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Cover Examining stream invertebrates as part of a SHMAK monitoring.
Photo: NZ Landcare Trust.
Photo design: Greg Kelly

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A message to users of this kit

Some people may find the size of this manual intimidating.

However, the aim of the New Zealand Stream Health Monitoring and Assessment Kit (SHMAK) is to provide methods for monitoring that will enable you to collect scientifically robust data on stream health. This requires that the methods be fully explained so that you can repeat them exactly.

You will probably find that setting up your first site and completing your first data sheets are quite time-consuming tasks that do not seem particularly simple. Subsequent monitoring will be quicker and easier as you become familiar with the methods.

An analogy could be the first time you used a video recorder or microwave oven. Most people find these gadgets complicated initially but, after a few tries, can operate them without thinking about it. We believe that SHMAK is similar: really easy to use once you get the hang of it.

While the methods described in this manual are designed to indicate stream health, they are not designed to indicate whether water is safe for drinking by humans or stock. Such assessments require more detailed bacteriological surveys and should be carried out under the guidance of an Environmental Health Officer.

Finally, a note on using this manual: we suggest that before you do anything else, you read the next section “About the kit” which is a brief explanation of the main ideas behind SHMAK.

Acknowledgments:

New Zealand Stream Health Monitoring and Assessment Kit: Stream Monitoring Manual. Version 1. 1998

Development of the New Zealand Stream Health Monitoring and Assessment Kit (SHMAK) has been a joint project with the main partners being Federated Farmers (principal contributor: Claire Mulcock) and NIWA (principal contributors: Barry Biggs, Cathy Kilroy).

The kit, including this manual, has been produced with funding from the Ministry for the Environment's Sustainable Management Fund.

The following organisations have actively supported the project or provided reviews and/or feedback: Canterbury Regional Council; South Canterbury Fish and Game Council; Otago Regional Council; North Otago Sustainable Land Management Group; Takaka Landcare Group; Christchurch City Council; Northland Regional Council; Taranaki Regional Council; Manawatu-Wanganui Regional Council; Hawkes Bay Regional Council; Waikato Regional Council; Tasman District Council; West Coast Regional Council; Southland Regional Council; New Zealand Landcare Trust; also Andrew Jenks and the HELP project. We have worked with a number of local landcare groups via their regional council, NZ Landcare Trust and other contacts and are grateful for their time and input.

Jim Sinner (farm consultant, Nelson) and James Lambie (formerly Lincoln University) have provided valuable input into the format and content of the manual at various stages in its evolution.

Don Ross (Rural Futures Trust), Ken Gray (Federated Farmers), Helen Moodie (NZ Landcare Trust), Helen Ricketts (NZ Landcare Trust) and Jane Hill (NIWA) have also provided feedback.

Nelson Boustead (NIWA) took most of the photographs. We are grateful to Steven Moore (Otago Regional Council) for permission to use some of his invertebrate photographs.

Formal reviews and other input have been provided by NIWA staff, particularly Drs Alastair Suren, Kevin Collier, John Quinn and Liz Bergey.

Particular thanks go to Drs Rob Davies-Colley and Bryce Cooper (NIWA) for their assistance in the development of the clarity tube.

We are grateful to the numerous individuals and groups – too numerous to list – who have shown so much interest in this project and contributed so much useful feedback.

Preface and acknowledgments: New Zealand Stream Health Monitoring and Assessment Kit: Stream Monitoring Manual. Version 2. 2002

Version 1 of SHMAK – the New Zealand Stream Health Monitoring and Assessment Kit – including the Stream Monitoring Manual, was released in 1998. It was the end result of three years of development that involved a great many organisations and individuals from all over New Zealand – as noted in the original Acknowledgments section (see previous page).

As the project neared its conclusion, the development team began to realise that unless some extra steps were taken, there was a danger that the full potential of SHMAK would not be achieved at a national level. Although the original project did include a component of promoting the use of the kit, this could not be done effectively while the product was still in its development stage. More importantly, encouraging community groups and individuals to take up a tool like SHMAK requires a process of education and raising awareness about its potential. All this was going to take much time and effort. Special skills and knowledge would be needed to build up contacts with the rural communities for which SHMAK was designed, and to introduce the concept of stream monitoring to a wide audience.

For these reasons, the SHMAK team at NIWA joined forces with the New Zealand Landcare Trust, an organisation set up to facilitate the activities of the many landcare groups around New Zealand. Funding from the New Zealand Ministry for the Environment's Sustainable Management Fund provided a further three years in which to introduce SHMAK and promote its use. A third principal project partner was Environment Waikato, who had developed their own "Stream Sense" kit, a system similar to SHMAK, but specially designed for educational use in schools. Northland, Auckland and West Coast Regional Councils, and Christchurch City Council also supported the project, and other councils contributed at later stages.

The project – called "Developing regional and national support networks for SHMAK" (SMF Project No. 2152) – had four objectives:

1. to train regional SHMAK co-ordinators;
2. to design and set up a SHMAK web page;
3. to look for ways of linking with related monitoring and assessment tools;
4. to upgrade SHMAK methods.

This manual is the outcome of Objective 4. The changes and additions have been made as a result of feedback obtained during training sessions and demonstrations, from a review of the training programme, from a questionnaire to purchasers of SHMAK and from observations made as the kit has been used. In addition, NIWA colleagues and others have made many constructive suggestions for improvements on the original version.

We would like to thank the following people and organisations for their contributions to the project:

- New Zealand Landcare Trust, in particular Helen Ricketts, Jim Cotman, Don Ross, Barbara Stuart, Shelley Washington and Don Morrison for their enthusiasm in picking up SHMAK and incorporating it as a part of their services to landcare groups;
- Environment Waikato (Judy van Rossem) for supporting the project financially and logistically;

- Christchurch City Council, West Coast Regional Council and Auckland Regional Council for financial and other contributions as the project was being set up;
- Northland Regional Council, Hawkes Bay Regional Council, Environment Canterbury, Wellington Regional Council and Environment Southland for support and participation during the course of the project;
- Jim Sinner, Barbara Stuart and the Wakapuaka Monitoring Group for setting up and maintaining an ongoing programme of SHMAK monitoring that is providing an excellent model for future use of the system;
- Shaun Ogilvie for introducing SHMAK as a tool for Kaitiaki (SHMAK Version IK);
- Heather Collins (Hawkes Bay) for constructive reviews of the SHMAK training material and courses, and for assistance in structuring the SHMAK user questionnaire;
- Lisa Miller and the team at NIWA Instrument Systems, Christchurch, for their efficient handling of the production, sales and servicing of the SHMAK kits, and also for introducing several improvements to the equipment;
- Rory Butler (Massey University) for developing the SHMAK PAK software;
- John Quinn (NIWA, Hamilton) and the NIWA information systems team for their active participation in promoting and publicising SHMAK;
- Kath MacLeod (NIWA, Hamilton) for poster design and layout.

As with the first SHMAK project, numerous other groups and individuals – too many to list – have contributed to the outcome of the project, including the purchasers of approximately 250 SHMAK kits (at 31 March 2002). We thank all these people for their support.

Visit the SHMAK website at: www.landcare.org.nz/shmak

The contents of this manual can be downloaded from the website, as well as software – SHMAK PAK – for data entry and storage and for calculating and plotting scores.

Please forward any comments on this manual to:

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