Clean4Shore Program 2015 Report

2015 Foreshore Clean Up Program along the Brisbane Waters and Hawkesbury River Estuaries, New South Wales

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INTRODUCTION

The Clean4Shore Program conducts ongoing debris removal activities at various foreshore locations in the Brisbane Waters and Hawkesbury River estuaries which are situated just north of Sydney, New South Wales. The program in 2015 was managed by the Community Environment Network Inc. (CEN) and Gosford City Council and delivered by Graham Johnston of Graham Johnston Training Services with the help of volunteers from a variety of community, government and business organisations.

2015 was an eventful year for Clean4Shore with new areas in Brisbane Waters brought into the work program and cyclonic conditions together with flooding impacting the region in the latter part of April. The clean-ups in the Hawkesbury River were funded by Hornsby and Gosford councils through the Greater Sydney Local Land Services and CEN partnership. Funding difficulties were encountered mid-year for Brisbane Waters when grants concluded and new applications were unsuccessful. Clean4Shore became incorporated in March 2015 and the project is actively seeking charity status which will provide some much needed cost and revenuesdsds benefits. During the year the Federal Government Green Army initiative became involved in clean-ups. So too did the first Sydney based school, Asquith Boys High School and Asquith Girls High School, continuing the programs aim to engage new volunteers from a variety of groups.

The project has identified key areas in Brisbane Waters Estuary which were unable to be completed during the year and have become a priority in 2016 for that estuary. The major litter problem identified in Fagan's Bay will continue to be addressed as will locations still holding large deposits of debris from the April storm. These include Kincumber Broadwater and Gosford Broadwater.

This year's report draws on the observations made in the projects activity reports to illustrate the scale of the pollution and the level of effort needed to remove it. Statistics on effort, common items found, material types and an estimate of the general source of debris are provided, followed by a wrap up of storm and flood clean-up efforts and then an examination of the state of Narara Creek and Fagan's Bay in Brisbane Waters. Next is a summary of achievements in the Hawkesbury Estuary and the important education initiative with Asquith High School. Two hotspot areas, the Bar

Point/ Fisherman's Point area and the "Gut" of Sandbrook Inlet in the Upper reaches of the Hawkesbury Estuary are then discussed and finally a summary is provided of the derelict oyster gear removal operation conducted at Fox Bay.

SUMMARY

The work carried out by the Clean4Shore Program in 2015 continues to show the extent of marine debris in the Brisbane Waters and Hawkesbury River Estuaries. During 2015 the Clean4Shore Program involved over 465 volunteers who collectively contributed 1774 hours to the removal of marine debris from both estuaries. A total of 34,160 kg of litter was removed during the year with foam insulation and packaging representing a fifth of the total items collected. Overall marine debris continues to be an issue to address in these estuaries. Foreshore accumulation of litter is concentrated in specific areas, particularly those affected by flooding due to local hydrodynamic conditions or, as a result of earlier oyster farming practices where oyster farming infrastructure remains derelict on the foreshore.

Work in Narara Creek and Fagan's Bay has revealed extensive deposits of waste and litter. Narara Creek catchment area can be viewed as a marine debris collection system with respect to the movement and trapping of uncontained waste and litter. The boundary of the system with the wider Brisbane Waters Estuary is the causeway carrying the railway line. The Narara Creek and Fagan's Bay system has several features causing the retention of uncontained waste and litter. Firstly the system is semi enclosed (See Maps 3 and 4). Second, there are extensive mangroves lining the creek, bay and Spider Island. Third, there is a cluster of major highways, sporting venues, commercial, industrial and shopping premises and many car parking areas surrounding the creek and bay, all of which carry high volumes of human traffic either continually or episodically. The range and intensity of human activity in this area guarantees the continual generation of large volumes of waste and litter over time.

Rising water levels allow litter to penetrate more deeply into the mangroves and become trapped. Flood levels in Narara Creek are expected to be sensitive to increasing rainfall intensity due to climate change (Review of the Narara Creek Flood Study, Gosford City Council, 2013). As higher intensity rainfall events become more frequent so too will catchment wide flushing out of waste and litter and with higher flood levels a deeper penetration of new debris loads into the mangroves. The Narara Creek and Fagan's Bay system is a microcosm of the processes occurring in the wider Brisbane Waters and Hawkesbury Estuaries and throughout the state. Further information on catchment level measures for monitoring estuarine and marine debris can be found at

http://www.tangaroablue.org/resources/reports/category/17-nsw.html

ACKNOWLEDGEMENTS

During 2015 the Clean4shore Program appreciated the financial assistance received to continue the marine debris clean-ups. In the Hawkesbury estuary Clean4shore activities were supported with funding from Hornsby Shire Council and Gosford City Council through the Greater Sydney Local Land Services and Community Environment Network partnership. Clean4shore activities completed in Brisbane Water were funded largely by Gosford City Council with contributions from NSW DPI Fisheries, Telstra and Dimension Data.

The following organisations and individuals are acknowledged for their efforts and support for the Clean4Shore Program.

LOGISTICAL SUPPORT

Brisbane Waters Fisheries Brisbane Waters National Park Brisbane Waters Oyster Grower, Simon Funnel Broken Bay Oyster Growers Community Environment Network Fisheries NSW Gosford City Council Greater Sydney Local Land Services Hornsby Shire Council NSW Environment Protection Authority OceanWatch Australia Tangaroa Blue Foundation

CLEAN-UP PARTICIPATION

Asquith Boys High School

Asquith Girls High School

Brisbane Waters Community

Brisbane Waters Oyster Growers

Brisbane Waters Secondary College, the Croft

Brisbane Waters Secondary College, Woy Woy Campus, Bushcraft

Brisbane Waters Secondary College, Woy Woy Campus, Support Unit

Dimension Data

Graham Johnston Training Services

Green Army

ING Direct

Key Cottage, Youth off the Street

Macmasters Beach Bushcare

MacMasters Beach SLSC

North Gosford Learning Centre

Response Training Gosford

Rolland Hassall School Parramatta

Telstra

The Glen (Aboriginal Mens Health Centre) Umina PCYC

EFFORT

Summary of effort

Although funding difficulties impacted the program in Brisbane Waters during the year the number of items removed increased substantially in both estuaries (Tables 2 and 3). The weight of debris removed was significantly lower in Brisbane Waters compared to 2014 due to a focus on litter especially at Narara Creek and Fagan Bay where the density of debris was such that the days load more often consisted of masses of small items rather than the usual mix of small and bulk items. In contrast, the more weighty items of derelict oyster farming gear and derelict watercraft were a major component of debris removed from the Brisbane Waters Estuary in 2014 (Table 2). In the Hawkesbury Estuary in 2015 the Fox Bay project achieved the removal of 14,640 kilograms of derelict oyster farming gear and materials (Table 3), contributing to the 46% increase in items removed from the Hawkesbury estuary compared to 2014. In comparing the 2014 and 2015 results for Hawkesbury estuary when the Fox Bay project is excluded from the 2015 total (Table 4) there has been a 32% decrease of the average weight of litter collected per trip in 2015 compared to the average in 2014.



Table 1: Summary of effort for the Clean4Shore Project 2015

	Field trips	ltems removed	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)
Brisbane Waters	21	160,943	12 <i>,</i> 250	1,059	273	9,240
Hawkesbury River Estuary	18	32,300	22,660	715	192	57,260
2015 Total	39	193,243	34,910	1,774	465	66,500

Table 2: Summary of effort for Brisbane Waters Estuary

	Field trips	ltems removed	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)
2014	55	109,519	51,718	1,768	430	10,780
2015	21	160,943	12,250	1,059	273	9,240
Percentage change	-62 %	47%	-76%	-40%	-37%	-14%

Table 3: Summary of effort: Hawkesbury River Estuary

	Field trips	ltems removed	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)
2014	26	22,112	19,775	1,079	261	41,970
2015	18	32,300	22,660	715	192	57,260
Percentage change	-31%	46 %	15%	-34%	-26 %	36%

Table 4: Summary of effort: Hawkesbury River Estuary 2015 comparison of Fox Bay clean-up compared to other sites in Hawkesbury Estuary

	Field trips	ltems removed	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)
2015 - Hawkesbury River	15	25,167	8,020	564	161	57,100
2015 - Fox Bay	3	7,133	14,640	151	31	160

LOCATION OF EFFORT

Map 1 shows the locations of field trips for 2015. The locations are approximate as trips often include visiting several spots apart from the main objective.



Map 1: Clean4Shore Program field trip locations

CONDITIONS OF WORK

Project staff and volunteers encounter challenging conditions in their work as illustrated by the following excerpts from Clean4Shores activity reports.

Navigating into the clean-up sites requires great care and skill. For example, on a clean-up between Parramatta Wreck and Peat Island; "With the falling tide, access to the rocks was difficult and needed extreme caution. Our clients did extremely well, maintaining safety, and care of the IRB's, to reach the rubbish". (Clean-up report, Parramatta Wreck to Peat Island, 3 March)

Unpleasant and sometimes hazardous deposits of rubbish are found as was the case at Bar Point in April. "Fully loaded, the barge returned, calling into the derelict camp site, near the freeway bridge. This site resembled a mini tip. Stinking rubbish, tents, sleeping gear, books, syringes, mattresses, shelving, deck chairs and rotten clothing. Big ask for this tired group to clean-up, but they accomplished the task". (Clean-up report, Bar Point, 15 April)

Wasps are often encountered in the thick mangroves and on one particularly difficult day at Spider Island several volunteers were stung including one serious sting requiring evacuation of the volunteer. (Clean-up report, Spider Island, Fagan's Bay, 5 March)

And tough going. "An enormous 104 bags were filled, plus bulk items weighing a total of 1 tonne from just 200m of foreshore and mangrove! A small site of 60m of Fagan's Bay adjacent to the cycle track, was targeted for cleaning first up. This area proved to have an extensive litter issue with 42 bags quickly filled and brought on-board, including 8 car tyres. Glass beer bottles and plastic pieces and bottles were very dominant in each bag. Plenty still left at this site for future clean-ups. Narara Creek, opposite Macdonald's Restaurant and adjacent to the bridge, was next on the list. Only 15 metres was cleaned here due to the appalling amounts of litter amongst the thick mangroves. 10 bags were quickly removed with larger items including two shopping trolleys. Masses of litter still remain at this site. Two sites behind the Manns Road industrial complexes on Narara Creek were then cleaned. Both only 40 metres long, and both containing masses of plastic pieces and bottles. Polystyrene pieces were everywhere, as bags quickly filled. Another 7 car tyres were retrieved, large foam pieces, wheelie bins, polystyrene boxes, plastic pieces, deck chairs and rubber items. A total of 52 bags were removed from these latter sites, completely filling Simon's barge. The offload of the rubbish into the Gosford Council's waiting rubbish truck was completed at the Gosford boat ramp, after which volunteers were able to use the shower facilities at the Gosford Sailing Club before heading to the train for the trip back to Sydney. This was definitely one of the toughest days recorded by Clean4Shore!" (Clean-up report, Narara Creek, Fagan's Bay, 16 April)

MEDIA COVERAGE OF THE PROGRAMS WORK

The program was able to secure good media coverage during the year including talk back radio interviews and television and newspaper coverage of events. The condition of Fagan's Bay was a key subject and funding difficulties were also covered. After a clean-up at Spider Island in Fagan's Bay the clean-up staff and clients met with the then state government Minister for the Environment Mr Robert Stokes and local members of parliament to discuss the proposed container deposit scheme and how it might affect the litter being removed by the Clean4Shore program. The volunteers dumped 800 plastic drink bottles just collected from the island to drive home the point that there was a huge issue with beverage containers in this area.

STATISTICS

Common items

Foam and plastic items were dominant in both estuaries equating to 51% of the total items collected in the Brisbane Waters Estuary and 46% of the total items in the Hawkesbury estuary (See the top 4 items in figures 1 and 3). Oyster farming gear topped the Hawkesbury list as a result of the removal effort at Fox Bay on Mooney Mooney Creek (Figure 2).





Figure 2: Top 10 items removed from Hawkesbury River Estuary



The aquaculture items were collected from a targeted clean-up of derelict oyster depot funded by NSW DPI Fisheries in Fox Bay.



Figure 3: Top 10 items removed from Hawkesbury River Estuary excluding Fox Bay

Materials

Foam and plastic items were dominant in both estuaries equating to 51% of the total items collected in the Brisbane Waters Estuary and 46% of the total items in the Hawkesbury estuary (See the top 4 items in figures 1 and 3). Oyster farming gear topped the Hawkesbury list as a result of the removal effort at Fox Bay on Mooney Mooney Creek (Figure 2).



Figure 4: Percentage of materials Brisbane Waters and Hawkesbury River Estuaries

Percentage estimate of the major sources of debris

Figure 5: Estimate of the major sources of debris in Brisbane Waters and Hawkesbury River Estuaries



800 plastic bottles freshly harvested from Spider Island





Then-Environment Minister Rob Stokes and Clean4Shore coordinator Graham Johnston discussing a container deposit program

APRIL STORMS AND FLOOD EVENT

Survey

On 21 April an intense low pressure system moving south along the NSW coast brought cyclonic conditions and heavy rainfall to the Hunter region with a resulting flood period between 22 April and 5 May. Both wind and flooding flushed new debris out, broke gear and boats loose, damaged jetties and moorings and redistributed existing stranded debris.

After the storms and flood period Clean4Shore carried out a survey of the Brisbane Waters Estuary and identified locations where major deposits of litter and oyster farming gear had been deposited during the event and plans were made to incorporate these into the Clean4Shore schedule.



Map 2: Survey locations following the April storms and flood

Clean-up

The clean-up work began in May. "At Paddy's channel approximately 500 small oyster baskets retrieved, 300 recycled by the attending oyster growers. Large amounts of hardwood timber collected, mainly closer to Henderson Road were mostly remnants of makeshift pontoons made by locals and damaged by the storms." (Clean-up report Paddy's Channel, 15 May)

"Towards the April storm tidal mark, bulk litter appeared, the group gathered and did an "emu walk" gathering 25 full bags from only 60 metres of foreshore. Masses still remain, there appears to be litter scattered over three main areas, with the storm, peak high tidal and current tidal marks, all having bulk small litter. (Clean-up report, Erina Bay Mangroves, 30 September)

There was also plentiful rubbish flushed out in the Hawkesbury Estuary.

Residents on Dangar Island had collected litter from the recent storms and requested help from Clean4Shore for removal. Items included, surf skis, inflatable boats, treated pine and marine plywood, plastic drums, oyster product, plastic piping, car tyres, polystyrene pieces and many smaller items. (Clean-up report Dangar and Long Islands, Hawkesbury River, 18 June)

And further upstream. "The northern foreshore from Peat Island to the Parramatta wreck was monitored with plenty of small items from the recent storms evident on the high tide marks. These will be cleaned at a later date by school groups. Favourable tides allowed the boat access to the Parramatta wreck, with alarming small litter present. This is consistent with excessive wind or larger water flows. Larger numbers of tennis balls were present indicating residential run-off. (Clean-up report Milsons Passage and Bar Point, 1 July)

The fate of much of the litter generated during the April storm and flood event if unable to be retrieved is suggested in an observation from Clean4Shore following a clean-up at Berowra Waters in March just prior to the storm. "Several sites were found, with 'older' litter sitting high above the water line. Mainly plastic bottles and polystyrene, and consistent of flood debris from two years ago. There was plenty collected at these sites." (Clean-up report, Berowra Waters Downstream of Ferry, 18 March)

The post storm and flood clean-up was unable to be completed in 2015 due to funding limitations.

STATE OF NARARA CREEK AND FAGAN'S BAY

The scale of the problem

In February and March, Clean4Shore embarked on a clean-up of the Narara Creek and Fagan's Bay system. The task was immediately evident. "Masses of stormwater generated litter, immediately presented, very "overwhelming", as full bags were removed from only one square metre in places. Glass bottles (655), plastic bottles (1,645), plastic bag pieces (2,590), food wrappings (1,855) and pieces of polystyrene (5,670), were thickly laying on and near the tidal marks in only 150 metres of foreshore cleaned. 70 very full bags were removed, plus bulk items, including six tyres, BBQ, foam bedding, timber products, foam matting, electrical cable, toys, poly pipe and steel frames. The task was very physically demanding, with 17,967 items being collected. Plenty of smaller items (lids, polystyrene, hard plastic) still remain on this site." (Clean-up report, Western Side of Railway Bridge, Fagan's Bay, 11 February)

Debris lodged in the mangroves showed signs of ageing. "Simon's barge headed into the shallow waters near Spider Island, landing the group into immediate bulk rubbish wedged into thick mangroves. Plastic bottles were placed in separate bags, 14 bags in total, with some bags with up to 80 bottles. Polystyrene pieces were everywhere, with all rubbish showing ageing." Clean4Shore Activity Report, Spider Island, Fagan's Bay, 24 February)

Debris was found deep into the mangroves with much hidden beneath the water. "Small amounts of litter immediately presented, however deeper into the mangroves, masses of floating bottles and polystyrene presented. Full bags were quickly removed. 8 car tyres, and one truck tyre, blocks of polystyrene, foam mattresses, plastic drums were removed. Only 20 metres wide by 40 metres deep was cleaned. Many items lay undetected beneath the tidal water." (Clean-up report, Spider Island, Fagan's Bay, 19 March)

Stormwater is conveying much of the litter into this system as observed following this clean-up just after the March storm event. "Just inside Fagan's Bay, on the foreshore adjacent to the Central Coast Highway, masses of small litter was present on the banks. Large stormwater pipes appear to be responsible for this litter run-off from the nearby main road." (Clean4Shore Activity Report, Narara Creek, Fagan's Bay, 26 May)

There was a consensus from staff and volunteers about the worst accumulation so far encountered. "Only 40 metres of mangroves were cleaned, going back about 5 metres. These mangroves are extremely thick, with all students and staff amazed at the mass of litter present. All agreed, the worst on the Central Coast. Plastic bottles 450, polystyrene 650, bits of plastic 850, and of course tennis balls (about 135). All of this litter is consistent with residential run-off litter. No larger items were sighted. 20 full bags dragged out, masses still left." (Clean4Shore Activity Report, Evergreen Life Care Village Foreshore, 11 September)

Abundance of waste and litter in the Narara Creek and Fagan's Bay system

The following figures demonstrate the scale of the clean-up task posed in this system which retains most of the waste and litter released in its catchment area.



Figure 6: Estimated abundance of items in 1 kilometre of shoreline at Narara Creek and Fagan's Bay



Figure 7: Estimated weight (Kg) of debris in 1 kilometre of shoreline at Narara Creek and Fagan's Bay

The Narara Creek and Fagan's Bay system

Maps 3 & 4 shows the Narara Creek and Fagan's Bay system indicated by the red polygon with current and historic clean-up sites indicated by the red place marks. The system is largely enclosed by the causeway carrying the railway line shown in the bottom right hand corner of the polygon. There is a cluster of major highways, sporting venues, commercial, industrial and shopping premises and many car parking areas surrounding the creek and bay, all of which carry high volumes of human traffic either continually or episodically. The range and intensity of human activity in this area guarantees the continued generation of large volumes of waste and litter over time. The creek and bay system captures all the uncontained portion of this waste and litter and, being a largely enclosed system, holds it indefinitely.

Masses of litter remain in this system and work will be ongoing into the future unless a plan to stem the flow of waste and litter into the creek and bay is developed.



Dense deposits of post flood litter, at Fagan's Bay

Map 3: Narara Creek and Fagan's Bay system



Map 4: Lower Narara Creek and Fagan's Bay



CLEAN4SHORE IN THE LOWER HAWKESBURY RIVER ESTUARY

Years of work around the Hawkesbury estuary by the Clean4Shore program are starting to pay off. Marine debris clean-up statistics for 2015 highlight a 32% reduction in the overall weight of rubbish collected during the previous year.

In 2015, Clean4Shore amassed 25,167 items amounting to 8 tonnes of debris collected across 15 trips along the foreshores of the lower Hawkesbury (Appendix 1 - Table 4). The most common litter/ rubbish collected were polystyrene foam insulation & packaging materials, followed by plastic items (such as drink bottles and shopping bags). These items made up 46% of the total items collected during 2015.

An important goal of this program is to raise awareness amongst students and the general community about marine debris and the sources and impacts of stormwater pollution on our local catchment areas. Jono, the inspiration, founder and coordinator of the Clean4Shore clean-ups, has been visiting schools within Hornsby Shire local government area and has given a public talk at Hornsby library.

The program is keen to recruit new schools in the Hornsby Shire interested in taking part in this important initiative. In 2015, students from Asquith Boys and Girls High School's took part. Feedback from the students and teachers was extremely positive. Comments included:

"One of the greatest highlights for me would have to be the beautiful scenery, the waterfalls and beaches were amazing, and spending time with my good friends doing something that was fun and beneficial to the environment. I also enjoyed seeing all the rubbish we had collected and knowing its now rubbish that is no longer hurting the environment." (Year 10 Asquith Boys High School student)

"I think it was an extremely useful exercise in making our young students aware of the impacts that humans are having on the environment" (Teacher from Asquith Boys High School involved in the 2015 Clean4Shore program)





Bar point – Fisherman's Point and the Gut of Sandbrook Inlet Litter hotspots

Despite the success of the program, litter is still a big problem especially after major storm events and floods. Two major litter hotspots are located at Bar Point / Fishermen's Point and in "The Gut" of Sandbrook Inlet. In both of these locations wind, tides and water currents assist the accumulation of marine debris. The Bar Point area is located at the confluence of three significant waterways and The Gut is a one way funnel system that collects debris pushed in by tides and winds. The Gut also tends to collect litter likely sourced from houseboats, marinas and boat commuter berthing facilities in the area.

Map 5: Bar Point - Fisherman's Point litter hotspot



Map 6: The Gut of Sandbrook Channel



REMOVAL OF OYSTER GEAR FROM FOX BAY, MOONEY MOONEY CREEK

Clean4Shore received funding from New South Wales Fisheries to remove dumped oyster gear from Fox Bay on Mooney Mooney Creek. The site was surveyed in August and removal was effected over 3 visits between October and December. "Approximately 6 to 8 tonnes of old oyster product was dumped in this little Bay. Peak high tide enabled the two barges to get into the Bay. Masses of tar covered hardwood pieces were man-handled into the barges, from the three stacks that could be seen above the water line. Apart from the hardwood, metal drums, plastic oyster mesh, gas bottles, car tyres, boat hull parts and shade cloth was hauled aboard." (Clean4Shore Activity Report, Fox Bay, Mooney Mooney Creek, 28 October)

On the second visit. "Thousands of oyster sticks were loaded into the barge, a large role of mud covered shade cloth was also dragged out of the mud, plenty of muscle needed on this task.

Thirty old oyster trays also loaded. Plastic oyster mesh, 70 small sheets was buried in the tidal mud, again muscle needed for removal. Approximately 3 tonne was dragged out, leaving about the same still to be removed on the next planned visit. (Clean4Shore Activity Report, Fox Bay, Mooney Mooney Creek, 3 December)

Oyster product removed from Fox Bay	Total
Hardwood pieces	5,200
Timber, plastic covered 4 by 2 inch oyster poles	350
Timber stakes, half inch, tar covered	1,000
Timber stakes, inch square, tar covered	80
Complete timber oyster trays	54
Derelict timber oyster trays	20
Hardwood oyster crates, tar covered	40
Plastic mesh	90
Steel mesh	140
Oyster shade cloth	20
Steel bench structure	6
Total	7,000

Table 5: Oyster farming items removed from Fox Bay, Mooney Mooney Creek



Some of the thousands of lengths of oyster timber at Fox Bay



Hard yakka! Hauling shade cloth out of the mud and onto the barge



APPENDIX 1. LIST OF CLEAN-UPS AND DETAILS

Brisbane Waters, Gosford LGA							
	Started	ltems	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)	
Erina Bay Mangroves	30/09/2015	13,311	1,000	105	19	400	
Erina Creek, East Gosford	9/04/2015	13,300	400	81	18	800	
Evergreen Life Care Village Foreshore	11/09/2015	3,565	100	18	7	40	
Fagan's Bay North Side	4/09/2015	9,871	440	90	20	200	
Fagan's Bay, Railway Line and Foreshores	13/08/2015	11,369	1,000	50	10	600	
Kincumber Broadwater, Kincumber Creek	29/10/2015	2,436	500	21	6	2,000	
MacDonald's Foreshore, Narara Creek	1/03/2015	2,366	1,000	36	9	400	
Narara Creek Mid-Section	11/03/2015	3,979	520	30	10	200	
Narara Creek, Fagan's Bay	19/02/2015	5,521	340	35	10	160	
Narara Creek, Fagan's Bay	16/04/2015	8,852	1,000	45	10	200	
Narara Creek, Fagan's Bay	26/05/2015	5,434	440	32	7	800	
Narara Creek, Gavenlock Oval	12/02/2015	468	100	14	4	400	
Paddy's Channel	15/05/2015	11,740	1,200	80	20	800	
Paddy's Channel	2/07/2015	4,275	1,200	80	20	800	
Riley's and Pelican Islands	29/07/2015	2,567	200	12	4	600	
Spider Island, Fagan's Bay	24/02/2015	8,510	320	40	20	40	
Spider Island, Fagan's Bay	5/03/2015	12,233	650	120	30	80	
Spider Island, Fagan's Bay	19/03/2015	11,300	460	42	12	20	
Western Side of Railway Bridge, Fagan's Bay	11/02/2015	17,967	600	49	14	150	
Western Side of Railway Bridge Fagan's Bay	18/02/2015	11,208	760	70	20	150	
Woy Woy Bay & Paddy's Channel	18/05/2015	671	20	9	3	400	
Brisbane Waters, Gosford LGA Total	160,943	12,250	1,059	273	9,240		
2015 Total	39	193,243	34,910	1,774	465	66,500	

Table 1: List of clean-ups for Brisbane Waters, Gosford LGA

Hawkesbury River Estuary, Gosford LGA							
	Started	ltems	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)	
Bar Point	15/04/2015	4,700	2,000	65	13	2,000	
Fox Bay, Mooney Mooney Creek	28/10/2015	4,317	5,000	61	11	60	
Fox Bay, Mooney Mooney Creek	3/12/2015	1,190	3,000	36	8	50	
Fox Bay, Mooney Mooney Creek	17/12/2015	1,626	6,640	54	12	50	
Lion Island to Spring Beach	12/03/2015	463	60	18	6	4,000	
Parramatta Wreck to Peat Island	3/03/2015	661	40	25	7	2,000	
Spectacle Island	2/09/2015	2,039	50	24	6	4,000	
Total		14,996	16,790	283	63	12,160	

Table 2: List of clean-ups for Hawkesbury River Estuary, Gosford LGA

Table 3: List of clean-ups for Hawkesbury	/ River Estuary, Hornsby LGA
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Hawkesbury River Estuary, Hornsby LGA						
	Started	ltems	Weight (Kg)	Hours	Volunteers attending	Length of foreshore cleaned (M)
Berowra Waters Downstream of Ferry	18/03/2015	751	60	18	6	2,000
Cowan Creek & Jerusalem Bay	14/04/2015	1,438	400	40	10	20,000
Dangar and Long Islands	18/06/2015	316	600	9	3	3,000
Dead Horse Bay	23/07/2015	972	40	23	18	800
Long Island and Kangaroo Point	13/04/2015	3,514	1,000	42	12	3,000
Long Island and Kangaroo Point	5/08/2015	2,179	250	15	6	600
Long Island Hawkesbury River	3/09/2015	2,843	1,500	56	16	1,200
Long Island Hawkesbury River	25/11/2015	794	200	28	8	3,000
Lower Hawkesbury River Cowan Creek	16/11/2015	1,000	400	113	25	8,000
Milsons Passage and Bar Point	1/07/2015	2,228	1,300	53	15	2,500
Olga Bay	4/12/2015	1,269	120	35	10	1,000
Hawkesbury River Estuary, Hornsby	LGA Totals	17,304	5,870	432	129	45,100
2015 totals		193,243	34,910	1,774	465	66,500

	Table 4: Average	Weight of litter	comparison	(Kg)	per tr	ip
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	2014	2015	% change
Brisbane Waters, Gosford LGA	940	583	-38%
Hawkesbury River excluding Fox Bay	760	514	-32%
Hawkesbury River Estuary - Fox Bay	-	4880	-



Prepared by Tangaroa Blue Foundation An Australian Marine Debris Initiative Report PO Box 757 Port Douglas, QLD 4877 www.tangaroablue.org



AUSTRALIAN MARINE DEBRIS INITIATIVE

