of the plastic particles			- Category			1107		,-	Total	shape commonly seen in man studies that currently perform
	d <u>&gt;</u> 5.0	-	- Percentage						0.0%	classification by shape.
		stic  •  Material	- Category						Total	<material> e.g., PP, HDPE, LDPE, PU.</material>
		of micropla	- Percentage						0.0%	<color></color>
			- Category						Total	Black, blue, white, transparent red, green, multicolors and
		stic	- Percentage						0.0%	others are introduced as the most common classification
	Total	of	- Category	Fragment	Fiber	Film			Total	categories.
		micropla stic	- Percentage	73.0%	15.0%				100.0%	
		• Material	- Category - Percentage	PP	Polyester	Acrylic	LDPE		Total	
		of micropla • Colors	- Category	88.2%					100.0%	
		of micropla	- Percentage	Blue E6 0%	Green	White	Black 6.0%	Red 6.0%	Total	
Notes		stic		56.0%	17.0%	12.0%	6.0%	6.0%	97.0%	

#### Results of Microplastic waste found in DWR Net Towing #1

				DV	VR2				
Camula	Sample		Serial No.	Longest	Shortest	Dimen-		Shape/	
Sample name	Derial	Image No.	within	length	length	sions	Materials	Snape/ Form	Color
DWR-Up	Number 1.1	1	image 1	[mm] 1.449	[mm] 0.418	[mm2] 0.039	Polyester	Fiber	Blue
DWR-Up	1.1	1	2	0.463	0.418	0.039	PP	Fragment	Blue
DWR-Up	1.3	1	3	1.377	0.516	0.099	PP	Fiber	Black
DWR-Up	2	2	2	0.629	0.078	0.029	PP	Fragment	Blue
DWR-Up	3.1	3	1	0.023	1.006 0.183	0.048	PP PP	Fragment Fragment	Green
DWR-Up	3.1	3	1	0.003	0.142	0.035	PP	Fragment	Green
DWR-Up	3.1	3	1	0.003	0.177	0.023	PP	Fragment	Green
DWR-Up DWR-Up	3.2	3	3	0.01	0.151 0.362	0.103 0.15	PP PP	Fragment Fragment	Green Blue
DWR-Up	3.4	3	4	0.029	0.63	0.167	PP	Fragment	Green
DWR-Up	4.1	4	1	0.231	0.081	0.009	PP	Fiber	Blue
DWR-Up	4.1	4	1	0.216	0.027	0.003	PP	Fiber	Blue
DWR-Up DWR-Up	4.2 5.1	5	2	0.5	0.338 0.189	0.039	PP PP	Fiber Fragment	Blue Blue
DWR-Up	5.1	5	1	0.555	0.33	0.103	PP	Fragment	Blue
DWR-Up	5.2	5	2	0.507	0.161	0.055	PP	Fragment	Blue
DWR-Up	5.3	5	3	0.544	0.221	0.065	PP	Fragment	Blue
DWR-Up DWR-Up	6.1	6	2	0.622 1.843	0.216 0.264	0.019	Polyester Polyester	Fiber Fiber	Blue
DWR-Up		6	3	1.084		0.036		Fiber	Transparen
-	6.3				0.149		Cotton		t
DWR-Up DWR-Up	7.1	7	2	1.763 0.287	0.37	0.06	Polyester	Fiber Fragment	Black Green
DWR-Up	7.3	7	3	0.287	0.134	0.006	PP	Fragment	Green
DWR-Up	7.4	7	4	0.388	0.23	0.051	PP	Fragment	Blue
DWR-Up	8.1	8	1	0.313	0.221	0.038	PP	Fragment	Green
DWR-Up	8.2 8.3	8	2	0.213 2.798	0.124 0.789	0.02 0.116	Non P Polyester	Fragment	White Black
DWR-Up	9.1	9	1	0.476	0.789	0.061	PP	Fragment	Blue
DWR-Up	9.1	9	1	0.474	0.144	0.048	PP	Fragment	Blue
DWR-Up	9.1	9	1	0.709	0.223	0.105	PP	Fragment	Blue
DWR-Up DWR-Up	9.2	9	3	1.331 0.418	0.321	0.279	PP PP	Fragment Fragment	Blue Blue
DWR-Up	10.1	10	1	1.549	0.556	0.072	Rayon	Fiber	Blue
DWR-Up	10.2	10	2	0.496	0.252	0.08	PP	Fragment	Orange
DWR-Up	11.1	11	1	0.36	0.308	0.078	PP Non D	Fragment	White White
DWR-Up	11.2 12.1	11 12	2	0.294	0.128 0.185	0.029	Non P PP	Fragment Fragment	White
DWR-Up	12.2	12	2	0.688	0.117	0.047	PP	Fragment	Blue
DWR-Up	12.3	12	3	0.662	0.307	0.091	PP	Fragment	White
DWR-Up	13	13	13	0.11	0.051	0.015	PP	Fragment	White
DWR-Up DWR-Up	14.1 14.2	14 14	2	0.328	0.251 0.128	0.047	Non P PP	Fragment Fragment	White Red
DWR-Up	14.3	14	3	0.805	0.164	0.02	PP	Fragment	Red
DWR-Up	15	15	15	0.28	0.183	0.018	PP	Fragment	Blue
DWR-Up	16.1	16	1	0.127	0.028	5.956E-05	Rayon	Fiber	Transparen
									t Transparen
DWR-Up	16.2	16	2	0.14	0.013	5.802E-05	Silk	Fiber	t
DWR-Up	17.1	17	1	0.011	0.005	3.427E-05	PP	Fragment	Yellow
DWR-Up	17.2	17	2	0.009	0.006	3.541E-05	Non P	Foam	White
DWR-Up DWR-Up	17.3 18.1	17 18	3	0.007 0.017	0.006 0.005	2.998E-05 0.0000495	PP PP	Fragment Fragment	Blue Blue
DWR-Up	18.2	18	2	0.012	0.006	0.000046	PP	Fragment	Blue
DWR-Up	18.2	18	2	0.012	0.006	3.717E-05	PP	Fragment	Blue
DWR-Up	18.3	18	3	0.008	0.006	3.214E-05	PP	Fragment	Blue
DWR-Up	19.1	19	1	0.015	0.004	0.0000379	PP Alumina	Fragment	Blue
DWR-Up	19.2	19	2	0.015	0.007	0.000064	Silicate	Fragment	Black
DWR-Up	19.3	19	3	0.009	0.007	0.0000446	Polyester	Fiber	Black
DWR-Up DWR-Up	19.4 20.1	19 20	1	0.023	0.008	0.0000211 8.895E-06	PP PP	Fragment Fragment	Blue Blue
DWR-Up	20.2	20	2	0.005	0.004	1.328E-05	PP	Fragment	Blue
DWR-Up	20.3	20	3	0.005	0.003	9.918E-06	PP	Fragment	Blue
DWR-Up	21.1	21	1	0.599	0.412	0.155	Non P	Fragment	Black
DWR-Up	21.1	21	2	0.388	0.278	0.058 4.078E-05	Non P PP	Fragment Fragment	Black Blue
DWR-Up	21.3	21	3	0.013	0.003	5.759E-05	PP	Fragment	Blue
DWR-	D1.1	D1	D1	0.864	0.129	0.029	Acrylic	Fiber	Pink
Down DWR-							72		
Down	D1.2	D1	2	0.665	0.278	0.135	Non P	Fragment	Black
DWR-	D1.3	D1	3	0.309	0.252	0.047	Non P	Fragment	White
Down	D1.3	01	3	0.305	0.232	0.047	NOTE	. ragment	wille
DWR- Down	D1.3	D1	3	0.264	0.213	0.039	Non P	Fragment	White
DWR-	c1	<b>c1</b>	61	E 244	2 262	10.005	PP	Film	White
Sieving	s1	s1	s1	5.241	2.362	10.065	PP	riiin	wille
DWR- Sieving	s11	s11	s11	1.274	0.116	0.11	PP	Fragment	Green
DWR-									
Sieving	s12	s12	s12	4.033	0.845	2.553	PP	Film	Blue
DWR-	s13	s13	s13	4.205	0.483	1.503	PP	Film	Blue
Sieving DWR-									
Sieving	s14	s14	s14	0.771	0.316	0.133	PP	Fragment	Blue
DWR-	s2	s2	s2	5.346	2.163	7.73	PP	Film	White
Sieving	32	32	32	3.340	2.103	7.73			wille
DWR- Sieving	s3	s3	s3	5.513	3.368	10.457	PP	Film	White
DWR-				F + C	2.20	10.711	LDDS	E:	14/6 ***
Sieving	s4	s4	s4	5.46	3.28	10.744	LDPE	Film	White
DWR-	s5	s5	s5	1.151	0.354	0.344	PP	Fragment	Blue
Sieving DWR-									
Sieving	s6	s6	s6	2.163	0.541	0.681	PP	Fragment	Green
DWR-	s7	s7	s7	2.131	0.661	0.838	PP	Fragment	Green
Sieving DWR-				-	-			J IZIN	
Sieving	s8	s8	s8	3.703	2.236	5.837	PP	Film	Blue
DWR-	s9	s9	s9	3.908	3.144	7.048	PP	Film	Blue
Sieving	35	33	35	3.308	3.144	7.040		7 11111	Side

#### **Datasheet Microplastic Tow Net at WB**

Name of observer Ussawarujikulchai

Organization

Organization

Ahidol University

Faculty of Environmental and resource study Mahidol University

				Mahidol University							
	ltems				Res	ults Input	t		Unit	Explanation/ Input Examples	
	Sample name/ ID			WB2					-		
	Enter time difference	from GMT.			7:00				-		
	Sampling date			#########					-	date/ month/ year	
	Sampling time (Initia	1)		10	14				-	hour / minute / second	
	Sampling time (Final)			10	24				-		
	Season				W	et Season			-		
	Sampling Location (N	iamej				WB			-	e.g., Tokyo Bay (Tama Riv. estuary)	
Sampling date and location	GPS Log	• Input style			Decimal				-	Select sexagesimal (base 60) notation or decimal notation to input coordinates.	
		GPS Log	- Latitude	15 °	19.246 '				N	Enter the coordinates in sexagesimal	
		(Initial position)	- Longitude	105 °	33.315 '				Е	(base 60) or decimal notation.	
		GPS Log (Final		15°							
		position)			19.287°				N		
			- Longitude	105 °	33.463 °				E		
					١	leuston			-	Manta, Neuston or other nets.	
		Model numbe manufacturer				-			-	e.g., JMA Neuston net, RIGO Co., Ltd., No.5552	
Sampling	Net aperture	Shape of net aperture		Rectangle					-	Rectangular, square, circular, others	
equipment		• Size of net	- Width			1			m		
		aperture	- Height			0.5			m		
			- Area	0.50					m <sup>2</sup>		
	Length of net Mesh	Openings		0.2					m mm		
	incan	Openings				-			-	Select one side length or diagonal length	
		Model numbe	r and	-					-		
	Tow distance	Distance		588.385					m	Distance relative to water	
		• Calculation me			ow meter			-	Describe the method used to calculate the tow distance such as:  1: Flow meter,  2: GPS (Recorded only initial and final points),  3: Vessel speed and duration time		
	Trawl sweep area	Calculation for     Sweep area	rmulas	Distance= Rotation rounds*26873/999999  588.4					m <sup>2</sup>	Report sweep area and the equations used to calculate it.	
				Area= width*Submerged Area							
		Calculation for	rmulas	Area=	wi	dth*Subn	nerged Ar	ea	-		
	Filtered water volume	Calculation for     Water volume	rmulas	Area=		dth*Subn	nerged Ar	ea	- m³	Report filtered water volume and the equation used to calculate it	
				Area=		176.52	nerged Ar	ea	- m³	1 1	
· · · · · · · · · · · · · · · · · · ·	volume  Tow duration	Water volume				176.52	nerged Ar	ea	- m³	1 1	
	volume	Water volume				176.52 Area	nerged Ar	ea		1 1	
	volume  Tow duration	Water volume				176.52 Area 10	nerged An	28	min	equation used to calculate it  Speed relative to water	
	volume  Tow duration  Vessel speed	Water volume     Calculation for				176.52 Area 10 1.8	nerged An	ea	min	equation used to calculate it  Speed relative to water e.g., 1.5 m/s  The side of a vessel or the stern of a	
	volume  Tow duration  Vessel speed  Tow position	Water volume     Calculation for  Net immersior	mulas			176.52  Area 10  1.8  Side  1.0  0.3	nerged Arı	ea	min m/s	equation used to calculate it  Speed relative to water e.g., 1.5 m/s  The side of a vessel or the stern of a	
	volume  Tow duration  Vessel speed  Tow position  Distance from vessel	Water volume     Calculation for      Net immersior     Percentage of	rmulas n depth net	Volume=		176.52  Area 10  1.8  Side  1.0	nerged Ari	ea	min m/s	equation used to calculate it  Speed relative to water e.g., 1.5 m/s  The side of a vessel or the stern of a	
Fow Parameter	volume  Tow duration  Vessel speed  Tow position  Distance from vessel	Water volume     Calculation for  Net immersior	rmulas n depth net	Volume=	Distance*	176.52  Area 10  1.8  Side  1.0  0.3		22	min m/s	equation used to calculate it  Speed relative to water e.g., 1.5 m/s  The side of a vessel or the stern of a	
	volume  Tow duration  Vessel speed  Tow position  Distance from vessel  Net immersion	Net immersior     Percentage of     Whether or no  Whether or no	depth net to there was	Volume=	Distance*	176.52  Area 10  1.8  Side  1.0  0.3 60  at → Courtyind →		ea	min m/s  m m m -	equation used to calculate it  Speed relative to water e.g., 1.5 m/s  The side of a vessel or the stern of a vessel  e.g., direction relative to land, wind, ocean current, sources (reverse, etc.)	
	volume  Tow duration Vessel speed  Tow position  Distance from vessel Net immersion  Tow direction	Water volume     Calculation for     Net immersion     Percentage of     Whether or no	depth net to there was	Volume=	Distance*	176.52  Area 10 1.8  Side 1.0 0.3 60		ea	min m/s	equation used to calculate it  Speed relative to water e.g., 1.5 m/s  The side of a vessel or the stern of a vessel  e.g., direction relative to land, wind,	

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	Items		Results Input	Unit	Explanation/ Input Examples
Laboratory an	alysis				
Density	Whether or not de conducted	nsity separation was	Conducted	-	Record "Conducted" or "Not conducted".
separation	Type of solution us	ed for density separation	NaCl	-	e.g., NaCl, ZnCl <sub>2</sub>
	Concentration of se	olution used for density	30	%	
	Processing Time.		1440	min	Optional.
Biological	Whether or not bid treatment was cor	ological digestion or chemical inducted	-	-	Record "Conducted" or "Not conducted".
digestion and chemical treatment	Methods used for o	digesting organic matter .	-	-	Acid treatment, alkali treatment, enzyme treatment, oxidation treatment, etc.
ti cutilicité	Temperature durin	g processing	75	°C	
	Reaction time		1920	min	
Sample	Whether or not sai	mple splitting was conducted	Conducted	-	Record "Conducted" or "Not conducted".
splitting	Method or equipm	ent of splitting		-	e.g., Folsom
	Estimated relative	error range caused by your		%	
	Whether or not pro	etreatment before picking out	Conducted	-	Record "Conducted" or "Not conducted".
Picking of microplastic particles	Type of pretreatme		removing non-plastic particles, size classification of plastics using sieves	-	e.g., removing non-plastic particles, size classification of plastics using sieves
	Whether or not pic stereomicroscope.	king was conducted under	Used	-	Record "Used" or "Not used"
Counting and measuring sizes of particles	Method of size frac	tionation	Sieves	-	Whether maximum diameter was measured or sieves were used
	Whether or not con	mposition analysis was	Conducted	-	"Conducted" or "Not conducted".
Identification of microplastics	Method of compos	ition analysis	FTIR	-	e.g., FTIR, Raman spectroscopy, etc.  **When using methods other than spectroscopy to check the material (pricking with a heated needle, grinding with a forcep etc.), describe them.
		particles subjected to	100	%	
	Temperature of sai		80	°C	
	Humidity of sample		48	% min	
Weight measurement	Processing time of Methods of weight		- -	-	e.g., weighing the particles directly on a scale, weighing the mass of the vial and microplastics together and subtracting the mass of the tared vial to provide the mass of the microplastics.
	Blank tests	Whether or not blank tests were conducted	-	"Conducted" or "Not conducted".	
		Results	particles/ sample	Outline procedure and results of blank tests in the laboratory analysis.	
QA/QC	Spiked recovery tests	Whether or not spiked recovery tests were	Cconducted		"Conducted" or "Not conducted".
		• Results	-	particles/ sample	Outline procedure and results of spiked recovery tests in the laboratory analysis.

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					IVIGIT	doi Unive	. i Sicy			
	Items				Res	ults Inpu	t		Unit	Explanation/ Input Examples
Result										
	Maximum Feret's diameter 1.0 </th <th>Number of pa</th> <th>rticles</th> <th></th> <th></th> <th>40</th> <th></th> <th></th> <th>1.</th> <th>Record data in at least one of the three units given on the left, and provide information for converting data, if possible.</th>	Number of pa	rticles			40			1.	Record data in at least one of the three units given on the left, and provide information for converting data, if possible.
		Particle densit				0.23			particles	
		Particle densit							/m³ particles	
		swept area)	· , (p - : · · · · · · ·			0.07			/m²	
		<ul> <li>Total weight</li> </ul>							g	
	Maximum Feret's diameter d<1.0	Number of pa			17			/ sample	Please note that for particles less than 1 mm, final results could be regarded as underestimated (See pp.15~18, pp 47~48 in the Guidelines).	
Weight and		Particle densiti filtered water versions				0.10			particles /m³	
number of plastic particles	mber of plastic		ty (per trawl			0.03			particles	
particles		<ul><li>swept area)</li><li>Total weight</li></ul>							/m² g	
	Maximum Feret's	Number of pa	rticle			0			particles	
	diameter d≥5.0	Particle densit			0.00			/ sample particles		
		<ul> <li>filtered water vo</li> <li>Particle densit</li> </ul>	•	***					/m³ particles	
		swept area)	., (pc			0.00			/m²	
		Total weight							g	
	Total	Number of pa	rticle			57			particles / sample	
		Particle densiti filtered water versions	0.32					particles /m <sup>3</sup>		
		Particle densit		0.10						
		• Total weight						/m² g		
	1.0 <u>&lt;</u> d<5.0	<ul> <li>Shapes of</li> </ul>	- Category	Fragment	Fiber	Film			Total	
		microplastic	-	11.0%	56.0%	33.0%			100.0%	Please input the top five categories in
		Material of	- Category	PP	Polyeste		LDPE	PET	Total	descending order of the observed
		microplastic	- C-1	56.0%		0.0%		1.0%		characteristics of the collected plastic
		Colors of	- Category	Blue	Green 0.0%	White 33.0%	Trans	Red 0.0%	Total	particles in each sample. When
	d<1.0	Shapes of	- Category	33.0% Fragment	Fiber	Film	11.0%	0.0%	77.0% Total	entering, please also enter the percentage (%) data.
	u<1.0	microplastic	- Category	92.0%		0.0%			100.0%	percentage (%) data.
		Material of	- Category	PP 32.070	Polyeste		LDPE		Total	<shape></shape>
		microplastic	-	75.0%		0.0%			100.0%	Fragments, beads, foam, pellets and
		<ul> <li>Colors of</li> </ul>	- Category	Blue	Green	Trans	Orange	Red	Total	fibers are classification categories by
Properties of the		microplastic	-	83.0%	9.0%	0.0%	0.0%	8.0%	100.0%	shape commonly seen in many studies
plastic particles		<ul><li>Shapes of</li></ul>	- Category						Total	that currently perform classification by
	d <u>≥</u> 5.0	microplastic	-						0.0%	shape.
		<ul> <li>Material of</li> </ul>	- Category						Total	
		microplastic	-						0.0%	<material></material>
		• Colors of	- Category						Total	e.g., PP, HDPE, LDPE, PU.
		microplastic	-		e				0.0%	
	Total	Shapes of	- Category	Fragment	Fiber	Film			Total	<color></color>
		microplastic     Material of	Categoria	55.0%		18.0%	LDPE		100.0%	Black, blue, white, transparent, red, green, multicolors and others are
		iviaterial of microplastic	- Category	PP 64.0%	Polyeste 28.0%	4.0%			Total 100.0%	introduced as the most common
		Colors of	- Category	Blue	Green	White	Trans	Red	Total	classification categories.
		microplastic	-	73.0%	5.0%	18.0%			100.0%	
		op.ustic		75.070	3.070	20.070	3.070	1.070	100.070	

## Results of Microplastic waste found in DWR Net Towing #1

				V	/B2				
Sample	Sample		Serial No.	Longest	Shortest	Dimen-		Shape/	
name	Derial	Image No.	within	length	length	sions	Materials	Form	Color
WB-Up	Number 1.3	1	image 3	[mm] 0.487	[mm] 0.292	[mm2] 0.084	PP	Eragmont	Green
WB-Up	2	2	2	0.487	0.292	0.042	Non P	Fragment Foam	White
WB-Up	3.1	3	1	0.485	0.189	0.042	PP	Fragment	Blue
WB-Up	3.2	3	2	0.304	0.183	0.003	PP	_	Red
WB-Up	3.3	3	3	0.322	0.213	0.041	PP	Fragment	Blue
WB-Up	3.4	3	4	0.322	0.195	0.027	PP	Fragment Fragment	Blue
WB-Up	3.5	3	5	0.449	0.180	0.017	PP	Fragment	Blue
WB-Up	3.6	3	6	0.449	0.204	0.068	PP	Fragment	Blue
WB-Up	4.2	4	2	1.011	0.275	0.008	Polyester	Fiber	Blue
WB-Up	5.1	5	1	0.599	0.404	0.02	Polyester	Fiber	Blue
WB-OP	J.1	3	1	0.555	0.404	0.010	rolyestel	Tibei	Diue
WB-Up	5.2	5	2	0.479	0.186	0.029	Rayon	Fiber	Transparent
WB-Up	5.3	5	3	0.183	0.145	0.02	Non P	Foam	White
WB-Up	6.1	6	1	0.875	0.396	0.025	Polyester	Fiber	Blue
WB-Up	6.2	6	2	0.285	0.033	0.003	Polyester	Fiber	Blue
WB-Up	6.3	6	3	0.323	0.07	0.003	Polyester	Fiber	Blue
WB-Up	7.1	7	1	0.39	0.506	0.003	Cellulose	Fiber	Transparent
WB-Up	7.2	7	2	1.657	0.507	0.132	Cellulose	Fiber	Transparent
WB-Up	7.3	7	3	1.809	0.751	0.094	Cellulose	Fiber	Transparent
WB-Up	9	9	9	0.31	0.108	0.011	Polyester	Fragment	Blue
WB-Up	12.1	12	1	0.376	0.313	0.074	LDPE	Fragment	Blue
WB-Up	12.2	12	2	0.364	0.292	0.066	Non P	Fragment	Black
WB-Up	12.3	12	3	0.288	0.06	0.006		Fiber	Black
WB-Up	13.1	13	1	0.145	0.104	0.01	PP	Fragment	Blue
WB-Up	13.2	13	2	0.054	0.046	0.001	PP	Fragment	Blue
WB-Down	D3.1	D3	1	0.711	0.361	0.025	PET	Fiber	Blue
WB-Sieving	S2	S2	2	3.464	2.009	4.763	PP	Film	White
WB-Sieving	<b>S</b> 3	<b>S3</b>	3	4.821	2.158	6.704	PP	Film	White
WB-Sieving	S4	S4	4	4.034	2.609	7.784	PP	Film	White
WB-Sieving	s8	S8	8	1.366	0.639	0.422	PP	Fragment	Transparent
WB-Sieving	s9	S9	9	4.195	1.453	2.932	PP	Film	White

#### Some of Samples after used Image J for image processing

