

Engaging Urban Communities: Six Case Studies of Auckland Community- Based Restoration Projects



Witheford reserve, North Shore
Photo supplied by Kaipatiki Project

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Executive Summary

Project and Client

NZ Landcare Trust contracted Landcare Research to work collaboratively on the project “Incorporating Urban Sustainability within Community Based Catchment Initiatives”. Landcare Research undertook to complete the report including case studies of six Auckland community-based catchment restoration projects.

Objectives

This report reviews practices of community engagement, capacity building and partnering in 6 community-based integrated catchment management (ICM) projects. The review focuses on what is working well, challenges and lessons learnt.

Methods

Landcare Research interviewed with coordinators of six urban ICM projects. The community-based projects included one working on private land (Tiffany Bush), and five working on public land (Friends of Oakley Creek, Friends of the Whau, Kaipatiki, Tamaki Estuary Protection Society, and Project Twin Streams – Opanuku Stream). Project Twin Streams is an active partnership between community organisations and Council. Draft case studies were prepared and sent to interviewees and other key project leaders for review and feedback. Three case studies from Australia are also briefly reviewed. Case studies were then compared and key lessons were identified.

Findings

The case studies reviewed in this report point to strategies and ways of working that groups have found worked well. Factors that enhance community engagement in group activities, and build group capacity and partnerships with local government and industry are closely linked. Leadership, planning and communication strategies were critical, as was a willingness to identify and engage existing community organisations, resources, knowledge and skills. Groups recognised that residents were motivated to become involved in community-based restoration groups by a wide range of factors, and therefore flexibility and creativity was needed to enhance community engagement. Engagement approaches such as ‘Adopt a site’ provided regular opportunities for residents to connect with and become involved in caring for their local area. Groups had built working relationships with local government with varying degrees of participation. A spectrum was evident, from taking part in consultation processes to active partnerships in catchment management. The availability of resources and level of community engagement were critical factors in the ability of groups to build effective partnerships with local government.

Conclusions

The people interviewed expressed considerable interest in learning from the experiences of other community-based projects and were also interested in taking part in events where networking and knowledge exchange could take place. Community-based groups have considerable local knowledge and experience, and, with adequate institutional support, make valuable contributions to catchment management. For example, some groups have played a liaison role across environmental management agencies in the catchment to achieve improved environmental outcomes.

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Introduction

About this report

This report is prepared for the New Zealand Landcare Trust, to meet the requirements for milestone 3.3 of the project entitled 'Incorporating Urban Sustainability Within Community-Based Catchment Initiatives'. The project is funded by the Ministry for the Environment, Sustainable Management Fund.

Research methods and brief case study profiles are provided, followed by key lessons related to community engagement, capacity building, and partnerships with local government and industry. Guiding principles that underpin success are developed from these key lessons, and recommendations are made to other stakeholders.

Aim of this report

Community-based¹ restoration projects are being implemented in several catchments across the Auckland region and provide opportunities for local residents to play a role in environmental management at a catchment scale. Such voluntary community engagement is an essential element of integrated catchment management (ICM).

The aim of this report is to review the lessons learnt from community-based urban ICM project in Auckland. Case studies provide an opportunity for existing community groups to learn from each others' experiences and for stakeholders to reflect on the institutional structures and strategies that can support these groups.

This report therefore focuses on:

- factors that support community engagement in ICM processes
- strategies for enhancing community engagement and capacity building
- partnerships with local government and industry.

Case studies

Community-based projects usually operate independently of each other, and while individuals may exchange information, there is more commonly little communication of lessons learned between projects (Edgar 2004). Substantial capital and voluntary investments are being made in each catchment, raising concerns that some of these are wasted or unnecessarily duplicated if stakeholders (including both funders and volunteers) are not learning from the failures, successes, tools and information of other programmes.

The report draws on case studies of six Auckland community-based restoration groups, including:

- Friends of Oakley Creek
- Friends of the Whau
- Tamaki Estuary Protection Society
- Tiffany Bush Care Group
- Kaipatiki Project
- Project Twin Streams: Opanuku Stream.

These case studies are provided in full at the end of this report, together with overviews of three Australian examples of urban partnership projects aimed at ICM (stormwater focused). The lessons drawn from the case studies are reviewed in the main body of the report, together with insights from literature on urban ICM processes.

¹ Initiated and led by residents of an area, usually on a voluntary basis.

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Drawing on this information, the report then identifies strategies for enhancing community engagement and capacity building in the context of ICM partnerships between community groups, local government and industry.

Background

Impact of urban development

New Zealand has been identified as a biodiversity 'hot spot', rich in endemic species but threatened by human activity; the number of households is rising at nearly twice the rate of the population (Liu et al. 2003). Rapid land and housing development is seriously affecting natural resources and the quality of human life in cities. Conventional urban development involves earth working and compacting large areas, piping streams and filling in gullies, all of which contribute to increased imperviousness and sedimentation of waterways, poor quality urban stormwater, degraded riparian areas, the decline of terrestrial and aquatic biodiversity, and an increasing disjunct between people and their biophysical environments. Public participation in urban environmental management is traditionally sought through 'top-down' approaches of community education and public consultation, aimed at changing people's behaviour.

Integrated catchment management

Urban environmental problems are complex and interconnected, with much remaining unknown and contested about them. Behaviour change, knowledge and capacity building are needed at all levels of society to achieve improved environmental outcomes in urban catchments. Integrated Catchment Management (ICM) is recognised as an appropriate approach to understanding and managing the environment (Bowden 1999). ICM is a holistic approach to sustainable natural resource management, undertaken at the scale of a water catchment area. ICM aligns well with the principles and purposes of the Resource Management Act 1991, that is, integrated approaches to sustainable management. The Auckland Regional Policy Statement (1999) recognises a key element of integrated management as "decision-making about the use, development or protection of natural and physical resources [that] occurs in a holistic way".

ICM in the urban context is particularly aimed at reducing adverse environmental impacts of urbanisation through improved approaches to stormwater management, low-impact design and sustainable building initiatives. Key elements include working with nature, avoiding or minimising impervious surfaces, using vegetation to help trap pollutants and sediment, limiting earthworks, and incorporating design features that reduce impacts and enhance biodiversity. Environmental management, under this model, becomes the responsibility of a much broader range of people within local authorities, the development industry, landowners, and community groups.

A small number of catchment-based urban ICM groups have emerged in Auckland in the last few years, mainly community-initiated and engaging residents in environmental restoration and education, and providing limited input into catchment management planning. These groups are contributing to improved environmental outcomes at a catchment scale.

Currently, Territorial Authorities in the Auckland region are developing Integrated Catchment Management Plans (ICMP) to support discharge consents applications to Auckland Regional Council (ARC). ICMP are intended to provide the framework for integrating the management of water resources within a catchment (including stormwater, wastewater, water supply, groundwater, and receiving water bodies) (Bennett et al. 2007). ICMP integrate hydrological, water quality, ecological and planning issues and address the needs of the local community (Hellberg 2007).

It is recommended in the 'ICMP Funding Eligibility Guideline' that a community advisory committee be established to represent community concerns in ICMP (Hellberg 2007). In the process of developing an ICMP, Territorial Authorities are required to consult with the people or communities who may be directly affected by identified stormwater and wastewater problems in a catchment, unless the network consent application for which the ICM plan is being developed is to be publicly notified. Therefore, there are provisions for community-based ICM groups to have input into ICM planning processes. There is minimal evidence of this happening (Hellberg 2007).

Community-led and council-led ICM processes therefore tend to be disconnected and opportunities to incorporate different types of skills and knowledge are lost. There is considerable potential for Territorial Authorities to link with residents through community-based ICM groups and support community input into catchment management.

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Some lessons from the literature.

Community engagement and capacity building

In this report, community engagement refers to getting more members of the public involved in community-based ICM activities. Capacity building refers to strategies that increase skills, knowledge, and resources that community members contribute to community-based ICM activities. Capacity building is closely linked to community engagement since one supports the other.

Guiding principles

A recent review of methods and tools that support long-term collective community involvement (Henley 2006) identifies several guiding principles:

- Individuals are leaders of change (starting with community leaders).
- Sustainable development and related behaviour change involve uncovering and addressing people's views, values and belief systems.
- Individuals are holistic thinkers ("I want to live in a safe, good neighbourhood").
- Appropriate language is essential (balancing simplicity and accuracy).
- Move from bilateral to network- (co-creative) based stakeholder engagement is necessary.
- Building social capital² builds resilience in the community.
- Monitoring and evaluation are balanced in approach, both participatory and ongoing.
- Relationships and trust must be actively fostered and developed (built on transparency, honesty, structured approaches, and respect for the skills, values and beliefs that each participant brings).

Key features of community engagement

A community forum held for the North-West Wildlink project³ identified communication, education, skill sharing, networking, and the holding of community events as potential actions to enhance community engagement (Parminter et al. 2006).

A review of successful community groups identified the following key features:

- Trust among group members and local authorities
- spending time together to bond
- building and maintaining confidence in abilities
- having a formal group structure, identifying group objectives
- identifying key local players and gaining their input
- links with other groups in the same area doing similar work and linking with resources and support (Vanderburg (2001) in Chard 2004).

Additional features include clear priorities, involvement of indigenous people, scientific and technological support, ongoing acknowledgement (especially of volunteers), skills training, participant-driven solutions (Campbell (2003) in Chard 2004), and formal and informal input into inclusive local-government decision-making processes (Forest & Mays (1997) in Chard 2004).

² Social capital, as it is used here, relates to the social networks and connections amongst individuals within a community.

³ http://www.arc.govt.nz/arc/environment/natural-environments/north-west-wildlink/north-west-wildlink_home.cfm

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Partnerships with local government

Local-level partnerships in catchment management provide opportunities to draw on knowledge and expertise across all sectors. Such partnerships can also encourage community ownership of catchment management problems, definitions, and paths for civic participation, by integrating learning and social change (Austin 2004).

Allen et al. (2002) analysed the factors that contribute to successful partnerships between environmental management agencies and community groups in New Zealand. Their research suggests partnerships that share resources and decision-making power lead to the most effective long-term commitment to changing environmental management outcomes. Allen et al. (2002) distinguished between agency-led, community-led and joint partnerships, and determined that joint partnerships have the greatest capacity for long-term sustainability. They defined joint partnerships as based on inter-dependent partnerships that are resilient, adaptive, self-directed, and typically use many different resources. Social processes that lead to successful partnerships inherently involve capacity building in both agencies and community groups (Allen et al. 2002).

Local government has traditionally attempted to engage community members in improving environmental outcomes through environmental education aimed at behaviour change. However, there is little evidence that such approaches effect any real changes in behaviour (Taylor & Wong 2002; Strang 2005). Local and regional councils work actively to engage the general public in environmental projects (e.g., The Big Cleanup campaign; riparian planting) but this work often sits outside the "core business" of local government and is city or region wide rather than catchment-based. Engaging community participation to develop and implement a solution is more likely to have success (Ballantyne et al. (2001) in Chard 2004). Participatory processes require the building of community capacity through collaborations that share information, skills and resources.

It is increasingly recognised that community-based groups need to be involved in a participatory process that draws on 'expert' input at all levels, engages community members in deliberative decision-making processes, and spreads control and ownership of environmental issues more widely throughout the community. These approaches are critical to ICM processes and are aimed at 'developing a partnered or shared analysis of both the problem and the solution' (Ryan & Brown (2000) p. 10, in Department of Environment 2005).

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Methods

Community projects studied

The author undertook interviews with coordinators of six Auckland community-based restoration projects. Draft case studies were prepared and sent to interviewees and other key project leaders for review and feedback. Three case studies from Australia were also drawn from the literature and reviewed, together with recent New Zealand literature on enhancing community engagement and partnerships. Case studies were compared and key lessons were identified in relation to strategies for enhancing community engagement, capacity building and partnerships with local government and industry.

Case study profiles

The Auckland case studies included one based on private land (Tiffany Bush), and five working on public land (Friends of Oakley Creek (FOC), Friends of the Whau (FOW), Kaipatiki Project, Tamaki Estuary Protection Society (TEPS), Project Twin Streams: Opanuku Stream (PTS Opanuku).

The following table provides profiles of the New Zealand case studies undertaken.

		Case studies					
Case Study characteristics		FOC	FOW	TEPS	Tiffany Bush	Kaipatiki Project	PTS: Opanuku
Start time		2004	2000	1969	2000	1998	2006
Spatial scale	Sub-catchment	✓			✓		
	Catchment		✓	✓			✓
	Region					✓	
Land use	Residential	✓	✓	✓	✓	✓	✓
	Industrial		✓	✓		✓	✓
	Commercial		✓	✓		✓	✓
Residential density	Rural residential				✓		
	Low	✓	✓	✓		✓	✓
Activities	Restoration	✓	✓	✓	✓	✓	✓
	Education		✓			✓	✓
	Catchment planning	✓	✓	✓		✓	✓
	Monitoring	✓	✓	✓	✓	✓	✓

Table 1 - New Zealand Case Study Profiles

Case study profile summary

PTS Opanuku is an active partnership between Waitakere City Council (WCC) and community organisations. The project was initiated by the Council as part of a broader strategy to address stormwater management problems. The other groups were initiated by community members, with the aim of working collectively to restore native habitats. Other drivers were also important. For example, two groups (TEPS and FOC) were established in the face of development proposals that

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went counter to these community members visions' for the area. As a means to access resources, the Tiffany Bush group moved from being a loose collection of home owners who worked collaboratively to restore native bush to a more formalised group.

All the groups expressed a commitment to ICM approaches; that is, they recognised the need to address natural and resource management at a catchment scale. Due to lack of internal capacity, groups tended to focus their restoration work at a sub-catchment scale, while seeking to engage in environmental education and catchment management planning at a catchment scale. The catchments in which FOC, FOW and TEPS are based span political boundaries, and this creates an additional challenge to ICM approaches.

The Kaipatiki Project provides environmental education⁴ across the wider Auckland region, while the project's restoration and catchment management planning activities are focused in the local catchment. PTS Opanuku and FOW also include environmental education as a key activity, and like all the groups, see restoration and education as intimately linked.

The three Australian case studies are catchment-based, agency-led projects with a major focus on environmental education and behaviour change. Of interest is the participatory and reflective learning approaches adopted in these initiatives. In each case, preliminary catchment analysis was undertaken to explore local issues, knowledge, and skills, using innovative approaches such as Citizens Tele-polls and a Citizens Jury. Locally relevant projects were then developed in collaboration with a wide range of local stakeholders, including community members. These case studies are included in this report as examples of joint partnerships that have successfully engaged residents in ICM processes.

Most urban restoration groups are based at a sub-catchment scale, and therefore have the potential to be a conduit for linking residents to the natural environment and building a sense of place. However, community engagement is often a struggle. Community-based restoration groups are often over-loaded by the demands of local restoration work and engagement at a political level, and would value greater community involvement.

⁴ Sustainable living, tree planting and propagation, composting and worm farming, 'smart' shopping, energy efficiency, and organic gardening.

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Results

This section presents results of analysis of each focus area, followed by a summary of the key project principles identified.

Community engagement: What's working?

Almost all the people interviewed for this research maintained other groups had stronger community support than their own, often in reference to groups with a high public profile. Yet it was clear from the interviews that building a broad base of community engagement was difficult for all the case study groups.

The case studies reviewed in this report point to specific strategies – leadership, partnership, and communication – that groups have found worked well to build community involvement.

A committed and capable group leader (or leaders) was essential for groups to engage, inspire and demonstrate good practice, and ultimately achieve good outcomes. Coordinators were employed by two of the case study groups (PTS Opanuku and Kaipatiki), which allowed the groups to operate at a catchment scale and provide targeted programmes. Kaipatiki funding was programme-based and short-term. In contrast, PTS Opanuku was more generically-funded and community engagement and capacity building were recognised as part of the co-ordinator's role. The co-ordinator was therefore able to develop locally-specific strategies and resources for community engagement and capacity building.

Other groups were driven by one or two highly committed volunteer leaders and struggled to get wider community engagement. Groups often found it difficult to get large numbers to take part in cleanup and planting days, and particularly difficult to find enough people to volunteer for committee positions. Groups therefore tended to limit their activities to specific sites. Some groups felt they would like to find out what would interest and engage local residents in community activities but were unable to access funding for such research. This is potentially an important point at which local government and other agencies could link with community groups.

The Nature for Neighbourhoods programme⁵, a collaboration between the Kaipatiki Project and North Shore City Council (NSCC), is an example where a research-based approach has occurred. A focus group with residents was used to investigate local levels of awareness, understanding, values, skills, and motivations related to the environment, and this information was used to inform project development. One recommendation as a result of the study was that the proposed project name, Backyard Biodiversity, did not have a lot of meaning for residents and the project was subsequently renamed (Yarrow & Shrubshall 2005). This is a reminder to use appropriate language that balances simplicity and accuracy. The programme itself has been effective at engaging residents, building capacity within the community, and getting more native plants into properties bordering native reserves.

Interviewees for this report were project leaders, and their reasons for involvement were based on a commitment to improve their local environment and to do it in a way that engages and builds the capacity of the local community to address environmental issues. Other motivations were also important, and this needed to be taken into account when developing strategies to build community engagement. Such motivators included an interest in local history, a strong sense of attachment to the area, a desire to make an attractive and safe environment for their children, a desire to 'give something back', wanting to 'connect with nature', and more generally valuing community-based activities.

Providing opportunities for people to engage on a regular basis was effective, and contributed to people's sense of attachment and responsibility to an area. Groups use approaches such as 'Adopt a site/stream', 'Friends of the...' or weekly working bees.

PTS Opanuku found that flexibility and creativity in linking to community groups was crucial. Combining environmental restoration and education, arts and crafts, and local history were some of the strategies they used, with considerable success. For example, one community group that

⁵ <http://www.kaipatiki.org.nz/bbp.htm>

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had adopted a section of stream and worked weekly on the site was particularly drawn to the project by the opportunity to integrate environment and art (including creating a sign to identify and describe their site, sketching and ceramic tile making).

Groups found that the most effective way of engaging more members of the local community was by linking to existing community groups or organisations (e.g., scouts, schools, community workers, community health support groups). A specific contact person within the community group was essential. Restoration groups that had the capacity to provide some supervision and expertise were able to link to these existing community groups, which in turn could provide some leadership and, most importantly, people to become involved on a regular basis. Community workers (through the Corrections Department) were a very good example of this, providing a large supervised team of workers. By working on a specific site on a weekly basis, considerable restoration was achieved in a short space of time, and social benefits were also evident (e.g., workers developed new marketable skills, a sense of pride and an attachment to the place).

Communication of group aims and activities was critical to community engagement, but was an area that groups struggled to get resourced. People in the community can often distribute information very effectively, usually by talking directly to neighbours and by leading by example (Chard 2004). This was evident in the Tiffany Bush and FOC case studies where 'just doing it' and then showing people what had been achieved proved an effective way of engaging more people. Councils could support groups to publicise group events and activities through existing communication mechanisms. Groups found newsletter and site visits particularly effective to enhance community engagement. Tiffany Bush meetings that included a guest speaker were well attended and inspiring. Events to build engagement are most effective when they include an invitation to a follow-up activity or event, thus providing a sense of continuity.

Capacity Building: What's working?

Factors identified in the case studies that support capacity building within the groups include making use of existing information, partnerships, and resourcing.

Some groups stressed the importance of identifying, and most importantly, using existing technical and scientific information and the experience of others when undertaking restoration work. One group leader explained, for example, that they had learned the best weed control methods by experience and that this information would have been available to them much earlier had they looked, and at much less expense and effort. This could be achieved by talking to experienced and knowledgeable people, linking with programmes such as Wai Care, and referring to information on websites (e.g., FOW⁶ and ARC⁷).

Project leaders had built links with local iwi, local tertiary educational facilities, local government and research organisations and these relationships helped build the capacity of the groups. Often the flow of information and insights went both ways, with the local knowledge and experience of community-group members being recognised and tapped by other stakeholders. Having key contact people within an organisation was useful. Groups valued opportunities to network with similar community-based groups to keep informed of their activities and to share experiences, strengths and knowledge.

The development of a formal group structure helped build collaboration between members and with other agencies, facilitate strategic planning and support access to funding. Adequate resourcing was a critical issue. Annual funding rounds resulted in lack of certainty, particularly for two of the groups that have a broad catchment-scale focus (Kaipatiki and FOW). Funding was less of a concern for other groups due to the locally specific nature of their work (Tiffany Close, FOC, TEPS). Lack of community engagement rather than lack of funding limited these groups' ability to achieve more.

⁶ <http://www.friendsofthewhau.org.nz/WhauBooklet.html>

⁷ http://arc.govt.nz/arc/education/education_home.cfm

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Partnerships: What's working?

There were examples of community-led, agency-led and joint partnership in the case studies (based on Allen et al. 2002). Five of the six Auckland case studies were community-led projects, with limited or no sharing of decision-making power and resources with local government. However, these groups had developed relationships with individual officers within Territorial Authorities and had input into some agency-led catchment management processes. PTS Opanuku and the three Australian projects were examples of joint partnerships between community, industry and local government.

Community-based groups had knowledge of their local environments, and had a place-based approach to environmental management that called for collaboration between a range of agencies. This contrasts with councils, which tend to develop city-wide environmental management strategies. As a catchment-based group, FOW was ideally placed to liaise across two city councils (Waitakere and Auckland), two community boards, and the water company to improve management of the Whau catchment. The Kaipatiki Project has successfully delivered ecological education across Auckland in partnership with three Councils. Part of the reason for this success has been Kaipatiki's approach of providing courses in a range of locations to suit residents. Tiffany Bush Care Group identified local stormwater management problems and invited city and regional councils, and research organisations to investigate stormwater refit options. As a result, Manukau City Council has refitted a stormwater outlet that was having a major impact on stream water quality, and the regional council is considering on-site devices to mitigate flooding problems on some properties.

In these examples, community-led groups had built relationships with individual local government officers and had achieved some good results. However, the groups struggled to link with decision-makers at a higher level within agencies, and this, combined with short-term and insecure funding, has undermined the group's ability to build partnerships to support ICM processes.

Case study groups' contributions to agency-led processes include taking part in consultation processes related to urban development proposals and consent processes, and having input into catchment strategic planning processes. Some groups have had input into the planning of local parks and reserves, including amenity and planting plans and daylighting of streams⁸.

TEPS has had input into planning via the Tamaki Pollution Action Plan Steering Committee since this committee was formed in 1987. Rapid development around the Tamaki Estuary and the rise of the conservation movement coincided and led to the establishment of the Steering Committee, a collaboration between local government, infrastructure providers, iwi, and NGOs. Through this committee, TEPS has been able to have input into the development and implementation of the Tamaki Pollution Action Plan, and see local community concerns addressed (e.g., by the introduction of a ban on jet skis and set nets in the estuary). Some case study groups have also built relationships with maintenance contractors, and in some cases had successfully influenced the way maintenance of parks and reserves was done to achieve more sustainable results. Relationships with other NGOs, iwi, education and research organisations had also been effective in developing sustainable management approaches.

Interviewees said there were opportunities to 'take a place at the table' with local government agencies in relation to catchment management, and some groups had built internal capacity over a number of years to do so. Keeping activism and restoration activities separate (in the case of TEPS) and being willing to be 'part of the solution' also helped build relationships with key stakeholders. Limitations were imposed by a lack of resources to do so, including skilled community people and ongoing funding. One group, for example, was regularly asked to have input into strategic planning for the catchment, but this placed a big demand on a limited number of volunteers. Annual funding rounds and programme-specific funding were limiting. Resourcing community groups to undertake consultation and partnership building was one suggestion made to support ICM planning processes.

PTS Opanuku is a good example of an active partnership between community organisations and local government. The project started with research to build engagement and gauge those interests, needs and issues of most relevance locally. These participatory approaches are

⁸ The removal of a section of concrete stormwater channelling and restoration of the stream bed.

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important strengths of the project. Stable and long-term funding, paid coordinators employed within community organisations, and Council-provided resources, training and personnel are also important features that contribute to the success of PTS Opanuku to date. Although the project has 8 years to run, the coordinator is already building capacity within the community to support longer term sustainability of the project.

The Australian case studies are also agency-initiated and catchment-based. The projects run the risk of being top-down, agency-led initiatives, with a major focus on environmental education and behaviour change, but participatory approaches were used to build community engagement and include local issues, knowledge and skills in the project. The projects used critical reflection on existing and emerging practices and the application of what was learned to implement activities and educational programmes related to stormwater. Activities such as stencilling of stormwater drains (Clean Drains – River Gains) were based on a simple, concise, visible and achievable message. Pre- and post-testing in the Bronte project showed a shift from external to internal and collective notions of responsibility in relation to stormwater pollution, resulting in changes in environmental behaviour.

Two groups had made opportunities for businesses to contribute to group activities (e.g., PTS Opanuku has engaged a local business to 'adopt a section of stream'). This was the only evidence of partnerships with industry, and points to an area for growth.

Monitoring and evaluation frameworks involve setting objectives, indicators, and measurement processes. For greatest effectiveness, these frameworks need to be established at the outset of a project and in collaboration with a wide range of stakeholders (community groups, local government, researchers, funders) (Broughton & Hampshire 1997, Caswell 1999). Participatory approaches to monitoring and evaluation of ICM planning help build relationships between stakeholders, create measurements that have meaning for multiple audiences, and engage a range of people in data gathering and learning (Allen et al. 2001). These processes also create space for acknowledgement and reflection on community engagement in catchment management.

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Factors underpinning success

The following table describes those principles identified as underpinning successes in community engagement, capacity and partnership building, with examples from the case studies analysed, and drawing on recommendations from the literature reviewed.

Table 2. Key Project 'Principles'

Guiding Principles	Rationale	Examples
Community leaders as agents of change	Leaders engage, facilitate, inspire and demonstrate good practice.	Paid coordinators (PTS Opanuku, Kaipatiki), volunteer leaders (FOC, FOW, Tiffany, TEPS)
Preliminary study of community attitudes, values, knowledge and communication style preferences	Build locally relevant programmes, while building partnerships and capacity that support engagement.	Nature for Neighbourhoods (Kaipatiki/NSCC), Bronte & SWEEP projects (Aust.)
Formal group structures	Establish group identity, mobilise planning processes, requirement for funding.	All the case studies
Structured and reflective planning	Fostering and building trust, skills, collaboration, transparency, group identity.	All the case studies
Use of appropriate language	Simple, clear, concise messages most effective.	'Stream to Sea', 'Nature for Neighbourhoods' (Kaipatiki/NSCC), 'Clean Drains – River Gains' project (Aust.)
Creativity and flexibility to building community engagement	Recognising multiple and overlapping motivations for engagement.	Maori tikanga (PTS Opanuku), local history (TEPS), arts & crafts (PTS Opanuku), water-based clean-up (FOW)
Regular opportunities for engagement at a local scale	Tapping into and building residents' connections and responsibilities towards their local area.	'Adopt a site' (PTS Opanuku, FOC, FOW), 'Friends of the...' (FOW, FOC), weekly working bees (Kaipatiki)
Adequate and stable funding	Allows long-term strategic planning, healthy working conditions for coordinators to support project sustainability.	PTS Opanuku, Bronte & SWEEP projects (Aust.)
Identify and engage key community people and organisations	Capitalising on existing groups within community, providing instant access to groups of residents.	Schools, scouts, Community Workers (via Corrections Dept.), Health Support Groups (PTS Opanuku, FOW, FOC, Kaipatiki, TEPS)
Identify and use existing information	Making use of experiences, expertise and skills of other community groups, iwi, science organisations and other agencies.	Resources developed by FOW, ARC, Wai Care and others
Partnerships with key agencies, sharing resources & decision-making	Toward effective long-term commitment to changes environmental management outcomes	PTS Opanuku, Bronte, SWEEP
Collaborative learning approaches, including opportunities for reflection, information sharing, cross-sector learning, monitoring and evaluation	Recognising and building on knowledge, skills & experiences of a range of people and agencies, assessment of project achievements, and building opportunities for broader support	Citizen's Jury (Bronte), Learning Networks (Incorporating Urban Sustainability within Community Based Catchment Initiatives Project)

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Conclusions

Community groups involved in the Auckland case studies expressed considerable interest in learning from the experiences of other community-based projects. The development of a learning network through this project and this report are starting points.

Case study groups have developed innovative ways of engaging residents and building capacity within the groups, largely modelled on approaches that build community ownership such as 'Adopt a stream' or 'Friends of the...'. Linking with existing community-based groups was also an effective way of building community engagement. Groups aimed to build community engagement and capacity at two scales: locally, involving residents in community-based restoration activities; and at catchment scale, involving residents in environmental management planning and implementation. Both scales are important to sustainable ICM processes.

Groups have achieved a range of results including restoration of native bush (and associated biodiversity) and improvements to water quality. Some groups sought guidance on monitoring frameworks to ensure relevance and comparability over time and space. Social benefits were also evident, including creating safer neighbourhoods through consistent activity in previously deserted and neglected nature reserves, building community networks and partnerships with tangata whenua, industry and local government, and in some cases contributing to a breaking down of 'silo' approaches to environmental management within and across agencies by connecting officers to work in a specific catchment or area. Partnerships have also led to good support for project activities.

The case studies showed examples of partnerships with local government and other agencies being built at a range of scales. PTS Opanuku is Auckland's current 'gold standard' for the joint partnership approach advocated by Allen et al. (2002) and others. An ICM Plan is being developed alongside PTS frameworks, a process that has the potential to engage residents in catchment-based planning. Participatory approaches that acknowledge and build skills and partnerships across community and government sectors are critical elements. Similarly, the Bronte and SWEEP projects from the Australian case studies have successfully moved beyond 'consultation' and developed joint partnerships between community, industry and local government. These projects provide useful models of well-resourced, place-based, joint partnerships.

The groups felt it was important that they build relationships with a range of people within local government agencies, including decision-makers, to allow a more partnered approach to ICM (i.e. moving beyond 'consultation'). Identifying and linking across the various departments of local government agencies was a challenge, but critical. Community-based groups can bring a place-based approach that fits well with ICM and links across local government departments.

Recommendations

The following are recommendations for agencies that seek to develop institutional structures and strategies that can support community engagement in ICM processes:

- ICM planning processes provide a good opportunity to link with community-based ICM groups who have developed experience linking across environmental management agencies to improve catchment management.
- Inter-dependent partnerships between community groups and environmental management agencies have the greatest capacity for long-term sustainable environmental outcomes.
- Partnerships are based on participatory processes that acknowledge local knowledge, skills and effort, and create opportunities for learning across all sectors.
- Participatory processes require initial investigation of local attitudes, knowledge, skills, understandings, and preferred forms of communication, and ongoing reflection on project aims, approaches and partnerships throughout the project.
- Joint partnerships require a sharing of resources and decision-making power. Recognise that consultation with the community creates costs for the community.

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- Ensure clear descriptions about ICMP/strategic planning processes and the public's rights and ability to have influence are given when seeking to consult/work with community ICM groups.
- Consider engaging existing community-based groups to undertake consultation and partnership building within the community.
- Agencies can use existing reporting mechanisms to publicise community-based group restoration and educational activities (e.g., website, Council newsletters).
- Monitoring and evaluation frameworks are critical to ICM processes, and need to engage all stakeholders from the outset.

Friends of Oakley (Te Auaunga) Creek

Context

Scale: Oakley (Te Auaunga) Creek catchment

Start time: 2004

Receiving environment: Waitemata Harbour

Land Use: Mixed low-density urban residential, commercial, industrial.

Identifiers

Location: Waterview/
Avondale/Mt Albert

Contact: Wendy John



Wairaka Wetland, Oakley Creek,
adopted site of Buchanan Rehabilitation Centre Garden Group



Oakley Creek

Background

Friends of Oakley Creek (FOC) is a community-based restoration group that works in the Oakley Creek catchment. Part of the upper catchment of Oakley Creek is traversed by a large motorway, and with the possibility of motorway extensions in the catchment in the future, riparian management had been overlooked for some time. The group was created by a local resident concerned about the neglected state of the stream who started to carry out restoration work. This work led to the involvement of more people and the creation of the group, which was established as an incorporated society in 2005.

Oakley Creek reaches from Mt Roskill across the isthmus to the Waitemata Harbour at Waterview, a total of 15 kilometres. Most of the length of the creek is bordered by walkable green space, including eight parks and reserves.

Project Management

Planning

The group's vision is to restore and protect Oakley Creek "as a natural ecosystem incorporating a range of wildlife habitats, indigenous species and recreational amenities for present and future generations". The group's aim is to "protect, preserve, enhance and restore the ecological health of Oakley (Te Auaunga) Creek and its environs".

The group has the following goals for Oakley Creek:

- Re-established as a natural waterway, including restoration of channelled parts of the stream to their natural state
- Established as a place of major ecological and social value
- Water quality restored and enhanced
- Established as a green belt (to include multiple uses/environs, e.g., native forest, wetland, open space, organised sports area, walkway, cycleway, etc.)
- Developed as a wildlife corridor linking with other areas of ecological importance, e.g., Western Springs Park, Hillsborough Cemetery Reserve, Heron Park, Motu Manawa Marine Reserve, etc.
- Coast-to-coast walkway and cycleway across the Auckland isthmus, following the Oakley Creek catchment

Organisational Structure

FOC has a core group of six who make up the management committee, led by the person who initiated it and supported by the core group who contribute a range of skills. They meet monthly, and supporters and key contacts in appropriate 'local bodies' are welcome to attend. Actual membership numbers are low, but there are around 200 people on the group's email list, who support the project in some way. FOC relies heavily on the time commitment, leadership and skills of the initiator of the project for its sustainability.

Funding

SLIP (Small Local Improvement Projects) funding is sourced for Oakley Creek, via the local community boards. This funding is administered by the Auckland City Council (ACC) Parks Volunteer Coordinator, with input from FOC, and helps to pay for plants, site preparation, and maintenance. Contractors are engaged for this work. ACC Parks also provide FOC with small items such as tools, bamboo stakes, etc.

In the view of the coordinator, the group needs only small amounts of funding for sundry expenses. This is due to the strong support the group gets from ACC Parks and Metrowater, and to the commitment of the volunteers. However, the group also applies for funds from other appropriate funding agencies for specific items such as display banners, as required.

Project publicity

FOC promotes the work they do in a number of ways: talking to groups of students at tertiary education facilities such as Unitec (whose campus backs on to Oakley Creek); having information stalls at suitable events; taking interested groups (e.g., Forest & Bird, Waikowhai Boy Scouts, etc.) for guided walks along the walkway and talking about the restoration work, archaeology and history of the area.

Networks & Support

FOC works alongside other like-minded groups, such as Friends of the Whau, to share ideas and skills. The ACC Parks Volunteer Coordinator is a key supporter of the group, and promotes FOC as a model for an urban community-based catchment management project.

Metrowater's stream Maintenance Supervisor for the area also supports the work of FOC, providing plants for riparian margins as requested. Metrowater also engages contractors for riparian management, and, as with ACC contractors, FOC has input into the planning of this work.

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ACC Parks is responsible for maintaining 1 m either side of walking paths, and Metrowater is responsible for the riparian margins.

The FOC coordinator has given several presentations to groups within local and regional councils, stressing the ecological importance of the catchment. The group has a strong relationship with several staff at Unitec, which borders the stream, and has been allocated an area in the School of Natural Sciences shade house to grow and house plants. Unitec students are regularly involved in restoration, monitoring and evaluation as part of their studies. The local iwi, Ngati Whatua, were contacted in the early stages of the project and were consulted on the management plan; Ngati Whatua are kept informed of group activities via the emailing list.

Group Activities

Restoration

In 2005 ACC contracted the company Te Ngahere Native Forest Management to develop a management plan for the lower reaches of the creek, following the Oakley Creek Walkway from Harbutt Reserve through to Great North Road in Waterview. The plan includes site descriptions, current restoration efforts, management units (displayed visually on an aerial photograph), environmental weed control, monitoring, community involvement, and a time line. The area has been divided into management units, and select units are being focussed on at specific times.

FOC works mainly in the lower reaches of the catchment since most members live in this area. Nevertheless, the group considers itself guardian of the wider Oakley creek catchment and as appropriate takes opportunities to have input into projects and developments throughout the whole catchment.

FOC has regular contact with contractors and has had input into the approaches to weed management adopted. FOC has found it helpful to put bamboo stakes with orange tape beside each plant after planting to ensure easy identification, and to prevent contractors from spraying or weed-eating the young plants and native grasses (as has occurred in the past). FOC is also attempting to limit blanket spraying, and instead seeks to use some of the existing weeds as protection for the young native plants.

Volunteers

A core group of volunteers, including committee members, participate on a regular basis in monthly working bees for planting, weeding (particularly plant release), and clean-ups. Larger numbers of volunteers turn out for working bees for planting in the winter, and for the annual summer clean-up. Planting is more popular, attracting 20–25 people, while weeding working bees attract about around 10.

FOC committee members also undertake some restoration work most weekends, and the chairperson/coordinator also commits a weekday and time in the evenings to FOC work.

Several groups contribute to the restoration work along Oakley Creek, including the Buchanan Rehabilitation Centre Garden Group (ADHB), and Gladstone Primary School Nature Force Group. These projects are facilitated by FOC, and are working well. The Buchanan site, for example, is a wetland site that has been transformed in only 2 years (see photographs at head of section). The group carries out annual plantings, regular maintenance and monthly water testing (under the Wai Care programme).

Another example is the work done by the Department of Corrections' Community Workers group. The group of around 10, contracted by Unitec, work on site every Saturday. FOC has, over time, developed a collaborative working relationship with the group, which has included them planting some specimen trees. These community workers were at first viewed with suspicion by local residents, but as visible results have emerged, residents now stop and chat to the workers and admire the transformation.

The Sustainable Business Network, through their Green Fleet programme, by which companies can gain carbon credits, has also provided volunteers and plants for plantings over the last 2 years.

Annual community clean-up days are held in collaboration with ACC Parks Department, and involve local residents; 75 car tyres were removed from the stream last year.

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Other group work

FOC makes submissions on developments in the catchment, in keeping with the group goals of having Oakley Creek re-established as a natural waterway, which includes restoration of channelled parts of the stream to their natural state. FOC has also worked with ACC on the development of plans to enhance Underwood and Walmsley Reserves in Sandringham, including a stream refit, whereby a section of concrete channelling will be removed and naturalised as part of the project.

Monitoring

Little monitoring of the creek or of the restoration work that has been taking place has been carried out since the establishment of the group.

Community groups undertake water testing with Wai Care in two places on the lower creek. A survey of habitat and biological values of the lower section of Oakley Creek was undertaken by a Landcare Research fresh water ecologist in April 2005. A FOC committee member is collating existing data on Oakley Creek, including historical accounts and research undertaken, and FOC also intends to add to the management plan a section on what to do if something of archaeological significance is found during restoration work.

Other monitoring is done regularly by the chairperson, with input from other committee members and the general public. FOC would appreciate support with biodiversity monitoring of the catchment, including collating base line data and ongoing monitoring.

Achievements

Environmental

Throughout the lower part of the catchment more than 7000 native plants have been established over the past 2 years, in a number of the management units.

The Buchanan site is one of the most advanced and outstanding of these. Native vegetation has been restored, with large carex, cyperus, cabbage trees, putaputaweta, swamp maire, flax, toetoe, and pukatea; there is 100% vegetation cover over a large portion of the site.

Outcomes, at this stage, are generally measured visually through photographic recording, and through feedback from the public who use Oakley Creek as a place for recreation.

Economic

Contracted work by ACC Parks and Metro Water is supported and enhanced by the extensive number of hours contributed by volunteers facilitated by FOC.

Social

Multiple groups working regularly along Oakley Creek have made the area feel safer, which attracts more residents to use the reserves and walkways. The areas of the landscape along the creek have been greatly enhanced, which also attracts residents.

The FOC coordinator has developed collaborative working relationships with ACC Park and Metrowater, providing an avenue for these key stakeholders to engage with people interested in community-based restoration. FOC has influenced the Council to recognise the significance of, and allocate resources to Oakley Creek. FOC has contributed to the education of the contractors, leading to improved riparian management.

Conclusions

What worked well?

- “Just doing it” – one person committed to getting out and restoring the catchment has provided the leadership, skills and energy to bring others on board.
- Opportunities actively sought to build relationships with ACC Parks, Metrowater, contractors Te Ngahere – leading to collaborative management of the catchment. Includes educating contractors about restoration approaches.

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- 'Adopt a site' by local groups has enhanced the sites and increased the sense of ownership and attachment to the area.
- Using the local media to help raise the profile of Oakley Creek and the importance of protecting it.

What were the challenges?

- Engaging stakeholders in the restoration of a catchment that is degraded and in line for major future alterations as part of potential motorway extensions. This includes funders.
- Getting people skilled in conservation on the management committee, e.g., knowledge of biodiversity, monitoring.
- Keeping volunteer numbers up, and stimulating them to take an interest beyond planting trees.
- Protecting young trees and native grasses from contractors sprays and weed eaters.
- Educating contractors about restoration and different approaches.
- Ensuring all parties are kept informed, understand the processes, and work together.
- Getting the public to understand that some weeds are helpful in restoration work.
- "Future proofing" the group to reduce reliance on one passionate coordinator.

Friends of the Whau

Context

Scale: Whau River Catchment

Start time: 2000

Receiving environment: Waitemata Harbour

Land Use: Mixed low-density urban residential, commercial, industrial.

Identifiers

Location: Glendene/Avondale/
New Lynn/Blockhouse Bay

Contact: Gilbert Blakey



Community planting day, Kurt Brehmer Walkway, on the banks of the Whau River



The Whau River Clean Up, Archibald Park, Waitakere City, Whau Catchment

Background

Friends of the Whau (pronounced 'foe'), FOW, is a community-based ecological restoration organisation formed in Auckland in January 2000 to raise community awareness about issues affecting the Whau River catchment, and to mobilise community energy and support to improve the natural environment. It currently has a supporter membership of over 200 individuals and organisations, and numbers are increasing. FOW is based in the Whau River catchment and includes the Whau River and its streams, draining to Auckland's Waitemata Harbour. The catchment spans a narrow isthmus between Auckland's Waitemata Harbour and (almost to) Manukau Harbour, and straddles both ACC and WCC jurisdictions.

Project Management

Planning

FOW's aims are to raise community awareness about issues and problems affecting the Whau catchment in West Auckland, and to mobilise community energy and support to remedy the

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existing situation. FOW is an umbrella group for several local community groups that are engaged in environmental restoration.

In 2006, FOW carried out a scoping exercise for a catchment-wide strategic plan. Strategic planning at a catchment level provides excellent opportunities for integrated catchment management. It also creates a wider focus and greater demands on committee members, some of whom are more interested in working at a grassroots level. Plans are currently being developed to create a Governance Board to reduce the burden on office holders, enhance catchment-wide strategic planning opportunities, and build the project's capacity to engage at a political level. FOW volunteers work with Auckland Volunteering on the restructuring process.

Catchment-wide strategic planning has also required a higher level of information. WCC provided comprehensive GIS data free to the project, while ACC had limited information and required payment for the data.

FOW is considering supporting local community groups under a 'guardian of the stream' model; for example, local residents will form a group to care for the Blockhouse Bay Recreation Reserve under the umbrella of FOW. FOW has the capacity to organise plant supplies, plan restoration work, and to help the group build working relationships with contractors and Council.

Organisational Structure

The FOW committee, which meets monthly, is responsible for a range of 'portfolios', including media marketing and advocacy, membership and events, bio-landscape, Wai Care, landscape co-ordination, environmental education and scouting, funding and sponsorship, and cultural liaison. The committee office holders consist of Co-conveners, a Treasurer, and a Secretary.

The project also has an overall Steering Committee that meets twice a year and is made up of representatives from ACC, WCC, Metrowater, Eco Water, Avondale Community Board, New Lynn Community Board, and ARC. FOW reports to these key stakeholders/funders on project progress and what activities are proposed for the next 6 months.

FOW has two part-time paid employees: an Environmental Education Co-ordinator (15 hours per week) and an administrator (5 hours per week). As FOW has office space in business premises, the project is required to pay business telephone rates. FOW has an up-to-date computer system with GIS capability. Newsletters are released quarterly by the environmental education officer.

Funding

On the ACC side of the catchment, FOW funding comes through the Avondale Community Board SLIPS (Small Local Improvement Projects) fund. On the WCC side, funding comes through Eco Water. FOW's long-term sustainability is undermined by the need to apply for funding annually with the decision to support the group at the discretion of elected members. Nevertheless, Avondale Community Board and Ecowater are currently very supportive. The purchase of plants takes up a large proportion of project funding; for example, 3000 plants recently purchased for one area cost \$10,000.

Project Publicity

FOW holds an annual celebration day in late autumn both to acknowledge volunteers and as the first planting for season. The project has created a book (*The Whau – our streams, our river, our backyard*) and a CD (*Our streams, our future – The Whau-Oakley catchments*) aimed at informing people about the project and ecological education.

Networks & Support

Engaging residents in FOW restoration work can at times be difficult, although there is a core group of supporters. Some new immigrants have been engaged in planting days, for example, through the Chinese Conservation Education Trust. Language barriers can present a challenge, particularly as feedback from residents is required on FOW processes and activities. While a survey of public opinion was undertaken in the past, a further survey is necessary.

FOW's steering committee includes a wide range of stakeholders. The project has also established working relationships with a range of community and educational organisations and is playing an important role of building capacity across the community towards ICM, as detailed below.

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Group Activities

Several strands of work are undertaken by the group, with overlaps between the strands.

Riparian management

- Planting of eco-sourced native plants along river and streams.
- Regular clean up of river, stream tributaries and banks in conjunction with Keep Waitakere Beautiful, Scouts, and other organisations.
- Regular weeding, pest control, revegetation, and planting maintenance.

Planting Days are held regularly throughout the planting season from May to October and often involve local community groups. Some days are open to the general public. The Whau River clean up day involves a range of scouting groups in a water-based clean up. Participants gather litter around the river mouth from kayaks and other water craft. This event has recently been opened to the general public.

Over the last 6 years FOW volunteers have been working in Shadbolt Park, planting and maintaining trees and monitoring water quality with Wai Care. Visible differences can now be observed in the photographic record of this period.

The Henderson Corrections Department supervises teams of community workers 2 days per week in the Whau Catchment on the WCC side, and New Lynn Corrections workers work 1 day a week on the ACC side of the catchment. A FOW volunteer selects a site and explains work requirements, usually focussed on manual weed control and planting. The Department of Corrections provides the gear and supervises the workers. On Sundays, there can be as many as 30 community workers. With high levels of supervision and the regular input of large numbers of able-bodied adults, these groups are able to plant and carry out maintenance on difficult terrain. As a result, FOW have been able to extend their riparian management work over a larger area, and considerable improvements are evident in the catchment.

A group of youth from Odyssey House work at Shadbolt Park 1 day per week, with supervision from FOW. This work has a broad focus, spanning education, environmental engagement, and work experience. A group of youth from Princess Trust also work with a FOW convenor on a regular basis, with similar aims.

FOW have recently developed a pest control plan in an effort to expand the limited pest control and monitoring that already takes place. Funding for buying possum traps came through Environmental Initiative Fund (ARC).

Participatory catchment management planning

- Site analysis and design for amenity and ecological plantings within public reserves.
- Advocacy for better access to the waterways, e.g., around Rosebank Peninsula.
- Liaising and negotiating with Councils, Community Boards and water supply authorities (Eco Water and Metro Water) about their programmes and resources to restore and maintain the Whau River and its catchment.

FOW was involved in the site analysis and design for the newly created Olympic Park in Avondale, recommending, for example, the retention of wattle trees (although not native) as a natural habitat for Avondale spiders (now used as an icon by local businesses).

Ecological education

- Involvement of local high school and tertiary institution science and biology students, who use the Whau as an educational study "living laboratory" area.
- Involvement of primary and intermediate children in environmental initiatives.
- Public educational meetings.
- Informing and advising residents about what they can do on private properties to enhance the environment.
- Using the media to inform the wider public.

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- Talking to developers and property owners about the need to minimise environmental impacts upon the Whau River.
- Informing and involving businesses in monitoring pollution and in FOW's revegetation work.

FOW has organised public educational lectures as a strategy to engage and inform members of the public about restoration, but attendance has been limited. One local high school (Kelston Boys High) is very involved, led by an interested science teacher who engages students in environmental work through Wai Care. FOW's environmental education worker works mainly with school children, though there is potential to work with business and the broader community. FOW have developed display boards that can be left unmanned; and regular displays at New Lynn and Henderson Malls have attracted much interest in the project. People were particularly interested in the local history and aerial photographs.

Environmental data collection and monitoring

- Involvement of Unitec students in report investigations, data gathering, and monitoring of the Whau catchment.
- Undertaking surveys and monitoring (e.g., FORMAK) on various aspects of the Whau River.
- Collection of the historic, cultural and natural associations of the communities within the catchment and making these available through public displays, videos, websites, library archives, etc.
- Water quality monitoring within the Wai Care Programme.

While the focus of Wai Care is on fresh water, a newly established group, Sealab, has been established with students at the University of Auckland to monitor sea water quality. Sealab has given a public lecture in the Whau catchment, which was very well attended, and plans are being developed to engage community groups in an estuary monitoring programme.

The Kurt Brehmer walkway is an area of focus for FOW, working with Forest and Bird Waitakere and a community group on the regeneration of native bush in the reserve. Three years ago, students completed a survey of plant species in the reserve and found that some local plant species were very limited or non-existent in the bush. FOW eco-sourced seedlings and is monitoring the regeneration of the bush over time.

Achievements

Environmental

Extensive plantings in several parts of the catchment, including 12 000 trees last season, contribute to restoration of the native bush, to improved habitats for native flora and fauna, as well as to improved amenity values in public reserves.

Economic

Volunteer work through FOW supports and enhances contracted work by councils.

Social

FOW has engaged several community-based groups in ecological restoration work, with a strong ecological education element to the work. FOW has developed working relationships with individual officers within councils, community boards, infrastructure providers, NGOs and contractors, allowing the project to contribute to catchment management. FOW has also developed environmental education resources (e.g. riparian planting guide).

Conclusions

What worked well?

- Focus on restoration and education at a catchment scale allows FOW to engage at several different levels in ICM.

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- A sound governance structure to engage with catchment-based issues at a political and strategic planning scale, and to support the work of people wanting to work at a grassroots level.
- Working with existing community groups has been an effective way to involve residents in catchment restoration, including with children through schools, community workers (Corrections Department).

What were the Challenges?

- Sustained community engagement beyond a small core group is a constant problem.
- Separation of governance and management requires stronger voluntary support for the project than currently exists.
- Annual funding rounds do not support long-term strategic planning processes and project sustainability.
- Relationships with decision makers at a higher level within councils are difficult to develop.
- Straddling political boundaries of ACC and WCC is a challenge, although also an opportunity for FOW to act as brokers between the two Councils in driving integrated catchment management.
- The development of a robust monitoring system with adequate support and funding is testing.

Tamaki Estuary Protection Society

Context

Scale: Tamaki Estuary

Start time: 1969

Receiving environment: Waitemata Harbour

Land Use: Mixed low-density urban residential, commercial, industrial.

Identifiers

Location: Tamaki

Contact: Chris Barfoot

Background

The Tamaki Estuary Protection Society (TEPS) was formed in 1969 both to oppose a private proposal to build a marina in the estuary and also to protect the natural environment from reclamation and development on the foreshore and existing reserves. Three years later, TEPS opposed the conversion by the ACC of the Glen Innes Domain into a landfill and put forward an alternative proposal to turn the Domain into a nature reserve. This proposal was accepted by the Council, and ACC and TEPS worked collaboratively to develop the now thriving Tahuna Torea nature reserve. Thirty-four years later, Tahuna Torea continues to be managed by ACC with a significant voluntary input. TEPS has become actively involved in catchment management issues by participating in the Tamaki Pollution Action Committee. TEPS also undertakes restoration work throughout the Tamaki Estuary region, with a focus on Tahuna Torea Nature Reserve in Glendowie, Waitotaki Reserve in Glen Innes, and Wakaaranga Creek in Pakuranga.

Project Management

Planning

Concern about detrimental effects of urban development in the Tamaki Estuary was the key motivation for the establishment of TEPS in 1969.

In 1987, as result of a public meeting to discuss community concerns about pollution in the Tamaki Estuary, the Tamaki Estuary Pollution Action Committee was formed, with representatives from local government, conservation and iwi groups. TEPS has been engaged in this multi-stakeholder committee since that time.

Based on a series of workshops with stakeholders, the Tamaki Estuary Pollution Action Committee developed the Tamaki Pollution Action Plan (TPAP) in 1988. The TPAP includes strategies to improve aquatic and estuarine environments in the Tamaki area. The TPAP Steering Committee now meets quarterly, and has representatives from ACC, MCC, ARC, Metrowater, WaterCare, TEPS, Forest and Bird, and Tangata Whenua (Ngati Paoa).

The TPAP Steering Committee has worked collaboratively to implement the Action Plan: upgrading sewerage pumping stations, developing storm water management plans, developing long-term discharge consents, silt control, storm water ponds, and managing pollution from industrial yards. In the view of TEPS, the committee has successfully "held the line" of pollution in Tamaki River, after seeing rapid deterioration in the 1970s and 1980s before the development of the Action Plan. The establishment of the action plan coincided with the emergence of the conservation movement in the 1970s, leading to a drive for more controls and measures to counter pollution of the waterways.

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TEPS represent community concerns in relation to the Tamaki Estuary (e.g., jet skiing, dogs, set netting). ARC has undertaken educational campaigns and art exhibitions, including providing leaflets and workshops to community and industry groups. TEPS members believe these campaigns, together with work by TEPS and other groups, have contributed to changes in public attitudes in relation to the environment.

Organisational Structure

TEPS has bi-monthly meetings. Members are mainly from Pakuranga, Panmure, Glen Innes, Glendowie and Bucklands Beach. TEPS has a very committed group of leaders and committee members, but needs new members to maintain momentum and ensure project sustainability.

Project Publicity

TEPS is recognised in the community for its long history of restoration and activism. TEPS recently mounted a campaign through the local print media to raise awareness about pollution problems in the estuary and to engage more group members.

Funding

TEPS' achievements are mainly based on voluntary input, and the group has accessed funding for specific projects such as for Tahuna Torea, described below.

Networks and support

Collaboration with tangata whenua has been integral to TEPS approach, as one member explained:

We've always worked with the tangata whenua because we all have the same objectives, to identify historical sites and recognise the historical character of the river and its spiritual importance. So that is actually an important part of how we see the Tamaki River. Tangata whenua, in this case the Ngati Paoa, have been represented on the Advisory Committee of the Reserve, and their opinion has always been sought in any heritage issues, particularly in the preservation of the historic Maori fish dams on Tahuna Torea. Because of the vital importance of the sandspit and estuary as a source of food to the Maori, tangata whenua have also supported strongly the efforts of the Society to combat the pollution in the Estuary. The Society has further sought opportunities to share Tamaki Estuary's rich history with residents in collaboration with Ngati Paoa. An example of this has been the naming of the two reserves of Tahuna Torea (gathering place of the oyster-catchers) and Wai-o-Taiki (the river of Taiki – a captain in the Tainui canoe). (Chris Barfoot)

The motivation for members to become involved initially was "to build a nice neighbourhood for our kids". Long-term members are now grandparents and new members, particularly younger people, are needed in the group. Nevertheless, TEPS has an active committee, with two life-time members leading much of the restoration and participation in council environmental processes.

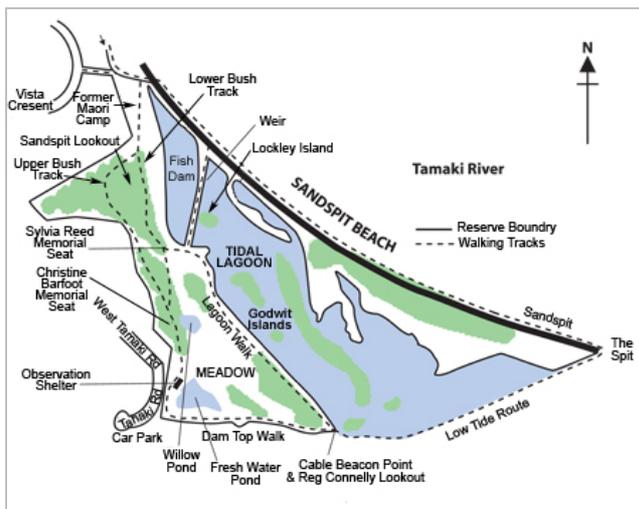
Another important motivator for membership in the past was concern about the effects of urban development on their local area: "people are interested in their local area". TEPS now has fewer such battles as councils are more engaged in controlling development that could result in polluting the Tamaki River. As a result, fewer residents are motivated to join community-based conservation groups.

TEPS has also developed strong working relationships with local and regional councils and infrastructure providers, described below.

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Group Activities

Tahuna Torea (Resting Place of the Oyster Catcher)



This reserve is a TEPS initiative, developed in response to a proposal to convert an abandoned farm into a landfill site. A committee that included TEPS was established by the ACC in 1974, and oversaw the development of the reserve until 1989. Since then the Council has administered the Reserve with the assistance of an advisory committee and a committee of local rangers and residents. The reserve is extremely fertile and is made up of three different landscapes – wetland, bush, and tidal flats. This makes it a unique habitat, with a rich history and close to central Auckland. Ranger Chris Barfoot is preparing a history of Tahuna Torea reserve.

Work in the reserve included restoring the swamp by the filling in of farm drains, restoration of a Maori fish dam, walkways and look-outs, and extensive planting. Most initial development work and weed removal and all planting work on the reserve has been carried out by volunteers, including community members, service groups (Rotary, Lions, Churches), and scout and school groups during working bees. Local school groups have had a particularly strong input into the reserve. Rangers for Tahuna Torea were appointed by the Council, mainly from local residents. Junior rangers were appointed at several of the surrounding primary schools. These honorary positions still exist, although new rangers are no longer appointed.

TEPS reports having a good working relationship with ACC, who has dedicated increased funding for weed control in the last 5 years. ACC contract Te Ngahere Native Forest Management to control weeds in Tahuna Torea reserve. In 2005, ACC established voluntary rodent and weed control teams for Tahuna Torea. The weed control team carries out complementary work to that provided by contractors, such as hand weeding around smaller trees. ACC, with the support of the Tahuna Torea Advisory Committee, TEPS and other conservation groups, has successfully banned dogs from the reserve. Predator-proof fencing may be investigated by TEPS, although physical and social barriers are evident.

ACC and the local residents' and rangers' committee have recommended that a 'Friends of Tahuna Torea' be established to engage the community more widely. As a charitable trust, the group could then apply to funding agencies for grants for special purposes, for example, to improve educational features in the reserve (e.g., labels naming trees, signage, sharing Maori history). This would augment and complement funds already available from the ACC for normal administration, maintenance and development.

Mangroves around the tidal flats have increased vastly in the last 30 years as a result of sedimentation from urban development. These mangroves are invading tidal flats that were formerly bird resting and feeding areas, and are replacing the rushes that marked the historic Maori fish dams. The issue of which has the greatest environmental value is being raised by the group with ARC.

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Funding for the development of Tahuna Torea was obtained in the early years through TEPS secretary, Ronald Lockley, the world-famous naturalist, who had links with many conservation groups (notably the Acclimatisation Society and Forest and Bird). Since then ACC has provided most of the funding.

Wai o Taiki Reserve

This reserve was developed as a nature reserve and given its present name by TEPS in the mid-'70s. Local honorary rangers were appointed to organise weed clearance and planting of hundreds of native trees in the early years of the Reserve. The rangers also supervised the construction of the original track, which is now part of the Point England Walkway. Historical sites recalling the original occupation by the Ngati Paoa were identified and preserved. The Reserve was administered until 1989 by the same Advisory Committee as Tahuna Torea on which TEPS and the Ngati Paoa were represented. TEPS now supports a new proposal by ACC to re-vegetate the Omaru Creek, which is the tidal creek section of Wai-O-Taiki Reserve.

Pigeon Mountain

TEPS members are working with ARC and Wai Care on restoration of streams that come from Pigeon Mountain (e.g., testing water quality). Workshops have also been held with Forest and Bird and Wai Care, which TEPS considered very informative and constructive. Manukau City Council (MCC) Parks have developed a Concept Plan for Pigeon Mountain, aimed at enhancing the historical, landscape and geological aspects of the reserve. TEPS members have participated in the development of this plan, and will be involved in implementation. A TEPS member has recently updated a book on the history of Pigeon Mountain.

Wakaaranga Creek

The main focus for work at present is Wakaaranga Creek in Farm Cove, where the group is restoring the wetland at the end of the river. The site is known historically for an abundance of birds, native sedges and swamp grasses. Urban development in the Pakuranga area took place during the 1970s before settlement traps and other sedimentation controls were required. It had a significant impact on the creek. As with Tahuna Torea reserve, mangroves have become prolific and much community concern has been expressed about this invasion.

Other TEPS activities

All resource consent applications for the Tamaki area are sent to TEPS, where they are investigated by a member then discussed at meetings. Submissions are made as appropriate.

TEPS has published two historical books, one on Musick Point, the other on Pigeon Mountain, both written by Geoff Fairfield, a member of the Society.

Achievements

Environmental

Tahuna Torea and Wai o taiki Reserves have been established and restored. These reserves and Wakaaranga Creek now have restored wetlands, extensive planting, and increased biodiversity, largely due to work by TEPS. The tidal flat area of Tahuna Torea is a sanctuary for waders, including migratory birds. In its bush and wetland habitats Tahuna Torea also includes a significant variety of native trees, shrubs, grasses and sedges.

Actions put into place by TPAP Steering Committee, including TEPS, are considered to have stemmed the rapid decline of water quality in the Tamaki Estuary. Despite upgrades to infrastructure, however, water quality is still being undermined by sewerage leaks into storm water during heavy rains. There is concern that increased housing density in Glen Innes will put further pressure on an inadequate infrastructure.

Economic

Voluntary community restoration and maintenance of reserves in the Tamaki area have added considerably to local amenity values, with little or no cost to ratepayers.

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Social

TEPS members are mainly long-term Tamaki residents, with a strong sense of attachment to the area. Engagement in TEPS activities emerged from this attachment, and consequently provided opportunities and built capacity in relation to the natural environment among other residents.

TEPS has a strong relationship with tangata whenua, ACC, ARC, and infrastructural providers, and has built strong networks with stakeholders throughout Tamaki. TEPS has developed these relationships by active participation over many years in the Tamaki Pollution Action Plan Steering Committee and in resource consent processes. In turn, these processes have influenced the way councils have engaged with the community in Tamaki on environmental issues.

Conclusions

What worked well?

- Residents' strong objections to development proposals were acted on by the group, and at the same time restoration work was initiated, thereby harnessing community engagement.
- A highly committed membership and group leaders.
- A good relationship with tangata whenua, with many similar aims (which also means funding is easier to access).
- Engaging school groups and other community groups has raised the profile of restoration work, and contributed to a broader attachment to place.
- Historical interest – sense of place shared through collation of local histories.
- A partnership between TEPS and ACC to manage Tahuna Torea nature reserve has worked well to engage residents over time (through Rangers, weed and animal pest control teams).
- A 'place at the table' with multiple stakeholders (via TPAP steering committee) to participate actively in resource management and consent processes has given residents a voice in Tamaki environmental issues.
- Keeping activism (via TPAP steering committee) and restoration (via Tahuna Torea reserve and Wakaaranga Creek work) separate.

What were the challenges?

- Attracting and maintaining community engagement is an ongoing challenge for the group.
- Encouraging members to take up committee positions is difficult.

Tiffany Bush Care Group

Context

Scale: Tiffany Bush Sub-catchment

Start time: 2000

Receiving environment: Otara Basin, Tamaki Estuary

Land use: low-density rural, residential

Identifiers

Location: Tiffany Bush, Manukau, Auckland

Contact: Kate Smith



An example of Tiffany Bush restoration

Background

Tiffany Bush Care Group is a collective of private landowners of rural residential properties in Manukau. The group was formed in 2000 and started with five neighbours in Tiffany Close who collectively sought to remove weeds from their properties. As progress became evident, other neighbours became involved and the group has now grown to include 22 landowners. The properties, approximately 5000 m² and situated just below Redoubt Road which forms the upper ridge of the Flat Bush catchment, have remnant native bush based around the headwaters and channels of small streams. Property owners formed the group to increase the area and health of these native bush remnants through pest and weed control, and through revegetation. A further aim is to improve water quality in the streams, which ultimately drain to the Otara Basin.

Stormwater management refits are also planned in collaboration with ARC and MCC to mitigate increases in peak stream flows that are causing bank collapse and scouring in parts of the streams. Stormwater management to date has concentrated on delivering stormwater more efficiently (through pipes to the stream bed) and reinforcing eroding sections with engineered structures (such as gabion baskets) and strategic planting, rather than on reducing or detaining flows.

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The group is unusual as it is based on privately owned land (in contrast to most community-based groups which work on public land). Because of this, there is a common perception that their work is only beneficial to these landowners, and the group initially had to work particularly hard to acquire local council engagement and NGO funding. The group provides an excellent model of how private property owners can work collaboratively to achieve improved ecological and social outcomes.

Project Management

Planning

The group's approach has been to "work with people who want to work with us", being active in their own immediate environment, talking to neighbours and being willing to show people around to see the results being achieved. "Then word of mouth took over", with people becoming interested through the progress on other properties. New residents (all owners) are personally invited to join the group at no cost. Where restoration work is to be undertaken on someone's land, the group normally asks for \$150 as a contribution. Group leaders make applications for funding to undertake work as necessary.

The group now has 22 residents involved, with two key people providing leadership, knowledge, skills and vision.

Organisational structure

The group does not have a formal committee structure, but members hold meetings about twice a year. The business section of the meeting is kept to a minimum, and guest speakers (e.g., ecology experts) appear to have been the draw card for many residents. Invitations are sent by email and newsletter.

Funding

The group currently receives funding from the Worldwide Wildlife Fund, Environmental Initiative Fund (ARC), DOC, Landcare Trust, MCC Discretionary Fund, and Pub Charities.

Tax exemption is a possibility for the group, but requires it to become an incorporated society. The group holds grant funds in a bank account, and interest earned is currently taxed.

Project Publicity

The occasional one-page newsletter has been an effective way to draw in residents. A group leader initiated an article in the Eastern Courier to publicise their activities; more such opportunities will be sought.

Legislative context

Tiffany Close is situated in Flat Bush and therefore comes under Variation 13 to the Proposed Manukau District Plan to re-zone land and provide development controls for the Flat Bush catchment. Stage 2 of the Flat Bush development is to start soon, and will reach up Murphy's Road to the Tiffany Close bush area. Stage 2 includes the encouragement by MCC of landowners in subdivisions developed before Variation 13 to restore riparian and remnant bush zones. The Tiffany Bush Care group has noted that only small pockets of remnant native bush exist in Flat Bush, and the group is therefore playing an important role in enhancing remnant bush. Tiffany Bush Care is an example of how such enhancement can be carried out on private land.

The group has initiated meetings with MCC to involve the Council in strategic planning for the group and to acquire a specific Council contact. Given that the group is based on private land, Council involvement is not automatic. Wai Care usually provides support to groups working on public land, although they do have a mandate to work with groups such as Tiffany Close Bush Care, and the relationship is slowly becoming established.

Stormwater refit

Problems with stormwater management were raised in a group meeting held 27 April 2006. One property in the lower reaches of the subdivision is traversed by storm water run-off from six other properties, causing flooding and erosion. Another property, situated at the top of the catchment, contains a Council stormwater outlet pipe to discharge stormwater from several sites, including the road above; stormwater is piped to the stream, and then flows down to a storm water pond lower in

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the greater catchment. Widely fluctuating stormwater discharge levels, together with the sheer quantities of water at certain times, cause undercutting and slumping of the stream banks and serious impacts on stream water quality. Concerns were expressed that at least one house in the subdivision discharged grey water into the stream instead of into the sewer. Residents were also concerned that more properties were being developed in the area and that these properties would create increased storm water run off problems (despite being sited on relatively large sections that theoretically would be able to dispose of all stormwater on site).

The Tiffany Bush Care Group coordinator subsequently called an on-site meeting in May 2006 to discuss options for these stormwater problems. The meeting was attended by several members of the Tiffany Bush Care Group, two ARC Environmental Management team members, an ARC Heritage Officer, and scientists from Landcare Research and the University of Auckland. Participants recommended that a rain garden be installed in the lower property to help mitigate the storm water run-off problems. ARC, MCC and the property owner have since starting scoping the potential for a rain garden to help mitigate flooding problems. A rain garden could achieve the same retention volume as specified in TP10 for rain garden design by covering a larger area but being relatively shallow (300 to 500 mm depth), thereby making use of the larger sites and reducing costs. An alternative or additional approach is the creation of less structured soakage areas, where stormwater is discharged through a surface pipe network similar to those used for septic tank treatment (R. Simcock, pers. comm.). It was also recommended that a cost benefit analysis of these refits be undertaken.

A second meeting was then held on site with MCC, ARC and Tiffany Bush Care Group members. Representatives of ARC, responsible for storm water management on public land, attended the meeting because of their interest in the health of the stream. MCC is responsible for storm water management on private properties. Following recommendations made at this meeting, MCC has since refitted the storm water outlet pipe on the upper property.

Networks and support

ARC's Natural Heritage Officer supports the group by attending group meetings, providing information and links in relation to bush restoration, and contributing to strategic planning processes (e.g., by providing models developed by other groups).

Contact has been initiated with Wai Care Coordinators, who provide useful support and information.

Networking days organised by ARC have been excellent opportunities to meet other community-based restoration groups, though these tend to work on public land. Landcare Trust and WWF seminars and conferences have also providing good networking opportunities.

Group Activities

Volunteers

Working bees are held regularly to plant trees and weed around planted areas. A recent working bee resulted in the building of a bridge across the stream. Groups of children, organised through Trees for Survival coordinators and ARC, have been involved in planting days on Tiffany Close properties. Trees for Survival coordinators support children in growing up seedlings and planting them out.

Weed and Pest Control

The Tiffany Bush Care group initially focused on weed removal. In the first instance, funding from EIF was used to employ two workers through Student Job Search at MIT to remove weeds. Problems emerged, including the need to provide tools and supervision of students, and the liability responsibilities of the group as employers. Some of the work was on steep, unstable land, making these issues particularly pertinent. Subsequently, the group decided to employ Te Ngahere Native Forest Management to remove weeds, and this is ongoing. Te Ngahere, specialised in this type of work, target specific weeds and provide advice on the management of native bush.

When the group first started weed control, they used a fairly intensive management approach, including spraying, replanting, and ongoing intensive weed management. This was found to be overly complicated and labour intensive. The current approach is to keep things simple, which

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includes clearing weeds and pests where canopy cover exists, leaving it to regenerate naturally, and in open areas planting and maintenance to keep weeds in check.

As an example, this approach was successful with a large patch of *Tradescantia*: the area was weeded by hand, natives were planted (flaxes, umbrella sedge, *Carex secta*), ongoing weed management was undertaken, and the area is now almost clear of the weed. This approach was found to work more effectively than spraying the area as it was easy to pull back the weed, which left bare earth that could easily be planted, and the plants established a canopy that shaded out the *Tradescantia*.

On one hillside that was covered in woolly nightshade, the group left the trees but topped them with a mixture of tordon and diesel. The area is now regenerating bush. Spraying has been used under large trees and the undergrowth has then been left to regenerate naturally, with occasional hand weeding to maintain the area. This effective low-intervention approach has led to a strongly regenerating bush area. The gradual removal of gorse and woolly nightshade and the regeneration of native bush over several years have set a valuable example of what can be done.

Some residents control animal pests by trapping and poisoning. The group has a common bank of weed and pest control tools (possums traps, possum bait, weed sprays, pruning saw), making it more affordable and convenient to undertake this work.

The group has used their newsletter to inform residents about plants that are potential garden escapers and to provide 'safe' alternatives and native alternatives. ARC pamphlets that provide excellent information could be made available at meetings. Overall, group leaders say information for all aspects of integrated catchment management is available, and they could have saved much money and sweat by following advice from others with expertise and experience.

Planting

Planting has been targeted around areas that already have 'good bones', i.e. stands of large trees, in order to keep the process manageable. Most properties do not have stock, so fencing has not been necessary. Funding has been sourced to fence off and plant two areas, and advice is being sought on the types of trees to plant, given slumpage and gradient.

Monitoring

No formal monitoring has been undertaken. DOC and Landcare Trust provide funding to the group and request monitoring. The group would like input on how this can be carried out, including a standardised guideline to ensure it has relevance and comparability over time.

Achievements

Environmental

The Tiffany Bush Care group has been successful in restoring remnant bush, and transforming formerly weed-covered slopes to regenerating native bush (evident in photographs). A strong under-storey is now evident under stands of large native trees, where previously weeds were dominant. Some properties that were previously covered in weeds are now cleared. Working collectively has reduced weed seed sources. In a few instances, residents have not carried out the necessary follow-up weed and plant maintenance once contractors and volunteers have started to restore an area, suggesting that a management plan might need to be developed before restoration on new properties.

Although the group has not undertaken monitoring of biodiversity, a wide diversity has been observed: kereru, grey warbler, kingfisher, kaka (1), tui, and fantail; a strong weta population; koura in the stream; and 78 tree, plant and grass species (there is also a diversity of ferns but these have not been counted).

Water quality has been seriously undermined by storm water run-off problems.

Economic

Residents have worked collaboratively, sharing the costs of restoration, and successfully applying for funding to help fund the work.

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Social

The group provides a community focus for residents who might otherwise have little contact with each other. Group meetings and end-of-year gatherings are useful to engage residents and build community capacity to undertake restoration work. Funding and support from agencies provides affirmation that such restoration work is worth doing. Some residents are more willing than others to become involved but all are interested in caring for their living environment and 'doing the right thing'. Some residents have moved beyond weed control to an interest in biodiversity and a more integrated catchment management approach. Properties have been transformed into attractive regenerating native bush, providing a more attractive living environment.

The group has collectively developed considerable knowledge of bush restoration, and weed and animal pest control. Expertise in administration has also been developed – including simple ways for a community group to set up filing systems and ledgers (to manage donations and funding allocations), and how to meet reporting requirements for funding agencies. The group leaders are willing to share this information with others, and this case study is a starting point for that.

Networks have been built with various departments within the local and regional councils, providing support for the groups work and helping raise the profile of the group.

Conclusions

What worked well?

- Working collectively to restore native bush, sharing resources, labour and knowledge.
- "Working on the ground" – focus on getting things done rather than ideas.
- Bush walks and walk around sites have been the most effective way of engaging other property owners.
- Funding has been sourced to fence off remnant bush and to pay for weed and pest control and plants.
- Committed leaders with capacity to engage and inform others, undertake restoration work, build relationships with other stakeholders, and source funding.
- Newsletters help engage people and get them along to meetings.
- Meetings focused on a presentation by a guest speaker.
- Group leaders have initiated a process to engage ARC and MCC in storm water refits on private land (in planning).

What were the challenges?

- Resident engagement in the group has at times been limited to attending meetings. There is no obligation for landowners to maintain restored bush.
- Being a group based on private land, Council involvement is not automatic.
- Storm water discharge problems have been a major challenge to maintaining stream water quality.

What was learnt?

- A process is necessary to introduce new members to the group, e.g., pamphlet to explain group aims and basic information about caring for the bush and stream water quality; a walk with a group leader to see where the storm water from the property goes.
- A management plan should be developed for each new property owner, with support from group leaders.
- Rates rebates would be a good motivator for landowners. Currently, a minimum of 6 m² of uninterrupted bush canopy is required to be eligible for a rates rebate from MCC, and only one property in Tiffany Close meets this criterion.

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- Accessible information, presented in a non-technical way, is important for community restoration groups, e.g., availability of ARC information pamphlets on noxious weeds, native alternatives, and weed and pest control at group meetings.
- Use existing information and experience of others rather than developing complex pest control and planting regimes.
- Monitoring based on a standard format to ensure relevance and comparability.
- The Tiffany Bush Care group could be used as a model for other community restoration groups.

Kaipatiki Project

Context

Scale: Ecological **restoration:** Kaipatiki Catchment, **Education:** North Shore wide

Start time: 1998

Receiving environment: Waitemata Harbour

Land Use: low-density urban residential, commercial

Identifiers

Location: Birkdale/North Shore City/Auckland

Contact: Sunila Prasad



Shade house, Kaipatiki Project



Witheford Reserve

Background

In 1995, local resident, Jenny Christianson, began cleaning up the rubbish dumped in the Witheford Scenic Reserve and Kaipatiki Creek and planting trees. Other residents became involved, which led to the establishment of the Kaipatiki Project as an incorporated society in 1998.

The Kaipatiki Project is a not-for-profit community organisation with a broad focus on ecological restoration and environmental education. As at May 2007, one person is employed full-time, one part-time, and a large number of volunteers are also actively involved in the project.

Project Management

Planning

The project vision is "*Inspiring communities to live sustainably*"

The main objectives of the project are:

- to restore the natural ecology of the Kaipatiki Creek and native forest margins.

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- to raise community awareness of ecology and environmental sustainability.

Organisational Structure

A steering committee, currently of eight members, provides overall governance for the project, and meets monthly.

External consultants funded through SCOPE (Supporting Community Organisations), were contracted over a 9-month period in 2006 to examine processes across the board, including administration, restoration and educational processes. Recommendations for improvements were based on this work, and these are currently being implemented.

Local residents and businesses are invited to become members of the Kaipatiki Project for an annual donation of between \$10 and \$50. There currently about 50 members, and more are sought.

The project has a committed committee and employs two staff, enabling the project to contribute to overall catchment management and environmental education. However, lack of sustainable funding undermines the sustainability of the various education and restoration projects offered. The project is based at an office in Birkdale, providing a useful community space for environmental education and outreach. The project also has a shade house for growing seedlings and space for tools and other materials.

Funding

Funding is acknowledged by a large number of organisations, including NSCC, Biodiversity Advice Fund, WWF-NZ, ARC, Lottery Grants Board Environment and Heritage, Pacific Development and Conservation Trust, ASB Trusts, Lion Foundation, Birkenhead-Northcote Community Board, Glenfield Community Board, Pub Charity, Wastewise, Community First Foundation, Tindall Foundation, Birkenhead Charitable Trust, Ministry of Social Development, Foodstuffs Ltd, Warehouse Stationery Ltd, Mazda Foundation, and NZ Post Community Post⁹. Funding has also come from the Infrastructure Auckland fund for a 5-year riparian planting programme.

In general, the project has found it much easier to secure funding for educational work than for restoration. However, funding for any types of wages is extremely difficult to secure and maintain. The Kaipatiki Project is regularly asked to take part in catchment management decisions and activities, but is generally not funded to do so. The project relies on short-term funding for specific projects. For example, Kaipatiki has been working with some North Shore schools for the last 2 years, but funding has run out for this and the work cannot continue until more funding is secured. The project's ability to maintain the relationships with schools and offer consistency is therefore undermined. The lack of sustainable funding also undermines the ability of the project to offer sustainable employment. This has an impact on staff retention, project capacity to build and maintain working relationships with stakeholders, and overall project sustainability.

While the project would like to be led by local community needs and aspirations rather than by funding availability, this would ideally involve a comprehensive participatory action research, for which funding is not available.

Networks and support

Kaipatiki has developed strong working relationships and networks with local government, iwi and community organisations. Building community engagement in project activities is an ongoing struggle, and membership levels are low.

Project Publicity

Quarterly newsletters are circulated through schools, community centres and to members. This and the website are the project's only forms of marketing. Lack of avenues for marketing project courses and working bees is a challenge.

⁹ Products or services have been donated by Vero Insurance, Caffè L'Affare, Kathmandu Ltd, Trevor Strong Insurances Ltd, Ecostore, ihug, NativeZ, Rex Hannaford Accounting Services, Dilmah NZ, Recreate, Boughtwood Printing House Ltd, Mad Butcher Albany, Takapuna Distributors, Warehouse Glenfield, and Paper Plus Glenfield.

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Group Activities

Restoration

Restoration involves restoring the Kaipatiki Creek, the Witheford Scenic Reserve, and the forest margins. Kaipatiki has a strong commitment to organic techniques in restoration. This commitment can limit Kaipatiki's ability to work with councils and contractors, but also clearly distinguishes the project from other stakeholders.

One person is employed full-time to manage this restoration work and other projects such as *Nature for Neighbourhoods*. This work involves:

- plant and animal pest control
- re-vegetation – by encouraging natural revegetation via eco-sourced seeds, native planting, riparian planting. Plants are grown in the project nursery for restoration work, and some are donated to schools and other local community restoration projects.

The project runs weekly and monthly working bees, where residents can help out while learning restoration skills.

In 2004, volunteers worked 3675 hours towards the project as a whole. While a small number of people regularly take part in working bees, including individuals and a local IHC group, it is difficult to engage large groups of people for specific projects and working bees.

Streamside planting at Witheford Reserve is a particular focus for the project. A 5-year management plan for this 7-hectare reserve has been developed. Kaipatiki Project has a contract with Infrastructure Auckland to plant and manage 7 riparian sites, and to support streamside planting and education.

The Kaipatiki Project is currently planning a collaborative project with NSCC and other local community organisations to restore Eskdale Reserve. Kaipatiki will facilitate the process, develop planting plans, and coordinate community engagement.

Ecological projects

The project coordinators manage three ecological projects, all of which have overlapping goals. These include:

- Nature for Neighbourhoods
- Kereru Awhina
- Stream to Sea

Nature for Neighbourhoods involves working with North Shore residents who live adjacent to reserves and streams and have existing biodiversity on their properties. Residents receive a 30-minute consultation in their backyard about weed removal priorities and the best natives to plant. Further support is offered through courses and free plants. This project builds capacity within the community to care for the environment and has been effective in getting people engaged in the broader project work. In 2005/06, 2457 native plants were donated to people with properties bordering indigenous reserves.

The Biodiversity Advice Fund has supported the project for the last 3 years and NSCC has also supported the project since 2005. The Eskdale Stream is now categorised by NSCC as Category One stream due to its length and high water quality. The stream runs from Glenfield through to the Oruamu Estuary, is largely unmodified, and is now well shaded by established trees. Plans are currently being developed for collaboration between NSCC, Water Services, and the Kaipatiki Project to monitor and maintain a watching brief on the stream to ensure future development does not have an adverse effect on the stream (storm water focus). This work is taken up voluntarily on behalf of Kaipatiki Project by committee members, as staff are not funded to undertake such work.

Kereru Awhina is aimed at improving kereru habitat in the catchment and raising community awareness of the vital role kereru have in forest ecology as the only remaining bird able to disperse large seeds. Kaipatiki Project has been running this project for the last 4 years, educating people and supporting them to manage pests and to plant trees that attract kereru into urban areas. The Project has worked with four schools on this; teaching children to map foot prints of

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pest animals is particularly popular. A range of strategies have been developed to enhance the survival and prevalence of kereru in the catchment, including surveys of food supply gaps, counts of the numbers of kereru in the reserve, propagation and distribution of suitable native plants, pest control, and public education campaigns.

Stream to Sea was initiated by the Kaipatiki restoration coordinator to educate the public about the connection between urban streams and the quality of the sea and coastal areas. A pamphlet has been produced and circulated via the Sir Peter Blake Trust, aimed at boat owners and at raising community awareness of urban stream care through coverage in local media. The project also involved teaching school groups about urban stream care, assisting schools with stream revegetation projects and providing native plants, plant propagation working bees, as well as facilitation of planting and weeding working bees for community and corporate groups.

Education

Members of the community are engaged in hands-on learning with the aim of empowering people to take action for the environment. An Education Coordinator works with the community in a range of ways, including:

- involvement of community members in restoration work
- educational workshops (sustainable living, tree planting and propagation, composting and worm farming, 'smart' shopping, energy efficiency, and organic gardening)
- presentations to groups
- visits and sessions in local schools and preschools (including local ecology, growing native plants, weeds, streams and their inhabitants, mangroves, kereru ecology, and waste and worms)
- educational bush tours
- night tours of local reserves
- free advice and resources from the environmental centre base
- biodiversity consultations (and free native plants) for urban landowners who live adjacent to native forest remnants or Category A streams in North Shore City.
- conservation week events
- open days at the project centre.

The project is also contracted by Auckland City, NSCC and MCC to provide Create Your Own Eden composting and worm farming courses.

Monitoring

Kaipatiki staff and volunteers do regular monitoring of project progress through local observation. This includes monitoring pest control records, a photographic diary, and canopy surveys (e.g., what food is available for kereru).

NIWA test the stream monthly in specific places where they have put in weirs. Kaipatiki volunteers carry out monthly water quality testing with Wai Care, and make the results available on the project website. The project committee are also taking note of the level of participation and enthusiasm for Wai Care monitoring as a means of finding what people like doing.

Achievements

Environmental

The project won a Ministry for the Environment Green Ribbon Award in 2003 for raising environmental awareness. Kaipatiki staff are now well known across the North Shore for the restoration and educational work they do. Since 1998, over 9000 eco-sourced plants have been planted in riparian areas.

Witheford Scenic Reserve is now greatly enhanced ecologically, and is no longer seen as a dumping ground for rubbish. Monitoring of the Kaipatiki Stream over the last 6 years shows that

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while water quality overall has remained static, clarity and oxygen are improving. This is attributed to effective riparian management, with well-established trees providing shade. Trees have also provided a reliable buffer that stops people from dumping in the stream and reserve.

Social

Since 1999, over 28 000 volunteer hours have been contributed to project restoration and education activities. Since 2001 over 13 000 people have participated in the project's educational programmes. Evaluations have found that 98% of people who undertook composting and worm farming courses on the North Shore have started implementing these approaches at home and report reduced waste to landfill as a result.

Conclusions

What worked well?

- A walk-in service at the project office makes the project and information accessible to the public.
- A very committed project committee and paid staff have helped build project profile and outreach.
- An adaptive management approach to riparian and bush management has been developed, which is important as there are so many factors in the urban environment over which the project has little or no control.
- Controlling weeds and animal pests and then allowing natural revegetation to occur allows natural selection to take place, maintaining in situ biodiversity.
- Some specific plantings have been required to increase diversity of species (e.g., climbers and ferns).
- Environmental education courses are popular and well attended.
- Making the connection between urban environmental management and the quality of beaches and coastal areas via the Stream to Sea project has successfully educated the public, particularly boaties.
- Developing working relationships with NSCC and others in catchment management, when funding is provided to do so.

What were the challenges?

- Wider community involvement and awareness of ecological messages is a struggle to achieve, despite the project being well known. A high project profile can lead to the general assumption that the project is well off and not in need of community support.
- Dispelling the negative image often attached to urban reserves is often seen as unimportant ecologically, and people take little interest in them.
- Lack of sustainable funding, particularly for restoration work and staff wages, undermines the sustainability of the project, and makes it difficult to maintain a healthy working environment for staff.
- Advertising of educational courses and restoration activities is unfunded and this limits community engagement.
- What do people want? Finding courses and restoration activities in which people want to take part.
- Lack of visibility of project office and lack of office space limits outreach and capacity.
- Learning the limits of what the project can offer in terms of ecological restoration advice, planning and implementation. Kaipatiki Project is regularly asked to take part in catchment management planning and implementation but is not funded to do so.

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Project Twin Streams: Opanuku Stream

Context

Scale: Lower Opanuku Stream, Henderson Creek Catchment

Start time: 2006

Receiving environment: Waitemata Harbour

Land Use: mixed low-density urban and semi-rural residential, commercial, industrial.

Identifiers

Location: Henderson

Contact: Annie Cochrane



Opanuku Stream, by Corbans Estate
photo by Stephen Moore

Background

Project Twin Streams (PTS), initiated by WCC in 2003, is aimed at engaging residents in restoring and reclaiming Waitakere's streams as the heart of their neighbourhoods. PTS is being developed in partnership with existing community-based organisations, and currently four community organisations, employing community coordinators, are contracted by the Council to work with residents and groups in their area (situated in Ranui-Massey, Henderson Creek, Opanuku Stream, Glen Eden). The aim is that projects will be based in and managed by the community, thereby drawing on the networks and local knowledge that already exist.

Opanuku Stream, one of the community-based projects, is the object of this case study. The community contract is held by Corban Estate Arts Centre (CEAC), assisted by Waitakere Pacific Arts & Cultural Trust and, in the initial months, the Workers Education Association. A community representative, a past manager of WEA, has replaced WEA involvement in PTS Opanuku Stream.

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CEAC employ a coordinator to engage community groups and individuals in stream restoration along the Lower Opanuku Stream.

Project management

Planning

PTS's vision is to make the health of the environment a part of everyday life and to inspire individuals to make informed decisions that improve their community and environment. The project is based on a community development model and sustainability includes social, spiritual, environmental, economic and cultural elements.

An initial survey was carried out by the PTS Community Broker who began community engagement in the Opanuku Stream area. When the Opanuku Stream Coordinator was appointed in February 2006, this initial work provided a sound understanding of local characteristics, issues and needs.

Relationships were then built with existing community organisations, the PTS structure and vision explained, and reasons for engagement explored with the groups. This was an important step, as reasons differed considerably (see below) and influenced activities. The fact that engagement would be at no cost to the community organisation was an important draw card.

A structured approach to project planning has been developed. Project objectives, deliverables, critical success factors, time frames and results to date have been developed in an accessible format.

WCC is currently developing an Integrated Catchment Management Plan (ICMP) for the PTS catchment as a discharge consent requirement. The ICMP will be aligned with the PTS planning framework, and is an opportune time for residents to have input into this catchment-scale strategic planning.

Organisational Structure

The Project's management group includes the Opanuku Stream Coordinator, the WCC PTS Project Leader – Community, the PTS Community Broker, and representatives from CEAC, Pacifica Arts Centre, and a Community representative. This management group brings community and Council together in a project partnership. The group meet monthly to review and plan project activities.

WCC provides regular environmental training sessions and workshops for PTS coordinators, who also take part in bi-monthly meetings with WCC and Ecowater staff and attend bi-monthly peer supervision. In these ways, coordinators are up-skilled and have opportunities to contribute to environmental practices and discuss relevant issues.

PTS has a further 8 years to run, and community groups are expected to take over project work as the Council phases out involvement. The Opanuku Stream coordinator aims to establish a 'Friends of Opanuku Stream' group as part of PTS in 2007, with representatives from schools, community organisations, local residents, and research scientists. This group could perhaps provide the governance for the project in the long term.

Funding

WCC have formed partnerships with central and regional government to fund a range of programmes until 2012 to enable Waitakere communities to restore their streams. WCC and Eco Water fund PTS, and WCC is the fund holder.

Project Publicity

The Arts Coordinator has organised the display of group art work, and the Opanuku Stream Coordinator has made people's stories available through the media and newsletters. An Opanuku Stream project logo has been created to be used alongside the PTS logo. Two PowerPoint presentations have been developed – one for children and one for adults – to inform people about the PTS Opanuku Stream project.

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Networks and support

WCC has working relationships with Te Kawerau a Maki and Ngati Whatua, tangata whenua for the area. These iwi support PTS and are involved in strategic planning.

Networks have been developed by the PTS Opanuku Stream Coordinator and Community Broker, both of whom have long-term engagement with the community.

Group Activities

The Opanuku Stream Coordinator works with residents, existing community groups and schools on stream restoration. Resources are provided by the project, including plants, tools, refreshments, marketing, and expertise from WCC riparian and arts coordinators.

Since the Opanuku Stream coordinator was appointed in February 2006, the project has held 2 community planting days and coordinated eight locals groups to adopt areas of Lower Opanuku Stream. These groups include the Department of Corrections, local schools, a community health support group, and a business organisation. PTS is funded to work on public land within the 100-year flood plain. Each group has received initial and ongoing on-site education on weed and native plant identification, weed control, planting, and health and safety.

'Adopt a Stream' Groups

Two community workers groups from the Department of Corrections have adopted sections of stream and work on their sections 1 day a week. As a result, these adopted stream sections are showing marked improvements. The Department of Corrections provides consistent high levels of supervision. This, together with the generally strong, healthy capacity of the community workers, has meant that these groups have adopted sites that were steep or overgrown – normally considered too difficult for community groups. The coordinator has found the workers are keen to take on these difficult areas, have become very attached to the area, and take pride in their achievements. Since the involvement of the groups, one group member has gone on to a permanent job and three people have temporary work, all in related environmental management-type work.

Henderson High School and Henderson South Primary have each adopted a section of stream, and the children are involved in planting and weeding. Teachers are reportedly enthusiastic about the project because it meets a range of curriculum requirements and planning and resources are provided by PTS. The focus is on interesting the children in the environment and in taking care of it. They learn about plants, fresh water species, and water quality testing. Arts activities are varied, such as creating ceramic sculptures of native species and kites with environmental messages. 'Kids for Drama' has created a play that includes environmental messages to perform at local schools. The project coordinator has found students to be among the most responsive of all community members – "*they love it*".

Te Ata, a local community health support group, was motivated to adopt a section of stream by a desire to contribute to the community. The group was also attracted by the art activities supported by the arts coordinator; group art activities have included sketching, making ceramic tiles, and creating a sign that identifies and describes the section of stream they have adopted.

Other groups who have adopted sections of stream include Waipareira Alternative Unit, General Electric Ltd, Corban Estate Arts Centre, and Pacifica Arts Centre. Other schools and community groups are involved in the project on a casual basis.

The Opanuku Stream coordinator observed that not many group participants were involved purely for environmental conservation reasons; "*giving something back*" family-friendly activities, community interaction, and arts opportunities were just as important. Care is taken to ensure community groups who have adopted sections of the stream maintain control over what happens on the site. Work is also recognised by way of celebration. Contractors are paid by the Council to spray weeds, but the project coordinator facilitates the relationship between the Council and community groups, which allows community involvement in planning. Vandalism has occurred and is anticipated to be an ongoing problem. In one instance, around 150 plants were pulled out.

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Community Planting Days

Two community planting days have been held at a local neighbourhood scale. These have been developed as community events and include live music, refreshments, art activities coordinated by the Council Arts Coordinator, environmental education displays and discussions, as well as planting. Billboards, flyers and posters were used for marketing, as well as emailing existing networks. Between 100 and 120 people attended the planting days. Most were families, with ages ranging from very young to very old, and many different ethnic groups were present.

The project coordinator finds it easier to focus on working with existing community groups who are keen to undertake restoration. One attempt to engage residents in a small housing development in restoring the local stream area was unsuccessful due to the predominance of rental properties and non-English-speaking new migrants. The project coordinator continues to build the foundations for wider community engagement by informal links and ongoing environmental education. *“There’s got to be something in it for them”* such as activities for children. A number of residents attended the recent Spring Community Planting Day, drawn by locally distributed posters, flyers and billboards, suggesting increasing recognition of project activities.

The Opanuku Stream coordinator is in the process of facilitating two Māori bush craft days with a group of students, led by someone from ARC skilled in Maoritanga. During the course of the day, students will take part in discussions and activities involving Māori relationships with the bush, waterways and native flora and fauna.

Environmental education

Environmental education is integral to all project activities. Two project workshops on specific environmental areas have already been planned. In the course of one workshop, involving the WEA and WCC, participants will be taken on a tour of storm water devices across Waitakere City. A workshop on weed control was held in 2006. A range of on-site educational talks has been held with primary school students on water quality monitoring, stream life, and weed and native plant identification.

Monitoring and evaluation

With a five-pronged vision of sustainability, PTS requires evaluation in all aspects. A formative evaluation framework has been developed (Trotman & Wood 2006) based on a quadruple bottom line approach. The PTS Opanuku Stream Coordinator participated in the development of this framework.

Environmental monitoring includes water testing with Wai Care, and the project anticipates monitoring and evaluation of processes and environmental outcomes will be required and undertaken by WCC. Ideally, this monitoring would have been planned from the outset of the project. For example, flood control is a critical aspect of riparian management, and monitoring is needed to determine whether restoration is making a difference. The number of plants put in the ground has been collated, but survival rates were not recorded until PTS coordinators requested this information – *“It’s how you learn what’s working”*.

Achievements

Environmental

Opanuku Stream groups planted 16 000 plants in 2006. This was part of a total of 77 353 plants put in the ground in the PTS area in 2006. A small number of plants were lost to vandalism, flood damage, and suspected spray damage. Planting is complemented by ongoing riparian management by community groups, with support from contractors.

Economic

Adequate and stable funding for PTS has removed financial barriers and allowed community restoration work to be fully resourced. Community members are required to give only their time and energy. The availability of resources, project planning, expertise and supervision is particularly attractive to existing community organisations seeking worthwhile activities.

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Social

Strong involvement of eight existing community and business groups has been achieved, engaging people of all ages and ethnicities. The Opanuku Project coordinator reported “a great creative energy” was evident in project work, with people taking an increased interest in the stream and creatures and plants in and around it. “People have begun to turn around and face the streams again.”

Groups have celebrated their achievements. For example, the Henderson South Primary group gave a PowerPoint presentation about their achievements at Opanuku Stream at the end-of-year school concert while singing a song about the environment. Based on skills and knowledge developed through project work, four people are in paid employment.

A range of Māori and Pacific cultural practices have been incorporated and celebrated within the project, including art, food, language, and traditional knowledge.

A strong structure and relationship has been developed between the Council and the community through the Opanuku Stream project. The project coordinator reports a “total open door to Council”. The Council now engages community groups in riparian management planning in adopted sites. This is an important shift towards a working partnership between Council and residents, and provides an avenue for the input of people who are passionate about the environment.

Conclusions

What worked well?

- An active partnership between the Council and community organisations has been critical to project success to date. Council overview of PTS as a whole creates connectivity and integration of sustainability activities.
- An initial survey to promote the project and gauge interest, needs and issues.
- Having a paid coordinator has provided the leadership, skills and strong community networks.
- Adequate and stable funding means the project can offer resources and plans for community engagement: this was an important draw card, particularly for schools.
- Corban Estate Arts Centre provides a valuable base for the project and for integration with other local community organisations.
- A committed management team that provides support but allows the project coordinator room to work.
- Arts and Riparian Coordinators from the Council provide a high level of skill, willingness and availability to work with community groups.
- Council training for community coordinators provides excellent learning opportunities.
- Strong tangata whenua and Pacific involvement.
- Engaging existing community organisations has allowed instant access to a large number of participants via their existing networks and client bases.
- Involvement of children and young people through schools provides excellent environmental education opportunities, with great energy coming back to the project from the children.
- A willingness to work flexibly and creatively with community groups, suited to differing levels of availability and skill.

What were the challenges?

- Engaging residents at the street level in restoration and other project activities.
- Maintaining regular engagement with community groups.
- School engagement relies on PTS fitting into the school curriculum; initial contact has been made with the school principal, but an interested teacher is required to be the liaison person.

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- Balancing coordinator activities: reporting, administration and working with community.
- Establishing long-term sustainability of projects through community ownership and community capacity building.
- Provision of environmental monitoring and evaluation that has meaning for residents and Council.
- An Environmental Education Coordinator is needed to collate and make available both existing and new resources.

Australian Case Studies: Public Participation in Stormwater Management

The following are three brief overviews of Australian campaigns aimed at educating and engaging community members on stormwater management. These examples of partnerships between local government and urban communities have relevance for urban sustainability approaches in New Zealand.

Bronte Catchment Project (NSW, Australia)

Overview

This project involved community members and local government in a participatory and reflective learning approach to stormwater management (Source: <http://www.epa.nsw.gov.au/stormwater/casestudies/citizensjury.htm>; Ryan & Rudland 2001; Ryan et al. 2001).

Key activities

- Targeted stormwater education campaigns were developed, implemented and evaluated, based on comprehensive pre- and post-intervention social surveys.
- Installation of gross pollutant control devices.
- Physical and observational monitoring of pollutants and behaviours within the catchments.

Within these four activity areas, the project had four objectives (Ryan et al. 2001):

- To involve the community in stormwater pollution reduction strategies and to evaluate the effectiveness of these strategies on specific groups, land uses and activities.
- To provide quantitative information on the effectiveness of education programs aimed at the residential and commercial stakeholders.
- To develop innovative community education strategies that other councils might adopt.
- To assess the costs/benefits of installing stormwater pollution control devices in small residential catchments.

Participation was enhanced through social research, community development and active learning techniques. Businesses were first engaged with a specific education campaign through a study of business issues, then developed information kits (leaflets, stickers, posters) and environmental achievement awards.

The community education campaign was undertaken at catchment scale. It included an introductory letter, a five-page pamphlet and a catchment-specific postcard sent to over 3000 randomly selected households. Messages included in the campaign included:

- community concerns about local stormwater pollution;
- the impacts of visible, non-visible pollutants, urban design and planning issues;
- source control solutions;
- community participation initiatives.

This project was extremely innovative, using participatory processes including a Citizens Tele-poll and a Citizens Jury to engage residents. Critical to the success of the project was the willingness of community members and local government to work in collaboration, critical reflection on existing and emerging processes and activities related to storm water, and the application of what was learned from these processes to implement activities and education.

External evaluation determined that the project led to changes both in people's attitudes to, and values and knowledge of storm water management, and in self-reported behaviour (Ryan et al.

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2001). For example, pre-testing showed the community considered sewage to be the key water pollutant, but after community educational campaigns, people stressed the stormwater pollution, litter and dumped rubbish. Similarly, before the programme, people nominated builders as those most responsible for causing water pollution, followed by industry, and then by the community. Post-testing showed industry was regarded as most responsible, followed by individuals and the community, suggesting a shift from external to internal and collective notions of responsibility. Overall levels of environmental behaviour improved between pre and post-test surveys.

What was learnt?

- Locality-specific education messages, strategies and resources, e.g., the Bronte street party was an effective way of getting residents to engage with education messages.
- Stormwater education underpinned by research regarding community values, attitudes, concerns and communication preferences.
- Reflexive, research-based approaches.
- Moving beyond consulting the community to participatory processes, thus acknowledging the skills and concerns of residents, and building capacity across the community and local government.

Clean Drains – River Gains

Overview

This project was organised through the South East Regional Centre for Urban Landcare in Western Australia. The aim was to reduce nutrients and other contaminants in receiving water bodies through raising awareness about the link between stormwater drains and natural waterways and providing information on desirable behaviour changes that will reduce stormwater pollution.

Key activities

The community group used a range of methods:

- Developing a stencil with the ‘Clean Drains – River Gains’ slogan.
- Inviting businesses, local governments and community groups to hire the stencils for stormwater drain stencilling.
- Letterbox drops in residential, commercial and industrial areas.
- Displays at community events, shopping centres and libraries.
- Products including posters, postcards, pamphlets, a website, reusable shopping bags and stencils.

(Department of Environment 2005)

What was learnt?

- Using simple, clear messages was effective (Clean Drains – River Gains).
- A range of communication tools extended the project reach in the wider community.
- Partnerships between businesses, local government and community groups were effective in developing locally relevant forms of education.

The SWEEP Project

Overview

Undertaken by the Hastings Council, NSW, Australia, this multifaceted stormwater project entitled **TEAM UP TO SWEEP & MOP (Treat, Educate And Monitor, Urban Pollution, Storm Water Education & Evaluation Program, Maintenance & Operation Procedures)**. The project as a whole

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included an area-wide community education programme, education with the development industry, structural measures to reduce litter and gross pollutants entering waterways, and Best Practice Stormwater Quality Improvement Devices Maintenance & Operations Manual and Training. The community education is the focus of this review (taken from Rudland et al. 2004).

Key activities

The community education programme involved several stages:

- Preliminary catchment analysis to target questions for social research.
- Pre-test social research.
- Education campaign targeting 22 000 households (messages in mail and local papers, posters, cultural development activities through community-based groups) to raise awareness and increase understanding of key catchment connections and water education messages.
- Post-test evaluation – finding increased awareness and statistically significant improvements in knowledge regarding key education messages.

Social research highlighted issues of importance to local residents, including water re-use, and the conservation and quality of drinking water, which highlighted the need to focus on the total water cycle. Council policies and data were then analysed and overlapping concerns and priorities were identified. Education approaches were then developed, some of which are ongoing, including water-wise and water restrictions through Water Supply, City of the Arts initiatives Confluence and Aquasculpture, litter campaigns in urban CBDs, and a regional mass media stormwater campaign.

Institutional changes resulted from the project. Interviews with Council staff indicated the SWEEP project had raised the organisational profile of stormwater and the importance of integrated water cycle management approaches. An Integrated Environmental Education Committee was established within the Council, and senior managers and officers saw the project as the critical driver in shaping key initiatives and future directions for Council.

What was learnt?

- The importance of in-depth planning and research, leading to an education programme grounded in locally specific knowledge and community values and attitudes.
- Strategies need to be informed by current events and issues.
- A collaborative approach within Council is of major importance.
- The importance of using existing reporting mechanisms within Council such as committees, Council meetings, Council newsletter, website, media releases, etc., to inform residents, industry, and Council officers.
- "The cumulative benefits of project learnings and outcomes that support ongoing integrated environmental management and planning" (Rudland et al. 2004, p. 10).

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