

Regional Estuaries Initiative Household Behaviour Change Project - Tracking of Residents' Fertiliser Use

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This report presents the methodology and evaluation of the Regional Estuaries Initiative (REI) Household Behaviour Change Project. The project is part of the REI program to build community capacity, foster sustainable practices, deliver remediation and support science and monitoring to protect major estuaries. DWER developed the Household Behaviour Change Project, aiming to reduce urban nutrient inputs by:

- Engaging households in being part of the solution for protecting our waterways
- Targeting services to high urban fertiliser users
- Tailoring feedback to nudge households into lower fertiliser use

The impacts of the project are measured using Before and After surveys for each of a participant (Intervention) and non-participant (Control) group – the method is known as BACI. The pre-program survey benchmarks were taken in Autumn of 2018 and post-program six months later, in Spring of 2018. The surveys track changes in the frequency and quantity of fertiliser applications by households.

The REI Households project deployed a Personalised Coaching approach, combined with on-site Garden Consultations, personalised feedback letters and referrals to Gardening Workshops. This project builds upon the successes of earlier RiverWise Household services (Perth metropolitan area), which engaged with 25% of households in the target area and delivered around a 10% reduction in fertiliser application (by weight) amongst participants.

The results from REI Households are:

- Engagement with 480 households in the target area (8% of all occupied dwellings, limited by the available budget)
- Securing agreement to 902 actions to reduce nutrient inputs (1.9 per household engaged)
- A 4.6% (6.7kg per household pa) reduction in fertiliser product application, by weight, amongst Participants (net of seasonal trends in the Control group)
- Resulting in a 16.6% (1.5kg per household pa) reduction in nutrient content, by weight, amongst Participants (net of seasonal trends in the Control group)
- Amounting to a collective total reduction of 3,200 kg of fertiliser product, with 702kg of nutrient content per annum
- Recruiting 114 higher fertiliser users (24% of Participants) into the Garden Consultation service, achieving a 4.1% (11.3kg) fertiliser product and 22% (3.75kg) nutrient reduction amongst this group
- Referring 143 households (321 persons) to Gardening Workshop events (of which more than 100 attended)
- Achieving high satisfaction ratings from 84% of Participants.

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1 REI Households Project Delivery

1.1 Background

1.1.1 Context (the need to reduce urban fertiliser inputs)

Nutrient loads have a major negative impact on the health of our waterways. Households in catchment areas are significant contributors to these loads through garden fertiliser use, watering, car washing, pet droppings and sweeping organic matter into drains. The Department of Water and Environmental Regulation (DWER) is coordinating the Regional Estuaries Initiative (REI) to build community capacity, foster sustainable practices, deliver remediation and support science and monitoring to protect major estuaries.

DWER has identified the urban areas in the Leschenault Estuary catchment and the Vasse-Geographe catchment as contributing high nutrient inputs per hectare¹. Per hectare of land area in the Leschenault catchment, urban gardens contribute 5.3 kg per annum of nutrients (Total Phosphorous plus Total Nitrogen). The urban household nutrient input rates, per hectare, are twice as high as beef, horticulture, horse and lifestyle block land uses². Studies in the Perth region³ have shown that many households use ten times the average fertiliser product per square meter of garden and that the highest 10% of households use 70% of all fertiliser products.

Urban nutrient sources are also growing rapidly due to development that is proximate to the estuary and lower river catchments. DWER is also seeking to support whole of community engagement in making changes to reduce nutrient inputs to waterways.

DWER is seeking to develop household behaviour change programs that will have a measurable impact on urban nutrient sources. DWER is now seeking to:

- Engage households in being part of the solution for protecting our waterways;
- Reach new audiences by taking catchment friendly gardening advice services directly to households;
- Leverage greater behaviour change by recruiting high fertiliser users into catchment friendly advice services;
- Achieve measurable garden fertiliser behaviour change outcomes; and
- Achieve best value by directing fertiliser wise services (e.g. Coaching, Garden Visits, Product samples and Workshops) to households with greatest potential for change.

To address these needs, DWER engaged a Behaviour Change specialist (Colin Ashton-Graham) to analyse the Regional Estuaries Initiative objectives, recent project experiences and behaviour change best practice as a pathway to design and manage the delivery of a household fertiliser behaviour change project targeting Leschenault and Vasse-Geographe catchments.

The REI Households project builds upon ongoing community engagement being conducted by GeoCatch, under the *Bay OK* brand, and Leschenault Catchment Council, introducing a new *Love the Leschenault* brand. These programs include workshops to engage residents in catchment-friendly gardening and the production of educational materials. The South West Catchments Council had also deployed a broad reach media program (Home River Ocean) to raise community awareness of the link between garden fertiliser use and negative impacts on water quality. To this point, awareness has been secured but no measurable reduction in household fertiliser use achieved.

¹ Leschenault Estuary water quality improvement plan, Department of Water 2012 (Fig 5-6 and Fig 5-7)

² Leschenault nutrient modelling tables, supplied by Department of Water and Environmental Regulation (unpublished)

³ Ashton-Graham, *RiverWise Southern River*, Department of Biodiversity, Conservation and Attractions 2017

1.1.2 Program Logic (the recommended approach)

The first step in the design of a program is to map out a Program Logic that will clearly describe the causes of the problem and the necessary steps to reduce the residential nutrient inputs to the catchments. A review of the earlier *RiverWise* pilot projects revealed:

Problem definition

High residential (garden) nutrient throughput to the river may be caused by:

- Excess quantity of fertiliser use (per application)
- Excess frequency of fertiliser use (per season)
- Winter fertilising (washing through or running off due to rainfall)
- Poor soil structure (lack of improvement)
- Excessive use of manures (because they are seen as safe)
- Over-watering
- Informal use of greywater

In turn, over-watering may be caused by:

- Long irrigation run times
- Additional irrigation run days
- Multiple irrigation runs each day
- Use of standing hoses
- Lack of tap timers leading to excessive watering from a standing hose
- Leaking systems
- Overspray/ wind drift (leading to perceived need to water more)
- Lack of soil wetter/ improver/ mulch (leads to the need to water more)

Opportunities

- Households care about the health of our waterways and about water saving
- Households respond to Coaching and Feedback
- Households respond to Garden Consultations
- Take up of eco-fertilisers is low (due to lack of labeling/ knowledge)
- Soil improvement and soil wetting are just starting to get significant minority take up.

Threats

- New developments tend to have poor garden soil and a culture of fertiliser and water use to compensate for the deficiency
- The project budget is small and may not lead to clear findings with regard to the individual tools and methods (i.e. Coaching, Information, Garden Consultations, Workshops).

Figure 1: Logic Framework

Descriptor	Indicator (and means to measure)	Assumptions
<p>GOAL (long term system outcomes):</p> <ul style="list-style-type: none"> waterway health improves waterway nutrient inputs reduce (and are not increased by urban development) 	<ul style="list-style-type: none"> survey data and water quality data 	<ul style="list-style-type: none"> reduced fertiliser use also reduces nutrient throughput to the waterways
<p>OBJECTIVES (near term, end user outcomes)</p> <ul style="list-style-type: none"> 20% of households in the target area reduce water and fertiliser use by 10% 	<ul style="list-style-type: none"> pre and post program survey data (BACI) 	<ul style="list-style-type: none"> no diffusion to control control represents participants use/ trends
<p>OUTCOMES (causal steps to create the near term effect)</p> <p>- Participating households:</p> <ul style="list-style-type: none"> use 20% less water in retic cut fertiliser frequency by 20% cut fertiliser qty per application by 10% switch to slow release product 480 households engage in Coaching and 120 in a Garden Consultation 	<ul style="list-style-type: none"> Coaching records garden visit protocol records after survey records 	<ul style="list-style-type: none"> engagement and reported actions results in water savings fertiliser switch does not trigger rebound effects retic settings were too high 20% recruitment rate into the program (from households with named occupants or available telephone number)
<p>OUTPUTS (project tools and methods)</p> <ul style="list-style-type: none"> 250 control group conversations 480 feedback letters 480 participant conversations 120 Garden Consult services 240 participant post surveys 125 control group post surveys 	<ul style="list-style-type: none"> visit booking sheets 9,200 minutes of live telephone time logged database of letters sent 	<ul style="list-style-type: none"> coaching and feedback reduces fertiliser and water use demonstration reduces fertiliser use households will book consultation services
<p>INPUTS (resources deployed)</p> <ul style="list-style-type: none"> \$102,000+GST budget expert service providers project Officer 2 Garden workshops 	<ul style="list-style-type: none"> budget acquittal 5,800 hh with occupant and phone number 	<ul style="list-style-type: none"> market rates have been estimated correctly 40% of occupied dwellings with valid telephone

1.1.3 Options (review of methods for reducing the source of urban nutrient inputs)

The Department of Biodiversity, Conservation and Attractions (DBCA) has developed a Garden Nutrient Reduction Behaviour Change Strategy as part of the *RiverWise* program. Responses to a community survey of gardening practices in Bennett Springs reveal that pro-environmental attitudes exist, understanding of appropriate fertiliser and watering is low and current gardening behaviours are not sustainable. The predominant garden design in Western Australia is for extensive areas of lawn, minimal native or waterwise planting and few trees.

The Behaviour Change Strategy, through desk and formative research⁴, revealed that:

- New and medium sized lots, contribute high nutrient inputs per square meter of land area⁵.
- The river is viewed as iconic and 'doing the right thing for the river' is socially normalised.
- Households have a poor understanding of fertilisers and soil amendments.
- Households are willing to change:
 - fertiliser use (quantity, frequency and season)
 - fertiliser type (if river-friendly options are available)
- Households are confused:
 - between water-wise and river-friendly messages (e.g. believing that grey-water is good for the river)
 - about organic fertilisers (e.g. manures) being totally 'safe'
- Residents feel that a tidy and lush garden is part of being a good citizen. So they want to celebrate gardens and not remove lawn area.
- River-friendly gardening is not a high priority for them, so they want services (advice, fertiliser products, reminders etc.) to come directly to them.

The Department of Biodiversity, Conservation and Attractions (DBCA) has implemented three successful *RiverWise* Behaviour Change projects in Bennett Springs, South Perth and Southern River. These projects delivered between a 10 and 28% reduction in fertiliser application and water use across participants, translating into around 2.5% reduction area wide (e.g. 10% reduction by 25% of households participating and 28% reduction by 10% participation).

In 2014, GeoCatch ran a pilot project under the *Bay OK* brand to engage households in garden audits and workshops to encourage catchment-friendly gardening behaviours. The project discovered that mail-outs were insufficient to recruit participants, initially delivering just two participating households from 142 contacted. Similarly, telephone engagement was required to secure attendance at a Gardening Workshop. For the participant group, GeoCatch concluded that the detailed Garden Audit was too advanced and detailed which resulted in limited commitment to behaviour change. The project provided insights into the gardening practices of households and encouraged GeoCatch to recommend further development of household behaviour change projects.

Between 2013 and 2017, the South West Catchments Council ran a broad media, events and materials campaign under the brand *Home River Ocean*. Primarily through television advertising the campaign achieved awareness amongst 75% of the community in the catchment. This awareness did not translate into

⁴ Formative Research and Behaviour Change Strategy (unpublished), Department of Biodiversity, Conservation and Attractions (DBCA) 2012

⁵ Survey of urban nutrient inputs on the Swan Coastal Plain, Department of Water 2010.

substantial behaviour change for the target behaviour of avoiding fertiliser applications during winter and around rain events. The detailed evaluation reports (unpublished) reveal that the project was limited because it did not directly address the behaviours that households were willing and able to change (i.e. fertiliser type and quantity) and engage households in making choices about the best behaviour change for them.

The *RiverWise* (segmentation, coaching and referral to personalised services) project methodology was adopted because it was suitable for engaging with high fertiliser users and tailoring services to meet their needs. Taking the budget into account the project was designed to be delivered in two catchments consisting of more than 5,000 households:

Figure 2: Scope of services

Service/ Scope	Start date (duration)	Leschenault Catchment	Vasse-Geographe Catchment
Target localities (occupied dwellings)		Target Area 1 (4,885)	Target Area 2 (941)
Target group (with telephone)		2000 Target 1000 Control	400 Target 200 Control
Announcement mailing	30/4/18 (1 week)	3,000 households	600 households
Recruitment survey	3/5/18 (3 weeks)	400 Participants 200 Controls	80 Participants 50 Controls
Coaching and referral to services:	(in the survey call)	400 Participants, segmented by fertiliser use: <ul style="list-style-type: none"> • 200 high users • 100 medium • 100 low users 	80 Participants, segmented by fertiliser use: <ul style="list-style-type: none"> • 40 high users • 20 medium • 20 low users
• Garden Visit and product swap	19/5/18 (9 days)	100 (of 200) high fertiliser users	20 (of 40) high fertiliser users
• Book into workshops	(in the survey call)	Aim to book in 50 people (including high/ medium/ low fertiliser users)	Aim to book in 10 people (including high/ medium/ low fertiliser users)
• Personalised follow up (feedback letter and booklet)	11/6/18 (1 week)	400 Participants	80 Participants
• Garden workshops	Around 18 June	Open to the public	Open to the public
Evaluation survey	15/10/18 (2 weeks)	200 Participants 100 Controls	40 Participants 25 Controls

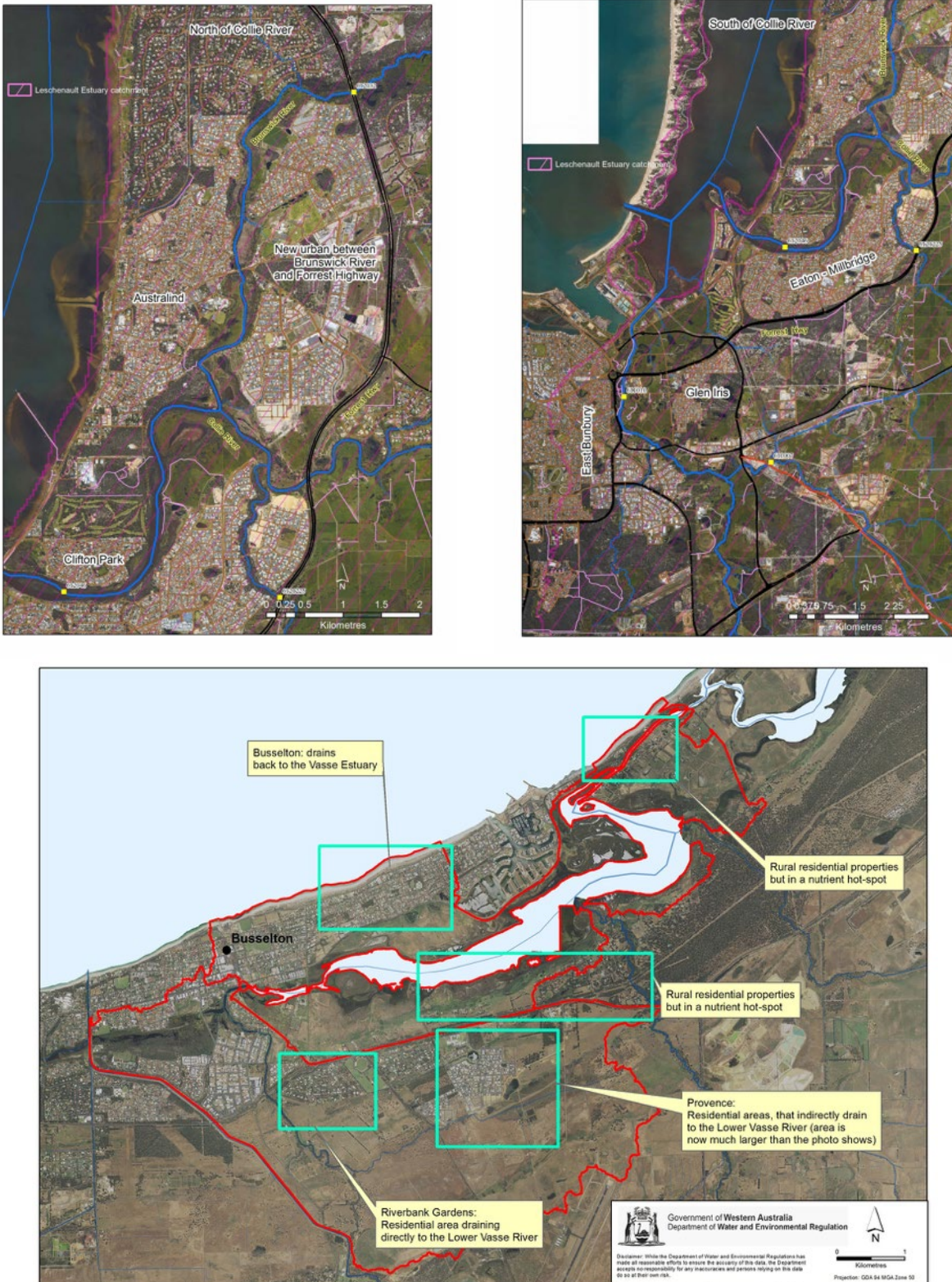
To meet the needs of the target audience (being the minority of households using large amounts of fertiliser) and to prompt the behaviour changes that they are willing to make (i.e. switching to controlled release fertiliser, using less quantity and limiting fertiliser use to spring and autumn) the recommended project tools were:

- Announcement letter to frame the service as a community action to protect the waterways
- Telephone coaching to:
 - invite households to identify with environmental protection
 - prompt self-assessment of garden fertiliser and water inputs
 - offer solutions to the discomfort when behaviours conflict with values and norms
- Your Garden Guide booklet (8-page A5 checklist for inclusion in personalised follow up mailings), covering:
 - DIY Garden Audit in the form of a checklist
 - Essential actions: how to choose fertiliser, use the right amount, avoid excess use of raw manures and avoid run-off
 - Building foundations: how to improve soil, increase water holding and set irrigation
 - Take the next steps: how to group plantings and switch to catchment friendly plants
 - Find out more: links to resources on water saving, sustainable gardening and catchment management
- Garden Consultations to offer:
 - Measuring cup (as the solution to using the right amount of fertiliser)
 - Controlled release fertiliser
 - Clays (Sand to soil) or Soil wetter (as required)
 - Run through the main ideas for building the soil
 - Removal of high nutrient and fast release garden products
- Comparative feedback letters to benchmark nutrient inputs against neighbourhood norms and catchment friendly practices
- Referral to Gardening Workshops, primarily as a reward for medium and low fertiliser users. The Workshops to:
 - Cover the next level of detail in the Garden Guide (similar to the existing Bay OK Garden Guide content)
 - Bring people together as a tangible demonstration of action to protect the waterways

1.1.4 Project areas (scope)

DWER provided the following mapping of the urban catchment areas for the Leschenault and Vasse-Geographe REI areas.

Figure 3: Catchment mapping.



Colin Ashton-Graham matched the urban residential catchments to Census data and sourced publicly available telephone (mobile and landline) contact databases for the suburbs that were in scope.

Figure 4: Sample viability

<i>Locality/ Suburb</i>	<i>ABS Occupied Dwellings</i>	<i>Estimated dwellings with telephone</i>	<i>% rented dwellings</i>	<i>Notes</i>
Leschenault Catchment				
Australind	4885	3112	24%	Mix of older and new development. Size fits the budget = Recommended
Leschenault	958	663	7%	
Eaton	3004	1854	27%	
Millbridge	747	375	19%	
Glen Iris	998	550	29%	
Vasse-Geographe Catchment				
Busselton	816	508	42%	Mix of housing and commercial. High rental rate may mean lack of empowerment to change garden fertiliser or water use.
Bovell	141	92	8%	Mix of older and new development. Size fits the budget = Recommended
Yalyalup	800	508	19%	Mix of older and new development. Size fits the budget = Recommended
Reinscourt	78	51	5%	
Wonnerup	48	31	25%	Not compact, so expensive to deliver Garden Visits
Quindalup (nr Dunsborough)	487	248	21%	Not in primary target area

The most promising target areas being localities in the catchment, with:

- A low proportion of renters (because renters are often not able to make changes to gardening practices),
- Sufficient listed telephone numbers from which to recruit the target number of participants (project costs are reduced where the available sample is five-fold the target participation numbers) and

- Being made up of whole suburbs (to facilitate efficient collection of the target database through filtering by postal address and to create a sense of community participation).

The recommended target areas were:

- Suburb of Australind in the Leschenault catchment
- Suburbs of Yalyalup and Bovell in the Vasse-Geographe catchment

Google-earth of the recommended suburbs shows that they consist of two areas (one in Leschenault and one in the Vasse-Geographe catchments), each with a few localities and a variety of lot sizes and dwelling age.

Figure 5: Target area – Australind Suburb

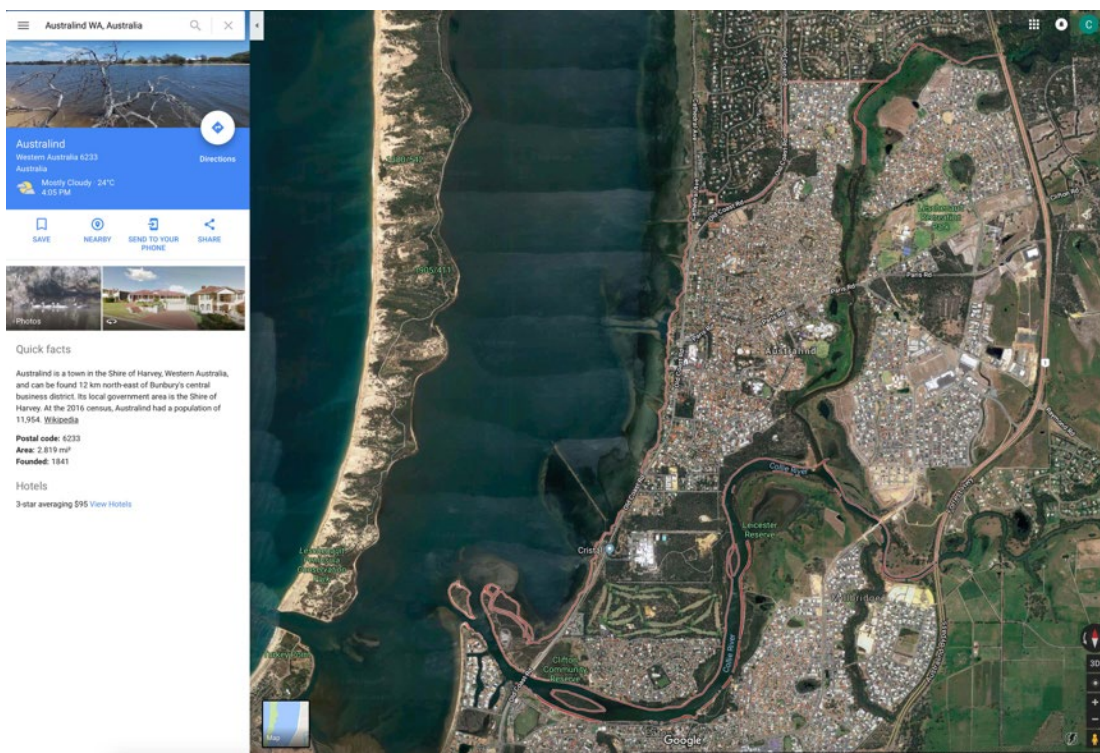


Figure 6: Target area – Yalyalup and Bovell Suburbs



1.2 Methodology

1.2.1 The target areas (sampling)

The target areas consisted of dwellings on the alignment of the Collie River, being the suburb of Australind, and areas draining directly into the Lower Vasse River, being the suburbs of Yalyalup and Bovell. These areas having a combined total of 5,626 occupied dwellings (ABS data). A commercially available sample frame (SamplePages) was utilised to provide 3,712 households with publicly listed telephone numbers. A random sample of 2,400 households was selected as the target group for the REI households services and a randomised sample (being near neighbours of the target group) of 1,200 households selected as the Control group.

1.2.2 Survey, recruitment and segmentation

All 1,200 Control group households received a letter requesting their participation in the ‘Gardening Survey’ (baseline survey). Between 2 and 22 May 2018, telephone contact was made with these households until the quota of 242 survey responses was filled.

Similarly, all 2,400 Target group households received a letter to introduce the Gardening Survey and to make them aware of the available REI Services. Between 3 and 22 May, a total of 481 households completed a baseline survey on their gardening practices, discussed catchment-friendly ideas and opted to book in for REI services. The recruitment effort ceased when the quota of 128 Gardening Consultation bookings had been filled.

The conversion of the Target group into Participating households was structured to reserve the Garden Consultation service for the higher fertiliser users. The segmentation rules used for this process were:

- Classified as a ‘High’ user if: fertiliser use was reported to be every few months or more frequently for any of the more damaging fertiliser types (i.e. manures, high NPK or general fertiliser products);

or they used a big bag or more each time of manures or general fertiliser; or they used a small bag or more each time of high NPK fertiliser.

- Classified as a 'Low' user if: Reticulation runs were less than 5 minutes per station; or fertiliser frequency was reported as 'almost never' for lawns or for garden beds.
- Classified as a 'Medium' user if they did not segment into the High or Low groups.

The segmentation rules resulted in just over half of all respondents being categorised as 'High' users, one-sixth as 'medium' users and the remaining one-third as 'Low'. The segmentation rules were not applied to the control group, so the actual nutrient inputs (i.e. fertiliser weight multiplied by nutrient density) can be used to assess the control group as a match for the participant group.

Figure 7: Response rates and segmentation outcomes

	Target group	Control group
Gross sample	2400	1200
(less disconnected numbers and 'return to sender' letters)	-216	-108
= Available sample	= 2184	= 1092
No answer	1368	752
Refusal	335 (15%)	98 (9%)
Completed surveys	481	242*
Response rate	22%	22%
High users (as % of respondents)	253 (53%)	n/a
Medium users (as % of respondents)	78 (16%)	n/a
Low users (as % of respondents)	148 (31%)	n/a
Median nutrient inputs (kg/100 sqm garden)	0.21	0.23
Ave. nutrient inputs (kg/100 sqm garden)	0.86	0.92
Ave. nutrient inputs per dwelling (kg)	7.63	7.08
Ave. fertiliser product per dwelling (kg)	123.20	116.76

* four outlier cases (using more than ten times the average amount of nutrient per 100m²) were removed from the control group, making the control sample 238 cases.

The segmentation was performed 'live' during the survey component of the call and directed the interviewer to offer services tailored to the household's needs:

- High fertiliser users were engaged in a Coaching conversation to identify ways to reduce their use. They were also offered a free Garden Consultation service and tickets to a Gardening Workshop.
- Medium fertiliser users were engaged in a Coaching conversation to identify ways to reduce their use and offered tickets to a Gardening Workshop.
- Low fertiliser users were thanked for their catchment-friendly gardening practices and asked if they could add specific actions to turn their sprinklers off ahead of the winter ban and avoid using any fertiliser over the winter season.
- All Participants would subsequently receive a personalised feedback letter capturing the catchment-friendly ideas that they agreed to during the Coaching conversation and, as appropriate, at the Garden Consultation.

The Participant group, on average, applied 123.2 kg of fertiliser products, amounting to 7.6 kg of nutrients (Nitrogen and Phosphorous) per dwelling per annum. By land area the nutrient inputs per hectare were a mean of 86 kg/ha/yr and a median of 21 kg/ha/yr. These application rates are at the lower end of the range

for Western Australian households calculated by the Department of Water Urban Nutrient Study⁶, the differences being attributable to different response rates, sample size and scope of the two surveys. The REI participant group fertiliser use is, however, almost identical to those found in the South West Catchment Council study (for the Vasse-Geographe and Leschenault area) in 2014 (Ashton-Graham/ Ipsos, 2015, unpublished).

Similar to the Urban Nutrient Study, the fertiliser use of REI participant households was dominated by a minority of very high fertiliser users. By total weight of fertiliser product used the:

- Top 20% (quintile 5) of households use 74% of the total fertiliser applied
- Next 20% (Q4) use 18.8%
- Middle 20% (Q3) use 5.7%
- Next 20% (Q2) use 1.5%
- Lowest 20% (Q1) use 0.1%

This pattern of fertiliser use validates the segmentation approach used to target services to the high users.

1.2.3 Coaching conversation

Having segmented the Participant group, the behaviour change methodology was successful in converting 50% of the High users into booking a Garden Consultation (128 of the 255 segmented). The conversation also succeeded in 143 Participant households taking up the offer of a free Garden Workshop ticket. This represented a take up rate of 43% of the High and Medium user groups combined (143 of the 333 households). Each household was able to book multiple tickets for the Gardening Workshop, which resulted in a total of 321 tickets being allocated. It should be noted, 1.2.4 and 1.2.6 below, that not all bookings resulted in the household attending a Consultation or Workshop.

All Participants (i.e. high, medium and low fertiliser users) were asked if they could act to turn their garden sprinkler system off ahead of the winter sprinkler ban and avoid using any fertiliser over the winter period, finding:

- 202 (42%) had already turned their sprinklers off and 163 (34%) agreed to do so
- 261 (54%) always avoided fertilising over winter and 192 (40%) agreed to join them

The high and medium fertiliser users were engaged in a longer coaching conversation, aiming to discover nutrient reduction ideas to suit each participant. In addition to the agreements to switch off sprinklers and avoid winter fertiliser use, these 333 households agreed to another 516 actions (1.5 actions per household). The most popular agreed new actions were:

- Switching to controlled-release fertiliser, agreed by 146 (44%) of households
- Using less fertiliser than it says on the packet, agreed by 116 (35%) of households
- Avoiding using lots of manures, agreed by 72 (22%) of households
- Measuring fertiliser carefully, agreed by 59 (18%) of households
- Switching more of the garden to waterwise and native planting, agreed by 52 (16%) of households
- Reducing summer retic runs by 2 minutes 45 (14%) of households
- Adding clays to fix the sandy soil, agreed by 9 (3%) of households

The Coaching conversation design is set out in Appendix 3.1.

⁶ Kelsey, P et al, Survey of urban nutrient inputs on the Swan Coastal Plan, Department of Water 2010 (pg 44)

1.2.4 Garden Consultation service

The Garden Consultation Service was offered exclusively to all 255 High fertiliser users, of which 128 (50%) booked into the service during the Coaching conversation. From the 128 bookings, eight cancelled during the confirmation call a few days prior to the session and six were not home when the Consultant arrived at the home. In total 114 Garden Consultations were successfully completed.

The Garden Consultation team (The Forever Project) rostered to provide between two and four Consultants in each of five timeslots on each of ten days, totalling 143 available timeslots. The Coaching team organised calls in a geographic pattern to cluster Australind into the first eight days of visits and the Yalyalup and Bovell households into the last two days. The visits took place on weekday and Sunday afternoons and Saturday mornings between 19 and 28 May 2018.

The Coaching team captured information on the fertiliser and watering behaviours of each participant and pre-populated this information into a protocol sheet for the Garden Consultant team. The Garden Consultation team conducted reminder telephone calls two days prior to the scheduled visit and accommodated rescheduling for about 5% of households and cancellations from 8 (6%) households.

Each Garden Consultation was booked to commence on the hour and lasted for approximately 45 minutes.

During the Consultation, the Consultant worked through the gardening needs of the household and assessed the garden irrigation and planting. The Consultant then provided a fertiliser measuring jug and up to two garden products such as soil wetter, soil amendment or soil conditioner (controlled release fertiliser). Where appropriate the Consultant demonstrated the use of the product, removed any high nutrient products that the household agreed to dispose of and, for the GeoCatch area) provided a bin sticker. Finally, the participant and consultant agreed some catchment-friendly actions for the household to undertake.

The completed Garden Consultation protocol sheets were then provided to the Behaviour Change Manager (Colin Ashton-Graham) to integrate the agreed actions into personalised follow up letters. The typical Consultation resulted in two agreed changes relating to watering settings and use of the garden products provided as an alternative to high fertiliser applications.

1.2.5 Feedback letters

All 480 participants received a personalised feedback letter on 12 June 2018. Each letter (see example at 3.4 below) contained:

- A reminder of any catchment-friendly actions agreed with the Coach or Garden Consultant;
- A request to work through an enclosed Your Garden Guide booklet;
- A reminder for the upcoming Gardening Workshop (or invitation to book tickets); and
- An assessment of the household's nutrient inputs on a scale compared to other households in the neighbourhood

The letter was timed to follow up promptly on the Coaching and Garden Consultation services and to remind participants to put the upcoming Garden Workshop in their diary.

In addition to the personalised record of agreed catchment-friendly actions, the data from the survey was converted into a combined nutrient input rate per 100 square meters of housing block area. The calculation was based on the quantity of each fertiliser type that the household reported using, multiplied by the nutrient density (%) of the product type and divided by the property lot size (less an allowance for house and paving). For simplicity, this complex calculation was presented as a scale to show where the participant household's fertiliser use sat on a scale from 'Bay OK/ Love the Leschenault' to 'Very High' nutrient inputs.

1.2.6 Garden Workshops

Free tickets for the participant's choice of two Garden Workshops were offered to the 333 participants that were segmented as High or Medium fertiliser users. Tickets were ordered by 143 households (43% of those offered the opportunity), totalling 321 tickets. The tickets were sent by email through an online booking system or printed and posted to participants without access to email. The feedback letter, sent on 12 June 2018, also included a personalised reminder for the workshops coming up on 21 and 23 June.

The recruitment and coaching call process secured an average order of 2.2 tickets for each interested household. There was concern that the Workshops would be overbooked, and the decision was taken to limit the ticket order to two per participating household for the second half of the recruitment process.

Around 100 people attended the Leschenault workshop, and 50 attended the Busselton workshop although some of these people lived outside of the project areas and had booked in response to wider publicity for the event. An estimate, based on headcount at the workshops, suggests that around 100 Coaching Participants attended across the two sessions. The attendance rate was just 31% of the tickets booked by Participants.

Providing a Workshop as part of the service proved to be useful for around 13% of Participating households (i.e. 62 of 480 households). The main learnings being that:

- Engagement with the ticketing is low and a 70% no show rate should be expected
- Participants prefer to order more than one ticket
- Overbooking workshop sessions by 300% was an effective strategy for the Leschenault workshop because it resulted in the room being full to capacity (100 attendees for 100 seats). As an experiment the Busselton workshop limited the ticket offering to the room capacity and achieved 39% capacity.

1.3 Results

1.3.1 Changes in household water use

The baseline and post-program survey provides an estimate of garden water use based on respondents reporting the duration of garden irrigation system run times per station. The most robust measure being the relative change in run times. Between May and November the irrigation run time per station reduced across the Participant group by 1.36 minutes (from 13.69 to 12.33 minutes) and the run times for the control group reduced by 0.98 minutes. The estimated reduction in irrigation run times by Participants, compared to the seasonal trend in the Controls, was 0.38 minutes per station, being a 2.8% reduction in garden watering.

1.3.2 Changes in household fertiliser use

The amount of fertiliser product applied per household (with an average lot size of 997m²) in the pre-program period was lower than in previous studies into fertiliser application rates. The pre-program application rates in the Leschenault and Geographe areas amounted to 144kg of fertiliser products (manures, general fertilisers, controlled release and liquid products) per household per annum. The Department of Water survey of urban fertiliser use⁷ reported around 209kg per household for large lots (derived from a reported average of 156kg of Nitrogen and 53kg of Phosphorus per hectare = 20.9kg per 1,000 square meter lot at 10% of product by weight = 209kg of product per annum).

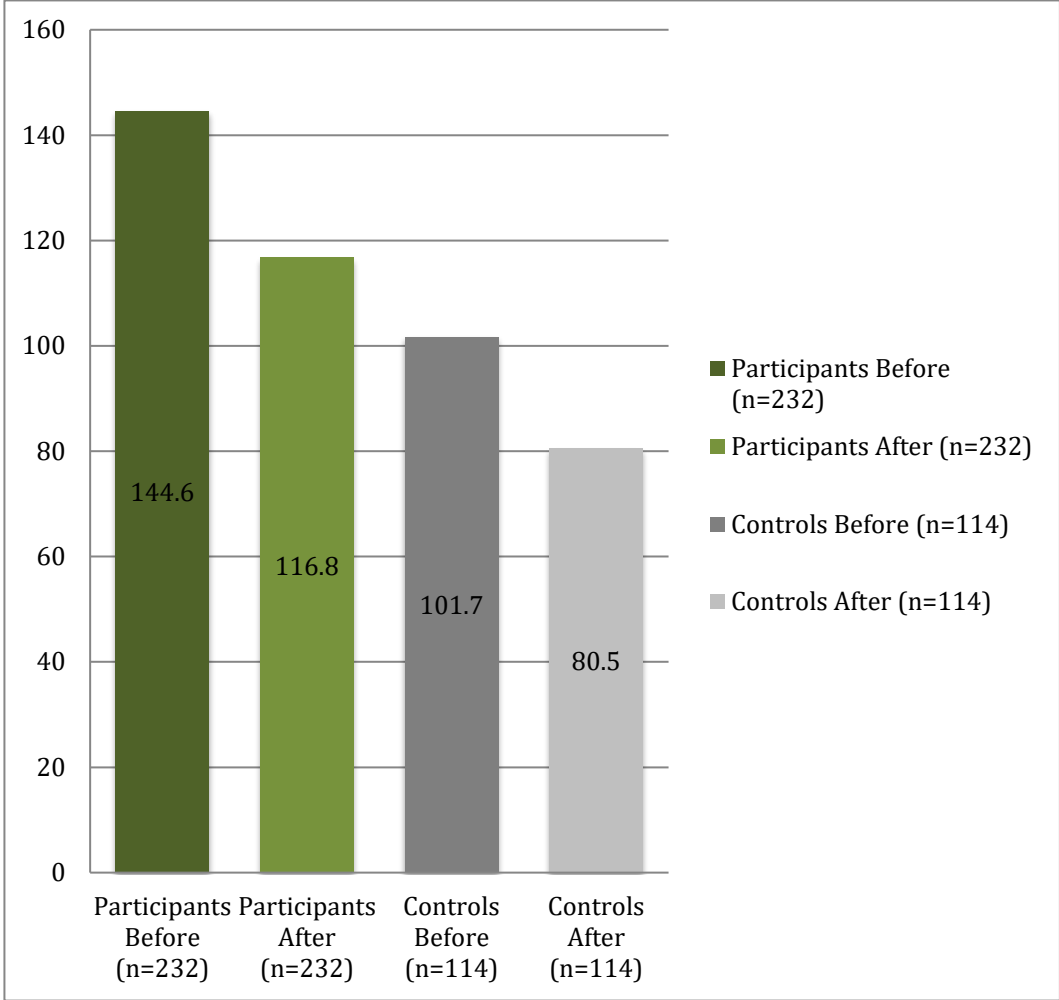
The REI Participant group reported a 27.8kg (19.2%) reduction in total fertiliser use per household per annum. The Control group, from the same locality, reported a seasonal reduction of 21.1kg (20.8%) in total

⁷ Kelsey, P et al, Survey of urban nutrient inputs on the Swan Coastal Plan, Department of Water 2010 (Tables 4.4 and 4.5)

fertiliser use per household per annum. These figures indicate that the REI services achieved a 6.7kg (4.6%) reduction in fertiliser use per participating household.

The 6.7kg reduction, relative to the seasonal trend in the Controls, is a very positive outcome. Measuring the change across all 481 participating households, the total fertiliser product reduction is 3,203 kg per annum (6.66kg x 481 households).

Figure 8: Change in fertiliser application (kg per household per annum) by Participants and Controls

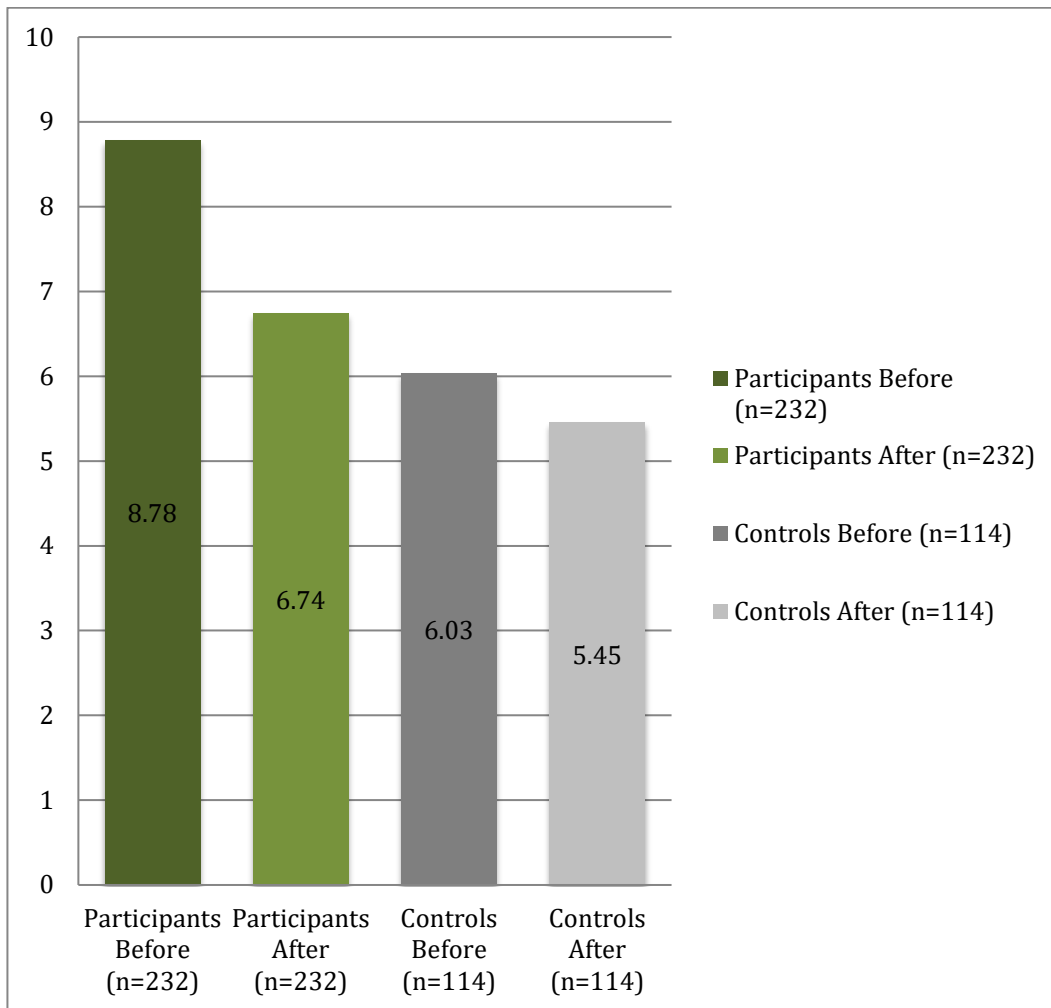


The distribution of fertiliser use is such that the top 20% of households account for 73% of the total fertiliser use. This leads to large changes by a few households having a significant impact on the average fertiliser use.

In addition to the total quantity of fertiliser used, the type of fertiliser also has an influence on the nutrient inputs. For example, the Department of Water Urban Nutrient study reports general fertiliser products to contain 11% of nutrients by weight, manures 5% and concentrates 18%.

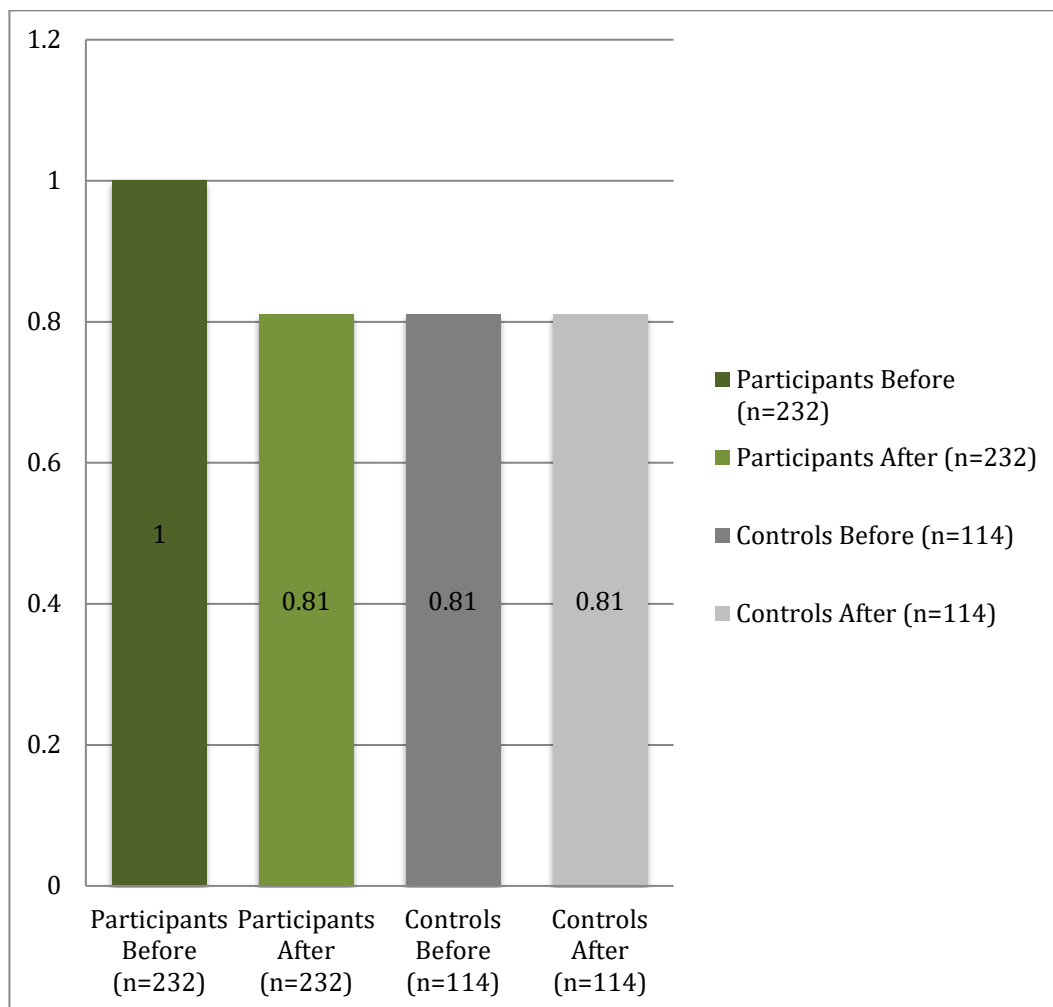
REI (Love the Leshenault and Bay OK) Participants made the greatest reductions in the weight of high NPK product that they applied. This shift away from high nutrient dense products means that the 4.6% reduction in fertiliser quantity resulted in a 16.6% reduction in nutrient, per dwelling per annum.

Figure 9: Change in total nutrient content (N + P, kg per household per annum) by Participants and Controls



Participants on smaller lot sizes also made greater relative reductions in nutrient content applied to their gardens, meaning that the 16.6% reduction in nutrient per dwelling resulted in a 19% reduction in nutrient content per 100m² of land area.

Figure 10: Change in total nutrient content (N + P, kg per m² per annum) by Participants and Controls



The REI segmentation was also successful in targeting more intensive services to higher fertiliser users. The group taking up Garden Consultation visits had a baseline fertiliser use of almost twice the average (i.e. 273 kg/hh/year). The changes in fertiliser use (by weight) for each of the Participant types were:

- Garden Visit Participants reduced by 46%
- Workshop Participants reduced by 22%
- Feedback letter only Participants increased by 21% (although this increase was from a very low base of just 77kg of fertiliser product per annum, having very little negative impact on the overall result)

All Participants (those with and those without a Garden Visit) also:

- Decreased their use of high Nitrogen fertiliser, general, controlled release and liquid fertiliser (but increased use of manures)
- Started mulching (+9% uptake)
- Started using sand remedy or clays (+17% uptake)

1.3.3 Changes against Key Performance Indicators

Overall, 12 out of 15 indicators of REI gardening practices and satisfaction with the REI service were positive for the Participant group compared to the Control. The benchmarks for intensive household behaviour change programs are:

- Reach (service) 25% of the target population
- Achieve 5 to 10% change in behaviour/ consumption amongst the target group
- Deliver the service with better than 75% net customer satisfaction

Figure 11: Key Performance Indicator Summary

Indicator	All Participants Change (raw)	Controls Change (raw)	All Participants Change (net of Control)*	Desired Outcome?	Change Relative to Benchmark
TOTAL Fertiliser (Kg/hh/yr)	-27.8 (-19%)	-21.1 (-21%)	-6.7 (-5%)	Yes	On target
TOTAL nutrient input (kg/hh/yr)	-2.04 (-23%)	-0.58 (-10%)	-1.46 (-17%)	Yes	Exceeded
Manures (Kg/hh/yr)	-18.9 (-15%)	-24.5 (-28%)	+5.6 (+5%)	No	
High N Fertilise (Kg/hh/yr)	-2.8 (-41%)	+2.3 (+51%)	-5.2 (-75%)	Yes	Exceeded
General Fertiliser use (Kg/hh/yr)	-1.4 (-33%)	+8.7(+48%)	-3.0 (-74%)	Yes	Exceeded
Liquid Fertiliser (Kg/hh/yr)	-2.0 (-50%)	+1.0(+92%)	-2.9 (-75%)	Yes	Exceeded
Controlled release Fertiliser (Kg/hh/yr)	-2.7 (-51%)	-1.6 (-41%)	-1.1 (-21%)	Mixed	
Irrigation rates (min/station)	-1.4 (-9.9%)	-1.0 (-8.9%)	-0.4 (-2.8%)	Yes	Below
Soil wetter use (% hh uptake)	1.7%	-0.9%	-0.6%	No	
Mulch use (% hh uptake)	+3.8%	-5.2%	+9.0%	Yes	Exceeded
Soil improver use (% hh uptake)	+5.6%	0%	+5.6%	Yes	Exceeded
Clays use (% hh uptake)	+14.2%	-2.7%	+16.9%	Yes	Exceeded
Avoiding winter fertiliser use (% hh doing)	88.4%	83.3%	+5.1%	Yes	Exceeded
Reach % of target population	480/6000 (8%)	n/a	n/a	Yes	Below, but targeted
Nett satisfaction with the service	+100%	n/a	n/a	Yes	Exceeded

* Note that the % change net of controls is calculated as the net change over the base and not the sum of the per cent change of each group.

1.4 Conclusions

The Personalised Coaching and Garden Consultation approach that was deployed for REI (Leschenault and Geographe catchments) is effective in achieving behaviour change to reduce water use and garden nutrient inputs. The REI services delivered a reduction in fertiliser application (by weight) of 4.6% amongst participating households when compared to the seasonal trend amongst the control group. The project reached 22% of the target audience (households in the target suburbs with listed telephone numbers) representing 8% of all households in the target locality (due to 50% not having available telephone numbers and some being reserved as local controls). The area wide effect amounts to a 1.3% reduction in nutrient inputs (being the 16.6% reduction by the participating 8% of households).

REI (Love the Leschenault and Bay OK) tested a number of behaviour change innovations, aimed at maximising the value for money from the program:

- Segmentation was used to target the more intensive services (i.e. Garden Visits and Coaching conversations) to the higher fertiliser users
- Comparative feedback letters were introduced to assist all participants in assessing their fertiliser use
- The telephone Coaching service was used to drive Participants to engage with a public Gardening Workshop
- The telephone Coaching conversation was designed to deliver Garden Visit bookings and to seek specific agreement with Participants to avoid fertiliser use over the winter period and to adopt at least one other fertiliser reduction behaviour

The behaviour change design innovations were successful in delivering:

- Strong uptake of the Garden Visit service by high fertiliser users (128 bookings from 255 households assessed as being high users)
- Significant uptake of the Gardening Workshop event (attended by 13% of program Participants)
- An average of 1.5 specific fertiliser reduction actions per participating household
- Garden fertiliser reductions of 46% amongst the Garden Visit service group
- Robust evaluation through the use of a randomised Control group

The project delivered 1.3% area wide reduction in garden nutrient inputs (16% reduction amongst 8% of households) and did so at benchmark cost (\$212 per participating household).

Further testing and improvement is required to:

- Increase the reach of the program (without access to the Electoral Roll it was not possible to engage the 50% of households without publicly available telephone numbers)

1.5 Recommendations

- The Department of Water and Environmental Regulation (DWER) should integrate Coaching projects into the behaviour change component of the REI program.
- DWER should persist with telephone Coaching as an effective method of targeting high fertiliser consuming households and securing their involvement in Garden Visit services.
- Garden Visit services should remain the primary methodology for securing significant reductions in garden fertiliser use.
- Where REI household services are being delivered, it should be considered as an opportunity to increase the uptake of REI Gardening Workshop services by high fertiliser users, who would otherwise be unlikely to attend.

DWER should aim to achieve the following benchmark outcomes from Coaching programs:

- Target the 50% of households with available telephone numbers
- Recruit 20% of target households as participants
- Deliver 20% reduction in garden nutrient inputs by participating households
- Recruit 30% of participants (and 60% of high fertiliser users) into Garden Visit services
- Deliver the REI household service at a cost of \$220 per participating household.

2 Data Analysis

2.1 Available Survey Datasets

Garden nutrient behaviours (fertiliser application, garden water use, fertiliser choice and soil improvement practices) were tracked through a panel survey of Participant and Control households. The surveys are designed to provide measures of gardening behaviours, perceptions and intentions at two points in time.

The effects of conducting the surveys in different seasons, together with any effect of repeating the survey, is removed by interpreting the changes for the REI Participant group net of any changes reported by the control group. Most of the measures are objective measures, such as reporting specific fertiliser application rates, which provide much more reliable estimates of behaviour change than by asking respondents to report changes that they perceive to have made.

The Participant group included high, medium and low fertiliser users and hence included households receiving full coaching and Garden Visit services alongside those receiving only feedback letters. The Control group was a random sample of households from the target area who were not offered the REI (Love the Leschenault and Bay OK) services. This represents the best possible experimental design, allowing seasonal and other trends to be separated from the effects of the REI service.

The first survey, conducted in May 2018, secured a sample of 481 Participating and 242 Control group households. The post-program survey (October 2018) used a panel sample (the same households that responded to the first survey) after removing 5 Control households and 17 Participant households that had opted not to participate in the second survey (e.g. because they planned to move house). The after survey secured 232 Participant group and 114 Control group respondents. The high post-program response rates (48 to 50%) ensure that the samples are representative.

The Autumn (pre) and Spring (post) surveys used the same questionnaire, with minor modifications to not repeat the collection of data on lot sizes, and were administered by the same team over the telephone.

The data has been analysed for all 232 Participant and 114 Control households that responded to both surveys.

The analysis of 'panels' of persons responding to the baseline and post-program surveys has the effect of removing any differences between households responding to one survey and those responding to both (known as non-response bias).

The effect of the REI program is calculated using the BACI methodology (Before-After-Control-Intervention) as follows:

$$\text{Program effect} = (\text{Participant After} - \text{Participant Before}) - (\text{Control After} - \text{Control Before})$$

2.1.1 Comparing the Pre and Post Program samples

Figure 12 shows that the Participant and Control groups had similar, but not perfectly matched, housing lot size and baseline fertiliser nutrient content.

Figure 12: Panel sample characteristics

Characteristic	Participants (n=232)	Controls (n=114)
Average lot size (m ²)	997	847
Baseline annual nutrient inputs (Kg/ 100 m ²)	1.0	0.81

2.1.2 Method for calculating total fertiliser and nutrient quantities

The survey collected information on the category of fertiliser used (e.g. General, manures, high NPK, liquid, controlled release), the frequency of application and the amount used each time. The following

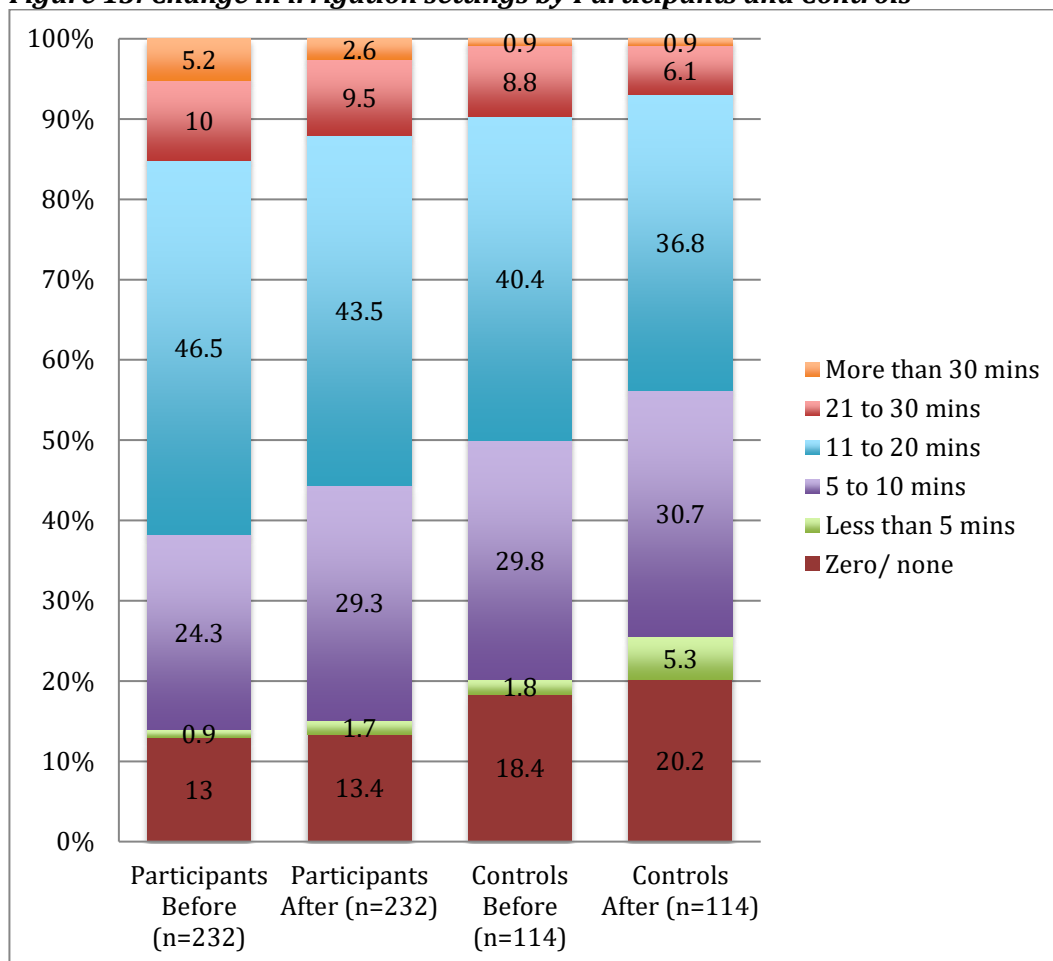
calculations are applied to convert these survey responses into an estimated nutrient input for each respondent:

- Nutrient density of products (taken from popular products listed in the Department of Water Urban Nutrient Study):
 - Manures 5% N and P by weight
 - High NPK 18% nutrient by weight
 - General fertiliser 11%
 - Liquid fertiliser 14%
 - Controlled release 6% (while many controlled release products are up to 18% nutrient density, a lower figure is taken to reflect the lower potential for nutrient throughput to the river)
- Quantities applied:
 - Respondent estimate in kg, simplified from response categories:
 - None = 0
 - Just a handful/ cup = 0.2kg
 - A tub (1kg/ 1lt) = 1.0kg
 - 2lt/ 5lt/ 15lt/ 30lt containers = 2/ 5/ 15/ 30kg (liquid)
 - Small bag = 12.5kg
 - Big bag = 25kg
 - half trailer = 200kg
 - trailer = 400kg
 - Frequency simplified from response categories as:
 - Almost never = 0.5 times per year
 - Once or twice pa = 1.5
 - Every few months = 4.0
 - About once a month = 12
 - Almost weekly = 50

2.2 Measuring changes in water usage over time

The survey asked respondents to report on their irrigation system run times per station. These responses were then coded to estimate the average irrigation run time. Figure 13 shows that REI Participants, relative to the seasonal change in the control group, reduced irrigation run times by a modest 2.8%.

Figure 13: Change in irrigation settings by Participants and Controls



The distribution (pattern) of irrigation use above, can be used to calculate changes in the average irrigation run per Participant, net of seasonal changes in the Controls. The Participants reduced their irrigation run times by 2.8%.

Figure 14: Change in irrigation run times

Minutes/station/watering day	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	13.69	12.33	-1.36
Controls (n=114)	10.95	9.97	-0.98
Net Change (BACI)			-0.38 (-2.8%)

2.3 Assessing changes in garden product use over time

The tables below report the main survey measures taken pre and post program and are supported by commentary on significant and interesting measures and changes. Positive outcomes are in green text and negative outcomes in red.

2.3.1 Change in total fertiliser applied

The following tables show the changes in total fertiliser use (the sum of Frequency x Quantity for each of five fertiliser types) for the REI Participants, the Controls and for each sub-group of Participants receiving letters, Garden Visits and attending the Workshop.

Figure 15: Change in total fertiliser use (All Participants and for each subgroup)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
All Participants (n=232)	144.58	116.76	-27.82 (-19.2%)
Garden Visit subgroup (n=80)	273.83	149.61	-124.72 (-45.5%)
Workshop subgroup (n=31)	258.49	201.35	-57.14 (-22.1%)
Letter only subgroup (n=144)	77.37	89.02	+11.5 (+14.9%)
Controls (n=114)	101.69	80.53	-21.16 (-20.8%)

The All Participants group reduced, relative to the seasonal change in the Control group, their total fertiliser use.

It should be noted that the segmentation procedure directed high fertiliser users into the Garden Visit group and low fertiliser users into the Letter Only group. These sub-groups cannot be compared to the whole Control group because this segmentation procedure results in systematic differences between the groups. The solution, to reduce the potential for bias, is to re-run the analysis against a similar segment from the control. The tables below present this ‘matched control’ analysis for the Garden Visit and Letter Only groups. The Workshop group is too small to run a statistically robust analysis.

Figure 16: Change in total fertiliser use (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	144.58	116.76	-27.82 (-19.2%)
Controls (n=114)	101.69	80.53	-21.16 (-20.8%)
Net Change (BACI)			-6.66 (-4.6%)

The 19.2% reduction in total fertiliser product use (27.8kg by weight), and 4.6% (6.7kg) reduction relative to the seasonal trend in the Controls, is a very positive outcome. Measuring the change across all 481 participating households, the total fertiliser product reduction is 3,203 kg per annum (6.66kg x 481 households).

The tables below show that the positive result is driven by substantial reductions in the high fertiliser user group (those directed into the Garden Visit service) and is partly offset by an increase in fertiliser use amongst the low fertiliser user group.

Analysis of the high and low fertiliser use groups is complex because of a natural churning in the situation of households creating an effect that is called ‘regression to the mean’. This effect shows up in the segments of the control group, where we can see the high users reduce their fertiliser use substantially and the low users change very little. The underlying cause is that high users will, as a group, not stay high because a few households will fertilise much less due to a simple change such as the enthusiastic gardener going on a long holiday, becoming ill or unable to afford the fertiliser product. The important analytical procedure is to track those changes in the control and hence attribute only the net change (i.e. -6.6kg/ -4.6%) to the program and not claim the ‘regression’ component (-21.2kg/ -20.8%) seen in the controls.

Figure 17: Change in total fertiliser use (Participants with a Garden Consultation)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Garden Visit Participants (n=80)	273.83	149.61	-124.72 (-45.5%)
Matched Controls (n=39)	278.77	165.82	-112.95 (-20%)
Net Change (BACI)			-11.77 (-4.1%)

Figure 18: Change in total fertiliser use (Letter Only Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Letter Only Participants (n=144)	77.37	89.02	+11.5 (+14.9%)
Matched Controls (n=109)	76.22	71.65	-4.57 (-6.0%)
Net Change (BACI)			+16.22 (+21.0%)

2.3.2 Change in total fertiliser applied

The Key Performance Indicator for the REI Garden Nutrient Reduction project is to reduce the total nutrient content applied to gardens. Positive outcomes can be achieved through a reduction in total fertiliser quantity applied (reported in 2.3.1 above) or through a change to less nutrient dense fertiliser products. The following tables show the changes in total nutrient applied (the sum of Frequency x Quantity x nutrient density accumulated through all five fertiliser types).

Figures 19 and 20 shows that the 4.6% relative reduction in fertiliser product translates into a 16.6% reduction in nutrient inputs per dwelling; and a 19% reduction in nutrient inputs per 100 square meters of lot size.

Figure 19: Change in total nutrient use (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	8.78	6.74	-2.04 (-23.2%)
Controls (n=114)	6.03	5.45	-0.58 (-9.6%)
Net Change (BACI)			-1.46 (-16.6%)

Figure 20: Change in total nutrient use per 100sqm of lot size (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	1.00	0.81	-0.19 (-19%)
Controls (n=114)	0.81	0.81	+0.0 (0%)
Net Change (BACI)			-0.19 (-19%)

The differences between the 4.6% reduction in fertiliser product and the 16.6% reduction in nutrient input per dwelling shows that the REI program had most success in shifting fertiliser use from high nutrient content products to low nutrient density product. The small difference between the 16.6% reduction in nutrient content per dwelling and the 19% reduction per 100m² of garden area shows that, to some degree, smaller properties made greater relative change in nutrient inputs.

The total fertilise figures above have been broken down, below, into individual fertiliser types. Reductions in the use of general fertiliser, high Nitrogen and liquid fertilisers are a positive outcome. Decreased use of controlled release, may be regarded as a positive or negative outcome (i.e. the reduction contributes to reduced nutrient inputs, but ideally households would swap other fertilisers for an increase in slow release product). The increase in the use of manures has been flagged as a negative change, but can be regarded as

a positive because it matches the reduction in high NPK fertiliser (manures generally having less than one-third of the Nitrogen and Phosphorous by weight than high NPK fertilisers).

Figure 21: Change in use of manures (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	124.27	105.33	-18.94 (-15.2%)
Controls (n=114)	88.50	63.98	-24.52 (-27.7%)
Net Change (BACI)			+ 5.58 (+4.5%)

Figure 22: Change in use of high Nitrogen fertiliser (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	6.93	4.11	-2.82 (-40.7%)
Controls (n=114)	4.58	6.92	+2.34 (+51%)
Net Change (BACI)			-5.16 (-74.5%)

Figure 23: Change in use of general fertiliser (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	4.12	2.76	-1.36 (-33%)
Controls (n=114)	3.54	5.22	+1.68 (+47.5%)
Net Change (BACI)			-3.04 (-73.8%)

Figure 24: Change in use of controlled release fertiliser (All Participants)

Kg/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	5.34	2.60	-2.74 (-51.3%)
Controls (n=114)	4.0	2.38	-1.62 (-40.5%)
Net Change (BACI)			-1.11 (-21%)

Figure 25: Change in use of liquid fertiliser (All Participants)

L/household/year	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	3.91	1.96	-1.95
Controls (n=114)	1.06	2.03	+0.97
Net Change (BACI)			-2.92 (-74.7%)

The results, above, show that there has been an overall reduction in fertiliser product quantity used and a significant shift from higher nutrient fertiliser types to lower types across all Participants.

2.3.3 Change in frequency of fertiliser and garden treatment types

The following tables track the frequency of using garden treatments. There were positive changes with fewer households failing to use soil improvers, soil amendments and clays. There were also positive shifts in the form of more Participants choosing to minimise (i.e. almost never or only once or twice a year) fertilising garden beds. These positive changes were partly offset by, compared to the control group trend, fewer Participants avoiding lawn fertilising and more avoiding soil wetter.

Figure 26: Change in incidence of minimising (almost never or only twice a year) lawn fertilising

% of households	Baseline (May 18)	After (Oct 18)	Change (%points)
Participants (n=233)	81.5%	86.6%	+5.1
Controls (n=114)	82.5%	90.4%	+7.9
Net Change (BACI)			-2.8

Figure 27: Change in incidence of minimising (almost never or only twice a year) fertilising garden beds

% of households	Baseline (May 18)	After (Oct 18)	Change (% points)
Participants (n=232)	78.9%	82.3%	+3.4
Controls (n=114)	78.1%	78.1%	0
Net Change (BACI)			+3.4

Figure 28: Change in incidence of avoiding (almost never) soil improvement

% of households	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	42.2%	36.6%	-5.6
Controls (n=114)	46.5%	46.5%	0
Net Change (BACI)			-5.6

Figure 29: Change in incidence of avoiding (almost never) soil wetting

% of households	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	37.5%	39.2%	+1.7
Controls (n=114)	41.2%	42.1%	+0.9
Net Change (BACI)			+0.6

Figure 30: Change in incidence of avoiding (almost never) mulching

% of households	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	36.6%	32.8%	-3.8
Controls (n=114)	36.0%	41.2%	+5.2
Net Change (BACI)			-9.0

Figure 31: Change in incidence of avoiding (almost never) use of sand remedy/ clays

% of households	Baseline (May 18)	After (Oct 18)	Change (%)
Participants (n=232)	88.8%	74.6%	-14.2
Controls (n=114)	91.2%	93.9%	+2.7
Net Change (BACI)			-16.9

2.4 Participant responses to the REI Household services

In addition to the objective measures of fertiliser and water use, the post-program survey gathered information on some additional behaviours, self-reported behaviour changes and responses to the REI services.

2.4.1 Reported changes post-program

The post-program survey was conducted at the end of winter, providing an opportunity to ask Participants and Controls to report specifically on their winter fertiliser use, recent changes to gardening practices and choice of fertiliser type. It was not reliable to ask about previous winter behaviours in the autumn baseline survey because respondents may not accurately recall behaviours specific to a period nine months prior. Hence, there is an assumption made that the Participants and Controls were similar in the winter of 2017.

The following table shows that REI Participants were much more likely to avoid using any, or minimise usage of, fertiliser over the winter period than the Control group.

Figure 32: Frequency of fertiliser use in winter 2018 (post REI services)

Winter fertiliser use (incidence)	Participants (n=232)	Controls (n=114)	Difference (P-C)
None at all	88.4%	83.3%	+5.1%
Just once	9.5%	11.4%	-1.9%
About once a month	2.2%	4.4%	-2.2%
Almost weekly	0%	0.9%	-0.9%

The post-program survey also asked Participants to report any changes they had made to their gardening practices over the last few months. 48.3% of Participants reported at least one change, compared to 34.2% of the Controls. The rate of adoption of more estuary-friendly behaviours amongst the Participant group were:

- Keeping sprinklers off well into Spring (13.8% adopted this)
- Avoiding Winter fertilising (4.7% adopted this)
- Switched to an eco/ slow release fertiliser (7.8% switched)
- Applied less fertiliser (12.9% started)
- Changed to more native or waterwise plantings, including reducing lawn areas (7.7% changed)
- Applied sand remedy or soil wetter (4.7% started this)

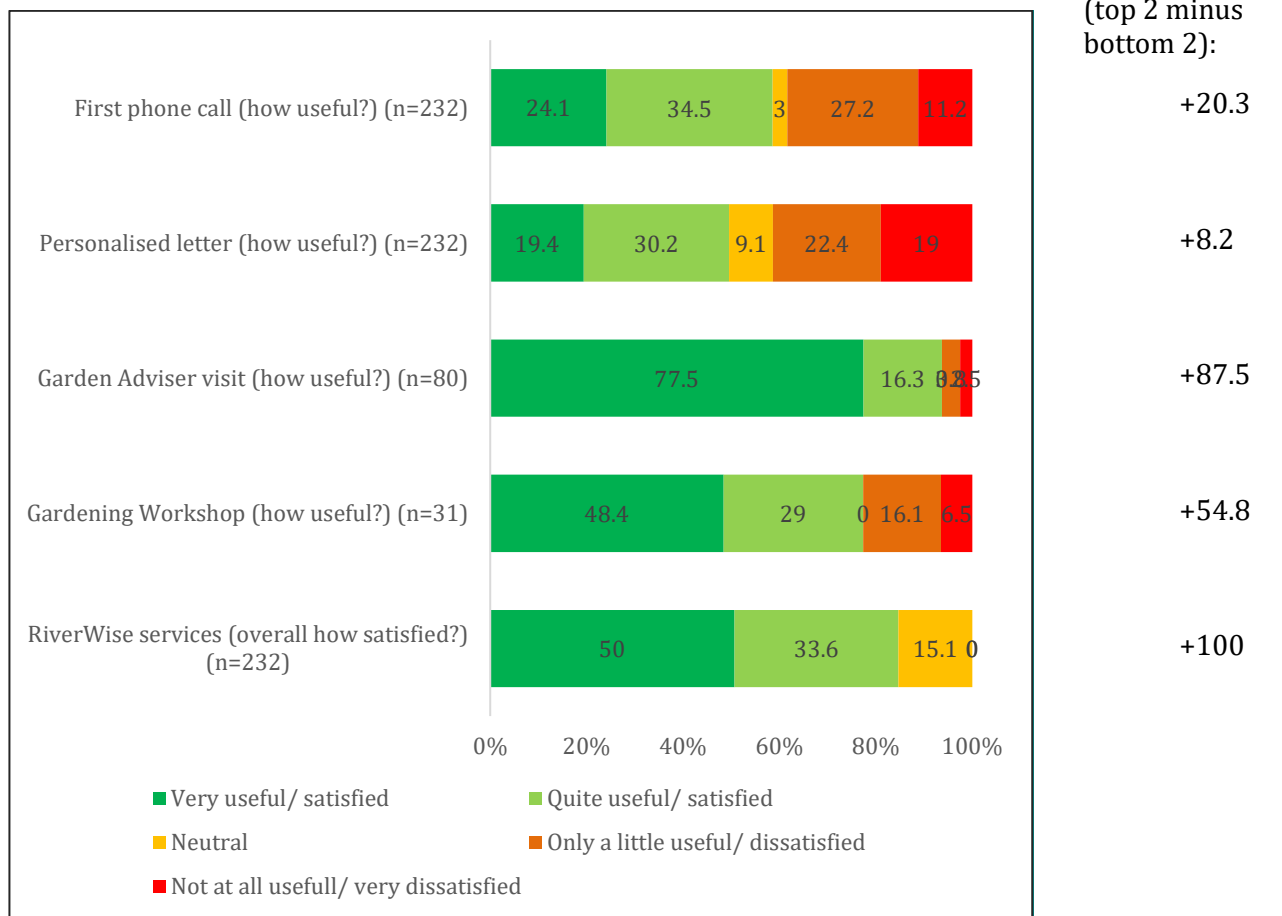
35% of Participants, compared to 12% of Controls reported changing fertiliser product type. The majority (21%/35%) of these Participants changing to an eco or slow release fertiliser product, compared to 6% adoption by Controls.

2.4.2 Responses to the quality of the RiverWise services

At the end of the gardening survey, the Participant group were asked to rate each element of the REI (Love the Leschenault or Bay OK) service. All Participants had received an initial telephone call to discuss the actions and services that would suit them and all Participants received a feedback letter comparing their fertiliser use to some benchmarks. The segment of Participants that took part in the Garden Visit and Workshop services were also asked about those services.

The chart below shows the percentage of responses across the satisfaction scales. The responses are combined by deducting negative sentiment from the positive sentiment to provide a measure of net satisfaction.

Figure 33: Service Quality measures



All aspects of the REI services achieved a nett positive quality rating. The Garden Visit, Workshop and overall service achieved very strong nett positive scores. The lower scores for the telephone Coaching and Feedback Letter are to be expected because they aim to create enough discomfort to motivate the householder to make changes.

Approximately half of all Participants were sufficiently engaged to provide comments on the service. The overwhelming sentiment was appreciation of the service and a desire for it to be extended to more households. The majority mentioned helping the waterways as a worthwhile aim, many also mentioned being waterwise. Many mentioned the Garden Adviser by name, wanting to register their appreciation of the advice.

The outcome from the service was a substantial (17%) reduction in nutrient content used, adoption of soil improvement treatments and reduction in garden irrigation. All achieved with high levels of customer satisfaction.

3 Appendix

3.1 Gardening Survey and Coaching Conversation

1. Introduction (friendly and casual tone)

Hello, I'm <Coach name> - calling on behalf of <Leschenault Catchment Council/ GeoCatch> to follow up on the letter we sent to you about the free <Love the Leschenault/ Bay OK> <suburb> service.

Are you the best person in your household to talk about how you manage your garden?

Yes – proceed (ask for their name)

No – find alternate person

Record name: _____

The local Catchment Council has found that rain and garden watering have been washing garden fertilisers into the waterways increasing the risks of algal blooms. Most people that we've been talking to in <suburb> are willing to try some Waterway-Friendly gardening options to solve the problem.

If you have about 10 minutes we can start by finding out about your garden, then we can work out which of the <Love the Leschenault/ Bay OK> free garden services or products would suit you. OK?

Yes – proceed.

No (avoid) – schedule call back at a better time

Refusal (avoid)

2. Discuss gardening (efficient survey style)

2.1 About your garden area

2.1.a Approximately how large is your block?

1 Specify in square meters _____ OR

2 Cottage lot (less than 400 m ²)	3 Modern suburban (401 - 600 m ²)
4 Classic quarter acre (601 - 1000 m ²)	5 Lifestyle block about an acre (1000 - 4000 m ²)
6 More than an acre (more than 4000 m ²)	

[Interviewer note, if respondent says:

- x hectares, multiply by 10,000 to get Sq m (e.g. 2ha = 20,000m²)
- x acres, multiply by 1,000 to get Sq m (e.g. 2acres = 8,000m²)]

2.1.b Do you have a lawn (and how big is it)?

1 Yes, small area (about 5m by 5m)	2 Yes, good sized (about 10m by 10m)
3 Yes large (about 20m by 20m or bigger)	4 Paddock
5 No lawn	

2.1.c How much of your planting (garden beds and lawn) is waterwise or native?

1 All	2 Most
3 Just some	4 None

2.2 Garden watering

2.2.a How often do you water your garden in summer?

1 Almost never	2 Less than once a week	3 1 or 2 days a week	4 3 or 4 days a week	5 Almost daily
----------------	-------------------------	----------------------	----------------------	----------------

2.2.b What type of irrigation system do you use in your garden?

1 Surface sprinklers/ sprayers	2 Drip system (below surface)
3 Both	4 None
5 Don't know	

[IF 4 (None), GOTO 2.3]

2.2.c Approximately, how many minutes is the irrigation system set for watering on EACH station?

1 Less than 5 minutes	2 5 – 10 minutes
3 11 – 20 minutes	4 21 - 30 minutes
5 More than 30 minutes	6 'Don't know' (AVOID)

2.3 Garden products and treatments ...

2.3.a How often do you fertilise your lawn?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.3.b How often do you fertilise your garden beds?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.3.c How often do you apply soil improver or compost?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.3.d How often do you use soil wetter?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.3.e How often do you apply mulch?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.3.f How often do you apply sand remedy/ bentonite clay?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.4 Now about 5 common fertiliser types

2.4.a How often do you use manures (e.g. sheep, cow or chicken poo)?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.4.b And how much do you use each time (on average)?

1 Just a few hand/cups full	2 About a tub full/ 1 – 5 kilogram	3 A small bag (about 10 to 15 kg)	4 A big bag (about 20 - 30 kg)	5 Several bags/ about half a trailer	6 A trailer full or more	7 None/ don't use
-----------------------------	------------------------------------	-----------------------------------	--------------------------------	--------------------------------------	--------------------------	-------------------

2.4.c How often do you use high nitrogen fertiliser (e.g. NPK blue, Blood and Bone, Urea, Baileys Brilliance)?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.4.d And how much do you use each time (on average)?

1 Just a few hand/ cups full	2 About a tub full/ 1 – 5 kilogram	3 A small bag (about 10 to 15 kg)	4 A big bag (about 20 - 30 kg)	5 Several bags/ about half a trailer	6 A trailer full or more	7 None/ don't use
------------------------------	------------------------------------	-----------------------------------	--------------------------------	--------------------------------------	--------------------------	-------------------

2.4.e How often do you use general fertiliser (e.g. Baileys General Purpose, Rose Magic, Brunnings All purpose, etc.)?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.4.f And how much do you use each time (on average)?

1 Just a few hand/cups full	2 About a tub full/ 1 – 5 kilogram	3 A small bag (about 10 to 15 kg)	4 A big bag (about 20 - 30 kg)	5 Several bags/ about half a trailer	6 A trailer full or more	7 None/ Don't use
-----------------------------	------------------------------------	-----------------------------------	--------------------------------	--------------------------------------	--------------------------	-------------------

2.4.g How often do you use slow release fertiliser (e.g. Osmocote, Dynamic Lifter, Scotts Lawn Builder)?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.4.h And how much do you use each time (on average)?

1 Just a few hand/ cups full	2 About a tub full/ 1 – 5 kilogram	3 A small bag (about 10 to 15 kg)	4 A big bag (about 20 - 30 kg)	5 Several bags/ about half a trailer	6 A trailer full or more	7 None/ don't use
------------------------------	------------------------------------	-----------------------------------	--------------------------------	--------------------------------------	--------------------------	-------------------

2.4.i How often do you use liquid fertiliser (e.g. Powerfeed/ Growpotion, Nitrosol, Zest (NOT Seasol tonic))?

1 Almost never	2 Once or twice a year	3 Every few months	4 About once a month	5 Almost weekly
----------------	------------------------	--------------------	----------------------	-----------------

2.4.j And how much do you use each time (on average)?

1 Just a few cups full	2 About one litre	3 A standard bottle (2 litres)	4 A big container (5 litres)	5 Several big containers (10 to 20 litres)	6 More than 20 litres	7 None/ don't use
------------------------	-------------------	--------------------------------	------------------------------	--	-----------------------	-------------------

2.5 About gardening in general

2.5.a How would you describe your understanding of waterwise gardening?

1 Almost none	2 Only a little	3 Average	4 More than most	5 Detailed
---------------	-----------------	-----------	------------------	------------

2.5.b How would you describe your understanding of fertilise wise/ waterway-friendly gardening?

1 Almost none	2 Only a little	3 Average	4 More than most	5 Detailed
---------------	-----------------	-----------	------------------	------------

2.5.c How likely are you to switch to eco-friendly fertilisers? (excludes manures!)

1 Already doing	2 Very Likely	3 Somewhat Likely	4 Somewhat Unlikely	5 Very Unlikely	6 Not applicable
-----------------	---------------	-------------------	---------------------	-----------------	------------------

2.5.d How likely are you to reduce your fertiliser use?

1 Already doing	2 Very Likely	3 Somewhat Likely	4 Somewhat Unlikely	5 Very Unlikely	6 Not applicable
-----------------	---------------	-------------------	---------------------	-----------------	------------------

2.5.e How likely are you to switch some garden areas to more waterwise planting?

1 Already doing	2 Very Likely	3 Somewhat Likely	4 Somewhat Unlikely	5 Very Unlikely	6 Not applicable
-----------------	---------------	-------------------	---------------------	-----------------	------------------

3. Most popular <Love the Leschenault/ Bay OK> gardening ideas

Thank you for running through those details on your gardening.

The most important actions to keep garden fertiliser out of the local waterways are to reduce the risk of rain or garden retic washing it through the soil.

[IF 2.2.b = 5, GOTO 3.2]

3.1 Could you turn your retic (sprinklers) off now, ahead of the start of the winter sprinkler ban (1 June)?

1 Existing (done)	2 Agreed (will do)	3 (Completed)	4 Refused	5 Not applicable
-------------------	--------------------	---------------	-----------	------------------

3.2 Can you agree to use no fertiliser over winter (June/ July/August)?

1 Existing	2 Agreed	3 (Completed)	4 Refused	5 Not applicable
------------	----------	---------------	-----------	------------------

[SEGMENTATION:

IF 2.2.c = 1 (water less than 5mins)

OR

2.3.a = 1 (fertilise lawn almost never) OR 2.3.b = 1 (fertilise garden beds almost never)

THEN Segment = Low

IF 2.2.c = 4 or 5 (water 21 minutes or more)

OR

2.4.a = 3, 4 or 5 (Manures every 'few months' or more often)

OR

2.4.b = 4, 5 or 6 ('Big bag' or more manures)

OR

2.4.c = 3, 4 or 5 (High NPK every 'few months' or more often)

OR

2.4.d = 3, 4, 5 or 6 (A small bag or more high NPK)

OR

2.4.e = 3, 4 or 5 (General fertiliser every few months or more often)

OR

2.4.f = 4, 5 or 6 (Big bag or more general fertiliser)

THEN Segment = High

If not segmented Low or High

THEN Segment = Medium]

IF Segment = Low, GOTO 7 (Low Closer)

If Segment = Medium or High, GOTO (4 Coaching matrix)

4. Bay OK ideas for reducing garden water and fertiliser use

[COACH, facilitate by asking open questions and only prompt if required – try to discuss 1 or 2 things to get 1 new action idea]

Can you think of ways to reduce your garden fertiliser and water use?

	Existing (some from survey)	Agreed	Achieved	Refused	Not applicable (some from survey)
Cut irrigation to about 10 mins per station	[If 2.2.c = 1 or 2]				[If 2.2.b = 4]
Cut irrigation by 2 minutes per station	[If 2.2.c = 1]				[If 2.2.b = 4]
Turn retic off before winter	[If 3.1 = 1]	[If 3.1 = 2]	[If 3.1 = 3]	[If 3.1 = 4]	[If 3.1 = 5]

Use less fertiliser than it says on the packet					
Measure fertiliser amounts carefully					
Switch to slow release fertiliser					
Avoid using lots of manures					
Add soil improver/ compost	[If 2.3.c = 2, 3, 4 or 5]				
Add clays to fix the sand	[If 2.3.f = 2, 3, 4 or 5]				
Avoid fertilising in winter	[If 3.2 = 1]	[If 3.2 = 2]	[If 3.2 = 3]	[If 3.2 = 4]	[If 3.2 = 5]
Just don't fertilise					
Switch more garden area to waterwise and native plants	[If 2.5.e = 1]				[If 2.5.e = 6]
Other (specify _____)					

[If Segment = Medium GOTO 6 (workshop)]

5. Garden Consultation as next step

Thank you for chatting through those options. Based on what you told me you are eligible for a FREE garden consultation and for FREE <Love the Leschenault/ Bay OK> garden products.

The garden expert will come to your garden and spend about 45 minutes solving any problems with your garden, come up with a garden care plan for you and advise on your watering system. Then, if you want, you can swap some old polluting garden products for new 'state of the art' Fertiliser Wise ones.

5.1 Would you like me to arrange this free service for you – they are in your street in the next two weeks?

1 OK / Yes (default option – quota 130 of)	2 No (avoid)
--	--------------

[IF 5.1 = 2(no) = thank you for helping us with our garden survey. GOTO 6]

5.2 OK the available times and days are:

		One	Two	Three	Four
Available slots for AUSTRALIND (TOTAL 120 slots, fill 100?)					
Saturday 19 May	9 am	Yes	Yes		
	10 am	Yes	Yes		
	11 am	Yes	Yes		
	12 noon	Yes	Yes		
	1 pm	Yes	Yes		
Sunday 20 May	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	

	2 pm	Yes	Yes	Yes	
	3 pm	Yes	Yes	Yes	
	4 pm	Yes	Yes	Yes	
Monday 21 May	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	
	2 pm	Yes	Yes	Yes	
	3 pm	Yes	Yes	Yes	
	4 pm	Yes	Yes	Yes	
Tuesday 22 May	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	
	2 pm	Yes	Yes	Yes	
	3 pm	Yes	Yes	Yes	
	4 pm	Yes	Yes	Yes	
Wednesday 23 May	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	
	2 pm	Yes	Yes	Yes	
	3 pm	Yes	Yes	Yes	
	4 pm	Yes	Yes	Yes	
Thursday 24 May	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	
	2 pm	Yes	Yes	Yes	
	3 pm	Yes	Yes	Yes	
	4 pm	Yes	Yes	Yes	
Friday 25 May	12 noon	Yes	Yes	Yes	Yes
	1 pm	Yes	Yes	Yes	Yes
	2 pm	Yes	Yes	Yes	Yes
	3 pm	Yes	Yes	Yes	Yes
	4 pm	Yes	Yes	Yes	Yes
Saturday 26 May	9 am	Yes	Yes	Yes	
	10 am	Yes	Yes	Yes	
	11 am	Yes	Yes	Yes	
	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	

Available slots for YALYALUP/ BOVELL (TOTAL 25 Slots, fill 20?)		One	Two	Three	Four
Sunday 27 May	12 noon	Yes	Yes	Yes	
	1 pm	Yes	Yes	Yes	
	2 pm	Yes	Yes	Yes	
	3 pm	Yes	Yes	Yes	
	4 pm	Yes	Yes	Yes	
Monday 28 May	12 noon	Yes	Yes		
	1 pm	Yes	Yes		
	2 pm	Yes	Yes		

	3 pm	Yes	Yes		
	4 pm	Yes	Yes		

5.3 May I please confirm that your residential address is?

Service Address:

Service suburb:

EDIT

Street / Lot number

Street / Lot name

Suburb/Town

Postcode

5.4 In case we are running late with the garden service, what is the best telephone number to catch you on?

This/ other (record)

6. <Love the Leschenault/ Bay OK> Gardening Workshops

We have also arranged for some free garden workshops with celebrity gardener Neville Passmore – he’s a West Australian Garden Guru. They will be on:

- Thursday 21 June, 5.00pm – 7.00pm on at the Leschenault Leisure Centre in Australind AND
- Saturday 23 June 11 am – 2 pm at Soils Ain’t Soils Goldsmith St Busselton

6.1 Which session and how many free tickets would you like me to book for you (for the Workshop)?

Thu 21 June Leschenault (Australind):

1 One	2 Two	3 Three	4 Four	5 None
-------	-------	---------	--------	--------

Sat 23 June Bay OK (Yalyalup/ Bovell):

1 One	2 Two	3 Three	4 Four	5 None
-------	-------	---------	--------	--------

[If 6.1 = 5 (none) AND Segment = Medium GOTO 8 (Closer Medium)]

OR If 6.1 = 5 (none) and Segment = High GOTO 9 (Closer High)

6.2 I’ll arrange to send the tickets to your email address, can I jot that down

Email

Repeat email [DO NOT COPY AND PASTE]

[If emails match accept, if mismatch, flag]

[If Segment = Medium GOTO 8 (Closer Medium)]

[If Segment = High GOTO 9 (Closer High)]

7. [Closer Low]

You are doing well on your Fertiliser Wise gardening – thanks

The next thing we'll do, in a few weeks from now, is to send you a letter with a summary of your Fertiliser Wise gardening ideas and a booklet to help you plan your fertiliser and watering for the year ahead.

In Spring we may call you again to see how your fertiliser use changes over the seasons.

'Opt out [AVOID]' button

[GOTO 10.]

8. [Closer Medium]

It's good to find a few ways to be more Fertiliser Wise when gardening – thanks.

The next thing we'll do, in a few weeks from now, is to send you a letter with a summary of your Fertiliser Wise gardening ideas and a booklet to help you plan your fertiliser and watering for the year ahead.

[If 6.1 = 5 (no tickets) GOTO 10.1]

8.1 I'll also arrange to email you the <Response from 6.1> <session 1 or 2 or 3> Gardening Workshop tickets for the session on <session 1 or 2 or 3>.

In Spring we may call you again to see how your fertiliser use changes over the seasons.

'Opt out [AVOID]' button

9. [Closer High]

It's good to find a few ways to be more Fertiliser Wise when gardening – thanks.

The next thing we'll do, in a few weeks from now, is to send you a letter with a summary of your fertiliser use, gardening ideas and a booklet to help you plan your fertiliser and watering for the year ahead.

[If 6.1 = 5 (no tickets) GOTO LOGIC FOR 9.2]

9.1 I'll also arrange to email you the <Response from 6.1> <session 1 or 2 or 3> Gardening Workshop tickets for the session on <session 1 or 2 or 3>.

9.2

[If 5.1 = 2 (no Garden Consult) GOTO 10.1]

The most important thing is that I'll arrange for the Garden Consultant to visit you on <Date and time of booking from 5.2>. They will call to remind you a day or two before. It will be great to work out the best fertiliser and watering plan for your garden and to give you the best <Love the Leschenault/ Bay OK> product for the job (all free).

In Spring we may call you again to see how your fertiliser use changes over the seasons.

'Opt out [AVOID]' button

10. Privacy

10.1 Just before I let you go, the Privacy Act requires us to handle your responses in certain ways. Do you want to hear our full privacy statement?

1 No = [go to 10.2 closer]

2 Yes = [SHORT THINKFIELD PRIVACY STATEMENT HERE]

The Privacy Act requires that, after the Bay OK Program has concluded in about 8 months from now, we remove personal details such as your name and address from the records of this conversation. At any time you may ask us to remove your details.

10.2 As I said, my name is <Coach name> from the <Love the Leschenault/ Bay OK> service Thank you for your time today.

11. Admin [AFTER CALL COMPLETED]

Record Gender (Do not read out)

1 Male	2 Female
--------	----------

SAMPLE MANAGEMENT NOTES

The sample must be released in two geographical batches and resulting Garden Consultation Bookings quarantined into two time periods:

Group 1 Australind

Gross sample of 2,000 households

Soft quota to complete detailed conversations with n=400, segmenting:

- 100 Low fertiliser users
- 100 Medium Fertiliser users
- 200 High fertiliser users, of which
 - 100 to 110 book a Garden Consultation in the slots 19 to 26 May

This will require Group 1 to be in the Coaching Field from 3 to 18 May

Group 2 Yalyalup and Bovell

Gross sample of 400 households

Soft quota to complete detailed conversations with n=80, segmenting:

- 20 Low fertiliser users
- 20 Medium Fertiliser users
- 40 High fertiliser users, of which
 - 20 to 25 book a Garden Consultation in the slots on 27 and 28 May

This will require Group 2 to be in the Coaching Field from 19 to 23 May

3.2 Announcement Letter Example



Department of Water and Environmental Regulation
Department of Primary Industries and Regional Development



053 0000001 T

Ref: T1

AUSTRALIND WA 6233



Dear Household,

Be wise how you fertilise in Australind

West Australian households see our oceans and waterways as jewels in our natural environment. The Leschenault Catchment Council has been talking to residents about their views on our local environment. We have found that the local community:

- is concerned about the health of our waterways
- is keen to maintain attractive gardens, and
- wants more information and practical help to reduce waterway pollution.

Each year, rain washes garden fertilisers into waterways and increases the risk of dangerous algal blooms. Our waterways need the help of households, like yours, in sensitive water catchments. For your Leschenault catchment, the Department of Water and Environmental Regulation has found a 'win-win' solution – the Love the Leschenault in Australind program.

Love the Leschenault in Australind is a FREE service providing fantastic **garden products and advice** to improve the look of our gardens and improve the health of the waterways, including:

- **Personalised advice** (over the telephone or by a visiting Garden Adviser) on how to get a great looking garden on less fertiliser, less water, less money and less effort;
- FREE swap of any damaging chemicals for **top quality products** suited to your garden design;
- A practical and personalised **Garden Guide** booklet; **and**
- Access to a special **Love the Leschenault Garden Workshop** near your home.

In the coming weeks the Love the Leschenault team will call you to chat about your water and fertiliser use, and to help you to be part of this community effort to protect our local waterways. Small changes in your garden fertiliser and water use can add up to significant savings for the local environment.

To join in, be part of making a difference and get your free garden advice and resources, simply:

- Chat to the Love the Leschenault team **when they telephone you**; or
- **Call 9463 2391** to book your free garden consultation and products.

Yours faithfully,

On behalf of the Love the Leschenault team

Sharon Upston
Communications Manager
Leschenault Catchment Council
1 May 2018



rei.dwer.wa.gov.au
estuary@dwer.wa.gov.au
#WAestuaries

Leschenault Catchment Council
Leschenault Homestead
Corner Leschenault and Estuary Drive
EAST BUNBURY WA 6230
T: (08) 9791 4773 6000001001 000001 #71419

3.3 Control Survey Announcement Example



053 0000509 CT

Ref: C3330

YALYALUP WA 6280

Dear Household,

Yalyalup Autumn Gardening Survey

GeoCatch is conducting a series of surveys with local residents to better understand the way that residents garden in Busselton and how their gardening practices and design are changing over time. By participating in this survey, you will help us improve our environmental management and community education programs.

A West Australian and independent survey specialist, Thinkfield, has been engaged to conduct the survey by telephone. When they call you, please give them about five minutes of your time to respond to the survey. If you have any questions about the survey, you can contact me, Lisa Massey, at GeoCatch on 9781 0111.

It is important that every household responds to the survey, as this will ensure that we develop a complete picture of gardening practices in Yalyalup. With this in mind please take part in the survey when we call you whether you are a keen gardener, occasional lawn mower or don't have a garden at all!

All responses to the survey will be confidential and will be used for statistical purposes only. No individual names or addresses will be linked to the information provided.

As the seasons change, we may contact you again to complete a second survey on your gardening practices.

Thank you for being part of this important community survey.

Yours sincerely,

Lisa Massey
Bay OK Project Officer

1 May 2018

800099001 00209 #1140

geocatch.asn.au

GeoCatch, PO Box 269, Busselton, WA 6280

3.4 Feedback Letter Example



Department of Water and Environmental Regulation
Department of Primary Industries and Regional Development



053 000322 L

Ref: T2170

AUSTRALIND WA 6233



Dear Gina,

Your plan to be wise how you fertilise in Australind

Thank you for talking to a Love the Leschenault Gardening Coach in May and for taking up at least one idea to help the Leschenault catchment. The vast majority of local residents that we called have chosen to join in, that means there are more than 400 Love the Leschenault households in your local area.

Together we have:

- come up with almost 1,000 Love the Leschenault actions for our gardens
- swapped more than 100 high polluting garden chemicals for slow release or soil building alternatives
- booked around 150 residents into the Leschenault Garden Workshop on Thursday 21 June.

If we put all these gardening ideas into action before winter, we are on track to save more than 1 tonne of fertiliser products from being at risk of washing into the waterways during winter rains.

It's great that you said that you were going to try to:

- **apply clays (provided by the Garden Consultant) to fix the sandy soil**
- **add 5cm of composted pine bark mulch (as discussed with the Garden Consultant)**
- **use soil wetter (as discussed with the Garden Consultant)**

Most of the 120 households that needed a Garden Consultation chose to reduce their garden irrigation times and to switch from 'organic' and high nitrogen fertilisers to slow release fertilisers, soil improvers and soil wetters.

Next steps

We've included the Your Garden Guide with this letter as households have found it helpful to come up with a personalised plan to:

- improve the soil
- select the right fertiliser
- apply the right amount of fertiliser
- reduce nutrient runoff
- save water in the garden



rei.dwer.wa.gov.au
estuary@dwer.wa.gov.au
[#WAestuaries](https://www.instagram.com/WAestuaries)

Leschenault Catchment Council
Leschenault Homestead
Corner Leschenault and Estuary Drive
EAST BUNBURY WA 6230
T: (08) 9791 4773
8000322001 000322 #71620

We've also booked you into:

Love the Leschenault
Gardening Workshop
with
Gardening guru – Neville
Passmore



**5 pm - 7pm on Thursday 21 June
at the Leschenault Leisure Centre, Leisure Drive Australind**

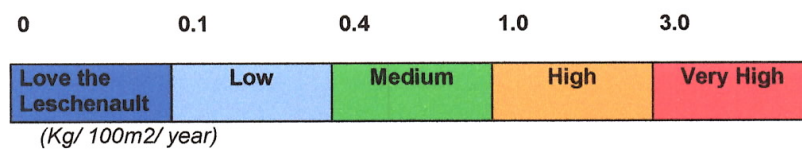
We look forward to seeing you at the Workshop.

Finally, based on what you told us about your garden in May, we've calculated your fertiliser use compared to other households in your neighbourhood.

Nutrient chart for

Your garden nutrient input last year was around **1.47 kg per 100m² of block size.**

Compared to your neighbours, your nutrient input has been:



As a high user, you apply as much nutrient as commercial agriculture, reducing the quantity of fertiliser may help your garden.

These figures are based on the nutrient content of the fertilisers that you were using (for example a typical bagged fertiliser will have about 1kg of nutrients in every 10kg bag).

Thank you for joining your neighbours in being part of Love the Leschenault in Australind. Your efforts will help the waterways to get through a tough year with fewer fish deaths and health hazards.

Yours faithfully,

On behalf of the Love the Leschenault team

Sharon Upston
Communications Manager
Leschenault Catchment Council

12 June 2018

