Earth Sciences New Zealand

Fisheries Database Documentation Series

'rec_data' database

Prepared for the Ministry for Primary Industries

Version 6.3 (September 2025)

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Revision History

Version	Description	By	Date
1	Initial release	David Fisher	December 1988
2	Added tables t_observer and t_count_codes	David Fisher	May 2001
2.2	Added attributes proj_code to t_survey_codes & survey to t_effort	David Fisher	July 2002
2.2	Corrected section 5 table numbering	David Fisher	June 2003
3	Added Appendix 2 of Empress data types. Added comments attribute to t_survey_codes. alter t_effort.locality from char 40 to char 60. Added dist attribute to t_interview. Changed t_length.lgth from integer to decimal(4,1) and added attribute lgth_code.	David Fisher	December 2003
4	Completely restructured the t_response table so the natural key is now (survey, resp, year_s, month_s). Added weighting attribute to t_response table. Added width_meas attribute to t_length table	David Fisher	June 2004
5	Restructure of the t_observer table and added t_obs_count table. Added int_before attribute to t_interview Added maps to Appendix	Christopher Dick	November 2006
5.1	Added paragraph re t_observer and child tables Updated some references.	David Fisher	April 2007
5.2	Documented t_response.weighting better. Updated the comments for attribute id. Added map to Appendix.	David Fisher	January 2008
5.3	Updated comments for attribute trip_no in t_effort and t_catch tables	David Fisher	June 2008
5.4	Added maps for fish_loc 's on west coast North Is	David Fisher	August 2008
5.5 -5.6	Updated codes in Appendix, including t_boat_codes	David Fisher, Christopher Dick	January 2011
5.7	Added map to Appendix, for survey CHT08. Updated codes in Appendix, including age_gp & ethnic.	David Fisher	March 2012
5.8	Altered age_gp to store the age groups un-coded.	Brian Sanders	August 2012
5.9	Added t_effort.launch_site & charter plus t_catch.pers_com_cust	Fred Wei	December 2014
6.0	Postgres version, plus added date_s and date_f to t_survey_codes. Rename t_effort.craarea to cra_area & scaarea to sca_area.	David Fisher	November 2015
6.1	Added depth to t_interview, increased t_survey_codes.proj_code to 32 chars	David Fisher	September 2019
6.2	Added t_length.comments column	Jeremy Yeoman	July 2020

6.3	Format updates to entire document, including migration of document to new template. Updated references where NIWA to Earth Science NZ. Renamed t_interview ethnicity column and updated column description. Added bird_hook_site reference code definitions to Appendix 2.	Lydia Hayward	September 2025

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1 Introduction to the Database Document series

The New Zealand Institute for Earth Science Ltd (Earth Sciences NZ) (previously National Institute of Water and Atmospheric Research (NIWA)) currently carries out the role of Data Manager and Custodian for the fisheries research data owned by the Ministry for Primary Industries (MPI) (formerly the Ministry of Fisheries).

This MPI data set, incorporates historic research data, data collected by MAF Fisheries prior to the split in 1995 of Policy to the Ministry of Fisheries and research to NIWA/Earth Sciences NZ, and data collected by Earth Sciences NZ and other agencies for the Ministry of Fisheries and subsequently for MPI.

This document describes the recreational fishing database **rec_data**, and is part of the database documentation series produced by Earth Sciences NZ. It supersedes the previous documentation by Fisher (1998)[1] including interim revisions on this database.

All documents in this series include an introduction to the database design, a description of the main data structures accompanied by an Entity Relationship Diagram (ERD), and a listing of all the main tables. The ERD graphically shows the relationships between the tables in **rec_data**, and the relationships between these tables and other databases.

This document is intended as a guide for users and administrators of the **rec_data** database.

This database has been implemented as a schema within the Postgres database called **fish**.

Any requests for data should in the first instance be emailed to the Ministry for Primary Industries at rdm@mpi.govt.nz.

2 Recreational fishing data

2.1 Data sources

The **rec_data** database is designed for data from a range of recreational fishing surveys. In 1991, MAF Fisheries initiated marine recreational fishing catch and effort diary surveys and boat ramp surveys.

The first diary survey, in 1991-92, was of fishers living in the South region, (Bell *et al* 1993,) the second, in 1992-93, was of fishers living in the Central region (Ryan *et al*), and the third, in 1993-94, was of fishers living in the North region (Bradford 1996). A national survey was run in 1996 (Bradford 1998, Bradford *et al* 1998) and another in 2000. Local diary surveys have been conducted in areas including Patterson Inlet at Stewart Island, Akaroa, Bluff and Otago harbours, Fiordland, Kaikoura, Wellington and Marlborough.

The first boat ramp survey in 1990-91 was of fishers started in the North region (Sylvester 1993), followed by the Central region in 1992-93 (Ryan *et al*), the North region in 1994, and nationally in 1996 (Hartill *et al* 1998) and 2000.
A boat ramp survey was also conducted at a small number of locations in 1998 in the North region. Other regional boat ramp surveys have also been conducted in areas including Kaikoura, Marlborough and Maketu. Boat ramp surveys have been run regularly in the north region since 2000.

[1] Fisher, D.O. 1998: Database documentation: rec_data. *NIWA Internal Report No. 41. 47p.*

Data from shellfish harvest surveys at sites from December 1997 in the North region are also held in this database. (For a more detailed list of the surveys, refer to Appendix 2.)

Data are derived from 2 main sources: boat ramp and diary surveys.
For the boat ramp surveys the top-level unit of sampling is a session, where an interviewer meets the fishers at the completion of their fishing trip at the boat ramp or beach. For each group or boatload of fishers intercepted, information including the time of the intercept is recorded. Assuming the group have been fishing as opposed to other activities, and that they agree to be interviewed, then details of the fishing effort of the individual fishers, including method used and location fished are recorded. Details of the length of species landed are recorded along with counts of the number of fish.

Shellfish harvest surveys are conceptually regarded as analogous to the boat ramp surveys.

Observer surveys are regarded as similar to the boat ramp surveys; however, fishers are not interviewed but indicators of fishing effort are counted, e.g., boats, buoys, kayaks or people fishing.

The diary surveys were mostly preceded by a telephone or intercept survey, that collected details of the diarists fishing practices in the last year and personal details including age and sex. The basic unit of fishing effort is a trip by a diarist or respondent. The trip data (which includes: the date of the trip, where fished, by what method, and for how long) was supplied by the diarists on a trip record form by return envelope through the post. These data include details of the catch including species and numbers caught. Note that one trip by a diarist on one day may be recorded as 2 or more trips on the database; if, for example, the diarist used 2 or more fishing methods that day. A subset of diarists in the national 1996 survey also filled out details of the length of snapper, kahawai, and blue cod from their catch. Some diarists from the Kaikoura survey also recorded the length of fish from their catch.

2.2 Data validation

While the **rec_data** database enforces data validation and integrity rules with the use of referential constraints and range checks, the data go through a rigorous data validation and error checking process before being entered.

This process includes simple data validation using **Perl** language scripts, followed by inserting data into a loading database where further checks are carried out using SQL (Structured Query Language). See Appendix 1 for a more detailed description of the processes involved.

3 Data Structures

3.1 Table relationships

This database contains several tables in 2 conceptually distinct schema for the boat ramp and diary surveys. The ERD for **rec_data** (Figure 1) shows the logical structure[2] of the database and its entities (each entity is implemented as a database table), and the relationships between these tables and tables in other databases. This schema is valid regardless of the database system chosen, and it can remain correct even if the Database Management System (DBMS) is changed. The ERD's in this document show attributes within the tables with generic data types.

Each table represents an object, event, or concept in the real world that has been represented in the database. Each attribute of a table is a defining property or quality of the table. All the table's attributes are shown in the ERD. The underlined attributes represent the table's primary key[3].
Note that Figure 1 shows the main tables only. Several of the tables in the **rec_data** schema have foreign keys[4], which contain standard Earth Sciences NZ/MPI fisheries codes, such as species. Foreign keys not only define the relationships between the tables in **rec_data** but also provide links to the **rdb** (research database) schema which contains the definitive list of these standard codes, e.g., species codes. An ERD for these tables (Figure 2) shows the relationships between **rec_data** and **rdb**.

All tables within separate schemas, such as those in **rdb**, are shown in the ERDs as being enclosed in dashed-line boxes.

The **rec_data** database is implemented as a relational database, i.e., each table is a special case of the mathematical construct known as a *relation* and hence elementary relation theory is used to deal with the data within tables and the relationships between them. There are three types of relationships possible between tables, but only one exists in **rec_data:** one-to-many[5]. These relationships can be seen in ERDs by connecting a fork[6] (indicating 'many') from the child table, e.g., *t_group*, to the parent table, e.g., *t_session*, with a single line (indicating 'one') pointing to the parent.

Every relationship has a mandatory or optional aspect to it. That is, if a relationship is mandatory, then it has to occur at least once, while an optional relationship might not occur at all. For example, in Figure 1, consider that relationship between the table *t_group* and it's child table *t_interview.* The symbol 'o' by the child *t_interview* means that a group record can have zero or many interview records, while the bar by the parent *t_group* means that for every interview there must be a matching group record.

[2] Also known as a database *schema.*
[3] A primary key is an attribute or a combination of attributes that contains an unique value to identify that record.
[4] A foreign key is any attribute, or a combination of attributes, in a table that is a primary key of another table. Tables are linked together through foreign keys.
[5] A one-to-many relationship is where one record (the *parent*) in a table relates to one or many records *(the child*) in another table; e.g., one session in *t_session* (the *parent*,) can have many groups in *t_group* (the *child*) but one group can only come from one session.
[6] Known as a 'crows foot'

These links are enforced by foreign constraints[7]. Constraints do not allow *orphans* to exist in any table, i.e., where a child record exists without a related parent record. This may happen when: a parent record is deleted; the parent record is altered so the relationship is lost; or a child record is entered without a parent record. Constraints are shown in the table listings by the following format:

Foreign-key constraints:
"foreign key name" FOREIGN KEY (attribute[,attribute]) REFERENCES
parent table (attribute[, attribute])

Note that the typographical convention for the above format is that square brackets [] may contain more than one item or none at all. Items stacked between vertical lines | | are options of which one must be chosen.

For example, consider the following constraint found in the table *t_length*:

Foreign-key constraints:
"fk_t_length_species_master" FOREIGN KEY (species) REFERENCES species_master(code)

This means that the value of the attribute *species* in the current record must already exist in the parent table *species_master* of the **rdb** database or the record will be rejected and the following message will be displayed:

ERROR: insert or update on table "t_length" violates foreign key constraint
"fk_t_length_species_master"

For tables residing in other schemas, the parent table name may be prefixed by the name of the schema.

Section 5 lists all the **rec_data** tables as implemented by the Postgres RDBMS. As can be seen in the listing of the tables, each table has a primary key on it. Primary keys are generally listed using the following format:

Indices: index_name PRIMARY KEY, btree (*attribute* [*, attributes*])

where attribute(s) make up the primary key and the index name is the primary key name. These prevent records with duplicate keys from being inserted into the tables; e.g., a record with a response number (*resp*) for that survey, in *t_phone*.

The database listing shows that the tables also have indices on many attributes. That is, attributes that are most likely to be used as a searching key have like values linked together to speed up searches. These indices are listed using the following format:

Indices: index_name btree (*attribute*)
eg.
Indexes:
"nx_t_session_ramp" btree (ramp)

Note that indices may be simple, pointing to one attribute or composite pointing to more than one attribute.

[7] Also known as integrity checks or referential constraints.

3.2 Database design

The structure of **rec_data** has 2 parallel branches of tables, which share some common code tables. The two 'branches' hold data on the 2 main survey types, boat ramp and diary surveys. The boat ramp tables also contain data from shellfish harvest surveys and observer surveys. In some years both boat ramp and diary surveys were conducted, for example 1996 when a national survey was conducted, or 1994 in the North region. In other years only one type of survey was conducted (in that region); for example, the North region boat ramp survey in 1991, or the South region diary survey in 1992.

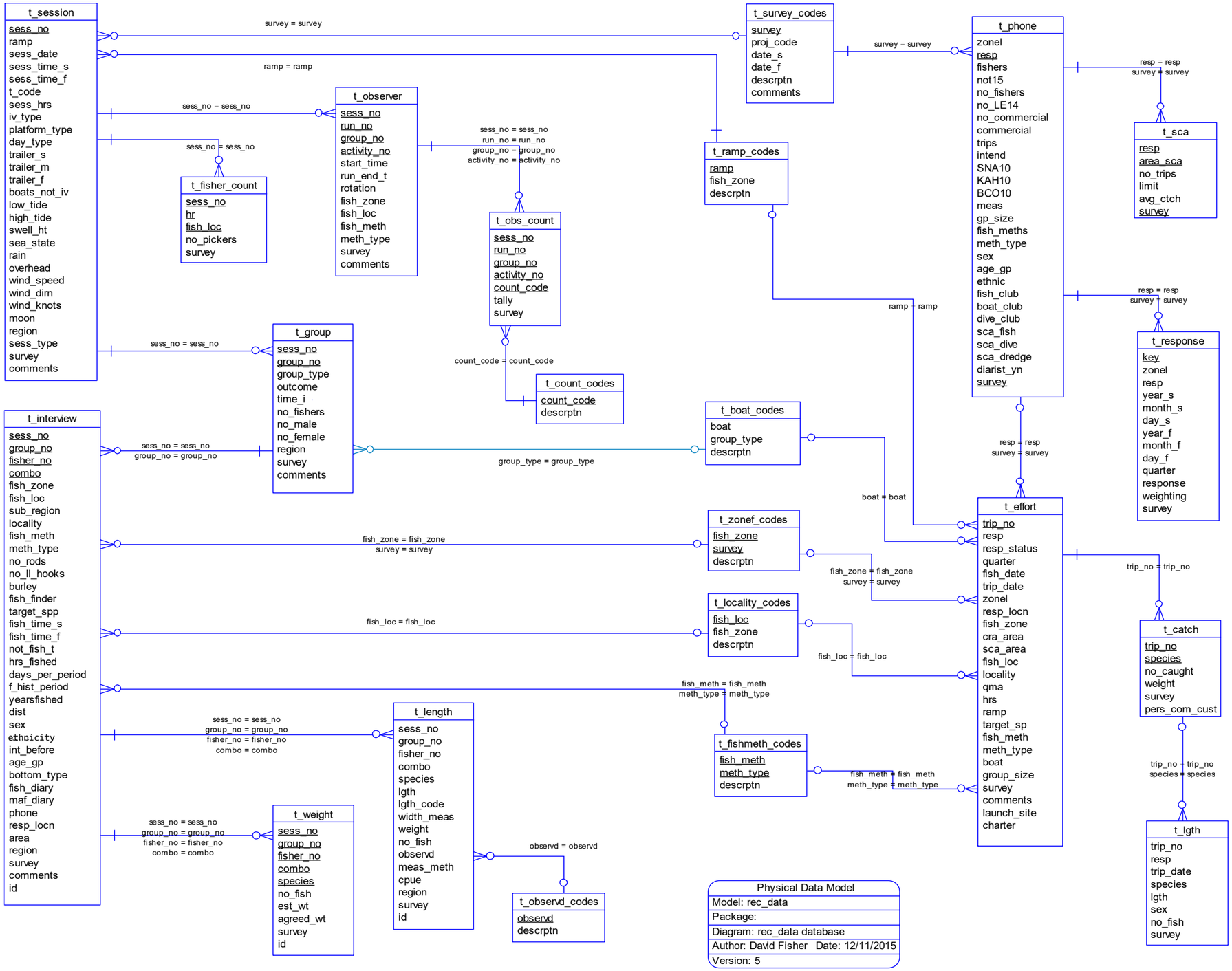

Figure 1: Entity Relationship Diagram (ERD) for the rec_data database.

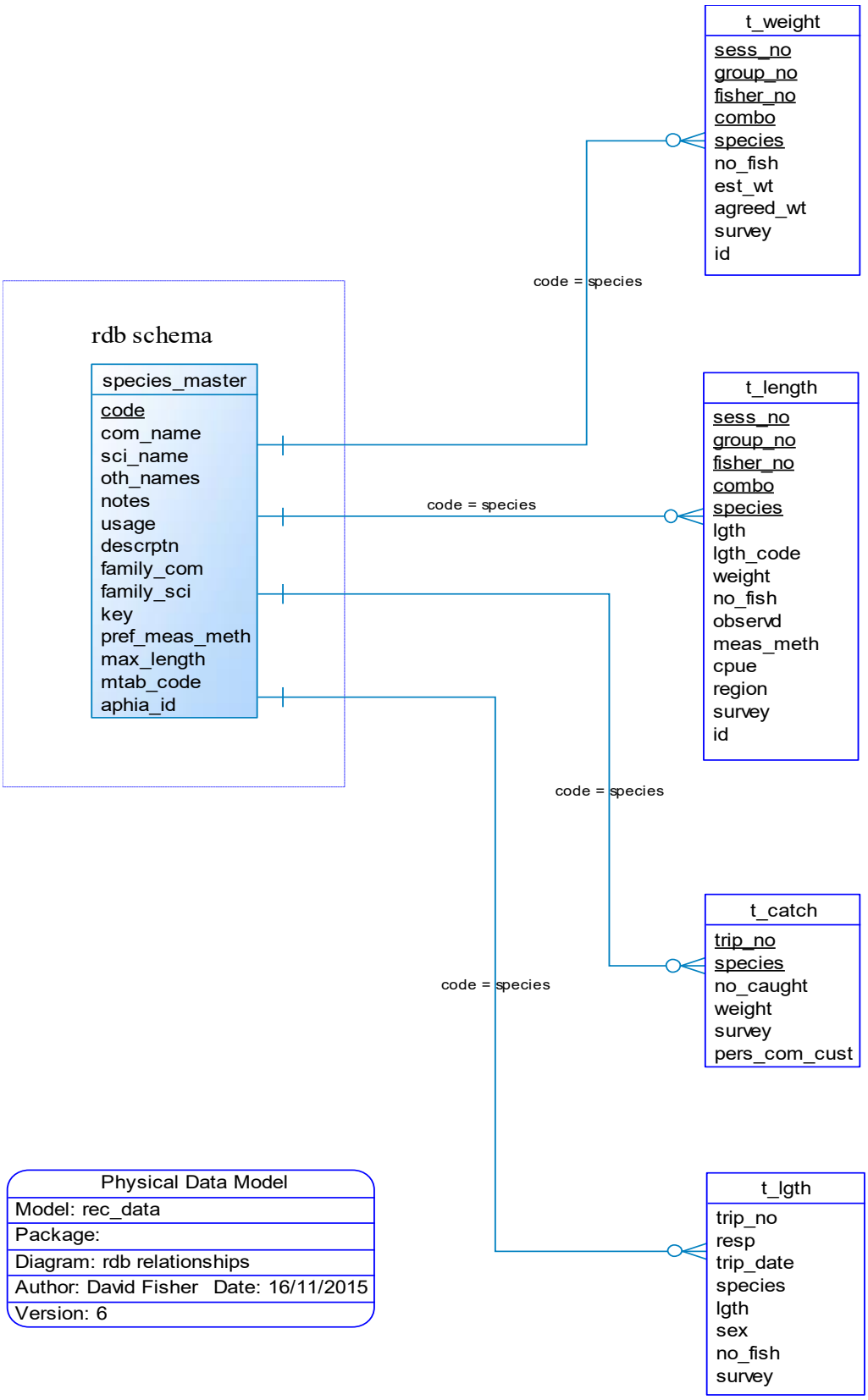

Figure 2: ERD showing the relationships between the tables t_weight, t_length, t_catch, and t_lgth, and species_master in the **rdb** database.

3.2.1 Boat ramp and shellfish harvest tables

The ERD for these surveys is shown in Figure 3. For the boat ramp data the top-level table is *t_session* (Table 1, section 4.1). This holds information for each session at a boat ramp or beach etc. A session number, represented by the attribute *sess_no*, which is also the table's primary key, identifies each record. This session number is a unique computer generated number assigned to each session at the time of loading the data to the **rec_data** database. The attribute *survey* is a foreign key that provides a link to *t_survey_codes*, and which can be used to distinguish shellfish harvest surveys from other surveys.

For the shellfish harvest data only, during the session, hourly counts were made of the number of pickers (or fishers) harvesting shellfish within the spatial strata into which the beach was divided. These data are stored in the table *t_fisher_count* (Table 2), with a primary key of *sess_no, hr,* and *fish_loc.* This table is a 'dead end branch' of the database structure; i.e., it has no child records. NB: The stratum number (i.e., 'Strata No.' as labelled on the data form) is recorded in the attribute *fish_loc* in the tables *t_fisher_count* and *t_interview* for the shellfish harvest data.

For each session, details about the group intercepted are stored in the table *t_group*, (Table 3) with a primary key of *sess_no* and *group_no*. Provided the interviewer is not busy interviewing another group, then the group is asked if they have been fishing, and if so if they consent to be interviewed. The intercept outcome; i.e., if the group were interviewed, not interviewed, or were engaged in other activities (water skiing, picnicking etc), is recorded along with the group type - namely the type of boat, or shore fishing. For most surveys the intercept time is recorded. This is defined as the time the group arrived at the boat ramp, or when the shellfish harvesters come off the beach.

Each interview from the group is stored in *t_interview*, with the attributes *fisher_no* and *combo* added to the primary key of *t_group* to become the primary key of this table. For the boat ramp surveys the interviews are conducted with each fisher separately, hence the attribute for fisher number. With the shellfish harvest surveys, the interviews are conducted with the group as a whole, and not separately by each fisher, and so a fisher number of -1 is assigned to these records.

The attribute *combo,* in conjunction with other attributes, is used to generate a primary key for interview records where a fisher used more than 1 combination, of target species, fishing method or location. For example, a fisher may have fished in the morning targeting snapper, and then in the afternoon targeted kahawai. Most fishing trips (i.e., 80-90%) are fairly standard and do not involve more than 1 combination. For the national 1996 boat ramp survey the combo was recoded as part of the checking and formatting process so that combo=A became combo=1, combo=B became combo=2 etc.

For the shellfish harvest survey data, an interviewer usually estimated and weighed the catch of each species harvested and these data are stored in the table *t_weight.* Species is added to the primary key of *t_interview* to create the primary key for *t_weight.* For the Kaikoura survey, catches as recorded at the boatramp are stored in *t_weight*.

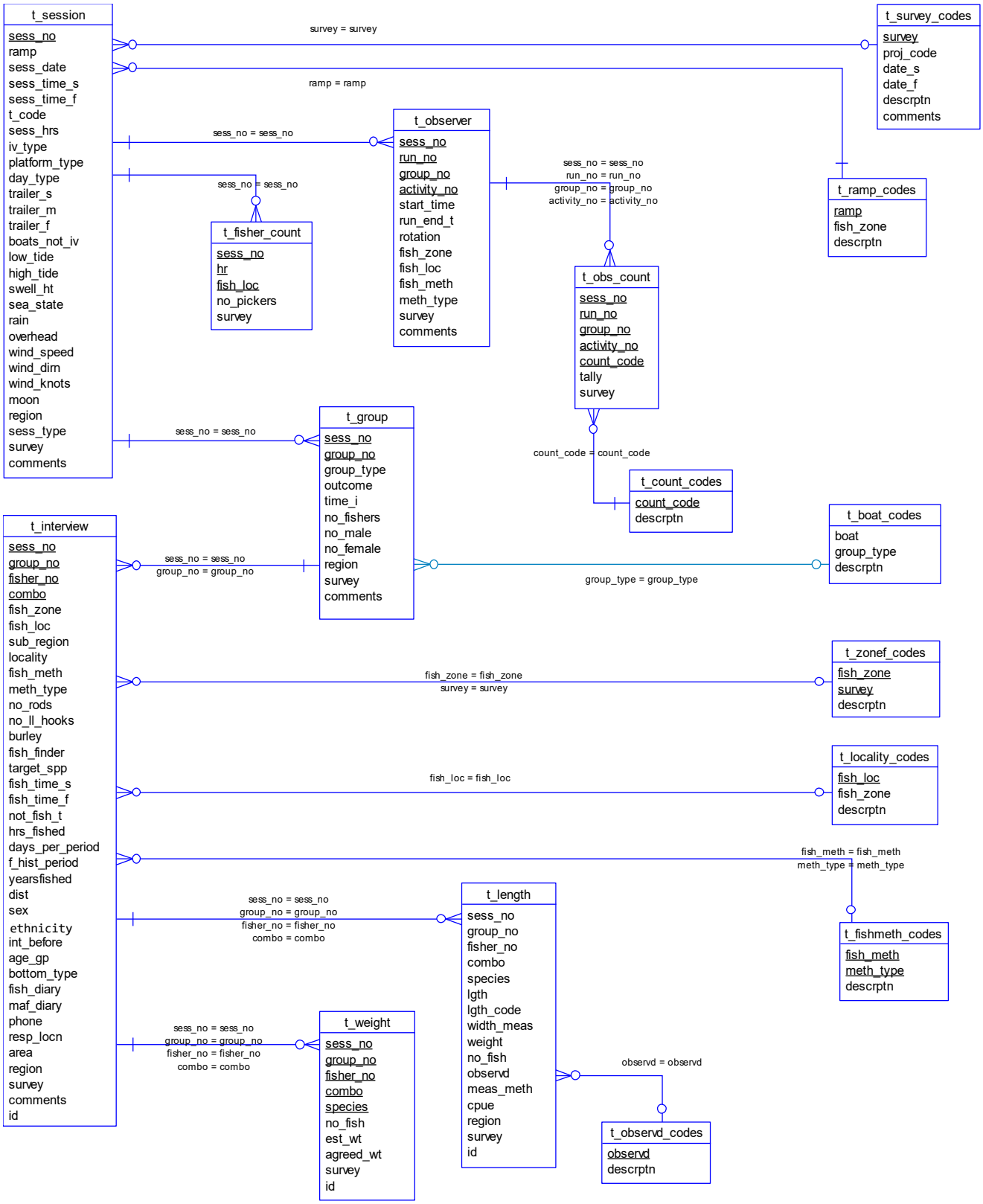

Figure 3: ERD for the boat ramp and shellfish harvest surveys

Some recreational surveys included observations of fishing activity as part of the survey design. These observations were typically made from a distance, such as from an aircraft, a hill top or the coast observing fishing activity at sea. These observations have been made for surveys including those with the *survey* codes NOR94, KAI99, OTG01, KAI03 and STI03. Details of these observations are stored in the table *t_observer*. The table *t_obs_count* records the counts of respective fishing active in the attribute *tally*. The table *t_count_codes* describes the attribute count_code in table t_obs_count, that is, the particular fishing activity being counted.

For both boat ramp and shellfish harvest data, individual fish or shellfish may be measured for length, or simply counted for some boat ramp data records, for example, if the fish was headed and gutted (see the attribute *observd* which is a foreign key to *t_observd_codes,* for the state of the fish recorded). These length or species count data are stored in the table *t_length* which does not have a primary key. The conceptual primary key would be *sess_no, group_no, fisher_no, combo, species, lgth,* and *observd.* As the attribute for fish length, *lgth* may legitimately be null if a species is only counted, it is not possible to enforce a primary key. This table holds individual weights for fish from the North region 1994 boat ramp survey.

3.2.2 Diary survey tables

The ERD for the diary surveys is shown in Figure 4. For these surveys, the table *t_phone* is the top-level table, which has a primary key of *survey* and *resp* where *resp* is the (potential) diarist's respondent number. This table includes details about the person's fishing practices over the past year and demographic details including their sex, age, and ethnic group.

For the Central region diary survey in 1993 a supplementary telephone questionnaire was used asking details about scallop fishing. These data are stored in the table *t_sca.*

The table *t_response* holds data for the response status of each respondent; i.e., if the diarist went fishing in the quarter concerned etc. The primary key for this table is *key*, with a natural primary key of *resp, survey, year_s, month_s* and *day_s*. This table includes a *weighting* attribute, added for the NAT00 and NAT01 surveys. For these 2 surveys this *weighting* value represents how many thousands of fishing diary equivalents that diary represents. This incorporates a "fisher entry factor", which estimates the additional harvest by fishers who started fishing during the survey year. Harvest estimates for a given diary period are calculated by multiplying each diarists catch by that diarist's weighting (x 1000 as the weighting factor is an estimate of how many thousands of fishing diary equivalents that diary represents) and then summing the weighted catches of all diarists to obtain an estimate for that fishery for the period that the t_response record relates to. E.g. quarterly in NAT00 and monthly in NAT01.

The main diary survey table is *t_effort*, which has a primary key of *trip_no*. The trip number is an unique computer generated number assigned at the data checking and formatting stage. This table has four foreign keys to code tables in this database, all of which are shared with the boat ramp table structure.

The effort comprising a fishing trip may result in a catch, the results of which are stored in *t_catch.* Species is added to the primary key of *t_effort* to become the primary key for this table.

For the national 1996 diary survey a subset of diarists were asked to measure their catch of snapper, kahawai, and blue cod. These lengths are stored in *t_lgth*. Since the diarists were only asked to record the date of the trip that caught these species measured, and as some diarists occasionally make 2 or more 'trips' per day; e.g., by using different methods, it was not always possible to assign a trip number to records in *t_lgth.* Hence this table does not have a primary key, and there are some orphaned records in this table. Most records have a trip number assigned and can be joined to t_catch using the attributes

trip_no and *species,* or *trip_no* to join to records in *t_effort.* The diarists in the Kaikoura survey also recorded lengths of their fish which are stored in *t_lgth*.

There are a number of views particularly of the tables *t_effort* and *t_catch,* with more or less 1 view per survey on each of these 2 tables. For example, *v_sou92_effort* filters the records of *t_effort* for those records where *survey* = 'SOU92'. With *v_sou92_catch* providing the corresponding filter for the catch records. Similar views exist for the Central, North, and national surveys. These views only show the data available for any particular survey; i.e., they exclude attributes for which there are no data. For example, the attribute *SCAarea* is only shown in the CEN94 view, as this survey is the only one that collected these data.

Users are recommended to use these views, particularly if they want to extract data from one of these diary surveys, as these views in some cases also filter out records that are generally invalid for analysis; e.g. outside the date range.

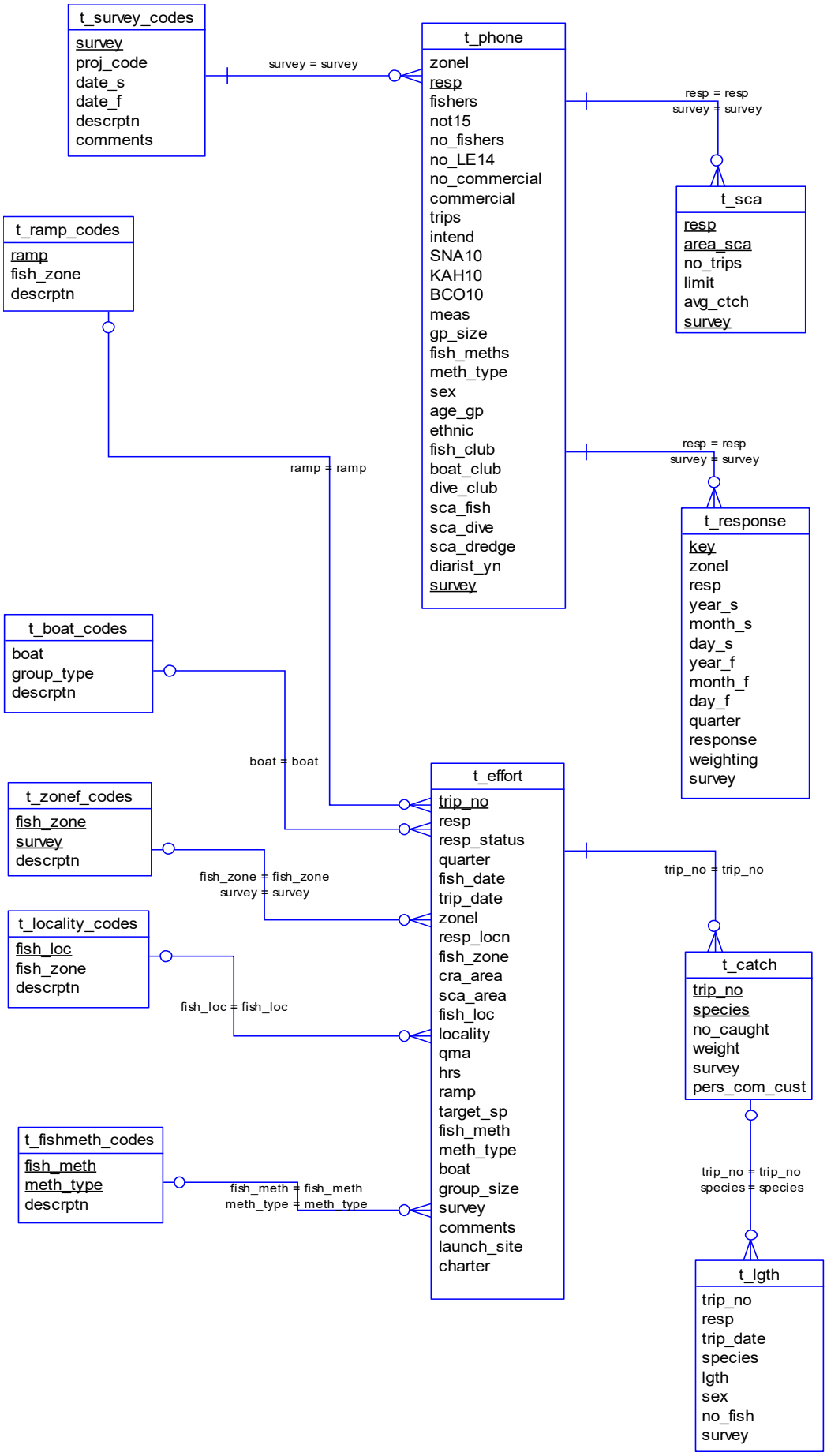

Figure 4: ERD for the diary surveys

3.2.3 Common code tables

Both table structures share 6 common code tables that define the codes used for the respective attributes in the main data tables. The table *t_survey_codes* describes the codes used for the attribute *survey.* The *survey* code is typically comprised of 3 characters for the region or area followed by 2 numbers for the year. For surveys spanning 2 calendar years the year is typically that with most months surveyed, eg survey 'NOR04' was in the north region from December 2003 to November 2004.

The table *t_zonef_codes* defines the *fish_zone* attribute in *t_effort* and *t_interview.* These fishing zones were defined for each diary survey, as subdivisions of Quota Management Areas (QMAs). These fishing zones were often assigned in each corresponding boat ramp survey where applicable. See Appendix 3 for maps of the fishing zones as used in the various surveys.

The table *t_locality_codes* holds descriptions and the *fish_zone* for the attribute *fish_loc.* This attribute is a 3-character code used to assign fishing locations, mostly by boat ramp interviewers, to small sections of coastline. Some of the trips in the national 1996 diary survey were assigned to a *fish_loc* based on the fishing locality descriptions given by the diarists.

The various surveys have led to the creation of several fishing method coding series, which are documented in *t_fishmeth_codes*. The attribute *meth_type* identifies which coding series is used for each fishing method as stored in the attribute *fish_meth*. The North region boat ramp surveys have used 2 character codes for *fish_meth*, while most of the other surveys have used a 2 numeric code. The North region diary survey separated the boat type out from the fishing method and recorded this separately (in *t_effort.boat*) whereas most method types include boat as part of the fishing method.

The table *t_ramp_codes* has the description for each ramp code, and the fishing zone from the national 1996 survey in which each ramp is located. This table documents the *ramp* attribute in the tables *t_session* and *t_effort.* For the North region boat ramp surveys a series of 2 character codes were used. These codes represent a coastal location with most of these 2 character codes representing boat ramps. A small number of codes are specifically for marinas. For the shellfish harvest survey 'ramp' codes were assigned to beaches surveyed. An additional attribute, *iv_type* in *t_session* has codes for: ramp, beach, roving boat, other, or marina as 1 to 5 respectively. For the national 1996 diary survey diarists were asked to specify the 'boat departure point'. This description was assigned to a 'ramp' code, either one of the existing 2 character codes from the North region or a new 3 character code.

The table *t_boat_codes* documents the codes used with the attributes *boat* and *group_type*. Most of these codes have a 1 to 1 relationship between *boat* and *group_type*. The attribute *boat* describes the boat type used in the diary survey, currently only for the NOR94 survey. The boat type has been combined with the fishing method in other surveys. The attribute *group_type* describes the boat type, or if shore fishing, for the boat ramp surveys.

4 Table Summaries

The **rec_data** database has 12 main tables containing data, plus additional tables documenting the codes used in the database. There are a number of views of the tables *t_effort* and *t_catch* which show the data from individual surveys. The following is a listing and brief outline of the tables contained in **rec_data**.

4.1 Boat ramp and shellfish harvest tables:

1. **t_session** : contains details of location, date, time, and environmental data regarding a session, recording details of fishers returning from a fishing trip.
2. **t_fisher_count** : contains counts of the number of fishers collecting shellfish on areas of the beach for a shellfish harvest survey.
3. **t_group** : contains details about the boat or group of people including if they were fishing.
4. **t_interview** : contains details from an interview with the fisher(s) including fishing effort, method, demographic and area information.
5. **t_weight** : contains the weights of the species caught in a shellfish harvest survey.
6. **t_length** : contains lengths or counts of fish caught or shellfish harvested by the fisher being interviewed.
7. **t_observd_codes** : documents the observed codes used in the attribute *t_length.observd*.
8. **t_observer** : contains details about observations of fishing activity including fishing location.
9. **t_obs_count** : contains counts of observations of fishing activity in the table *t_observer*.
10. **t_count_codes :** describes the codes used for attribute count_codes in table t_obs_count.
11. **t_ctch_cen93 :** contains catch details by species for the CEN93 survey.
    These data were collected in a different format (e.g., the weights are total catch weights).
12. **t_len_cen93 :** contains fish lengths from the CEN93 survey.
    These data were collected in a different format.

4.2 Diary survey tables:

1. **t_phone** : contains the data from the initial telephone or intercept questionnaire, including details of their fishing practices, age and sex.
2. **t_sca** : contains details of the respondent's recent scallop fishing trips. Currently for the Central region survey only.
3. **t_response** : contains response status details for each respondent for each quarter of the year; i.e., if they made any fishing trips or not, and whether contact had been maintained.
4. **t_effort** : contains fishing effort information by trip for each respondent.
   (a) **v_cen93_effort** : a view of effort data where *survey* = 'CEN93'[8].
   (b) **v_cen94_effort** : a view of effort data where *survey* = 'CEN94'.
   (c) **v_nat96_effort** : a view of effort data where *survey* = 'NAT96' *and resp not in (3578, 3579, 47, 446, 1215, 1249) and fish_date like '%96'*.

[8] See Appendix 2 for an explanation of the *survey* codes referred to above.

(d) **v_nat97_effort**[9] : a view of effort data from the national survey in 1997, where *survey* = 'NAT97' and *fish_date like '%97*'.
(e) **v_nor94_effort** : a view of effort data where *survey* = 'NOR94'.
(f) **v_sou92_effort** : a view of effort data where *survey* = 'SOU92'.
(g) **v_sou93_effort** : a view of effort data where *survey* = 'SOU93'.

5. **t_catch** : contains the number of the species caught and for some surveys the weight.
   (a) **v_cen93_catch** : a view of catch data where *survey* = 'CEN93'.
   (b) **v_cen94_catch** : a view of catch data where *survey* = 'CEN94'.
   (c) **v_nat96_catch** : a view of catch data where *survey* = 'NAT96'.
   (d) **v_nat97_catch** : a view of catch data where *survey* = 'NAT97'.
   (e) **v_nor94_catch** : a view of catch data where *survey* = 'NOR94'.
   (f) **v_sou92_catch** : a view of catch data where *survey* = 'SOU92'.
   (g) **v_sou93_catch** : a view of catch data where *survey* = 'SOU93'.

6. **t_lgth** : has the length of selected diarists catches, initially of snapper, kahawai, and blue cod from the national 1996 survey. Data from the survey 'KAI99' is also included in this table

4.3 Shared code tables:

1. **t_survey_codes** : documents the codes used in the attribute *survey.*
2. **t_zonef_codes** : lists the fishing zones as defined for the diary surveys.
3. **t_locality_codes** : describes the area codes used in the attribute *fish_loc* for fishing locality.
4. **t_fishmeth_codes** : documents the fishing method codes used.
5. **t_ramp_codes** : lists the codes used for boat ramps, beaches, and boat departure points used by fishers.
6. **t_boat_codes :** lists the codes used for the attributes *boat* and *group_type.*

[9] For those respondents in the 1996 national diary survey who were not valid continuing diarists in 1997, the survey attribute has been set to 'NAT96' in *t_effort* and *t_catch* to exclude these records from *v_nat97_effort*.

5 rec_data Tables

The following are listings of the tables in the **rec_data** database, including attribute names, data types (and any range restrictions), and comments.

5.1 Boat ramp and shellfish harvest tables:

5.1.1 Table 1: t_session

Comment: Boat ramp or shellfish harvest session.

Column	Type	Null?	Description
sess_no	integer	No	Session number.
ramp	character varying(3)	No	Code for boatramp or beach etc where the session was conducted, refer t_ramp_codes.
sess_date	date	No	Session date.
sess_time_s	smallint		Session time start (24 hour, HHMM format).
sess_time_f	smallint		Session time finish (24 hour, HHMM format).
t_code	character varying(1)		Time of day code.
sess_hrs	numeric(4,2)		Length of the time period in decimal hours covered by this session.
iv_type	character varying(1)		Interview type: 1=Ramp, 2=Beach, 3=Roving boat, 4=Other, 5=Marina.
platform_type	character varying(1)		Platform the session was conducted from: A=Aircraft, B=Boat, L=Land.
day_type	smallint		Day type: 1=Weekend or Public holiday, 2=Weekday, 3=Contest or competition
trailer_s	smallint		Number of trailers at start.
trailer_m	smallint		Number of trailers in the middle of the session.
trailer_f	smallint		Number of trailers at finish.
boats_not_iv	smallint		Number of boats not interviewed.
low_tide	smallint		Time of low tide.

high_tide	smallint	Time of high tide.
swell_ht	numeric(2,1)	Swell height in metres.
sea_state	smallint	Sea conditions, refer to Appendix 2 of the database documentation for the codes.
rain	smallint	Rain code, refer to Appendix 2 of the database documentation for the codes.
overhead	smallint	Overhead conditions, refer to Appendix 2 of the database documentation for the codes.
wind_speed	smallint	Wind speed, refer to Appendix 2 of the database documentation for the codes.
wind_dirn	smallint	Wind direction, refer to Appendix 2 of the database documentation for the codes.
wind_knots	numeric(3,1)	Wind speed in knots.
moon	smallint	Moon phase.
region	character varying(1)	Survey base region: N=North ie Auckland, C=Central & South ie the rest.
sess_type	character varying(1)	Session type code, conducted by: I=Interview, O=Observer.
survey	character varying(5)	Survey code: 3 chars for region + 2 numerics for year, refer t_survey_codes.
comments	text	

Indexes:
   "pk_t_session" PRIMARY KEY, btree (sess_no)
   "nx_t_session_ramp" btree (ramp)
   "nx_t_session_sess_date" btree (sess_date)

Foreign-key constraints:
   "fk_t_session_t_ramp_codes" FOREIGN KEY (ramp)
    REFERENCES rec_data.t_ramp_codes(ramp)
   "fk_t_session_t_survey_codes" FOREIGN KEY (survey)
    REFERENCES rec_data.t_survey_codes(survey)

5.1.2 Table 2: t_fisher_count

Comment: Fisher count data for shellfish harvest surveys.

Column	Type	Null?	Description
sess_no	smallint	No	Session number.
hr	smallint	No	Hour, ie time of this count.
fish_loc	smallint	No	Strata No, for a spatial strata (area) of the beach.
no_pickers	smallint		Number of pickers (or fishers).
survey	character varying(5)		Survey code: 3 chars for region + 2 numerics for yr.

Indexes:
"pk_t_fisher_count" PRIMARY KEY, btree (sess_no, hr, fish_loc)

Foreign-key constraints:
"fk_t_fisher_count_t_session" FOREIGN KEY (sess_no)
REFERENCES rec_data.t_session(sess_no)

5.1.3 Table 3: t_group

Comment: Boat ramp survey boat details or shellfish harvest group details.

Column	Type	Null?	Description
sess_no	integer	No	Session number.
group_no	smallint	No	Group number for shellfish harvest or boat number for boat ramp survey.
group_type	character varying(1)		Group type, ie boat type, refer t_boat_codes.
outcome	character varying(1)		Intercept outcome I=Interviewed, N=Not interviewed, R=Refused, O=Other, Z=Incomplete, X=Interviewed but invalid for CPUE analysis. See Appendix 3 of the database documentation for complete list of codes.
time_i	smallint		Time of intercept of fishing group (24 hour, HHMM format).
no_fishers	smallint		Number of fishers in the group.
no_male	smallint		Number of male fishers in the group.
no_female	smallint		Number of female fishers in the group.
region	character varying(1)	No	Survey base region: N=North, C=Central & South.
survey	character varying(5)		Survey code: 3 chars for region + 2 numerics for yr.
comments	text		

Indexes:
"pk_t_group" PRIMARY KEY, btree (sess_no, group_no)
"nx_t_group_survey" btree (survey)

Foreign-key constraints:
"fk_t_group_t_session" FOREIGN KEY (sess_no)
REFERENCES rec_data.t_session(sess_no)

5.1.4 Table 4: t_interview

Comment: Boat ramp or shellfish harvest survey - interview.

Column	Type	Null?	Description
sess_no	integer	No	Session number.
group_no	smallint	No	Group number or boat number.
fisher_no	smallint	No	Fisher number (-1 for the shellfish harvest as the interview is for the group).
combo	character varying(1)	No	A sequential number for each combination of target species, fishing method & location.
fish_zone	character varying(4)		Fishing zone, refer t_zonef_codes.
fish_loc	character varying(4)		Fishing location code, refer t_locality_codes.
sub_region	character varying(2)		Sub region - similar to fishing zone, refer to Appendix 3 of the database documentation.
locality	character varying(40)		Fishing locality description.
fish_meth	character varying(2)		Fishing method code, refer t_fishmeth_codes.
meth_type	smallint		Code to identify which fishing method coding used in attr fish_meth
no_rods	smallint		Number of hand lines and/or rods used.
no_ll_hooks	smallint		Number of Hooks for multi hook line methods.
burley	character varying(1)		Was burley or ground bait used to catch their fish, Y=Yes N=No.
fish_finder	character varying(1)		Did they use a fish finder to catch their fish, Y=Yes N=No.
target_spp	character varying(15)		Target species, refer rdb.curr_spp.
fish_time_s	smallint		Fishing time start.
fish_time_f	smallint		Fishing time finish.
not_fish_t	smallint		Time not fishing.

hrs_fished	numeric(4,1)	Time spent fishing in decimal hours.
days_per_period	smallint	How many days fished in the period in attr f_hist_period, eg days per year.
f_hist_period	smallint	Number of days in the time period asked in the question for attr days_per_period.
yearsfished	smallint	Approximate number of years they have been fishing for target species and methods stated.
dist	numeric(4,1)	Distance offshore from the mainland of the fishing activity in km.
sex	character varying(1)	Sex of the fisher, M/F.
ethnicity	character varying(1)	The ethnicity group or groups identified by the interviewee, collected during NOR94 boat ramp and diary survey. E= European, M = Māori, P = Pacific Peoples, A= Asian, O= Other Ethnicity.
int_before	character varying(1)	Has the fisher been asked by a boat ramp interviewer their age in the last year. Y/N.
age_gp	character varying(6)	Age group of the fisher in years, e.g. 15-20, 21-30, 31-40, 41-50, 51-60, 61+.
bottom_type	character varying(1)	Bottom type. S = soft bottom sediments ie sand/mud, R = hard bottom ie rock or reef, B = both ie a combination of S and R, U = Unknown.
fish_diary	character varying(1)	Do they keep a fishing diary, Y or N.
maf_diary	character varying(1)	Do they keep a MAF survey fishing diary, Y or N.
phone	character varying(1)	If the fisher lives in a house that has a telephone, for survey NOR94. From survey NOR11, If the fisher is listed in the white pages.
resp_locn	character varying(30)	Where the fishers residence is located.
area	character varying(4)	Area code, refer rdb,area_codes.

region	character varying(1)		Survey base region: N=North, C=Central & South.
survey	character varying(5)	No	Survey code: 3 chars for region + 2 numerics for yr.
comments	text		
id	character varying(15)		Concatenation of : sess_no*group_no*fisher_no*combo to use as key to join to t_length.
multiday	character(1)		Answer to question: Did you leave from this location today, Y or N. ie Have they been away overnight. Only asked in FMA7.
seabird	character(1)		Did you catch a seabird today and if so what type was it.
bird_hook_site	character(1)		Code for combinations (A-L) of how seabird was caught (tangle in line/hooked removed or no removed/caught in net), hook site if hooked (in beak or gizzard vs hooked externally), and the fate of the bird (released alive vs dead).
depth	integer		Bottom depth in metres for area fished.

```
Indexes:
   "pk_t_interview" PRIMARY KEY, btree
    (sess_no, group_no, fisher_no, combo)
   "nx_t_interview_fish_meth" btree (fish_meth)
   "nx_t_interview_fish_zone" btree (fish_zone)
   "nx_t_interview_target_spp" btree (target_spp)
Check constraints:
   "t_interview_int_before_check" CHECK (int_before::text ~ '[YN]'::text)

Foreign-key constraints:
   "fk_t_interview_t_fishmeth_codes" FOREIGN KEY (fish_meth, meth_type)
    REFERENCES rec_data.t_fishmeth_codes(fish_meth, meth_type)
   "fk_t_interview_t_group" FOREIGN KEY (sess_no, group_no)
    REFERENCES rec_data.t_group(sess_no, group_no)
   "fk_t_interview_t_locality_codes" FOREIGN KEY (fish_loc)
    REFERENCES rec_data.t_locality_codes(fish_loc)
   "fk_t_interview_t_zonef_codes" FOREIGN KEY (fish_zone, survey)
    REFERENCES rec_data.t_zonef_codes(fish_zone, survey)
```

5.1.5 Table 5: t_weight

Comment: Table containing weights of species caught by shellfish harvesters on a beach.

Column	Type	Null?	Description
sess_no	integer	No	Session number.
group_no	smallint	No	Group number or boat number.
fisher_no	smallint	No	Fisher number.
combo	character varying(1)	No	A sequential number for each combination of target species, fishing method & location.
species	character(3)	No	3-char species code, refer rdb.curr_spp.
no_fish	smallint		Fish count.
est_wt	numeric(3,1)		Estimated weight (in decimal kg).
agreed_wt	numeric(3,1)		Agreed weight obtained by weighing the catch (in decimal kg).
survey	character varying(5)		Survey code, 3 chars for region + 2 numerics for yr.
id	character varying(15)		Concatenation of : sess_no*boat_no*fisher_no*combo to use as a key to join tables.

Indexes:
"pk_t_weight" PRIMARY KEY, btree
(sess_no, group_no, fisher_no, combo, species)

Foreign-key constraints:
"fk_t_weight_t_interview" FOREIGN KEY
(sess_no, group_no, fisher_no, combo)
REFERENCES rec_data.t_interview(sess_no, group_no, fisher_no, combo)

5.1.6 Table 6: t_length

Comment: Fish lengths from the boat ramp or shellfish harvest survey.

Column	Type	Null?	Description
sess_no	integer	No	Session number.
group_no	smallint	No	Group number or boat number.
fisher_no	smallint	No	Fisher number.
combo	character varying(1)	No	A sequential number for each combination of target species, fishing method & location.
species	character(3)	No	3-char species code, refer rdb.curr_spp.
lgth	numeric(4,1)		Length of the fish (cm) - except for rock lobster(CRA) which is tail width in mm, or shellfish TL in mm.
lgth_code	character varying(1)		Precision of length measurement, R = Rounded down to nearest cm, E = Exact to 1 decimal place.
width_meas	smallint		Width of the fish (cm) or mm for shellfish. Currently width of OYS (mm).
weight	numeric(7,2)		Fish weight, in decimal kg.
no_fish	smallint		Fish count.
observd	character varying(1)		Observed, refer t_observd_codes.
meas_meth	character varying(1)		Fish measurement method, refer rdb.t_fish_meas_codes.
cpue	character varying(1)		Include in CPUE analysis ? A = Yes, X = No.
region	character varying(1)		Survey base region: N=North, C=Central & South.
survey	character varying(5)		Survey code, 3 chars for region + 2 numerics for yr.
id	character varying(15)		Concatenation of : sess_no*group_no*fisher_no*combo to use as a key to join tables.
comments	text		

```
Indexes:
    "nx_t_length_combo" btree (combo)
    "nx_t_length_fisher_no" btree (fisher_no)
    "nx_t_length_group_no" btree (group_no)
    "nx_t_length_id" btree (id)
    "nx_t_length_session_no" btree (sess_no)
    "nx_t_length_species" btree (species)
    "nx_t_length_survey" btree (survey)

Foreign-key constraints:
    "fk_t_length_species_master" FOREIGN KEY (species)
     REFERENCES rdb.species_master(code)
    "fk_t_length_t_interview" FOREIGN KEY (sess_no, group_no, fisher_no,
                                           combo)
     REFERENCES rec_data.t_interview(sess_no, group_no, fisher_no, combo)
    "fk_t_length_t_observd_codes" FOREIGN KEY (observd)
     REFERENCES rec_data.t_observd_codes(observd)
```

5.1.7 Table 7: t_observd_codes

Comment: Descriptions for codes for attr observd in table t_length.

Column	Type	Null?	Description
observd	character varying(1)	No	Code for the observed status of fish.
descrptn	character varying(80)	No	Description of the observd code.

Indexes:
"pk_t_observd_codes" PRIMARY KEY, btree (observd)

5.1.8 Table 8: t_observer

Comment: Observations of fishing activity

Column	Type	Null?	Description
sess_no	integer	No	Session number.
run_no	smallint	No	Run number which identifies a bunch of observations.
group_no	smallint	No	Group number or boat number - identifies a group of fishers.
activity_no	smallint	No	Activity number identifies different fishing activities, e.g. different fishing methods.
start_time	smallint		Start time of the run or observation.
run_end_t	smallint		Run end time.
rotation	character varying(1)		Direction in which the run of the area was made, C = Clockwise (North to South), A = Anti-Clockwise (South to North).
fish_zone	smallint		Fishing zone, refer t_zonef_codes.
fish_loc	character varying(3)		Fishing location code, refer t_locality_codes.
fish_meth	character varying(2)		Fishing method code, refer t_fish_meth_codes.
meth_type	smallint		Code to identify which fishing method coding used in attr fish_meth.
survey	character varying(5)		Survey code: 3 chars for region + 2 numerics for yr.
comments	character varying(80)		

Indexes:
"pk_t_observer" PRIMARY KEY, btree
(sess_no, run_no, group_no, activity_no)

Foreign-key constraints:
"fk_t_observer_fk_t_session" FOREIGN KEY (sess_no)
REFERENCES rec_data.t_session(sess_no)

5.1.9 Table 9: t_obs_count

Comment: Contains counts of observations of fishing activity from the table t_observer.

Column	Type	Null?	Description
sess_no	integer	No	Session number.
run_no	smallint	No	Run number which identifies a bunch of observations.
group_no	smallint	No	Group number or boat number - identifies a group of fishers.
activity_no	smallint	No	Activity number identifies different fishing activities, e.g. different fishing methods.
count_code	character varying(3)	No	Code to identify what was counted in attribute tally, refer to t_count_codes.
tally	smallint		Count for a particular fishing activity.
survey	character varying(5)		Survey code: 3 chars for region + 2 numerics for yr.

Indexes:
"pk_t_obs_count" PRIMARY KEY, btree
(sess_no, run_no, group_no, activity_no, count_code)

Foreign-key constraints:
"fk_t_obs_count_t_count_codes" FOREIGN KEY (count_code)
REFERENCES rec_data.t_count_codes(count_code)
"fk_t_obs_count_t_observer" FOREIGN KEY
(sess_no, run_no, group_no, activity_no)
REFERENCES rec_data.t_observer
(sess_no, run_no, group_no, activity_no)

5.1.10 Table 10: t_count_codes

Comment: Description of the count codes used in table t_obs_count.

Column	Type	Null?	Description
count_code	character varying(3)	No	3 character code for the type of fishing activity observed, as used in t_obs_count.count_code.
descrptn	character varying(80)		Description of the count_code.

Indexes:
"pk_t_count_codes" PRIMARY KEY, btree (count_code)

5.1.11 Table 11: t_ctch_cen93

Comment: Catch details by species from the 1992/93 Central Region boat ramp survey. Data were collected in a different format and are therefore not in the main t_length table.

Column	Type	Null?	Description
sess_no	integer	No	Session number
group_no	integer	No	Fishing group number
fisher_no	integer	No	Fisher number
combo	character varying(1)	No	Combo
species	character(3)	No	Species code, refer rdb.species_master
no_fish	integer		Fish count
weight	numeric(7,2)		Fish weight (kg)
observd	character varying(1)		Observed code, refer t_observd_codes
region	character varying(1)		1 char code for survey region. Always C=central
survey	character varying(5)		5 char code for survey. Always CEN93
id	character varying(15)		Concatenation of : sess_no*boat_no*fisher*combo to use as a key to join tables.

Indexes:
"nx_t_ctch_cen93_species" btree (species)

5.1.12 Table 12: t_len_cen93

Comment: Fish lengths from the 1992/93 Central Region boat ramp survey. Data is of dubious quality and is therefore not in the main t_length table (see also t_ctch_cen93)

Column	Type	Null?	Description
sess_no	integer	No	Session number
group_no	integer	No	Fishing group number
fisher_no	integer	No	Fisher number
combo	character varying(1)	No	Combo
species	character(3)	No	Species code, refer rdb.species_master
lgth	integer		Length of the fish (cm) - except for rock lobster (CRA) which is tail width in mm
weight	numeric(7,2)		Fish weight (not used, see t_ctch_cen93)
no_fish	integer		Fish count
observd	character varying(1)		Observed code, refer t_observd_codes
meas_meth	character varying(1)		Fish measurement method, refer rdb.t_fish_meas_codes
cpue	character varying(1)		Include in CPUE analysis ? Always X=no
region	character varying(1)		1 char code for survey region. Always C=central
survey	character varying(5)		5 char code for survey. Always CEN93
id	character varying(15)		Concatenation of : sess_no*boat_no*fisher*combo to use as a key to join tables.

Indexes:
"nx_t_len_cen93_species" btree (species)

5.2 Diary survey tables

5.2.1 Table 13: t_phone

Comment: Table for diary survey, telephone or intercept questionnaire.

Column	Type	Null?	Description
zonel	smallint		Zone lived in, ie phone book selected from.
resp	smallint	No	Respondent number, unique per survey.
fishers	smallint		Fishers in the household? 1=Yes, 2=No.
not15	smallint		Fisher(s) not 15 (yrs old) or older 1=ticked (=Yes)
no_fishers	smallint		Number in household who went fishing in the last 12 months.
no_le14	smallint		Number of fishers 14 years or younger.
no_commercial	smallint		Number of commercial fishers in the household.
commercial	smallint		Is respondent a commercial fisherman, 1=Yes, 2=No.
trips	smallint		Number of fishing trips in the last 12 months, 1=LT 6, 2=6-15, 3=16-30, 4=30 or more, 5=D.K.
intend	smallint		Think will go saltwater fishing, diving or shellfish gathering in the coming 12 months? 1=Yes 2=No 3=DK. For additional codes see Appendix 3 of the database documentation.
sna10	smallint		In the last 12 months catch a total of more than 10 SNA? 1=Yes, 2=No, 3=Don't Know.
kah10	smallint		In the last 12 months catch a total of more than 10 KAH? 1=Yes, 2=No, 3=Don't Know.
bco10	smallint		In the last 12 months catch a total of more than 10 BCO? 1=Yes, 2=No, 3=Don't Know.
meas	smallint		Willing to measure length of SNA, KAH and BCO? 1=Yes, 2=No.

gp_size	smallint		Number of people usually go fishing with: 0=No one else, 1=1, 2=2, 3=3, 4=4, 5=5, 6=6 or more, 7=it varies, 8=Don't Know.
fish_meths	character varying(26)		2 char codes, comma separated, for the types of fishing method used (refer t_fishmeth_codes).
meth_type	smallint		Code to identify which fishing method coding series was used (refer t_fishmeth_codes).
sex	smallint		Sex : 1=Male, 2=Female.
age_gp	character varying(6)		Age group of the fisher in years, e.g. 15-20, 21-30, 31-40, 41-50, 51-60, 61+.
ethnic	smallint		Ethnic group : 1=European or Pakeha, 2=NZ Maori, 3=Pacific groups, 4=Other.
fish_club	smallint		Belong to a marine fishing club? 1=Yes, 2=No.
boat_club	smallint		Belong to a marine boating club? 1=Yes, 2=No.
dive_club	smallint		Belong to a diving club? 1=Yes, 2=No.
sca_fish	smallint		Since July this year have dived or dredged for scallops? 1=Yes, 2=No.
sca_dive	smallint		Number of scallop diving trips since 15 July this year.
sca_dredge	smallint		Number of scallop dredging trips since 15 July this year.
diarist_yn	smallint		Prepared to keep a diary ?, 1=Yes, 2=No.
survey	character varying(5)	No	Survey code, 3 chars for region + 2 numerics for yr.

Indexes:
"pk_t_phone" PRIMARY KEY, btree (resp, survey)

Foreign-key constraints:
"fk_t_phone_t_survey_codes" FOREIGN KEY (survey)
REFERENCES rec_data.t_survey_codes20150929(survey)

5.2.2 Table 14: t_sca

Comment: Table for supplementary phone questionnaire for scallop fishers in the diary survey. Currently for the Central region only.

Column	Type	Null?	Description
resp	smallint	No	Unique 4-digit number for each respondent to the survey.
area_sca	character varying(4)	No	Area made trips to for scallops: GLDB = Golden Bay, TASB = Tasman Bay (incl. Croisilles Harbour), PELO = Pelorus Sound, QCSD = Queen Charlotte Sound (incl. Tory Channel), CORO = Coromandel Peninsula, STEW = Stewart Island, ELSW = Elsewhere.
no_trips	smallint		Number of SCA trips to area.
limit	smallint		Number of trips to area caught limit bag of 50 SCA.
avg_ctch	smallint		Average SCA catch this season on trips to area.
survey	character varying(5)	No	Survey code, 3 chars for region + 2 numeric for yr.

Indexes:
"pk_t_sca" PRIMARY KEY, btree (resp, area_sca, survey)

Foreign-key constraints:
"fk_t_sca_t_phone" FOREIGN KEY (resp, survey)
REFERENCES rec_data.t_phone(resp, survey)

5.2.3 Table 15: t_response

Comment: Table of response status for those considered valid diarists.

Column	Type	Null?	Description
key	integer	No	Primary key generated from a counter.
zonel	smallint	No	1-digit code to denote the zone the respondent lives in.
resp	smallint	No	Unique 4-digit number for each respondent to the survey.
year_s	smallint	No	4 digit year of start of the quarter or other time period.
month_s	smallint	No	Month at start of time period.
day_s	smallint		Day at start of time period.
year_f	smallint		4 digit year at end of time period.
month_f	smallint		Month at end of time period.
day_f	smallint		Day at end of time period.
quarter	smallint		Quarter of the year (range 1-4).
response	smallint	No	Response status for the time period, refer to Appendix 3 of the database documentation for the codes.
weighting	numeric(11,5)		Weighting factor, used for scaling up catches to determine harvest estimates. See also section 3.2.2 of the database documentation.
survey	character varying(5)	No	Survey code, 3 chars for region + 2 numeric for yr.

Indexes:
"pk_t_response" PRIMARY KEY, btree ("key")
"ui_t_response" UNIQUE, btree (survey, resp, year_s, month_s, day_s)

5.2.4 Table 16: t_effort

Comment: This table contains diarist's data on their effort for one fishing trip as a recreational angler.

Column	Type	Null?	Description
trip_no	integer	No	Unique sequential number for each trip.
resp	smallint		Unique number for each respondent to the survey.
resp_status	smallint		Status of diarist: 1=fishing; 2=no fishing; 3=no response; 4=withdrew; 5=not included; 6=deceased.
quarter	character varying(1)		3 month period of the year.
fish_date	character varying(8)		Date of the fishing trip, format as punched. Used particularly for historic data where some dates were invalid or incomplete.
trip_date	date		Date of the fishing trip.
zonel	smallint		1-digit code to denote the zone the respondent lives in.
resp_locn	character varying(30)		Where the respondents residence is located.
fish_zone	character varying(4)		2-digit code for the zone fished in during a fishing trip. Refer t_zonef_codes and Appendix 4 of the database documentation.
cra_area	character varying(1)		Rock Lobster area code, A thru H correspond to QMA's CRA1 thru CRA5, & CRA7 thru 9 respectively.
sca_area	smallint		Scallop area, refer to Appendix 4 of the database documentation for areas.
fish_loc	character varying(3)		Locality code, for area fished. Refer t_locality_codes.
locality	character varying(100)		Locality name, where fished as recorded by the diarist.
qma	smallint		Quota Management Area.
hrs	numeric(4,1)		Time (decimal hours) spent fishing during the trip.

ramp	character varying(3)		Ramp code for boat departure point eg ramp or marina, refer t_ramp_codes.
target_sp	character varying(35)		List of 3-char codes (separated by commas) for each of the species targeted by the angler during the fishing trip (see rdb.curr_spp).
fish_meth	character varying(2)		2 char code for the type of fishing method used in a fishing trip (refer t_fishmeth_codes).
meth_type	smallint		Code to identify which fishing method coding series was used, refer t_fishmeth_codes.
boat	smallint		1-digit code for type of boat used in a fishing trip, refer to Appendix 3 of the database documentation.
group_size	smallint		Number of people in the fishing group.
survey	character varying(5)	No	Survey code, 3 chars for region + 2 numerics for yr refer t_survey_codes.
comments	text		
launch_site	character(1)		Asked for all platforms except (6) "off land, including beach rocks or jetty". 1=Ramp, 2=Marina, 3=Mooring, 4=Beach, 5=Jetty or wharf, 6=Anchorage, 7=Other, 8=Not sure / don't know, 9=Not applicable
charter	character(1)		Equals 1 if the trip was a paid trip with a Charter Operator and Skipper, or is empty if not.

```
Indexes:
   "pk_t_effort" PRIMARY KEY, btree (trip_no)
   "nx_t_effort_boat" btree (boat)
   "nx_t_effort_fish_meth" btree (fish_meth)
   "nx_t_effort_fish_zone" btree (fish_zone)
   "nx_t_effort_resp" btree (resp)
   "nx_t_effort_survey" btree (survey)
   "nx_t_effort_target_sp" btree (target_sp)
   "nx_t_effort_trip_date" btree (trip_date)
   "nx_t_effort_zonel" btree (zonel)
Check constraints:
   "t_effort_craarea_check" CHECK (craarea::text ~ '[A-H]'::text)

Foreign-key constraints:
```

```
"fk_t_effort_t_fishmeth_codes" FOREIGN KEY (fish_meth, meth_type)
 REFERENCES rec_data.t_fishmeth_codes(fish_meth, meth_type)
"fk_t_effort_t_locality_codes" FOREIGN KEY (fish_loc)
 REFERENCES rec_data.t_locality_codes(fish_loc)
"fk_t_effort_t_ramp_codes" FOREIGN KEY (ramp)
 REFERENCES rec_data.t_ramp_codes(ramp)
"fk_t_effort_t_survey_codes" FOREIGN KEY (survey)
 REFERENCES rec_data.t_survey_codes20150929(survey)
"fk_t_effort_t_zonef_codes" FOREIGN KEY (fish_zone, survey)
 REFERENCES rec_data.t_zonef_codes(fish_zone, survey)
```

5.2.5 Table 17: t_catch

Comment: This table contains diarist's data on the catch from a fishing trip.

Column	Type	Null?	Description
trip_no	integer	No	Unique sequential for each trip in the survey.
species	character(3)	No	3-char code for species caught, refer rdb.curr_spp.
no_caught	numeric(5,1)		Number of the species caught during the trip.
weight	numeric(4,1)		Weight (decimal kg) of the species caught.
survey	character varying(5)	No	Survey code, 3 chars for region + 2 numerics for yr.
pers_comm_cust	character(1)		Contains a description of what approval was granted for part of a commercial catch to be recorded as "personal allowance". The two different kinds of approval under section 111 of the Fisheries Act are "General" which means you have been given the right every time you fish and "Particular" which means you had the approval for just one occasion. The descriptions in this field are: 1=General, 2=Particular, 3=Other, 4=Not sure / Don't know. A customary permit which is issued under Regulation 27 of the Fisheries Amateur Fishing Regs hui, tangi: 6= Customary kaimoana or SI authorisation, 7=Customary permit, 8=Something else.

Indexes:
"pk_t_catch" PRIMARY KEY, btree (trip_no, species)
"nx_t_ctch_survey" btree (survey)

Foreign-key constraints:
"fk_t_catch_species_master" FOREIGN KEY (species)
REFERENCES rdb.species_master(code)
"fk_t_catch_t_effort" FOREIGN KEY (trip_no)
REFERENCES rec_data.t_effort(trip_no)

5.2.6 Table 18: t_lgth

Comment: Diarist's fish length measurements.

Column	Type	Null?	Description
trip_no	integer		Trip number.
resp	integer	No	Respondent number.
trip_date	date		Date of the fishing trip.
species	character(3)	No	3-char species code, refer rdb.curr_spp.
lgth	smallint	No	Length of the fish in cm.
sex	character varying(1)		Sex code: 1 = Male, 2 = Female.
no_fish	smallint		Number of fish.
survey	character varying(5)		Survey code: 3 chars for region + 2 numerics for yr.

Indexes:
"nx_t_lgth_resp" btree (resp)
"nx_t_lgth_trip_date" btree (trip_date)
"nx_t_lgth_trip_no" btree (trip_no)

5.3 Shared code tables

5.3.1 Table 19: t_survey_codes

Comment: Details for the various surveys and their codes.

Column	Type	Null?	Description
survey	character varying(5)	No	Survey code: 3 chars for region + 2 numerics for year.
proj_code	character varying(32)		Project code(s) for the projectS(s) that funded collection of the data.
date_s	date		Start date for the survey.
date_f	date		Finish date for the survey.
descrptn	character varying(255)		Description of the survey.
comments	text		

Indexes:
"pk_t_survey_codes" PRIMARY KEY, btree (survey)

5.3.2 Table 20: t_zonef_codes

Comment: This table contains the codes and descriptions for the zone fished in during a fishing trip.

Column	Type	Null?	Description
fish_zone	character varying(4)	No	2-digit code for the zone fished in during a fishing trip.
survey	character varying(5)	No	Survey code, 3 chars for region + 2 numerics for yr.
descrptn	character varying(200)		Description of the code.

Indexes:
"pk_t_zonef_codes" PRIMARY KEY, btree (fish_zone, survey)

5.3.3 Table 21: t_locality_codes

Comment: Codes for locality name of place fished by 1996 diarist or northern ramp survey fisher.

Column	Type	Null?	Description
fish_loc	character varying(4)	No	3 char code for locality fished.
fish_zone	smallint		Zone number 1 to 40 as used by 1996 National Diary survey.
descrptn	character varying(120)		Description - Geographical name that the fish_loc derived from (followed by definition of the area).

Indexes:
"pk_t_locality_codes" PRIMARY KEY, btree (fish_loc)

5.3.4 Table 22: t_fishmeth_codes

Comment: This table contains the codes and descriptions for the types of fishing methods used during a fishing trip.

Column	Type	Null?	Description
fish_meth	character varying(2)	No	2-digit code for the type of fishing method used in a fishing trip.
meth_type	smallint	No	Code to identify which fishing method coding used.
descrptn	character varying(80)		Description of the code.

Indexes:
"pk_t_fishmeth_codes" PRIMARY KEY, btree (fish_meth, meth_type)

5.3.5 Table 23: t_ramp_codes

Comment: Boat ramp codes for diary and boat ramp surveys

Column	Type	Null?	Description
ramp	character varying(3)	No	2 or 3 char boat ramp code (2 char codes as used by Northern [Auckland] boat ramp survey, also called Interview location code on boat ramp forms.
fish_zone	character varying(4)		Fishing zone as used in the 1996 National Diary survey.
descrptn	character varying(90)		Description ie ramp name as recorded by the diarist or boat ramp interviewer.

Indexes:
"pk_t_ramp_codes" PRIMARY KEY, btree (ramp)

5.3.6 Table 24: t_boat_codes

Comment: This table contains the codes and descriptions for the types of boats used during a fishing trip.

Column	Type	Null?	Description
boat	smallint		1-digit code for type of boat used in a fishing trip.
group_type	character varying(1)	No	Group type, eg boat type.
descrptn	character varying(80)		Description of the code.

6 rec_data business rules

6.1 Introduction to business rules

The following are a list of business rules applying to the **rec_data** database. A business rule is a written statement specifying what the information system must do or how it must be structured. In this instance the information system is any system that is designed to handle recreational fishing data.

There are three recognised types of business rules:

Fact	Certainty or an existence in the information system.
Formula	Calculation employed in the information system.
Validation	Constraint on a value in the information system.

Fact rules are shown on the ERD by the cardinality; e.g., one-to-many, of table relationships. Formula and Validation rules are implemented by referential constraints, range checks, and algorithms both in the database and during validation.

Validation rules may be part of the preloading checks on the data as opposed to constraints or checks imposed by the database. These rules sometimes state that a value should be within a certain range. All such rules containing the word 'should' are conducted by preloading software. The use of the word 'should' in relation to these validation checks means that a warning message is generated when a value falls outside this range and the data are then checked further in relation to this value.

6.2 Summary of rules

Boat ramp session details (t_session)

sess_no Session number must be unique.

ramp Code for a ramp or beach. Must be a valid code as listed in *t_ramp_codes*.

sess_date Session date must be a valid date, and should be within a reasonable range for the survey, as listed in Appendix 2.

Multiple column checks on session date and t_survey_codes:
The session date should be between *t_survey_codes* date_s and date_f.
(But occasionally eg for NAT96 and NAT97 surveys it is not, to flag non valid diarists.)

sess_time_s Session start time must be a valid 24-hour time and fall within the range of 0 – 2359 hours.

sess_time_f Session finish time must be a valid 24-hour time and fall within the range of 0 – 2359 hours.

t_code Must be a valid code, as listed in Appendix 2.

iv_type Interview type must be a valid code as listed in Appendix 2.

platform_type `Must be a valid code as listed in Appendix 2.

day_type Must be a valid code, as listed in Appendix 2.

trailer_s The number of trailers should fall within the reasonable range of 0 – 200.

trailer_m The number of trailers should fall within the reasonable range of 0 – 200.

trailer_f The number of trailers should fall within the reasonable range of 0 – 200.

boat_not_iv The number of boats not interviewed should fall within the reasonable range of 0 – 40.

low_tide The time of low tide must be a valid 24 hour time and fall within the range of 0 – 2359 hours.

high_tide The time of high tide must be a valid 24 hour time and fall within the range of 0 – 2359 hours.

swell_ht The swell height must be a number greater than or equal to zero.

sea_state Must be a valid code as listed in Appendix 2.

rain Must be a valid code as listed in Appendix 2.

overhead Overhead conditions must be a valid code as listed in Appendix 2.

wind_speed Must be a valid code as listed in Appendix 2.

wind_dirn Must be a valid code as listed in Appendix 2.

wind_knots Wind speed in knots should be within a reasonable range of 0 to 59.

moon The moon phase code must be an integer greater than zero.

region Survey base region must be a valid code of N or C

sess_type The session type must be a valid code as listed in Appendix 2.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Count of shellfish harvest fishers (t_fisher_count)

sess_no Session number must be equal to a session number in t_session.

hr Time of count must have a value and be a valid 24-hour time and fall within the range of 0 – 2359 hours.

fish_loc Must have a value and be an integer greater than zero.

Multiple column checks on session number, time and spatial strata:
The values in the sess_no, hr and fish_loc attributes must be a unique combination.

no_pickers The number of fishers should fall within the reasonable range of 0 – 99.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Boat or shellfish harvest group details (t_group)

sess_no	Session number must be equal to a session number in *t_session*.
group_no	Must be a unique number within a single session.
group_type	Should be a valid code as listed in the *t_boat_codes* table.
outcome	Interviewed or not etc code must be a valid code as listed in Appendix 2.
time_i	Time of intercept must be a valid 24-hour time and fall within the range of 0 – 2359.
	Multiple column checks on time of intercept, session start time and session finish time: The time of intercept must be between the session start and session finish times.
no_fishers	The number of fishers must be an integer greater than or equal to zero.
no_male	The number of male fishers must be an integer greater than or equal to zero.
no_female	The number of female fishers must be an integer greater than or equal to zero.
	Multiple column checks on no_fishers, no_male and no_female: The number of male and female fishers must not exceed no_fishers
region	Survey base region must be a valid code of N or C
survey	Survey code must be a valid code as listed in the *t_survey_codes* table.

Shore side interview eg boat ramp (t_interview)

	Multiple column checks on session number and group number: The combination of session number and group number must exist in the *t_group* table.
fisher_no	The fisher number must have a number; either –1 or an integer greater than zero.
combo	The combo attribute must have a value.
	Multiple column checks on session number, group number, fisher number and combo: The values in the sess_no, group_no, fisher_no and combo attributes must be a unique combination.
fish_zone	The fishing zone should be a valid code as listed in *t_zonef_codes* for that survey.
sub_region	Must be a valid sub_region as listed in Appendix 2.
fish_loc	The fishing locality code must be a valid code as listed in *t_locality_codes.*
fish_meth	The fishing method code must be in the table *t_fishmeth_codes* for that meth_type .
no_rods	The number of lines used must be an integer greater than zero and should be within a reasonable range of 1 - 9.
no_ll_hooks	The number of hooks recorded must be an integer greater than zero and should be within a reasonable range of 5 - 99.
burley	The code indicating if ground bait was used should be either 'Y' or 'N'.
fish_finder	The code indicating if a fish-finder was used should be either 'Y' or 'N'.
target_spp	Each of the listed species codes should be a valid code as listed in the *curr_spp* table in the **rdb** database.
fish_time_s	Fishing start time must be a valid 24-hour time and fall within the range of 0–2359.
fish_time_f	Fishing finish time must be a valid 24-hour time and fall within the range of 0 – 2359.
not_fish_t	Time not fishing must be a valid 24-hour time and should fall within the reasonable range of 0 - 1200.
	Multiple column checks on fishing time: The fishing start time must not be greater than the fishing finish time. The not fishing time must be less than the difference between the fishing finish time and the fishing start time.

hrs_fished	Hours spent fishing must be a positive value and should be within a reasonable range of 0.1 - 24.0.
days_per_period	The days fished in the period must be an integer greater than zero.
f_hist_period	The number of days must be an integer greater than zero.
	Multiple column checks on days fished in the fishing history time period: The number of days_per_period must not be greater than the f_hist_period.
yearsfished	The number of years fishing must be a positive value and fall within a reasonable range of 0 to 90.
sex	The value for sex must equal 'M' or 'F'.
ethnicity	The code for ethnicity must be a valid value; i.e., one of : E, M, P, A, O.
int_before	The value for int_before must equal 'Y' or 'N'.
age_gp	The age group code must be a valid code as listed in Appendix 2.
bottom_type	The bottom type must be either, S = soft bottom sediments ie sand/mud,R = hard bottom ie rock or reef, B = both ie a combination of S and R, U = Unknown.
fish_diary	The code indicating if they kept a fishing diary must be either 'Y' or 'N'.
maf_diary	The code indicating if they kept a MAF fishing diary must be either 'Y' or 'N'.
phone	Code to indicate if their house has a telephone, must be either 'Y' or 'N'.
area	The area code must be a valid code as listed in the *area_codes* table of the **rdb** database.
region	The survey base region code must be a valid code of either 'N' or 'C'.
survey	Survey code must be a valid code as listed in the *t_survey_codes* table.

Catch weights for shellfish harvest (t_weight)

Multiple column checks on session number, group number, fisher number and combo: The combination of session number, group number, fisher number and combo must exist in the *t_interview* table, and must be a unique combination.

species Must be a valid species code as listed in the *curr_spp* table of the **rdb** database.

no_fish The number of fish must be an integer greater than zero and should fall within the reasonable range of 1 – 400.

est_wt The estimated weight must a positive value within reasonable limits (0 – 99 kg)

agreed_wt The value obtained by weighing the catch must a positive value within reasonable limits (0 – 99 kg)

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Fish length from boat ramp type surveys (t_length)

Multiple column checks on session number, group number, fisher number and combo: The combination of session number, group number, fisher number and combo must exist in the *t_interview* table, and must be a unique combination.

species Must be a valid species code as listed in the *curr_spp* table of the **rdb** database.

lgth The fish length should fall within reasonable limits of 5 – 350.

weight The fish weight should fall within the reasonable range of 0.05 to 150 kg.

no_fish The number of fish must be an integer greater than zero and should fall within the reasonable range of 1 – 400.

observd The observed code must be a valid code as listed in *t_observd_codes*.

meas_meth The fish measurement method must be a valid code as listed in the table *t_fish_meas_codes* of the **rdb** database.

cpue Flag to include in CPUE analysis must be either 'A' or 'X'.

region The survey base region code must be a valid code of either 'N' or 'C'.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Observed status codes (t_observd_codes)

observd The observed code must be a valid code as listed in Appendix 2.

Observer details (t_observer)

sess_no Session number must be equal to a session number in t_session.

run_no The run number must be an integer greater that zero and be unique within a session.

group_no The group number should be an integer greater than zero.

Multiple column checks on session number, run number, group number, and activity number:
The values in the sess_no, run_no, group_no and activity_no attributes must be a unique combination.

activity_no Must be an integer, and should be greater than zero.

start_time The run start time must be a valid 24-hour time and fall within the range of 0 – 2359.

run_end_t The run end time must be a valid 24-hour time and fall within the range of 0 – 2359.

Multiple column checks on run_start_t and run_end_t :
The run end time should be greater than the run start time

rotation Code for the direction of the run must be a valid code of A or C, for Anticlockwise or Clockwise respectively.

fish_zone The fishing zone should be a valid code as listed in *t_zonef_codes* for that survey.

fish_loc The fishing locality code must be a valid code as listed in *t_locality_codes.*

fish_meth The fishing method code must be in the table *t_fishmeth_codes* for that meth_type .

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Observer counts (t_obs_count)

sess_no Session number must be equal to a session number in t_session.

run_no The run number must be an integer greater that zero and be unique within a session.

group_no The group number should be an integer greater than zero.

Multiple column checks on session number, run number, group number, and activity number:
The values in the sess_no, run_no, group_no and activity_no attributes must be a unique combination.

activity_no Must be an integer, and should be greater than zero.

tally The counts of fishing activity must be an integer greater than zero.

count_code The codes to identify what was counted must be a valid code as listed in *t_count_codes*.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Diary survey intercept (t_phone)

zonel	Zone lived in must be a valid code as listed in Appendix 2.
resp	Respondent number must be unique within each survey.
fishers	If there are fishers in the household must be a valid code in the range 1 – 2.
not15	If the fisher(s) are LE 14 the valid code is 1 (for Yes).
no_fishers	The number of fishers should fall within the reasonable range of 0 – 10.
no_LE14	The number of fishers less than or equal to 14 years old should fall within the reasonable range of 0 – 8.
no_commercial	The number of commercial fishers should fall within the reasonable range of 0 – 10.
commercial	Code to indicate if they are a commercial fisher must be an integer in the range 1 – 2.
trips	The number of fishing trips must be a valid code in the range 1 – 5.
intend	Intend going fishing code must be a valid code as listed in Appendix 2.
SNA10	Snapper catch code must be a valid code in the range 1 – 3.
KAH10	Kahawai catch code must be a valid code in the range 1 – 3.
BCO10	Blue cod catch code must be a valid code in the range 1 – 3.
meas	Willing to measure fish lengths code must be a valid code in the range 1 – 2.
gp_size	Fishing group size must be a valid code in the range 1 – 8.
fish_meths	The fishing method codes must be valid codes as listed in the *t_fishmeth_codes* table.
meth_type	Fishing method type code must be valid codes as listed in the *t_fishmeth_codes* table.
sex	Sex code must be a valid code in the range 1 – 2.
age_gp	The age group code must be a valid code as listed in Appendix 2.
ethnic	The code for ethnic group must be a valid code as listed in Appendix 2.
fish_club	Belong to a fishing club code must be a valid code in the range 1 to 2 (for Y or N).
boat_club	Belong to a boating club code must be a valid code in the range 1 to 2 (for Y or N).
dive_club	Belong to a diving club code must be a valid code in the range 1 to 2

(for Y or N).

sca_fish Fished for scallops code must be a valid code in the range 1 to 2 (for Y or N).

sca_dive Number of scallop dive trips should fall within the reasonable range of 0 – 20.

sca_dredge Number of scallop dredge trips should fall within the reasonable range of 0 – 30.

diarist_yn Prepared to keep a diary must be a valid code in the range 1 to 2 (for Y or N).

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Central region scallop fishers survey (t_sca)

resp The respondent number must be equal to a resp number in *t_phone*.

area_sca Must be a valid scallop area as listed in Appendix 3.

Multiple column checks on respondent and scallop area:
The scallop area must be a unique code for a single respondent.

no_trips The number of trips should fall within the reasonable range of 1 – 39.

limit The number of trips should fall within the reasonable range of 0 – 39.

avg_ctch The average catch should fall within the reasonable range of 0 – 100.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Multiple column checks on respondent number, scallop area and survey:
The values in the resp, SCAarea and survey attributes must be a unique combination.

Diarists response status (t_response)

key The key must be a unique number.

zonel Zone lived in must be a valid code as listed in Appendix 2.

resp Respondent number must be unique within each survey.

year_s Year start must be a valid year and should fall within a reasonable range for the survey as listed in Appendix 2.

month_s Month start must be an integer representing a valid month (1-12).

day_s Day start must be an integer representing a valid day.

quarter Must be an integer in the range 1-4.

response The response status must be a valid code as listed in Appendix 2.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Multiple column checks on respondent number, year start, month start and survey: The values in the survey, resp, year_s and month_s attributes should be a unique combination.

Diarist's fishing effort (t_effort)

trip_no Trip number, must be unique.

resp The diarist respondent number must be an integer greater than zero.

resp_status Must be in the range of 1 – 6.

trip_date The date of the trip must be a valid date within reasonable bounds for the survey as listed in Appendix 2.

zonel The zone lived in code must be a valid code as listed in Appendix 2.

fish_zone The fishing zone code must be a valid code as listed in the *t_zonef_codes* table.

CRAarea The rock lobster area code must be in the range A – H.

SCAarea The scallop area code must be in the range A – I.

fish_loc The fishing locality code must be a valid code as listed in the *t_locality_codes* table.

qma The quota management area fished must be within the range of 1-5, 7-9.

hrs The fishing time should be within a reasonable range of 0.1 – 120.

ramp The code for the boat departure point must be a valid code as listed in the *t_ramp_codes* table.

target_sp Each of the listed species codes must be a valid code as listed in the *curr_spp* table in the **rdb** database.

fish_meth The fishing method code must be a valid code as listed in the *t_fishmeth_codes* table.

meth_type The fishing method type must be a valid code as listed in the *t_fishmeth_codes* table.

boat The boat type code must be a valid code and fall within the range of 1 – 5 as listed in Appendix 2

group_size The number of people in the fishing group should fall within the reasonable range of 1 – 40.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Multiple column checks on survey and respondent number:
The combination of respondent and survey must exist in the table *t_phone.*

Diarists catch details (t_catch)

trip_no The trip number must be equal to a trip number as listed in the *t_effort* table.

species Must be a valid species code as listed in the *curr_spp* table of the **rdb** database.

no_caught The number of fish caught should fall within the reasonable range of 1 – 750.

weight The weight of fish caught should fall within the reasonable range of 0.1 – 150.

survey Survey code must be a valid code as listed in the *t_survey_codes* table.

Multiple column checks on trip number and species:
The values in the trip_no and species attributes must be a unique combination.

Diarists fish lengths (t_lgth)

trip_no The trip number should be equal to a trip number as listed in the *t_catch* table.

resp The respondent number must be equal to a respondent number in the *t_effort* table.

trip_date The date of the fishing trip must be a valid date.

species Must be a valid species code as listed in the *curr_spp* table of the **rdb** database.

lgth The length of the fish should fall within the reasonable range of 5 – 200.

no_fish The number of fish should fall within the reasonable range of 1 – 50.

7 Acknowledgments

I would like to thank Kevin Mackay for his input and advice on the structure of this database, Elizabeth Bradford for her assistance with information on the earlier surveys, the reference list and comments on the first draft of this document, Bruce Hartill for his input particularly regarding the North region surveys and Dave Banks for general editorial comment.

8 References

NB: The references below include details on the method used for the respective surveys and include examples of the forms used to record the data.

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Final Research Report for Ministry of Fisheries Project REC9708.

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(Project KAH2001-01.)

Appendix 1 - Data entry, error checking, and loading

The data in **rec_data** have come from various sources. The database was created in 1996, and holds data from earlier surveys, currently back to 1991. These earlier data were supplied in electronic form and are assumed to be checked by researchers working with the data at the time. Other research providers under contract to the Ministry of Fisheries are still supplying data. Each data provider employs their own collection methodologies and pre-submission quality control procedures.

Up until 2024 the primary data collection method for the Earth Sciences NZ (prev. NIWA) recreational boat ramp survey projects was via paper forms. Since 2024 the project has accelerated the rollout of electronic data capture devices, and these devices are now the primary data collection tool.

This section outlines the paper-based flow of data collected by Earth Sciences NZ (prev. NIWA) for recreational fishing boat ramp survey projects. In this example, interviewers at boat ramps collect hand written data. These data are recorded on paper forms. Each session is identified by it's ramp code, session date, and if more than 1 session that day, by it's time of day code. This session will later be assigned an unique number by the checking and formatting software prior to loading to the database.

1. **Pre-key punching, visual checking and batching:**

At the completion of each session the interviewer should ensure that all pages are in order, and that all required data fields have been correctly filled out. The data are then forwarded to a project team member who checks the above, and forwards the data to key punching.

2. **Key punching data entry:**

At this point, trained data entry operators key-punch the data from the collated forms to a digitised fixed format ASCII file format on computer by keyboard entry, using the software KEYS Data Emulator for data entry.

Up until November 2024, all boat ramp survey data entry was verified, that is, each page of data is key punched twice and the two results are cross-checked for mismatches. Any data entry operator errors are corrected at this point. A change in procedure was implemented in late 2024 at the direction of Fisheries New Zealand to employ single data entry practices only for paper based collected data.

The digitised data files are transferred for error checking along with the original raw data file. At this point the data are now ready for error checking and formatting routines.

3. **Data error checking, validation, and grooming:**

Data files are put through a number of computer error checking (validation) routines that look for inaccuracies and inconsistencies within sessions. Any errors detected are corrected. Data are then passed through these error-checking routines until the data reach a satisfactory standard that will allow them to be inserted in the appropriate database tables.

The data are usually inserted into "working tables" in a database. This is done to check the integrity of the data by taking advantage of relational databases ability to manipulate, match and compare related sets of data.

4. **“Groomed”, validated data loaded to database. Available for analysis:**

The clean, groomed, and validated data are inserted into the appropriate database and now become available for analysis.

The clean digitised data files and raw paper data are then archived for safekeeping.

Appendix 2 - Reference Documentation - Code Tables

The following tables document the codes used for various attributes in the **rec_data** database.
NB That code lists longer than approximately 1 page that are documented in a table of this database are not listed in this appendix.

***survey* codes**

Diary surveys

Refer to the rec_data database table **t_survey_codes** for a full list of surveys

survey	Description	
SOU92	South region diary survey	1 Sep 91 - 31 Aug 92
SOU93	South region diary survey (continuation / variability survey of SOU92)	1 Sep 92 - 31 Aug 93
CEN93	Central region diary survey	1 Dec 92 - 30 Nov 93
CEN94	Central region linking survey (continuation / variability survey of CEN93)	1 Dec 93 - 30 Nov 94
NOR94	North region diary survey	1 Dec 93 - 30 Nov 94
JBL96	National 1996 diary survey 1st quarter data punched by John Bell & Associates	
NAT96	National diary survey	1 Jan 96 - 31 Dec 96
NAT97	National diary survey (continuation / variability survey of NAT96)	1 Jan 97 - 31 Dec 97
PAT93	Paterson Inlet (Stewart Is) diary survey	1 Dec 93 - 28 Feb 98
AKA97	Akaroa Harbour diary survey	Dec 96 - Apr 98
WLG99	Wellington area diary survey	Jan 99 - 30 Apr 00
MBS99	Greater Marlborough Sounds	Jan 99 - 30 Apr 00
KAI99	Kaikoura area diary survey	Dec 98 - Sep 99
BLF98	Bluff Harbour diary survey	1 Apr 98 – 31 Mar 99
OTG98	Otago Harbour diary survey	1 Apr 98 – 31 Mar 99
NAT00	National diary and boat ramp survey (additional data collected in phone survey not in this database, see database comments or marlin metadatabase)	1 Dec 99 –30 Nov 00
NAT01	National diary survey	1 Dec 00 –30 Nov 01

Boat ramp surveys

Refer to the rec_data database table **t_survey_codes** for a full list of surveys.

NOR91	North region boat ramp survey	Nov 90 - Jul 91
CEN93	Central region boat ramp survey	Dec 92 - Apr 93
NOR94	North region boat ramp survey and Aerial sightings observer survey	Jan 94 - Jun 94
NAT96	National boat ramp survey	Dec 95 - Jan 97
NOR98	North region boat ramp survey (only at a small number of ramps)	Dec 97 – Dec 98
KAI99	Kaikoura area boat ramp and Roving observer survey	Dec 98 – Jan 99
MAK00	Maketu Taiapure fishing survey	1999 - 2001
NAT00	National boatramp survey	2000
OTG01	Otago boat ramp and observer survey	Mar 01 – Feb 02
NOR01	North region boat ramp survey targeting Kahawai catches	Jan 01 – Apr 01
NOR02	North region boat ramp survey	Jan 02 – May 02
NOR03	North region boat ramp survey	Jan 03 – Apr 03
NOR04	North region boat ramp survey	Dec 03 – Nov 04
NOR05	North region boat ramp survey	Dec 04 – Nov 05
NOR06	North region boat ramp survey	Jan 06 – Apr 06
NOR07	North region boat ramp survey	Oct 06 – Sep 07
NOR08	North region boat ramp survey	Oct 07 – Apr 08
KAI03	Kaikoura area boat ramp and Roving observer survey	Jan 03 – Apr 03
TGB04	Tasman and Golden Bays boatramp survey of scallop and oyster catches	Sep 2003 to Feb 2004
WCN05	West Coast North Island, boatramp survey	Oct 05 – Apr 06
KAI13	Kaikoura and North Canterbury boat ramp surveys	..Oct 12 to Sep 13
NAT18 -25	Earth Science NZ/NIWA boat ramp surveys	Oct 18 – Sept 25

Shellfish Harvest surveys

Refer to the rec_data database table **t_survey_codes** for a full list of surveys

NSH98	North region Shellfish Harvest survey	Dec 97 – Dec 98

NB For the regional diary surveys e.g. Otago & Bluff, the start & end dates are not rigidly defined. Some respondents may get their diaries weeks before others, and others may send in final trips late, including trips after the official end date.

Time of day codes by survey - (*t_code*)

Survey	*t_code*	Description	Main Survey	Pilot survey
NOR91	N	Morning	07:00-10:00	
NOR91	M	Mid-day	10:00-14:00	08:30-12:30
NOR91	A	Afternoon	14:00-18:00	12:30-17:00
NOR91	E	Evening	18:00-21:00	17:00-21:00
NOR94	D	Dawn	Before 11:00	
NOR94	M	Midday	11:00-15:00	
NOR94	A	Afternoon	15:00-19:00	
NOR94	E	Evening	After 19:00	
NAT96	A	10:00 - 12:00		
NAT96	B	12:00 - 14:00		
NAT96	C	14:00 - 16:00		
NAT96	D	16:00 - 18:00		
NAT96	E	18:00 - 20:00		
NAT96	F	20:00 - 22:00		

For surveys NOR01, NOR02, NOR03 etc where there were more than one interviewer at the same ramp on the same day t_code was used to distinguish the sessions.

NB For the NOR91 survey the first phase termed the pilot survey was primarily from 26 December 1990 to late January 1991, while the second phase termed the main survey was mainly from late February 1991 through until early June 1991.

For other surveys, generally coding was simplified so for the first session of each day, *t_code* had a value of A, the second B etc, or 1 & 2 etc respectively.

t_session attributes.

Day type (*day_type*)

1 Weekend or Public holiday
2 Weekday
3 Contest (eg Furuno Contest in the NORth region surveys)

Interview type (*iv_type*)

1 Ramp
2 Beach
3 Roving boat
4 Other
5 Marina
6 Fixed (observer)
7 Roving (observer)

Platform type (*platform_type*)

A Aeroplane
B Boat
L Land

Session type (*sess_type*)

I Interview
O Observer

Environmental data

Sea conditions (*sea_state*)
1 Smooth (0.1 - 0.5)
2 Slight (0.5 - 1.0)
3 Moderate (1.0 - 2.5)
4 Rough (2.5 - 4.0)

Rain (*rain*)
1 Nil
2 Light continuous
3 Light scattered
4 Medium scattered
5 Heavy rain (added April 2004)

Overhead conditions (*overhead)*

1 Sunny continuous
2 Mainly sunny
3 Mainly cloudy
4 Continuously cloudy

Wind speed (*wind_speed)*

1 Nil
2 Light (1-10 kts)
3 Medium (11-20 kts)
4 Strong (21 + kts)

Wind direction (*wind_dirn*) in table *t_session*

1 Nil (no wind)
2 Variable
3 North
4 South
5 North East
6 South West
7 East
8 West
9 South East
10 North West

Intercept Outcome Codes (*outcome*) in table ***t_group***

I Interviewed
R Refused
Z Incomplete interview for surfcasting mainly
N Not interviewed
O Other (boat skiing, picnicking etc)
X Interviewed but invalid for CPUE analysis
F Fishing but not willing to be interviewed,
In TGB04 survey means fishing but not for scallops or oysters
A Furuno Fishing Contest

Sub-region (*sub_region)* in table *t_interview*

sub_region	Description	Location Codes (*fish_loc*)
B	Bay of Islands	BLA KER RAW RUS BRT
BR	*Barrier Islands (diary zone)*	
C	Coromandel East	KUA MEB MEI SHO WMM
D	Dargaville Coast	GKG HKG MBF
ES	*Eastern Gulf (diary zone)*	
E	East Cape (Tarawera River-Te Kaha)	MAT WHA HAU OPO TEK
F	Far North (Houhora - Takau Bay)	HOU GRV RNU KAR MGN TAU CAV TAK
FR	*Firth of Thames (diary zone)*	
G	General (no area given)	
H	Hokianga Harbour	HKH
I	Inner Gulf	WAI RAN MOT
IN	*Inner Gulf (diary zone)*	
K	Kaipara Harbour	HEL PTO DAR
KW	Kawhia Harbour	KWH
M	Manukau Harbour	MAN PPK PUR WAK WAR
MD	Mid Gulf	OMA KAW TIR TAM NOI COR FIR MID
MR	Muriwai-Waikato Coast	BET MUR PIH WKU
N	Ninety Mile Beach	APR BLF NMB WPP
NP	New Plymouth Coast	NPL OKR WTR
O	Outer Gulf	LIT PAK COL MOK GRE FIT ARI BAR NEE
OH	Ohiwa Harbour	OHI
P	Bay of Plenty Coast (Waihi - Tarawera River)	FIV MAK MII PAP
PI	BOP offshore islands	ALD CUV MAY WHI
R	Raglan Harbour	RLN
RL	Raglan Coast (Aotea H. included)	AOT ASS CRY MKP GAN KPP PNU
T	Tutukaka Coast	OAK TUT PKI BRE HEN
TP	The Top (Northland)	REI NOR GEB
TG	Tauranga Harbour	KAT TEP
W	Whangarei Harbour	WEI
WG	Wanganui Coast	RTN WNG WVL
WS	*Western Gulf (diary zone)*	
WA	Whangaroa Harbour	WGA

Age group (*age_gp)*

For the NAT12 and NOR12 surveys the age groups used consisted mainly of codes used in the NOR05 survey, except for under 15 used in NOR00 and NOR01, plus one new group, 15–19 years. An update to the database was made on 15th August 2012 to store the age group description directly into age_gp, making the data self-explanatory. The codes below are retained for a historical record of the codes used, until this update.

For the CEN93 and NOR94 surveys in the boat ramp interviews one fisher from each boat was asked which of the following age group categories he/she was in.

age_gp	age in years
1	15-20
2	21-30
3	31-40
4	41-50
5	51-60
6	61 years and over.

The NOR94 survey also has many records coded to 'Z' (presumably for not asked).
These codes are the same as used in the *age_gp* attribute in the table *t_phone* for the diary surveys.

The NAT00 and NAT01 surveys used a different age grouping for the age_gp attribute in table t_phone below.

age_gp	age
20	Refused
21	15-17 yrs
22	18-19 yrs
23	20-24 yrs
24	25-29 yrs
25	30-34 yrs
26	35-39 yrs
27	40-44 yrs
28	45-49 yrs
29	50-54 yrs
30	55-59 yrs
31	60-64 yrs
32	65-69 yrs
33	70-74 yrs
34	75 plus
35	under 15

Age group (*age_gp) continued*

The NOR05 boat ramp survey used a different age grouping for the age_gp attribute in table t_interview below. These codes were also used for the boat ramp surveys coded NOR06, FIO06, FIO08, MBS06

age_gp	age
10	0 – 9
11	10 – 19
12	20 – 29
13	30 – 39
14	40 – 49
15	50 – 59
16	60 – 69
17	70 – 79
18	80 – 89
19	90 – 99

The NOR12 and NAT12 boat ramp surveys changed the age grouping slightly for the younger ages to:

age_gp	age
0	Less than 15
41	15 to 19 years old
12	20 to 29
13	30 to 39
14	40 to 49
15	50 to 59
16	60 to 69
17	70 to 79
18	80 to 89
19	90 or more?

These age groups were originally coded on the forms to 0- 9 respectively, and were re-coded prior to loading in the database to ensure unique age_gp values for respective age groupings.

Ethnic group (*ethnic*) in table t_phone

ethnic	
1	European or pakeha
2	Māori
3	Pacific groups
4	Other

Until 2003 the above codes were used for the attribute *ethnic* in table t_phone. The NAT00 and NAT01 surveys asked the ethnicity question differently by asking which ethnic group **or groups** they belong to. These 2 surveys used the following additional codes 5-23 for the attribute ethnic.

ethnic

5	Asian
11	Not Answered
12	Not used
13	Māori/Caucasian
14	Māori/Pacific
15	Māori/Asian
16	Māori/Caucasian/Pacific
17	Māori/Caucasian/Asian
18	Māori/Pacific/Asian
19	Māori/Pacific/Asian/Caucasian
20	Caucasian/Pacific
21	Caucasian/Asian
22	Caucasian/Pacific/Asian
23	Pacific/Asian

Codes 24-27 were added for the Chatham Is survey CHT08

24	Moriori
25	Māori/Moriori
26	Māori/European
27	Morori/Māori/European

t_length* observed codes (*observd)* from *t_observd_codes

observd	Description
1	measured
2	counted
3	observed
4	not observed
5	head removed (for otoliths)
F	fish filleted (including headed fish)
B	fish used for bait
L	thrown back - legal size (dead or alive)
U	thrown back - under size, dead
R	returned fish
X	sex = female (for CRA)
Y	sex = male (for CRA)

t_length **Fish measurement method codes (*meas_meth*)**
from *rdb:t_fish_meas_codes*

meas_meth	Description
1	Fork Length
2	Total Length
3	Pelvic Length (rays)
8	Shell Length
W	Tail width as legally defined for red rock lobsters

t_interview **Bird hook site codes (bird_hook_site)**

Tangled in line with no hook contact		Released alive	**A**
Hooked but hook removed	Hooked in beak or gizzard	Dead	**B**
		Released alive	**C**
	Hooked externally	Dead	**D**
		Released alive	**E**
Hooked but hook not removed	Hooked in beak or gizzard	Dead	**F**
		Released alive	**G**
	Hooked externally	Dead	**H**
		Released alive	**I**
Caught in net		Dead	**J**
		Released alive	**K**
		Dead	**L**

t_boat_codes **re: *t_effort.boat* & *t_group.group_type***

boat	*group_type*	Description
1	C	Charter
2	Y	Yacht
3	L	Motor Launch
4	T	Trailer-dinghy (excluding yachts)
5		Other
	M	Maori hui permit
6	S	Shore fishing
	R	Snorkelling from rocks (added for NAT00 survey)
7	K	Kayak
	J	Jet Ski
8	T	Trailer yacht
9	L	Large yacht

count_codes from t_obs_count
Codes used for the attribute *count_code* as documented in table *t_count_codes*

count_code	descrption
FSR	Fishers or Group size, the number of people actively fishing in the boat/party.
TBT	Trailer Boats - ie the number of trailer boats with people fishing.
LCH	Launches - ie the number of launches with people fishing.
YCH	Yachts - ie the number of yachts with people fishing.
BOT	Boats (type not specified) - ie the number of boats with people fishing.
CHT	Charter Boats – ie the number of Charter Boats with people fishing.
DIV	Diving - ie the number of fishers Diving.
KIT	Kite - ie the number of people using kites
KNT	Kontiki - ie the number of people using Kontikis
KYK	Kayaks - ie the number of Kayaks with people fishing.
SFC	Surfcasting - ie the number of people surfcasting
SFR	Surfcasting from rock - ie the number of people surfcasting from rock
SFS	Surfcasting from sand - ie the number of people surfcasting from sand

The above list documents the meaning of the attribute *tally* in the table t_obs_count

Response status for diary surveys (*response*) from *t_response*

response	Description
0	Did not fish the time period; i.e., the quarter
1	Made trips; i.e., went fishing
4	Have been contacted but no return
6	Can't be contacted (2 x 6's => 8)
7	Either a diarist was not yet recruited or no longer a part of the survey due to design structure. Added for NAT01 survey
8	Dropped from the survey
9	No records available (equivalent to null)

***t_effort* zone lived in (*zonel)* by survey**

survey = NAT96 & NAT97

zonel	Telephone directory - area of residence
1	Northland
2	Auckland
3	Bay of Plenty
4	Waikato
5	Gisborne
6	Hawkes Bay
7	Wanganui
8	Taranaki
9	Manawatu
10	Wairarapa
11	Wellington
12	Marlborough
13	Nelson
14	West Coast
15	Christchurch
16	Timaru – Oamaru
17	Otago
18	Southland

survey = NOR94

zonel	Telephone directory - area of residence
1	Northland
2	Auckland
3	Waikato
4	Bay of Plenty

survey = NAT00 & NAT01

zonel	Telephone directory - area of residence
1	Northland
2	Auckland
3	Waikato
4	Bay of Plenty

5 Gisborne
6 Hawkes Bay
7 Taranaki
8 Manawatu / Wanganui
9 Wellington
10 Nelson /Marlborough/Tasman
11 West Coast
12 Canterbury
13 Otago
14 Southland

South region survey[10]

zonel	Description
1	Clarence Mouth – Conway Mouth
2	Conway Mouth – Sumner Beach
3	Sumner Beach – Rakaia Mouth
4	Rakaia Mouth – Waitaki Mouth
5	Waitaki Mouth – Toko Mouth
6	Toko Mouth – Slope Point
7	Slope Point – Te Waewae Point
8	Stewart Island
9	Te Waewae Point – Awarua Point

Central region survey[11]

zonel	Description
1	Cape Runaway – Whareongaonga
2	Whareongaonga – Cape Turnagain
3	Cape Turnagain – Turakirae Head
4	Turakirae Head – Otaki River
5	Otaki River – Waitotara River
6	Waitotara River – Tirua Point
7	Clarence River – Stephens Island
8	Stephens Island – Kahurangi Point
9	Kahurangi Point – Awarua Point

NB That the definitions of *the zonel* codes for the South and Central regions correspond to the definitions for the *fish_zone* codes (see also *t_zonef_codes*).

Intend to go fishing in the next 12 months, ***intend*** in the t_phone table

intend

1	Yes
2	No
3	Don't Know

intend

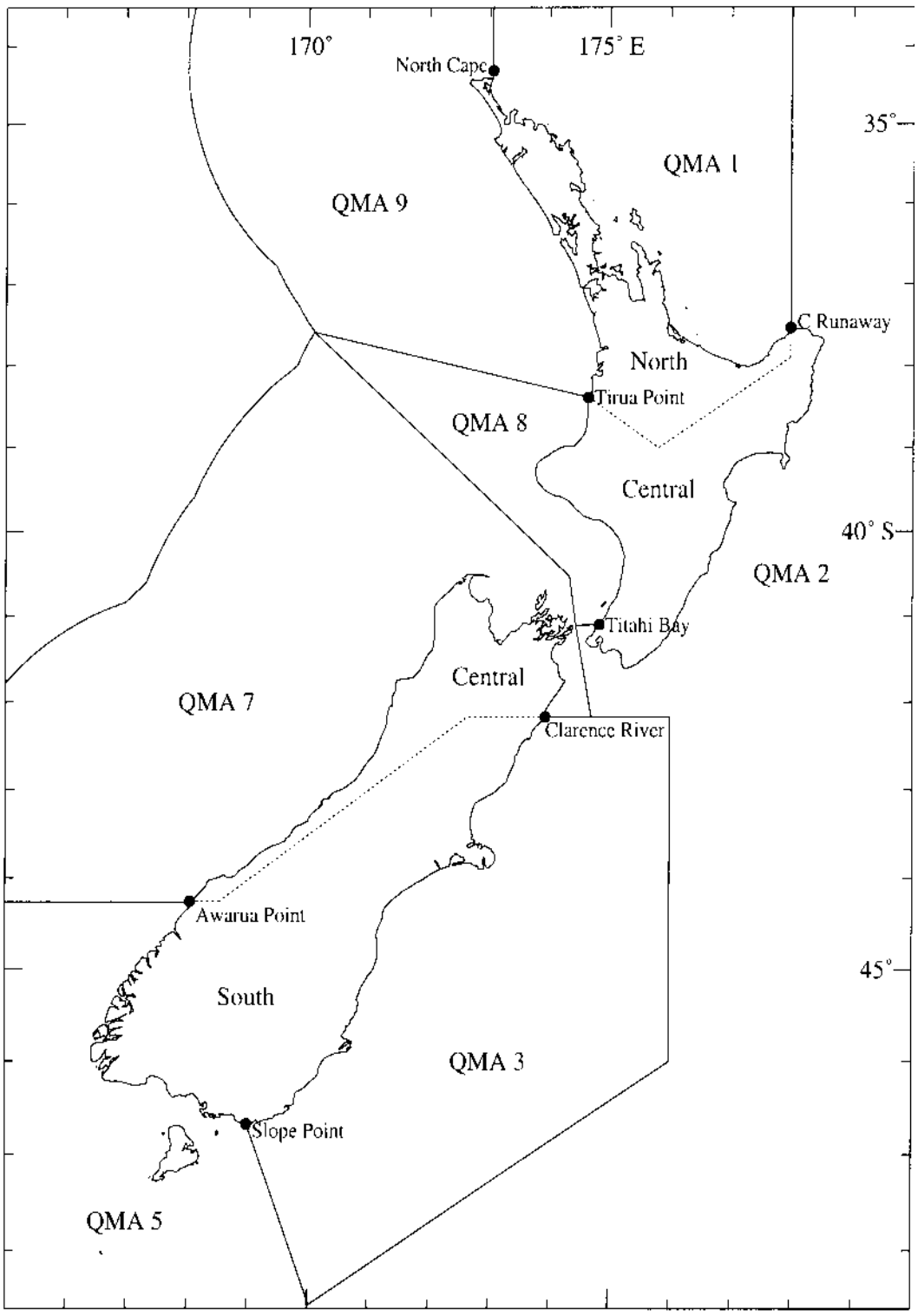
4	Definitely go	The NOR00 and NOR01 surveys
5	Probably go	added codes 4- 8 to *intend.*
6	Possibly go	
7	Probably not go	
8	Definitely not go	

[10] South region *survey* codes are SOU92 & SOU93

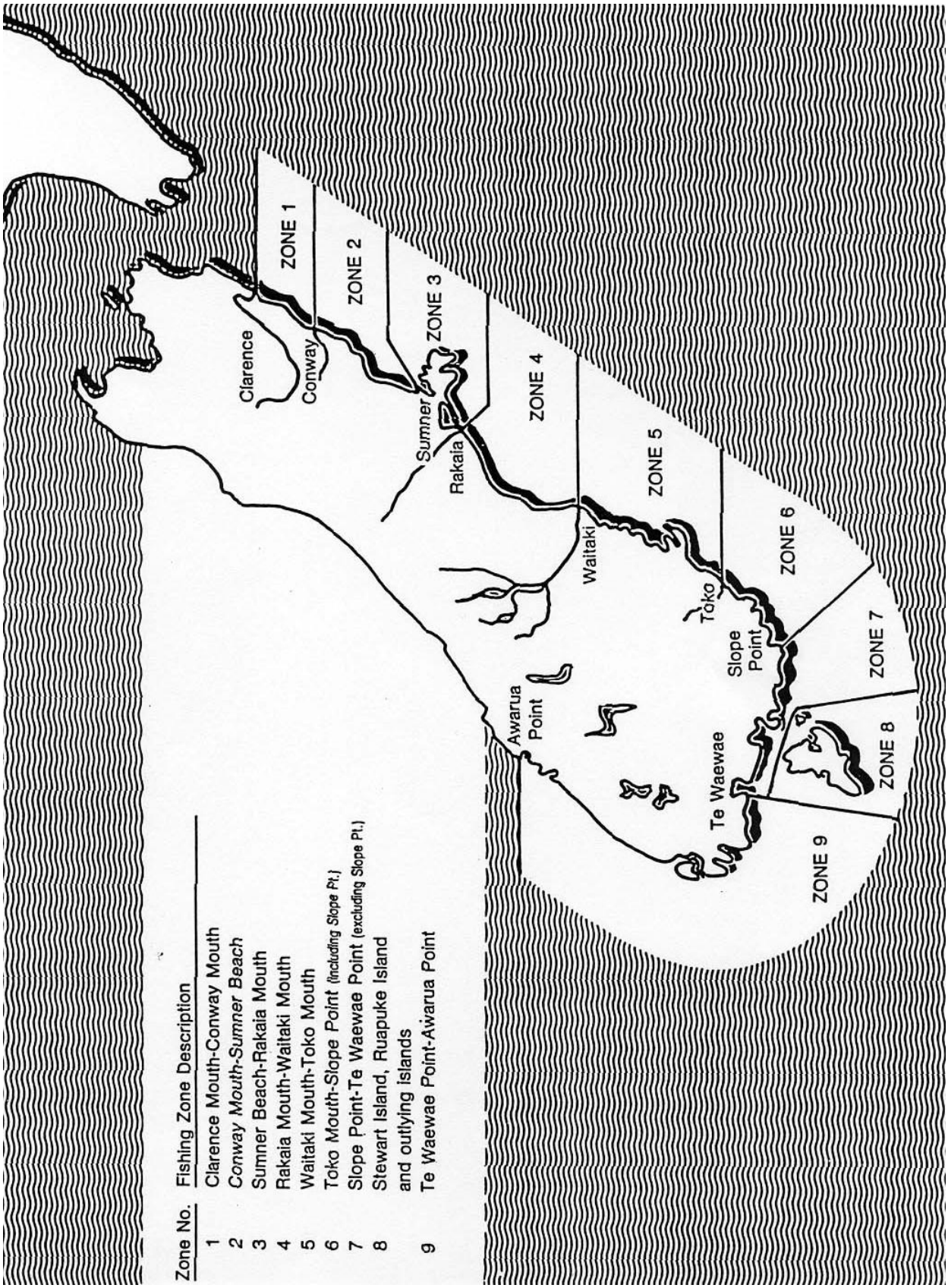
[11] Central region *survey* codes are CEN93 & CEN94

Appendix 3 - Reference Documentation - Area Maps

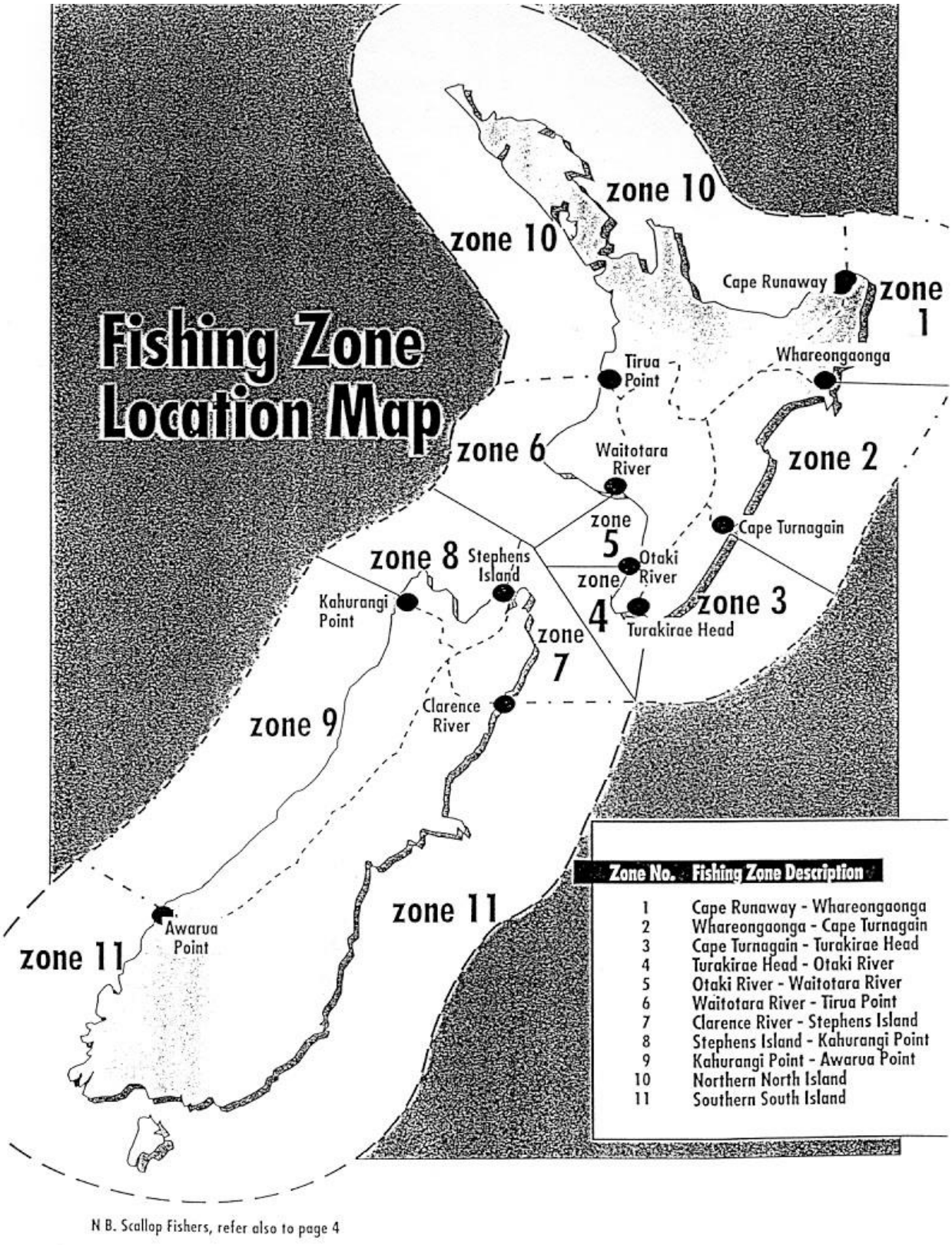
The following maps document the *fish_zone* attribute unless specified otherwise.



Map of New Zealand showing the land areas taken to be associated with the North, Central, and South regions, and the Quota Management Areas (QMAs) which adjoin the coastline. Refer attribute *qma* in table t_effort.



Recreational fishing survey zones used for the South region survey
with *survey* codes **SOU92** & **SOU93**

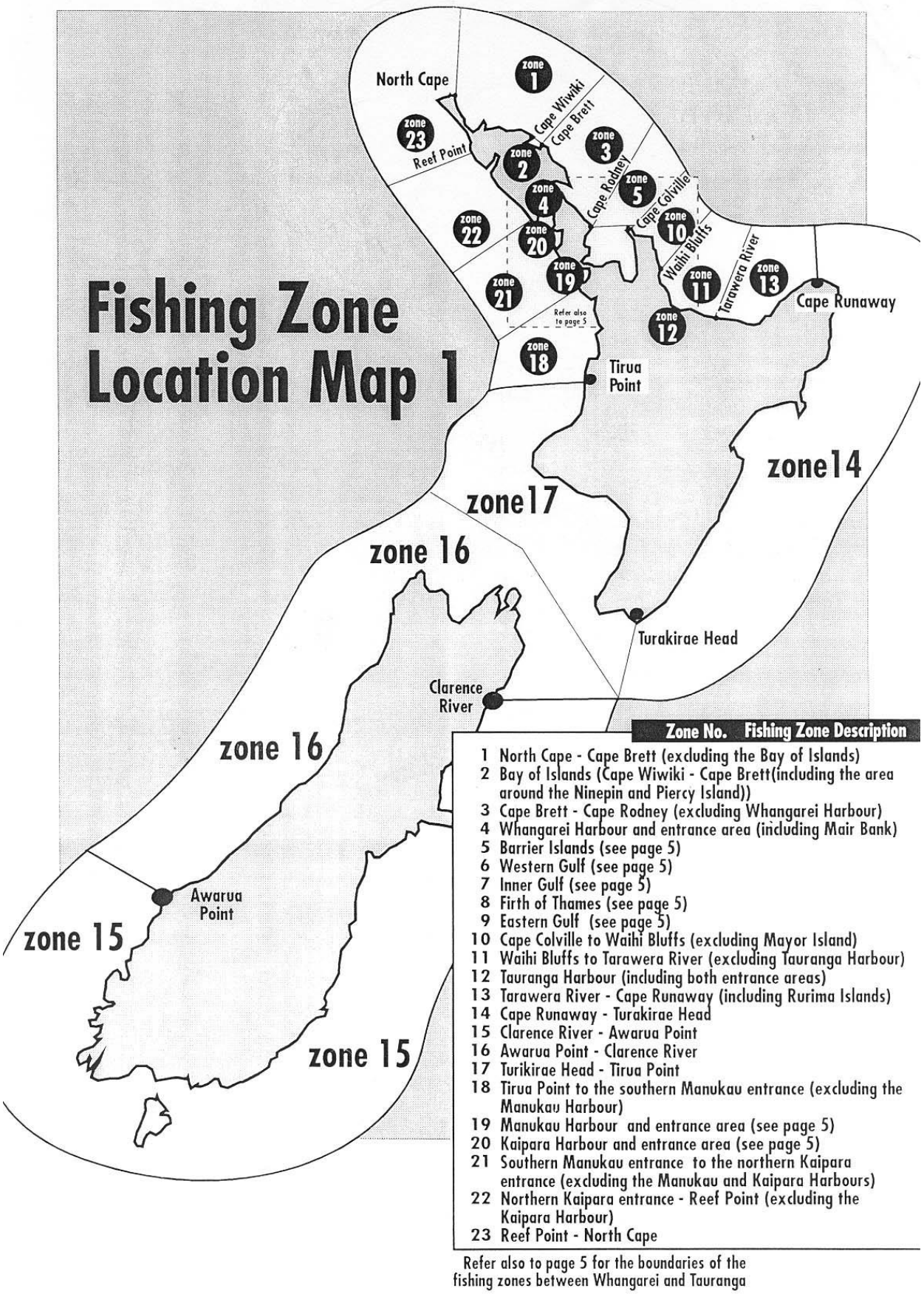


Recreational fishing survey zones used for the Central region survey
with *survey* codes **CEN93** & **CEN94**

Recreational fishing survey scallop areas used for the Central region survey

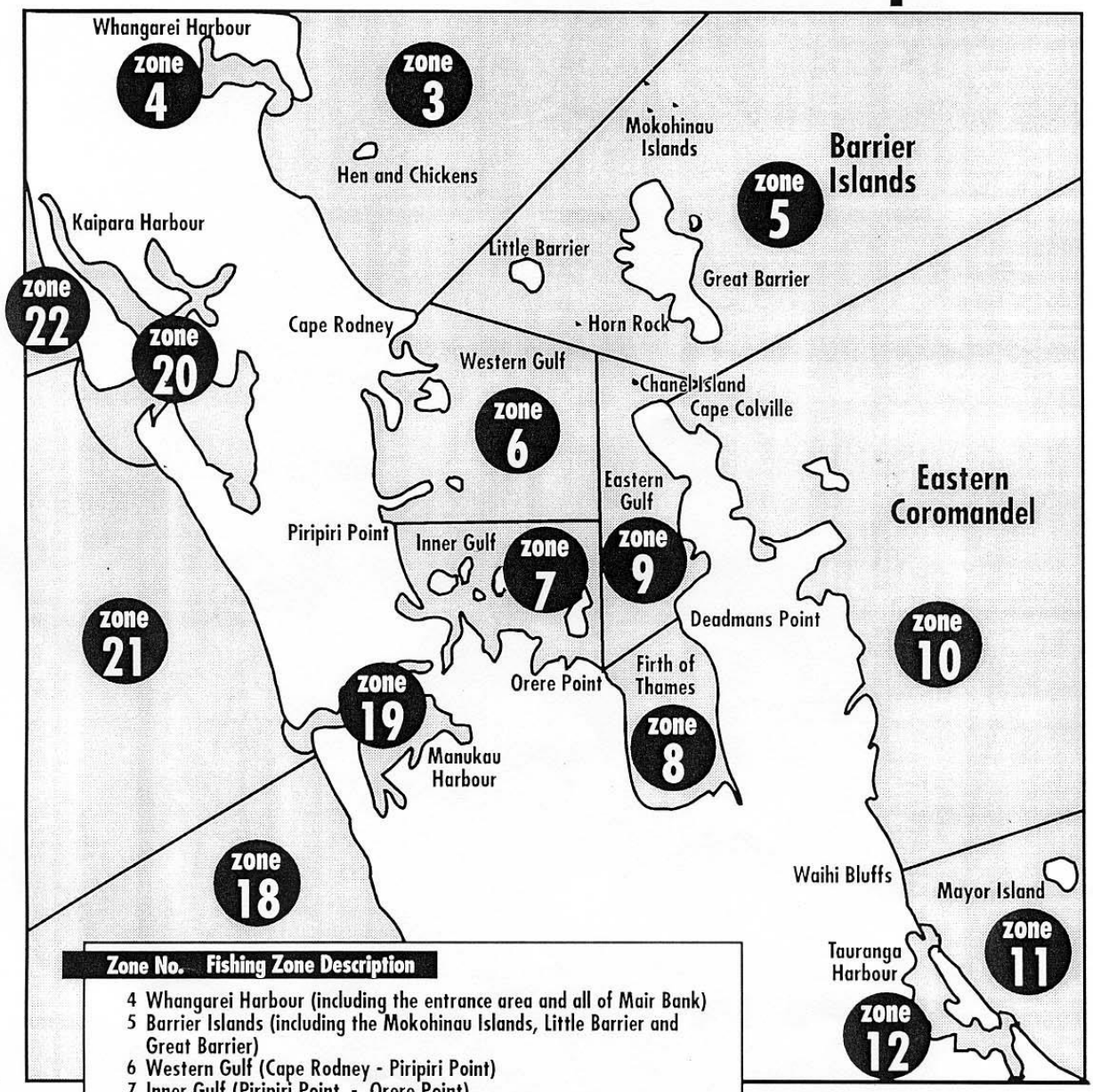
These codes are used in the attribute *SCAarea* in the table t_effort and apply to the surveys with *survey* codes **CEN93** & **CEN94**

NB These areas A through I have been recoded to 1 through 9 respectively in this database.



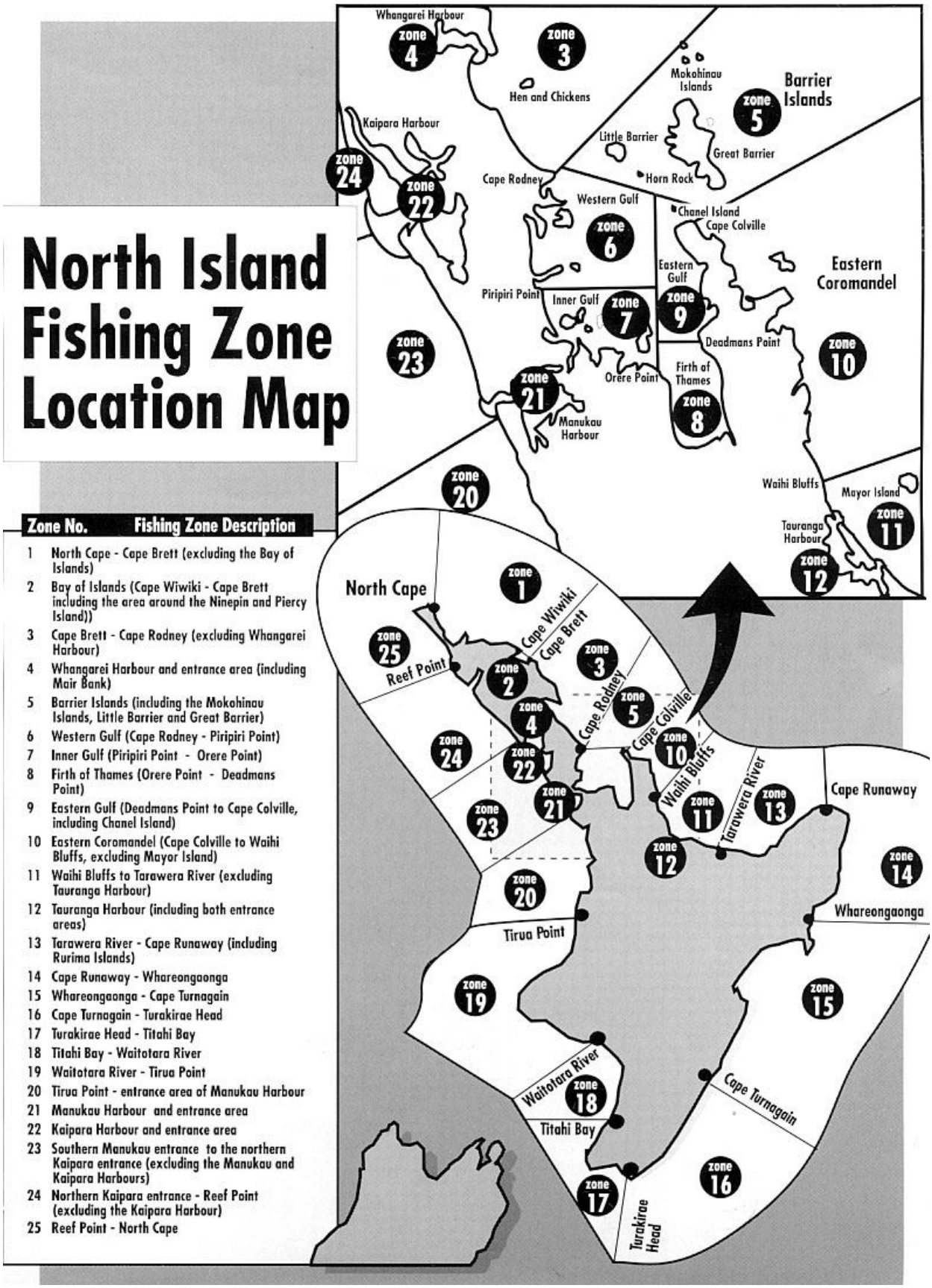
Recreational fishing survey zones used for the North region survey with *survey* code **NOR94**

Fishing Zone Location Map 2

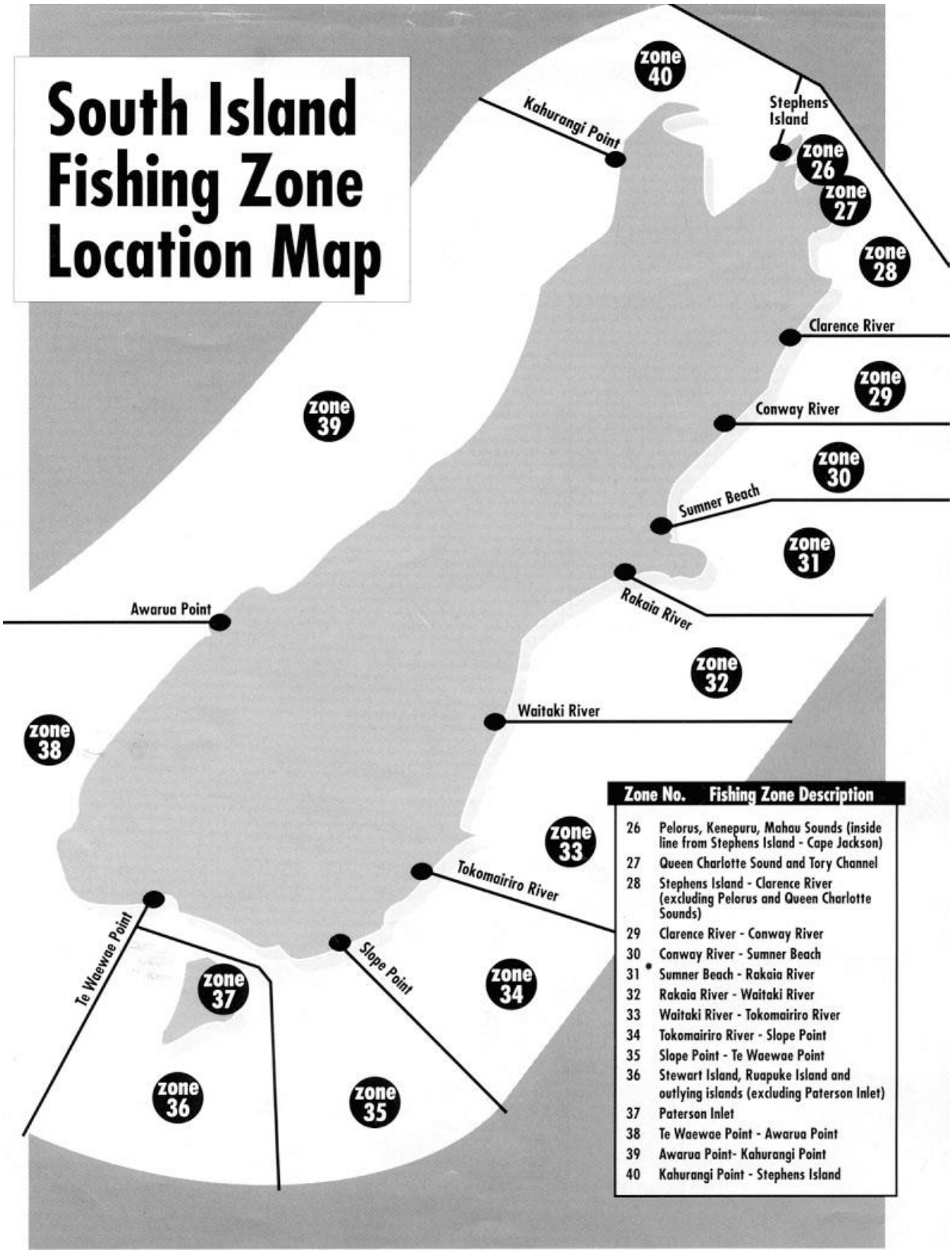


Zone No.	Fishing Zone Description
4	Whangarei Harbour (including the entrance area and all of Mair Bank)
5	Barrier Islands (including the Mokohinau Islands, Little Barrier and Great Barrier)
6	Western Gulf (Cape Rodney - Piripiri Point)
7	Inner Gulf (Piripiri Point - Orere Point)
8	Firth of Thames (Orere Point - Deadmans Point)
9	Eastern Gulf (Deadmans Point to Cape Colville, including Chanel Island)
10	Eastern Coromandel (Cape Colville - Waihi Bluffs)
12	Tauranga Harbour (including both entrance areas)
18	Tirua Point to the southern Manukau entrance (excluding the Manukau Harbour)
19	Manukau Harbour and entrance area
20	Kaipara Harbour and entrance area
21	Southern Manukau entrance to the northern Kaipara entrance (excluding the Manukau and Kaipara Harbours)
22	Northern Kaipara entrance - Reef Point (excluding the Kaipara Harbour)

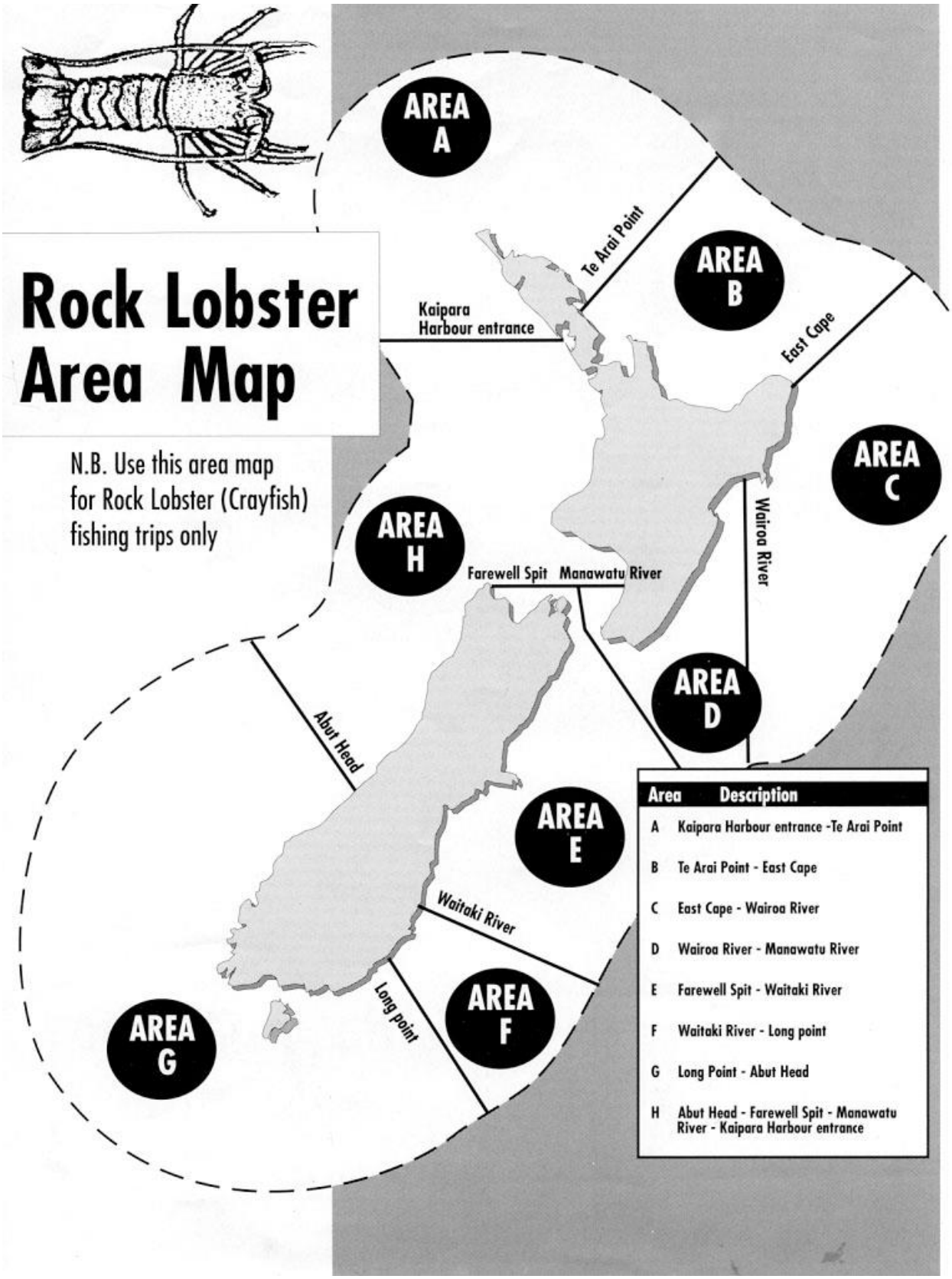
Recreational fishing survey zones used for the North region survey with *survey* code **NOR94**



Recreational fishing survey zones used for the national surveys, with *survey* codes NAT96, NAT97, NAT00, NAT01.

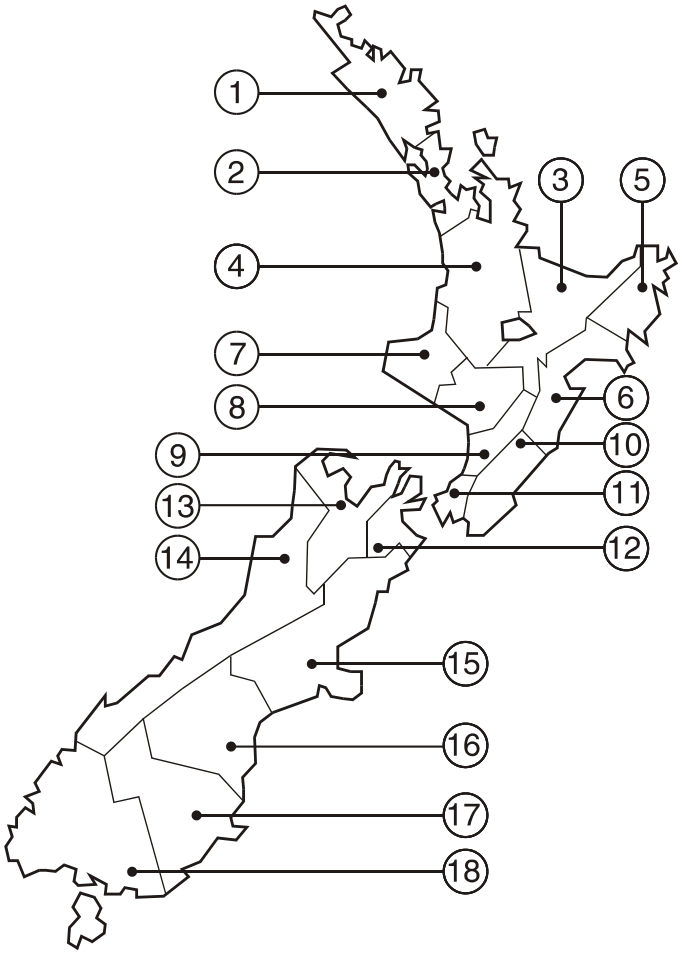


Recreational fishing survey zones used for the national surveys, with *survey* codes NAT96, NAT97, NAT00 & NAT01

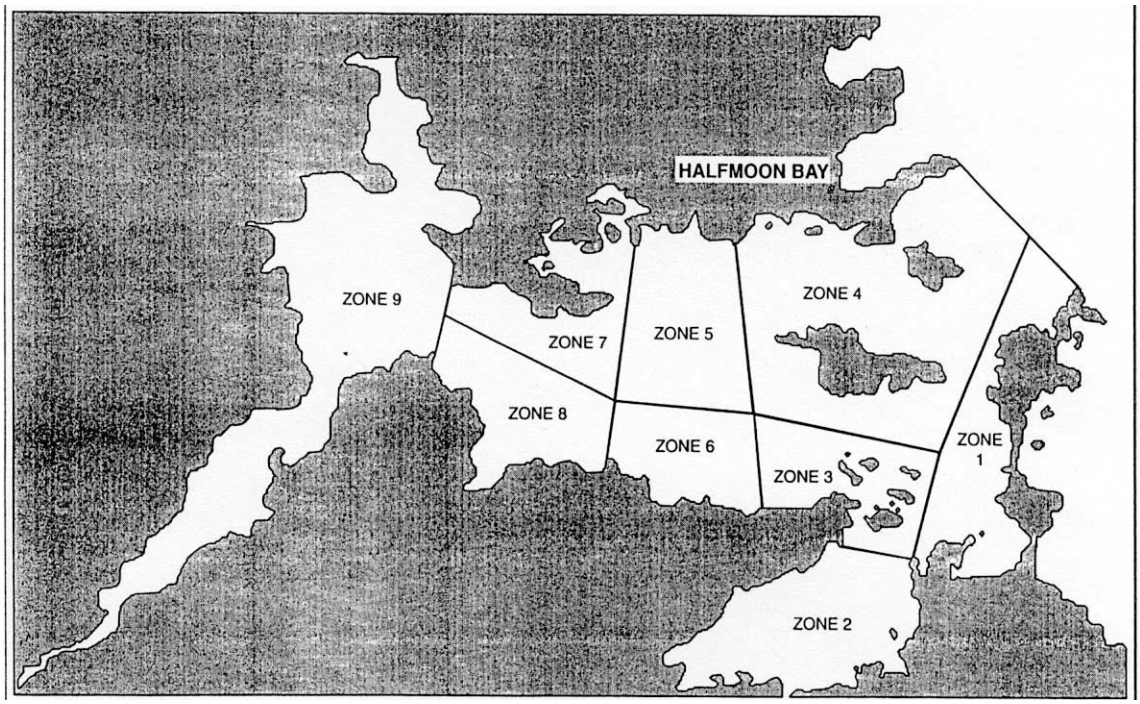


Rock Lobster areas used for the national surveys in attribute CRAarea.

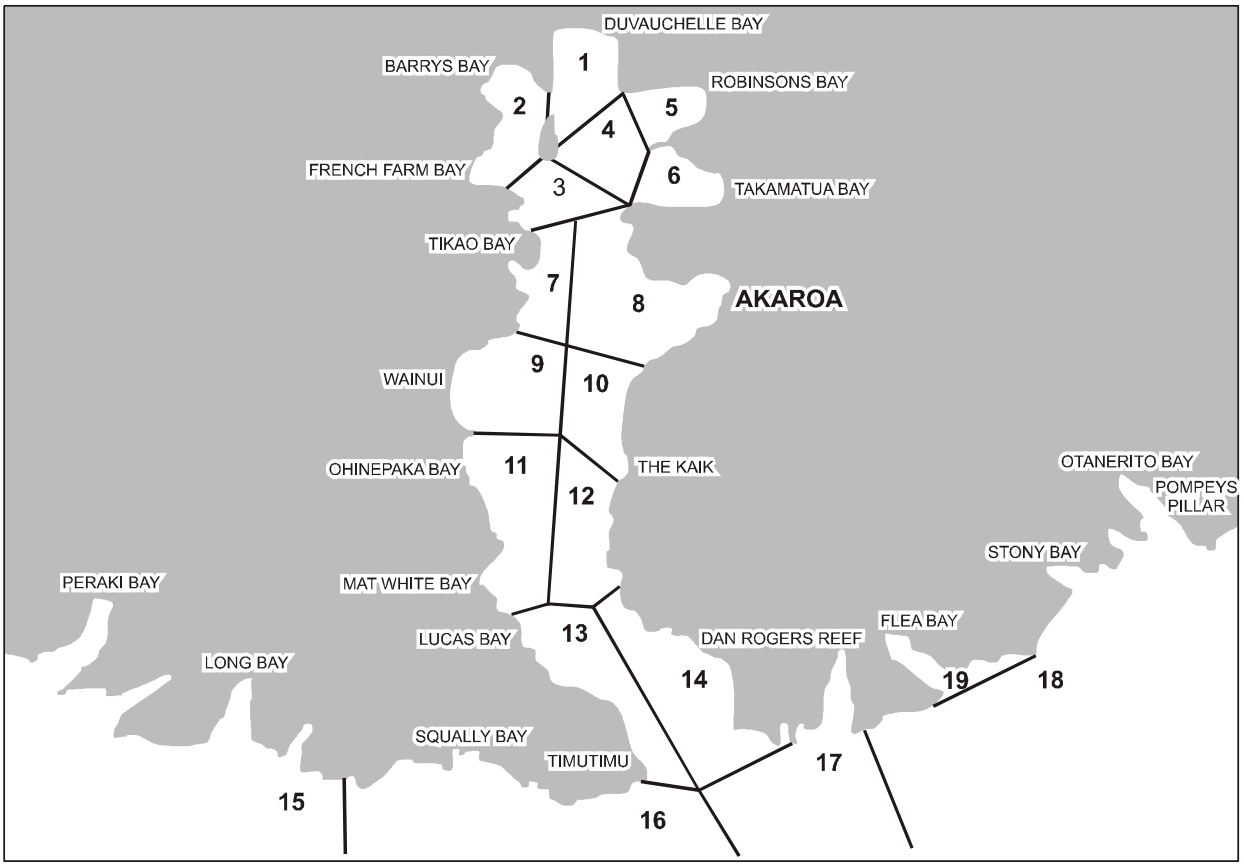
1 Northland
2 Auckland
3 Bay of Plenty
4 Waikato
5 Gisborne
6 Hawkes Bay
7 Wanganui
8 Taranaki
9 Manawatu
10 Wairarapa
11 Wellington
12 Marlborough
13 Nelson & Bays
14 West Coast
15 Christchurch
16 Timaru/Oamaru
17 Otago
18 Southland



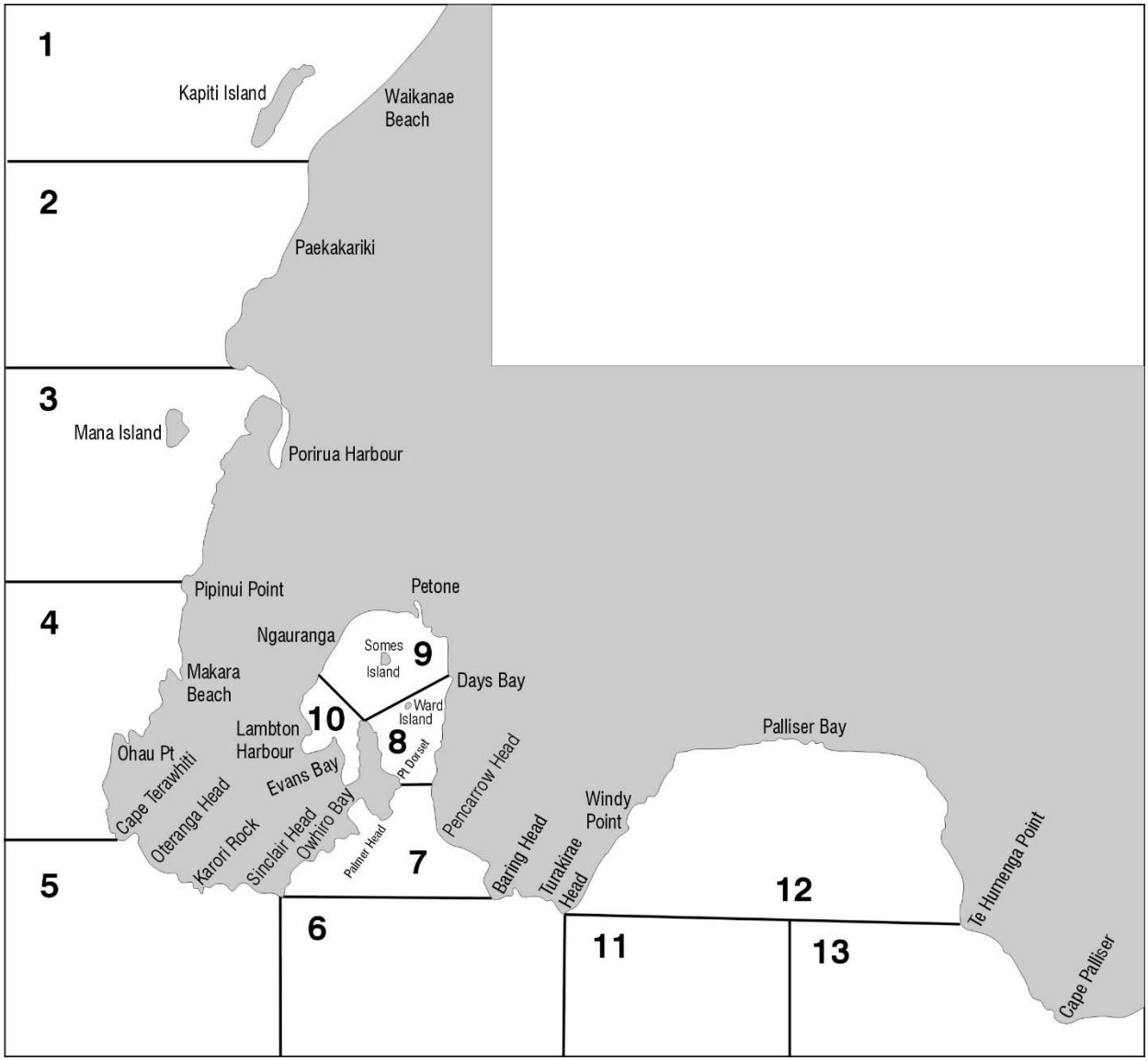
The Telecom telephone book coverage areas and their numbers as used in the NAT96 diary survey. The numbers are those as used in the attribute *zone1* in tables t_phone and t_effort.



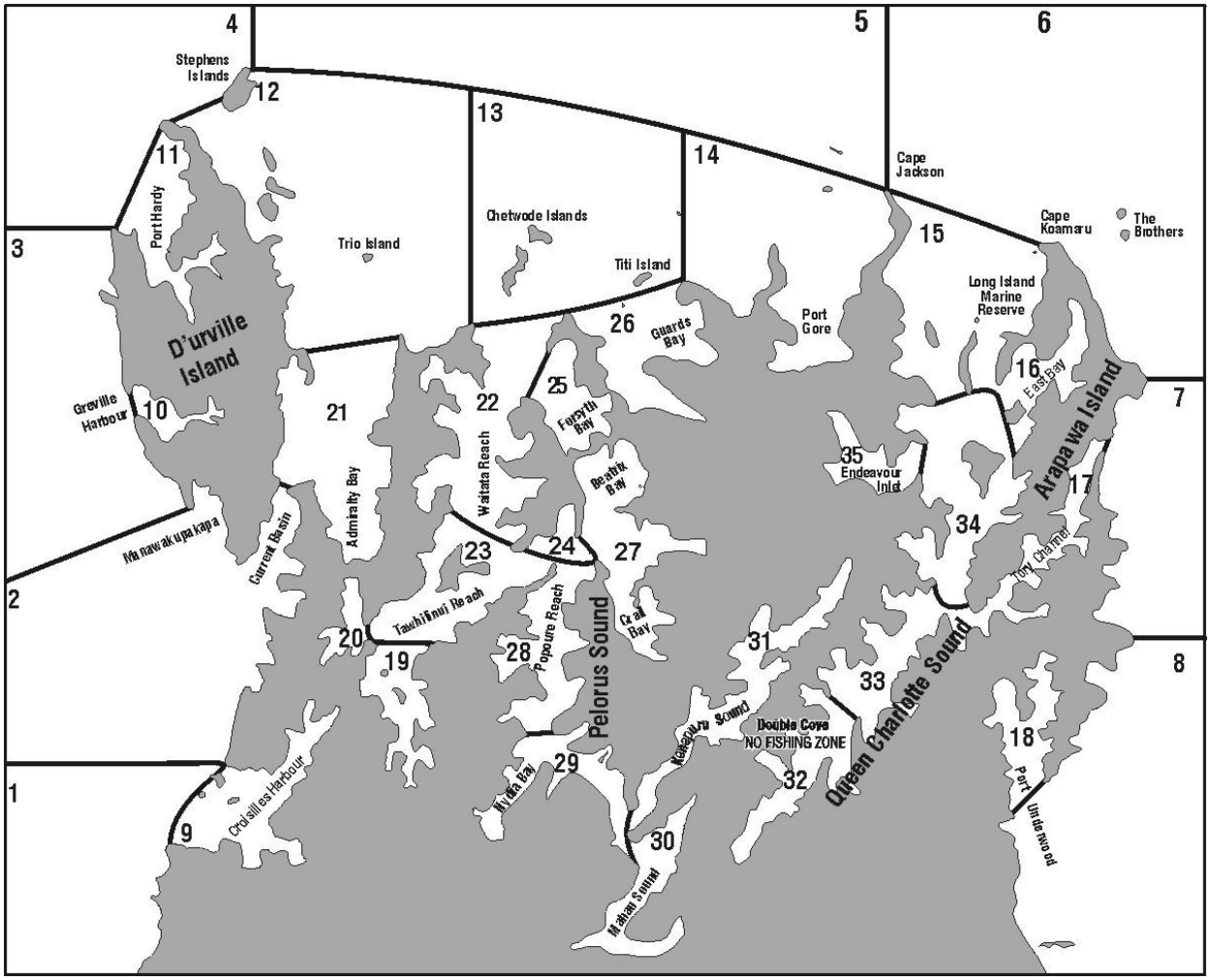
Recreational fishing survey zones used for the Patterson Inlet (Stewart Is) survey with *survey* code **PAT93**.



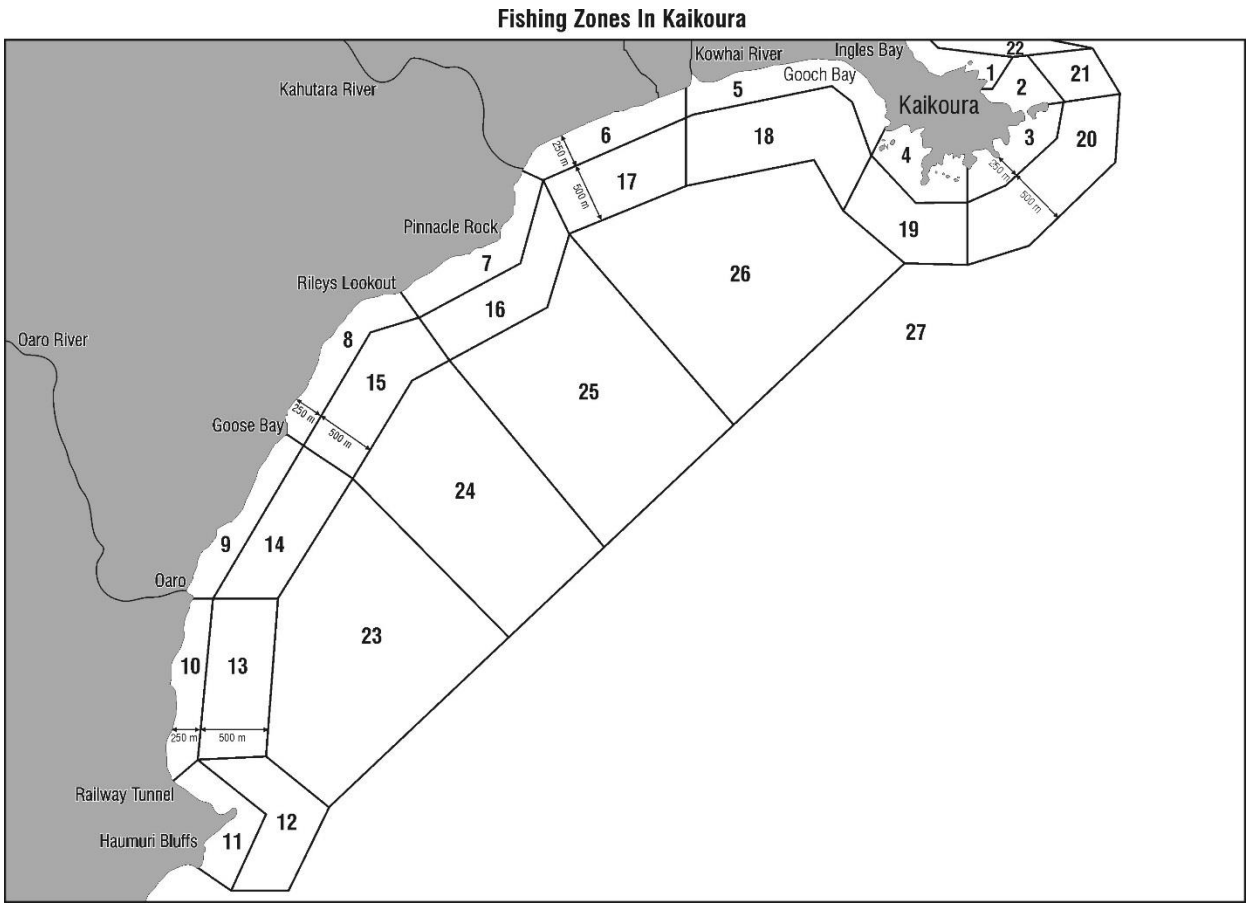
Recreational fishing survey zones used for the Akaroa diary survey with *survey* code **AKA97**.



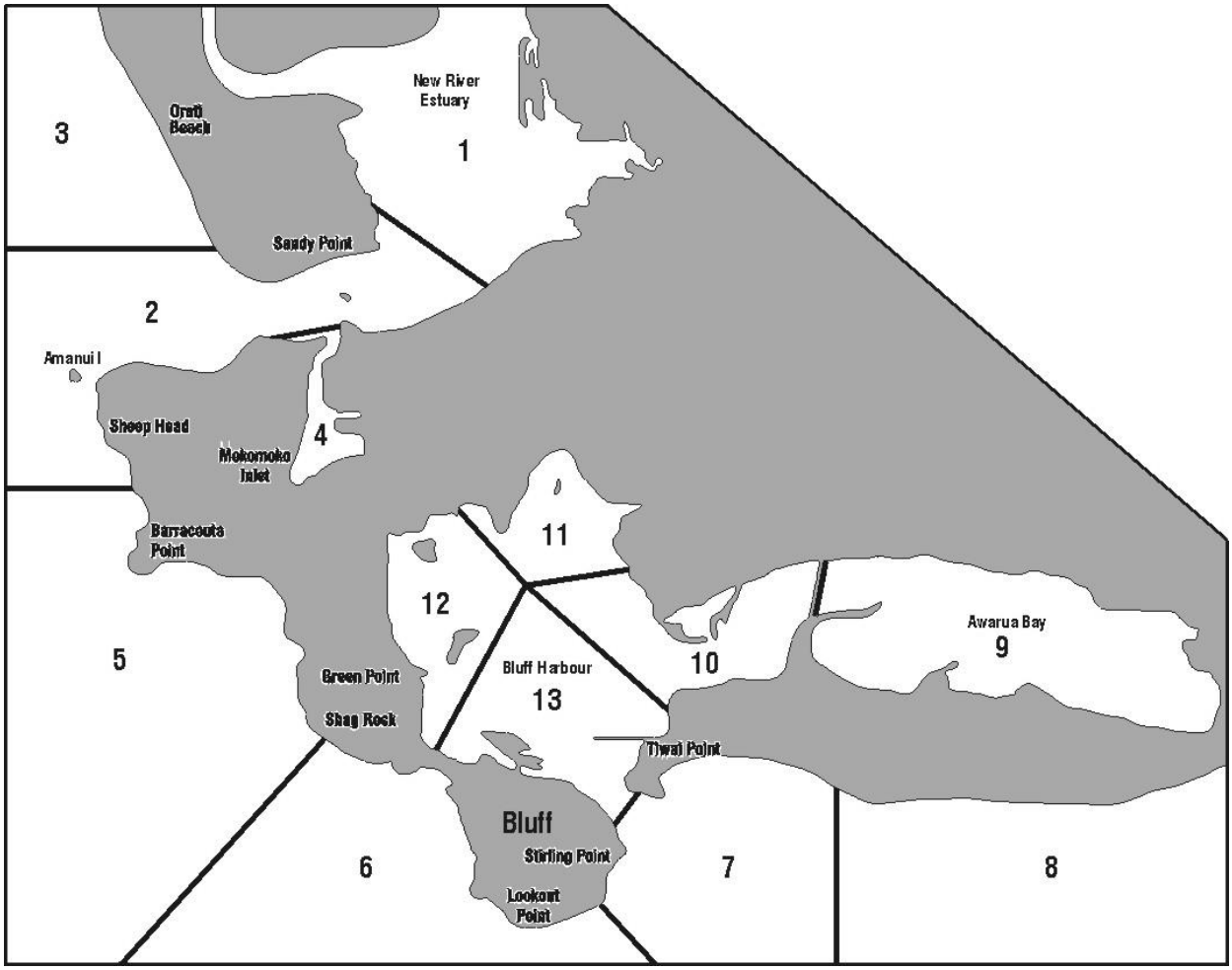
Recreational fishing survey zones used for the Wellington diary survey with *survey* code **WLG99**.



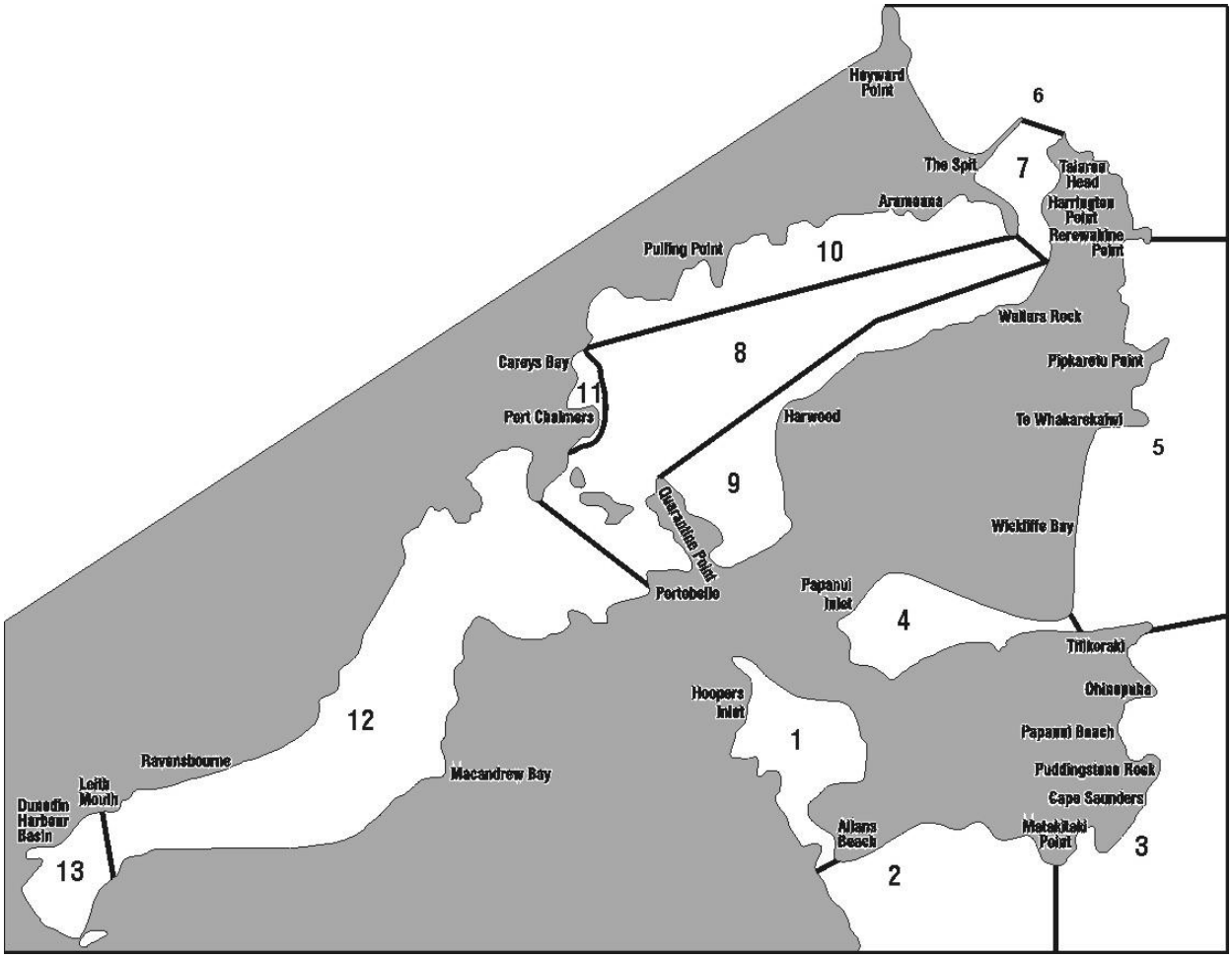
Recreational fishing survey zones used for the Greater Marlborough Sounds diary survey with *survey* code **MBS99**.



Recreational fishing survey zones used for the Kaikoura survey with *survey* code **KAI99**

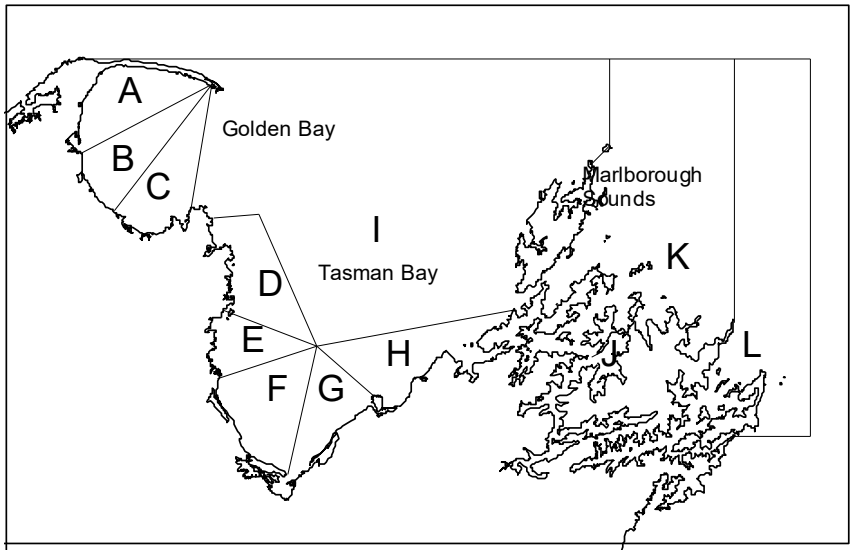


Recreational fishing survey zones used for the Bluff Harbour diary survey with *survey* code **BLF98**.



Recreational fishing survey zones used for the Otago Harbour diary survey with *survey* code **OTG98**.

Map showing the areas used in the fish_loc attribute for the TGB04 survey.



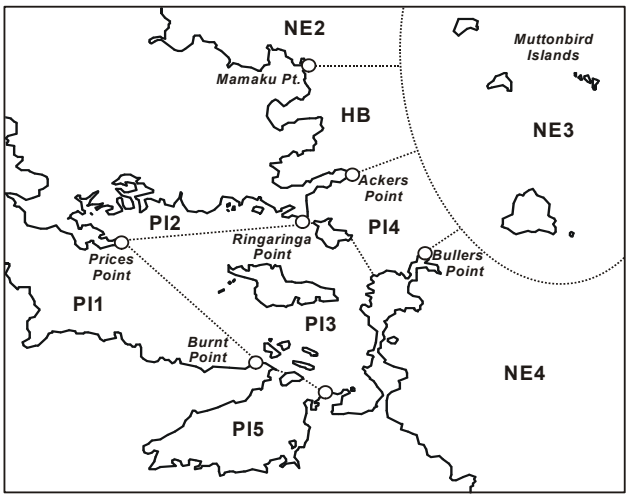
Management sectors used by the Challenger Scallop Enhancement Company in Tasman Bay, Golden Bay, and the Marlborough Sounds. These sectors were used to identify fishing locality in the survey of recreational scallop and dredge oyster catches in Tasman and Golden Bays in 2003–04 (survey TGB04).

The following records were added to the table t_locality_codes for this TGB04 survey.
The localities reflect the scallop management sectors in Tasman and Golden Bays as shown in the map above.

fish_loc	fish_zone	descrptn
SEA	40	Scallop management sector A
SEB	40	Scallop management sector B
SEC	40	Scallop management sector C
SED	40	Scallop management sector D
SEE	40	Scallop management sector E
SEF	40	Scallop management sector F
SEG	40	Scallop management sector G
SEH	40	Scallop management sector H
SEI	40	Scallop management sector I
SCR	40	Croisilles Harbour, in eastern Tasman Bay

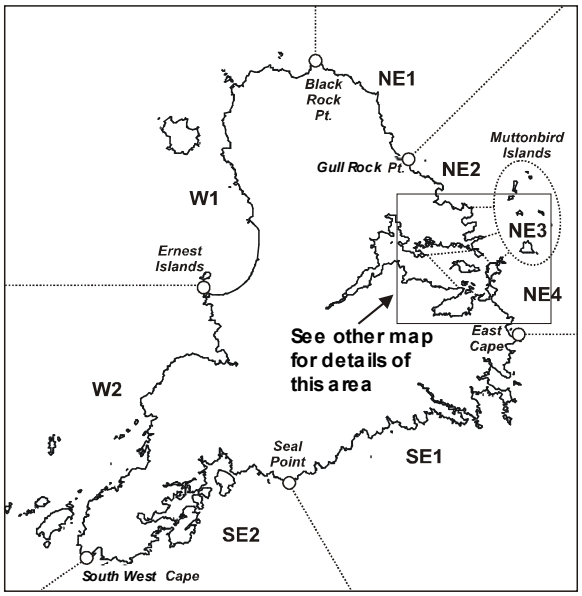
Earth Sciences New Zealand

NIWA
Taihoro Nukurangi



STEWART ISLAND 2002/03 RECREATIONAL FISHING SURVEY

NIWA (The National Institute of Water & Atmospheric Research) is undertaking a survey of recreational fishing around Stewart Island for the Ministry of Fisheries. If you have been fishing at all, we would be grateful if you could take the time to fill in this card, and return it to the issuing agency, or to:
NIWA, Freepost 83636, PO Box 8602, Christchurch.



Contact Numbers:

Gavin James, Project Leader
NIWA, Freepost 83636, Christchurch.
Ph 03 348 8987 (Collect)
Email: g.james@niwa.co.nz

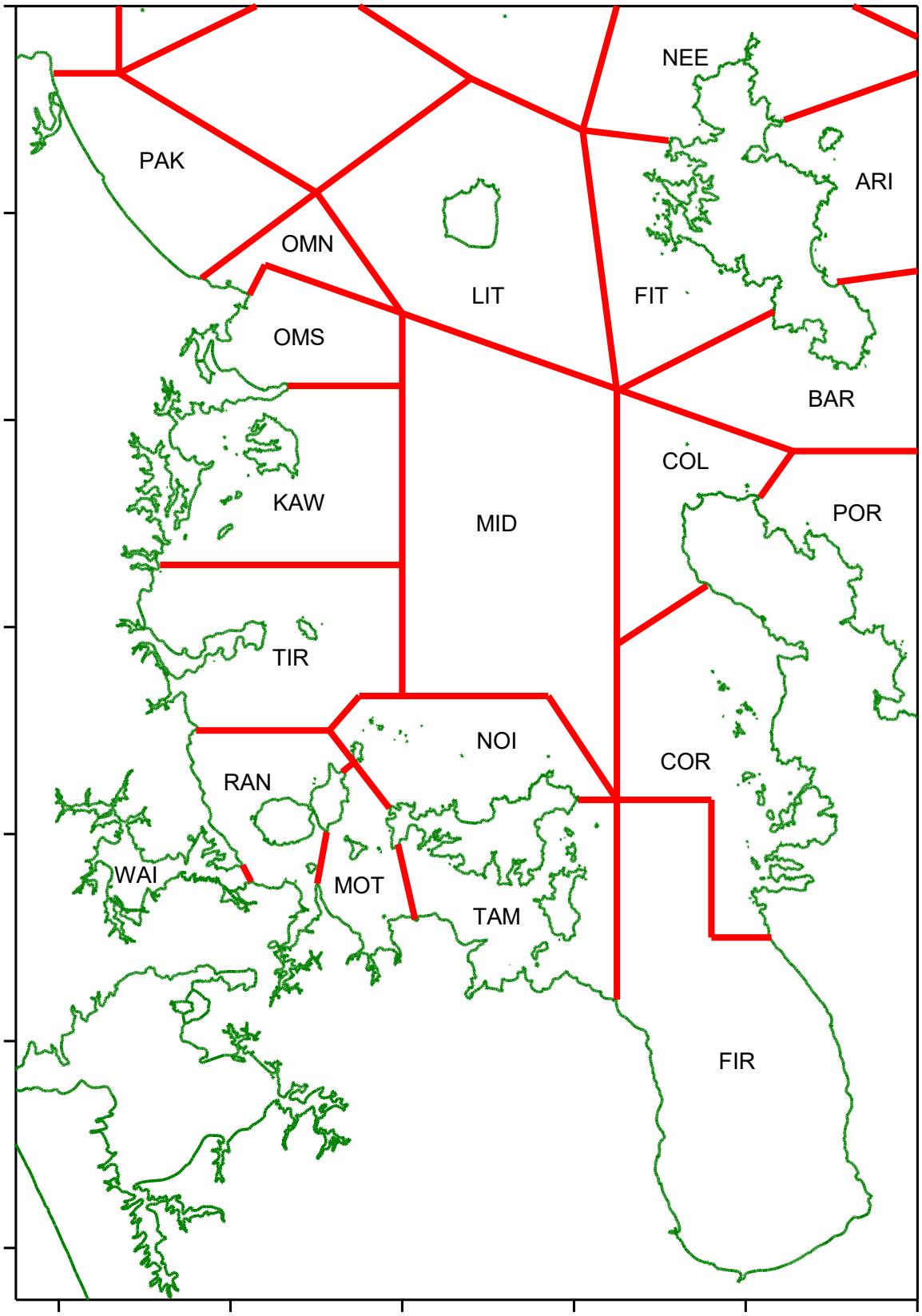
Glen Carbines, NIWA, Dunedin, Ph 03 4778615

Jon Spraggon, Foveaux Express, Oban,
Ph 03 2191134

Fishing Method	Code
Bottom line fishing	1
Diving	2
Set netting	3
Potting	4
Trolling	5
Dredging	6
Hand gathering	7
Other	8

(This 12 month survey runs from 1 October 2002 to 30 September 2003)

Areas used in the fish_loc attribute in tables t_observer and t_effort for the STI03 survey.



Hauraki Gulf *fish_loc* area codes (see also table *t_locality codes*).

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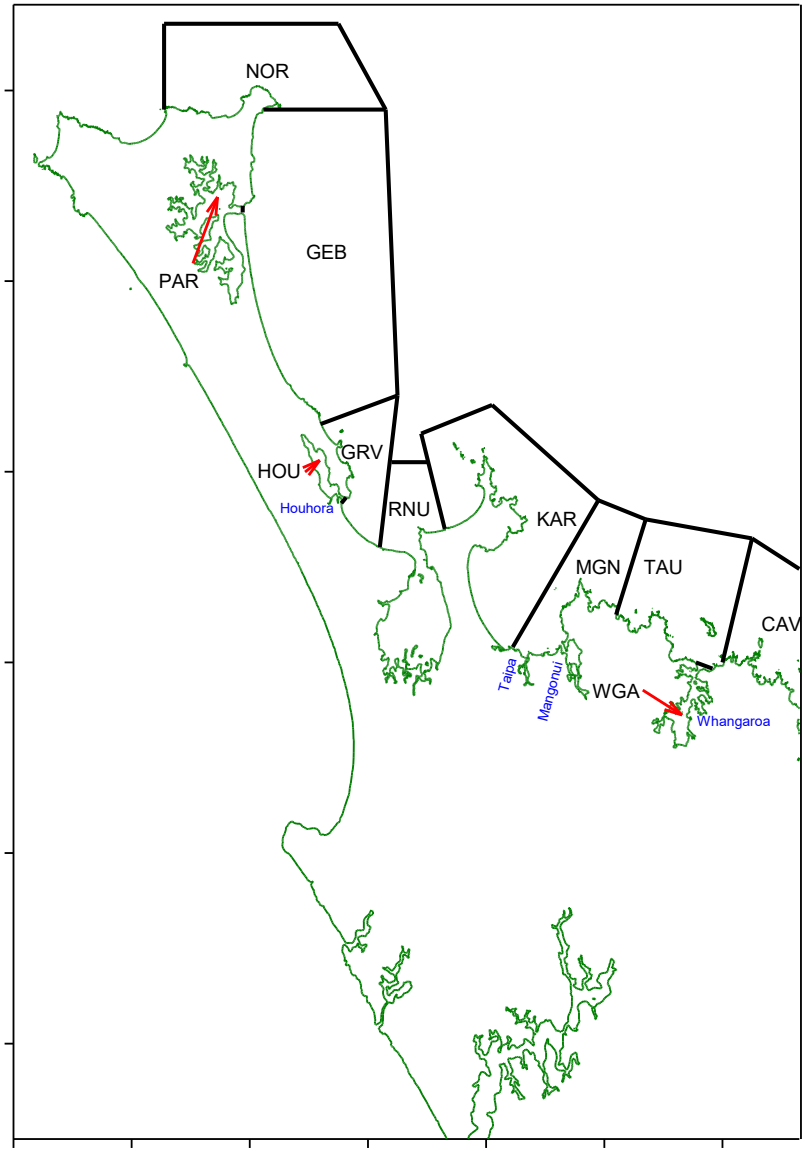
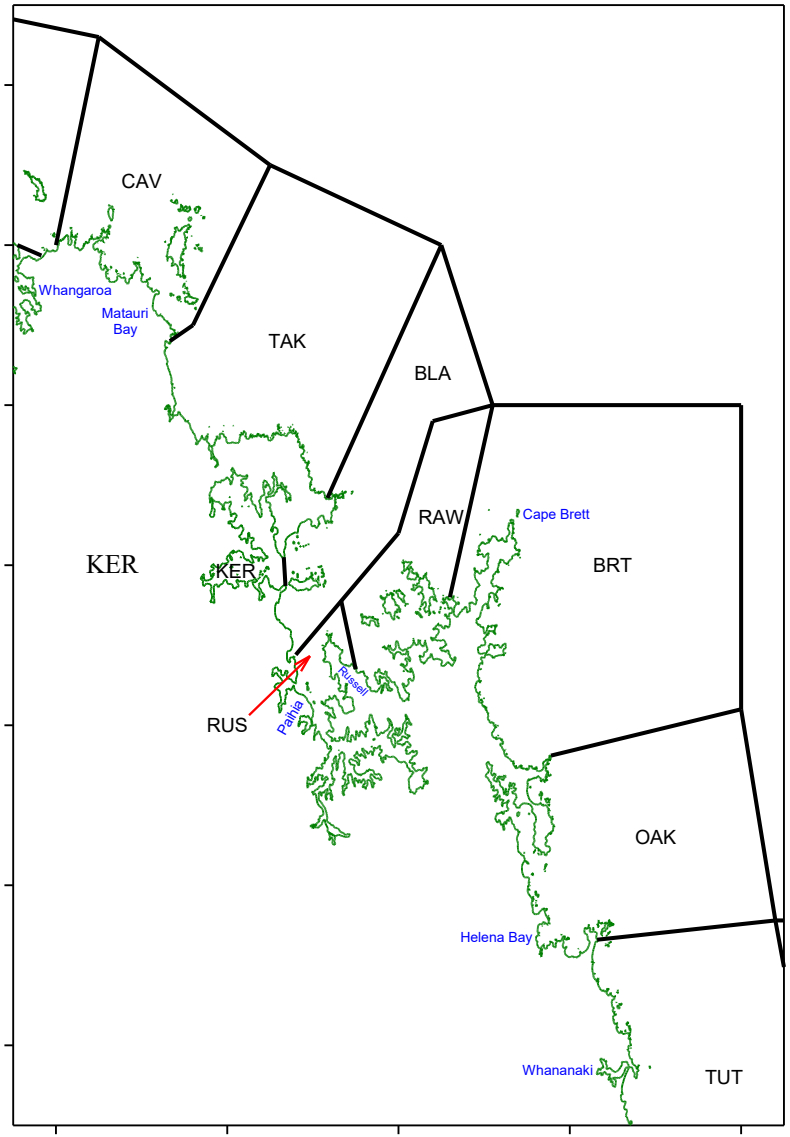
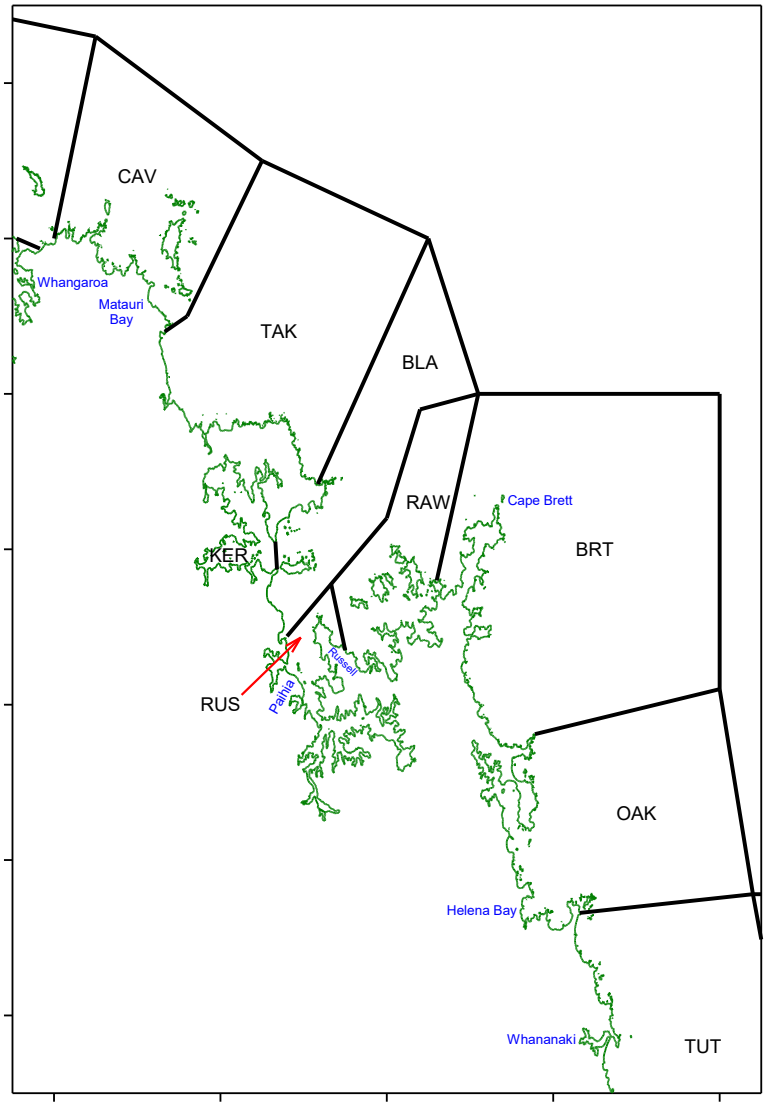
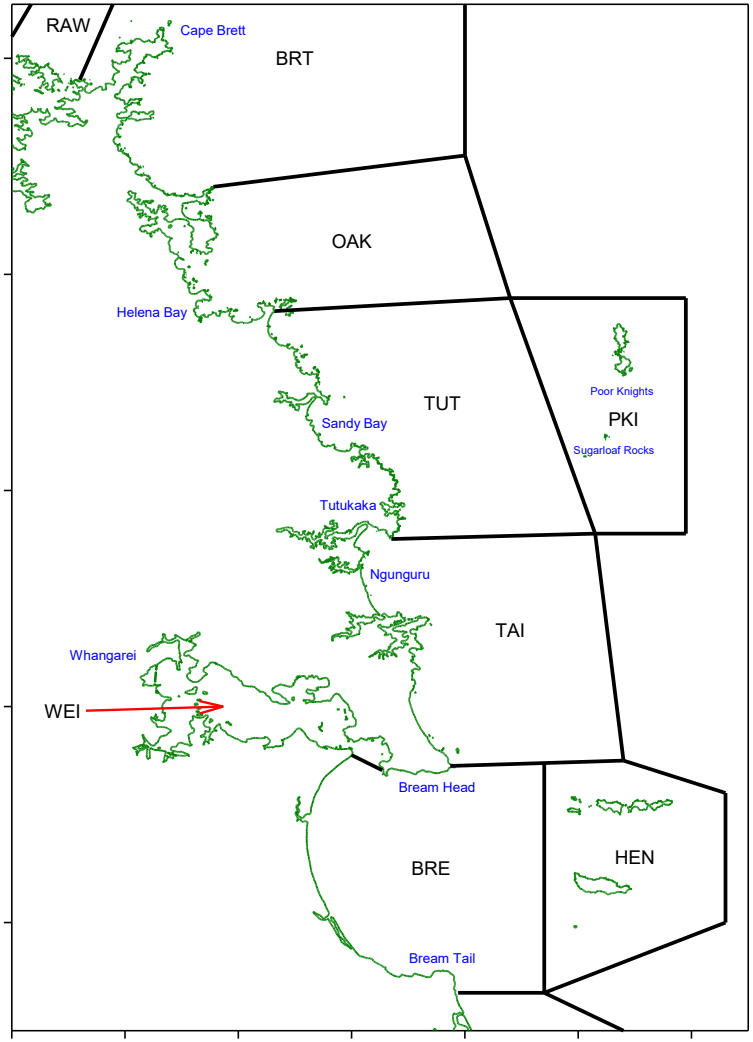
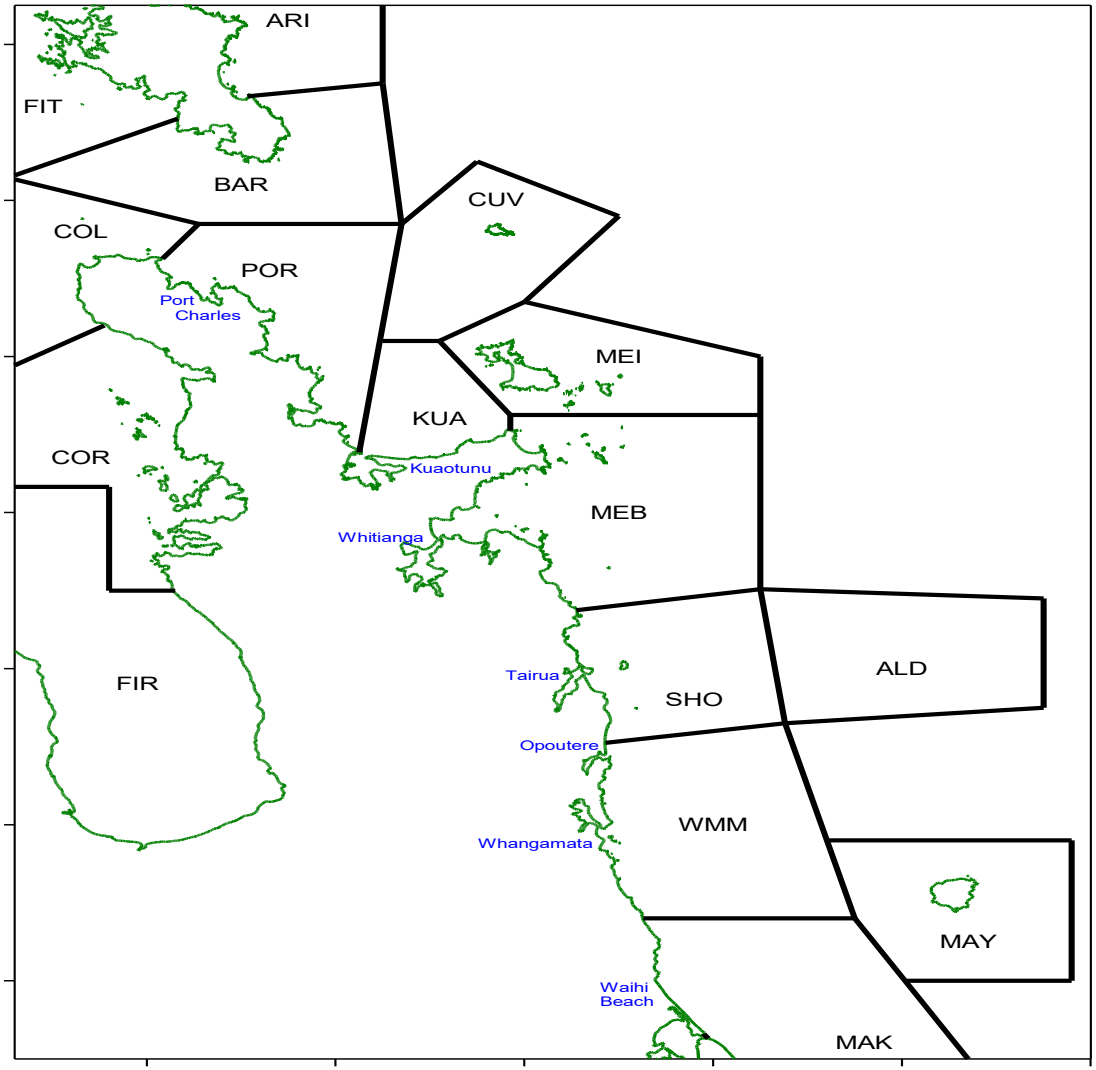


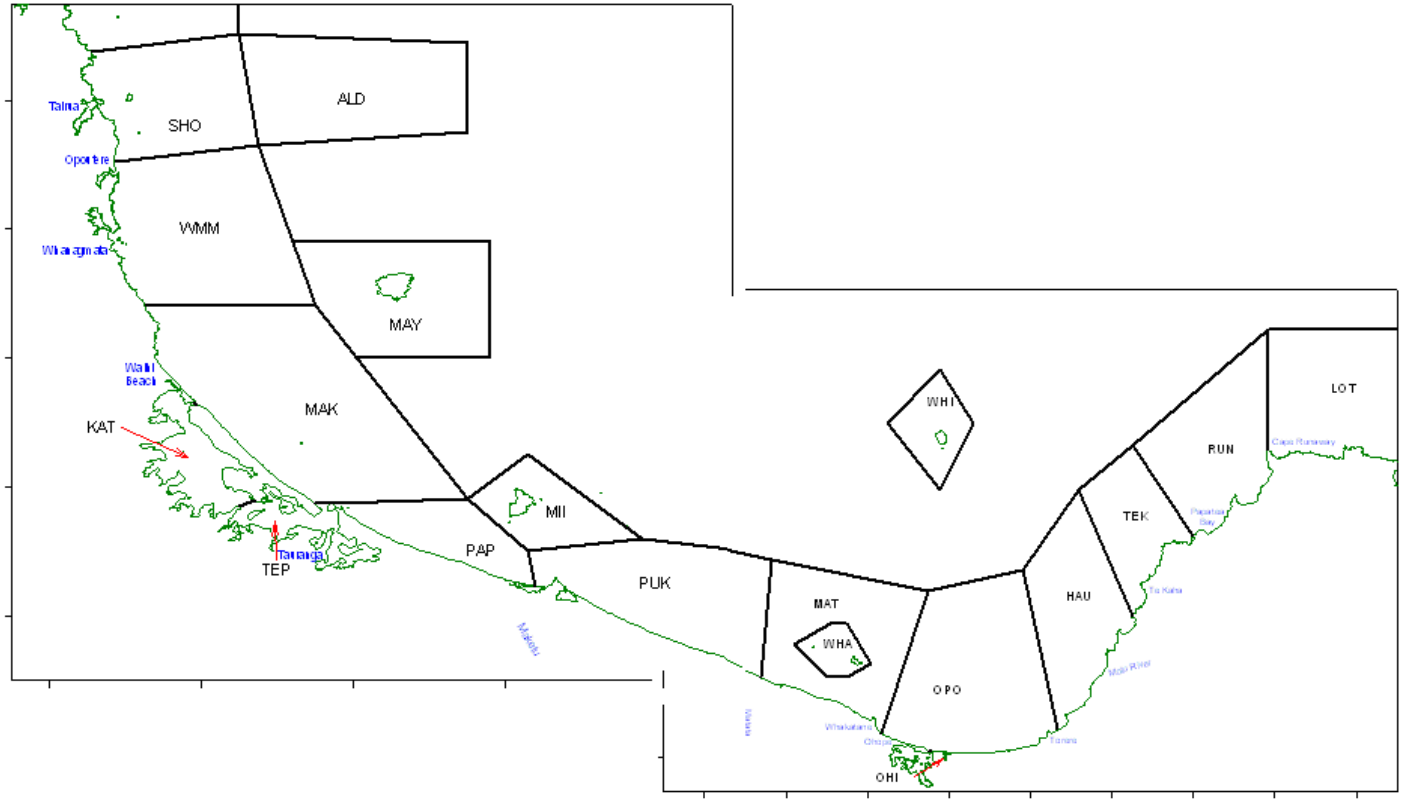



CAV
Whangaroa
Matauri Bay
TAK
BLA
RAW
Cape Brett
KER
BRT
RUS
Paihia
Russell
OAK
Helena Bay
Whananaki
TUT


RAW
Cape Brett
BRT
OAK
Helena Bay
Poor Knights
TUT
PKI
Sandy Bay
Sugarloaf Rocks
Tutukaka
Ngunguru
TAI
Whangarei
WEI
Bream Head
BRE
HEN
Bream Tail

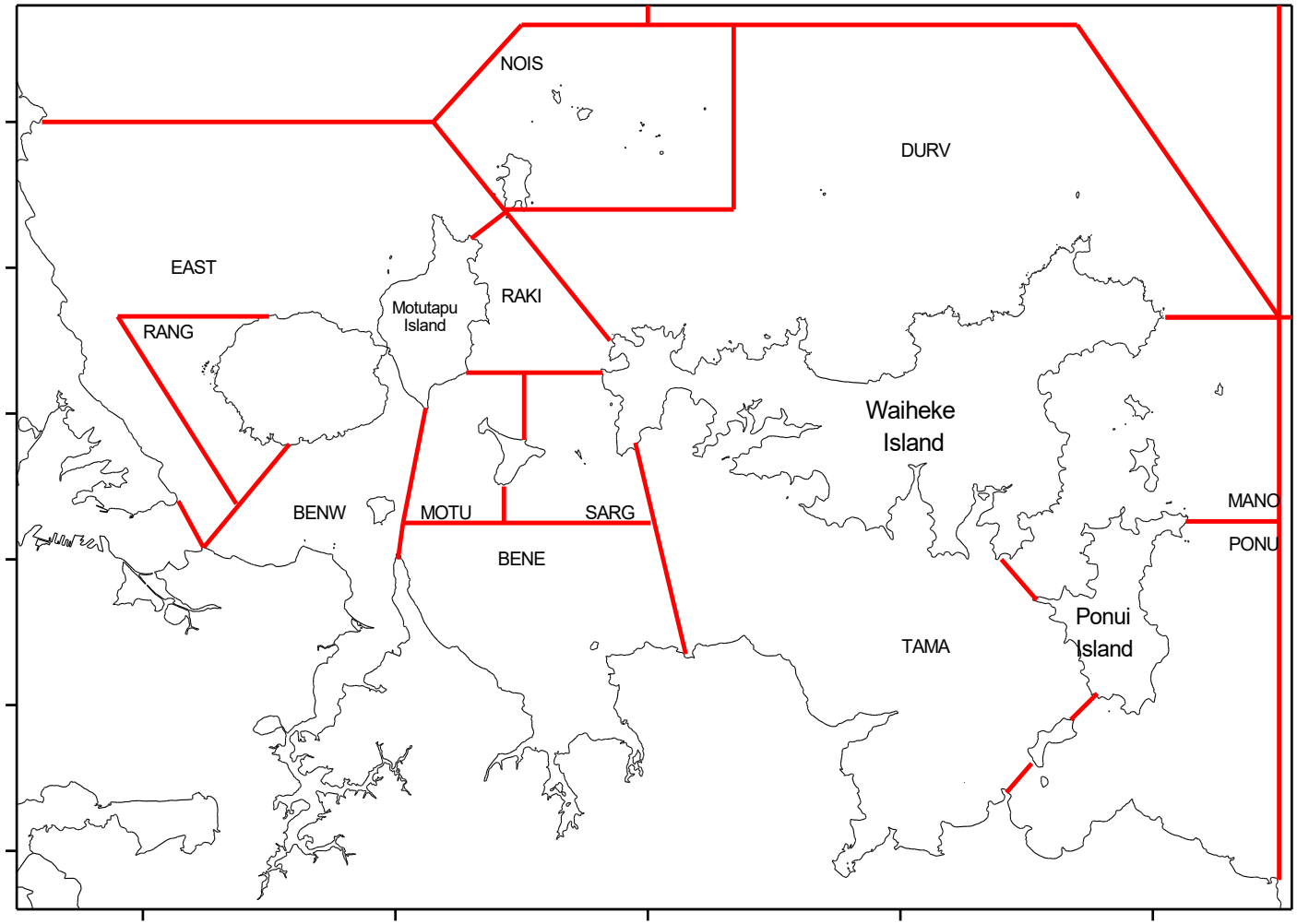


Bay of Plenty *fish_loc* area codes (see also table *t_locality codes*).

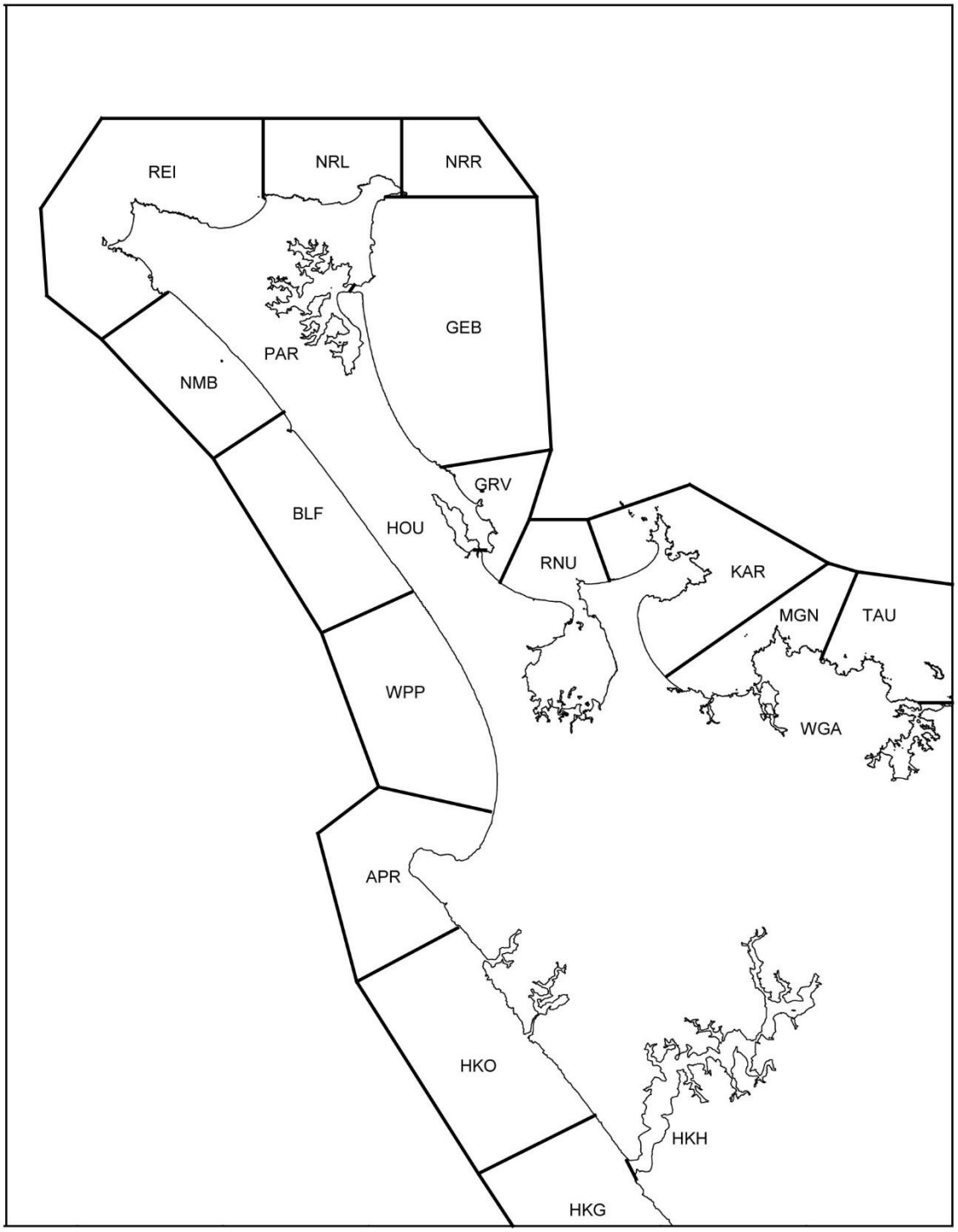


Bay of Plenty *fish_loc* area codes continued (see also table *t_locality codes*).

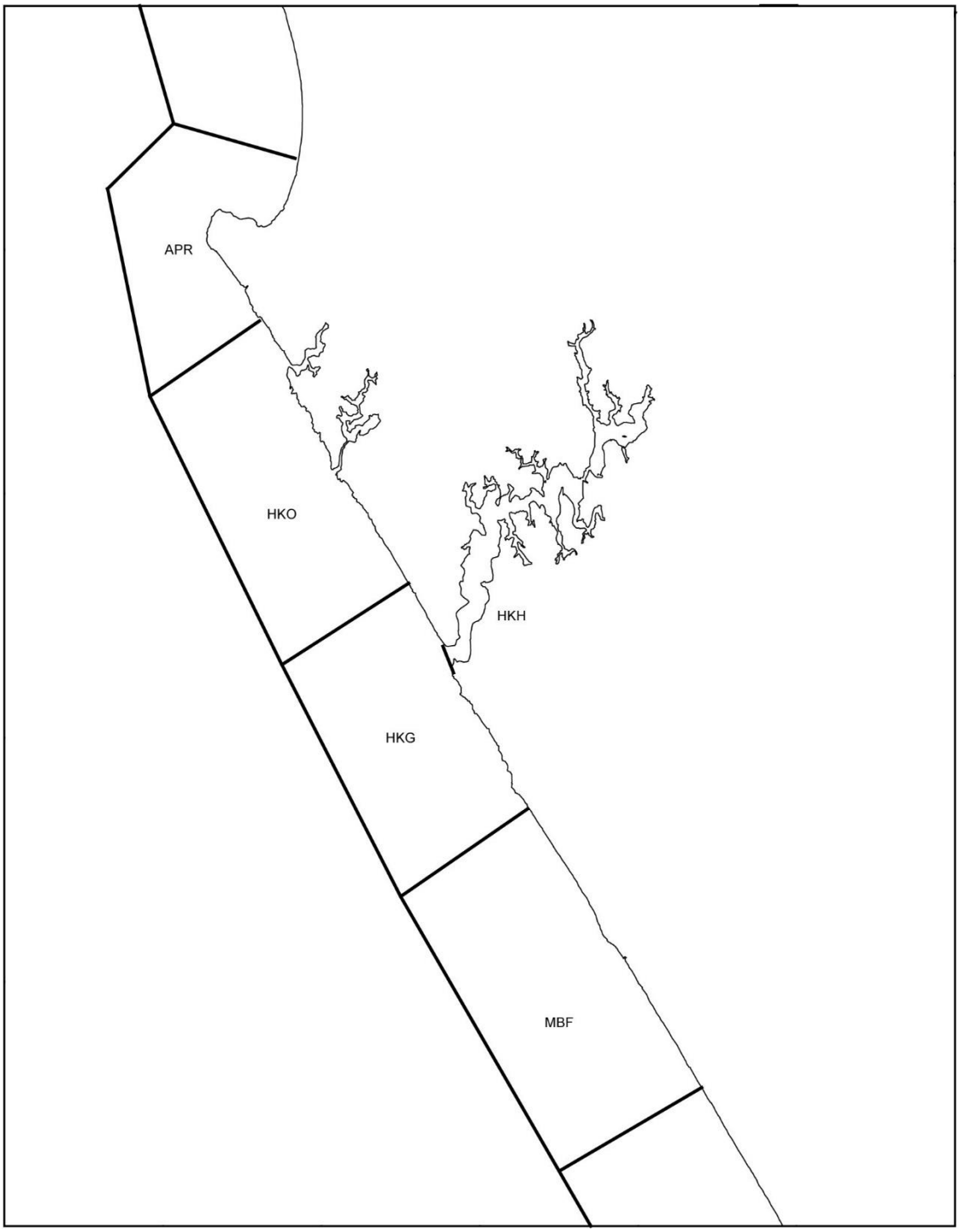
Map used for project MRUA081 since 23 October 2007. A similar map was used in the 12 months prior to this, the only difference being that BENE and BENW were combined into a common area BEAN. Very little fishing occurs in BENE and it is probably reasonably safe to assume that all fishing in the original area BEAN was in BENW. BEAN was divided into the two smaller areas so that all of the areas below are sub strata of the more commonly used fish_loc definitions (for translation RAN = EAST+RANG+BENW, MOT = RAKI+MOTU+SARG+BENE, NOI = NOIS+DURV, TAM = TAMA+PONU+MANO).



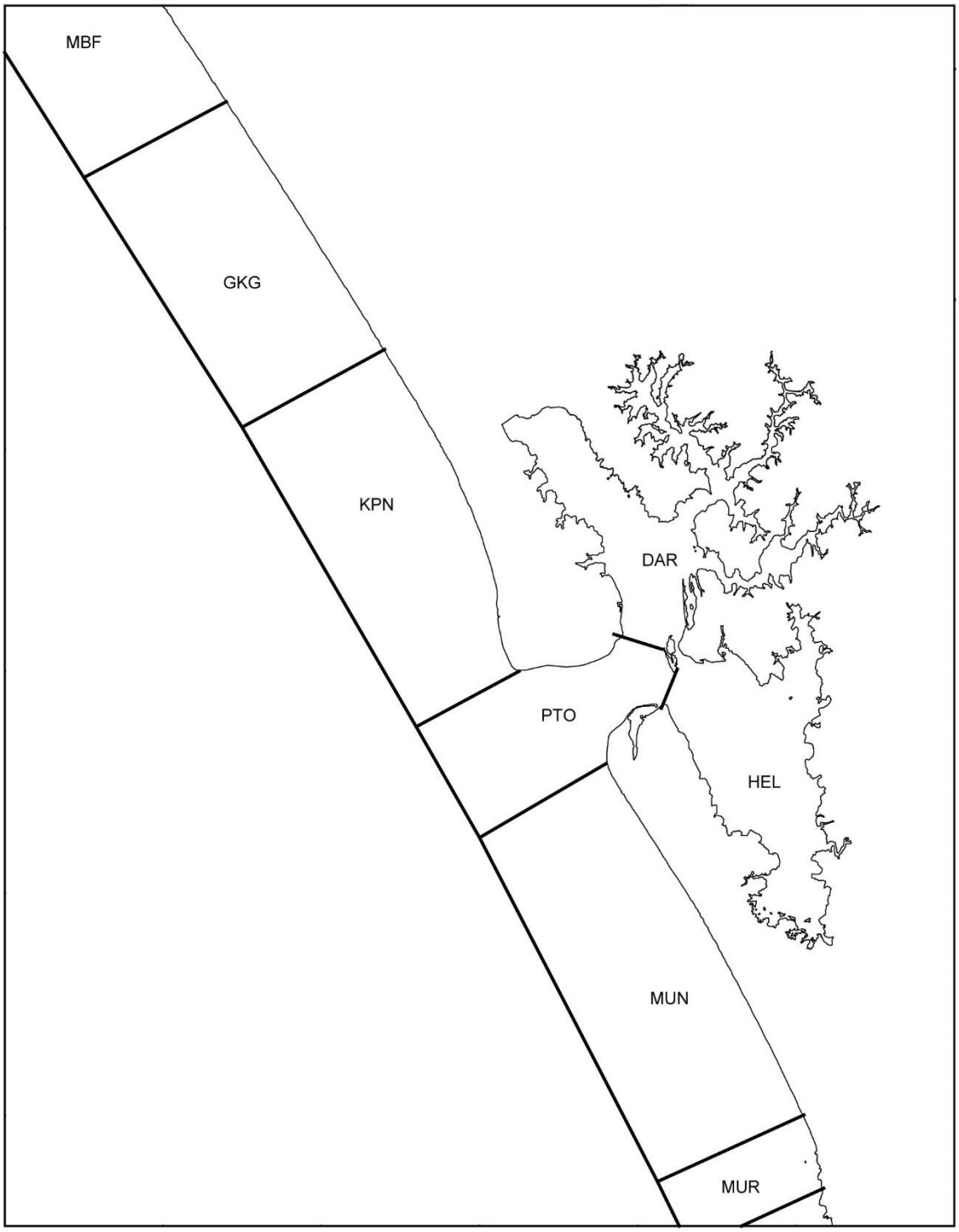
Hauraki Gulf *fish_loc* codes



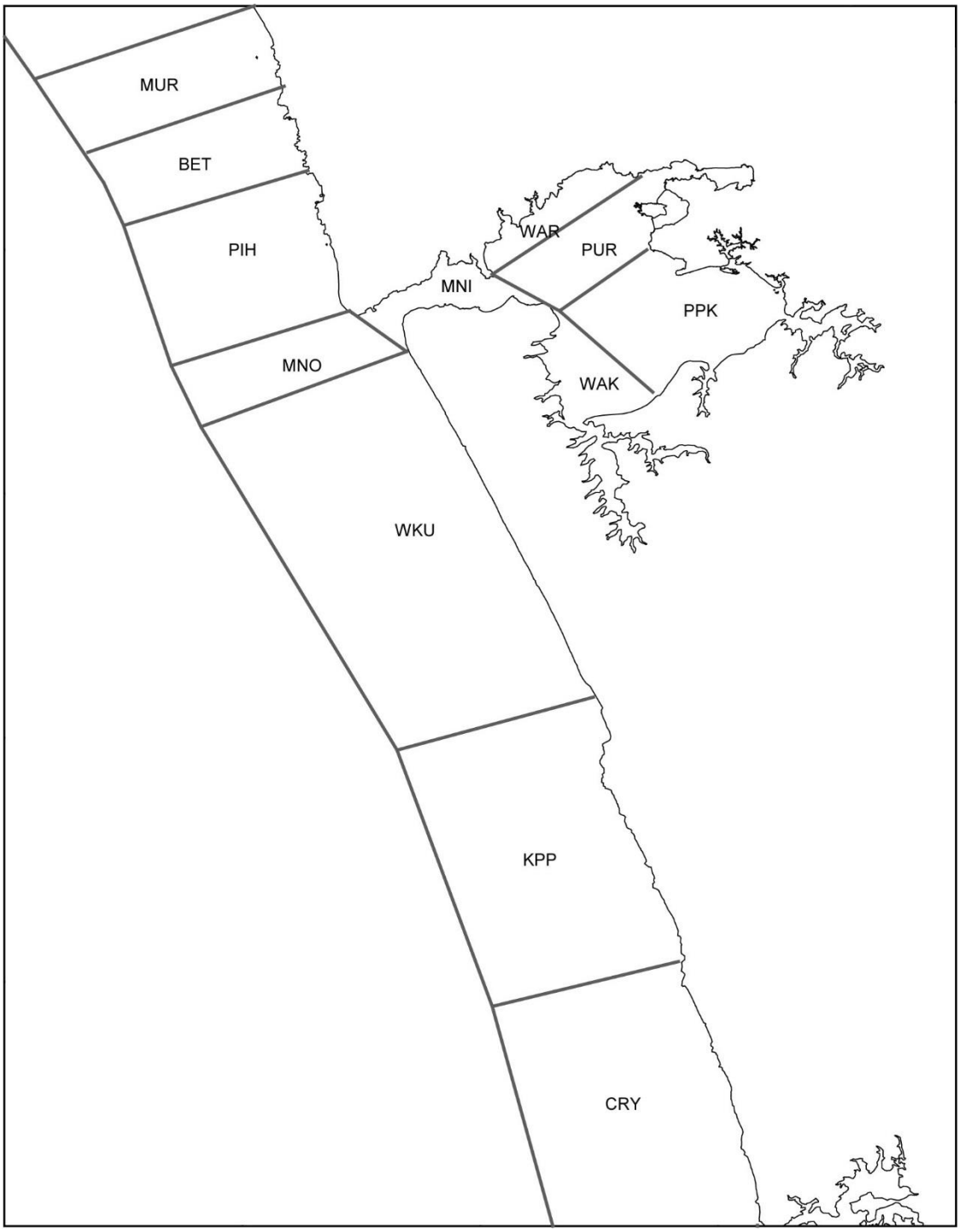
Northern North Island *fish_loc* area codes (see also table *t_locality codes*).



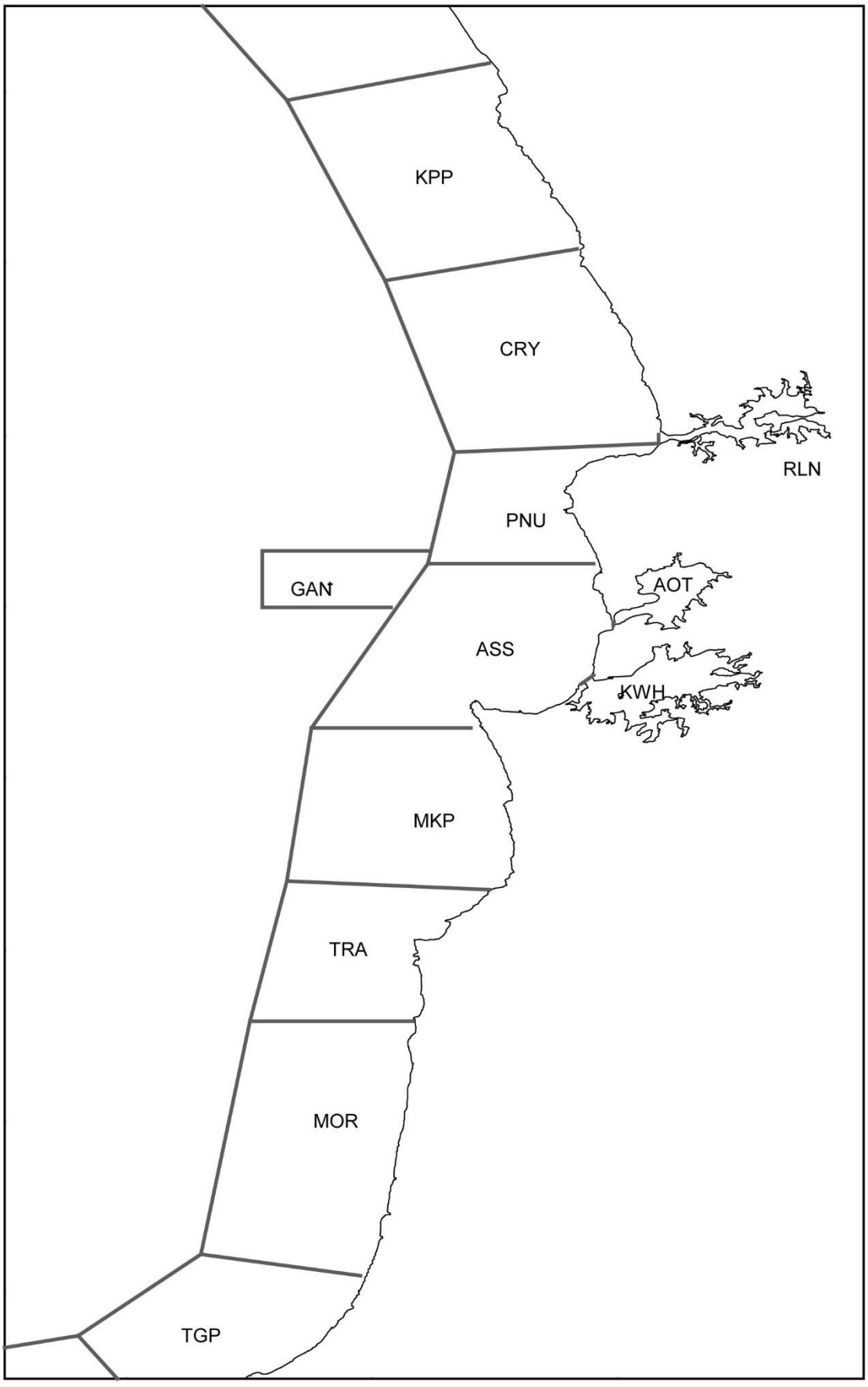
West coast North Island *fish_loc* area codes, including Hokianga harbour
(see also table *t_locality codes*).



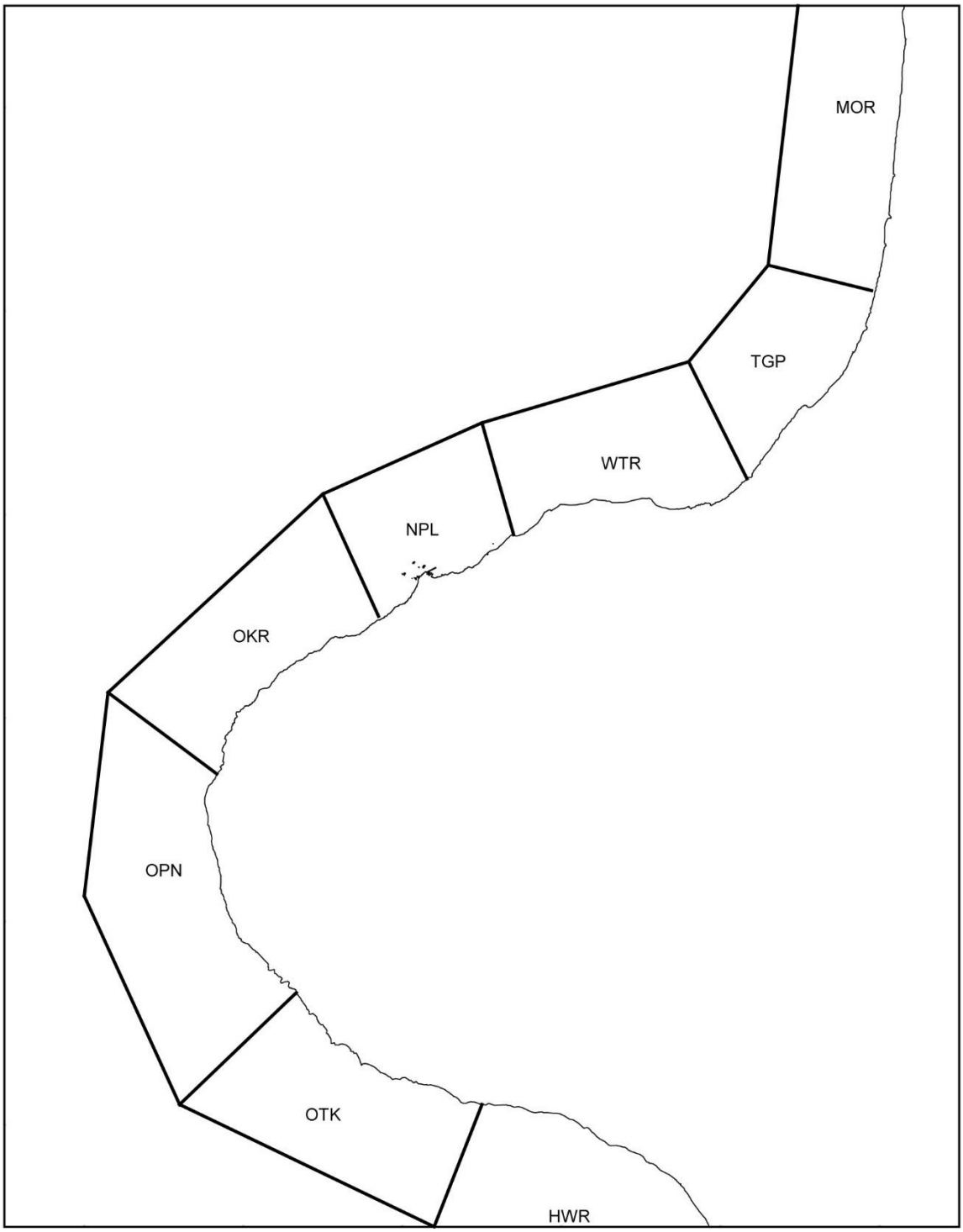
West coast North Island and Kaipara *fish_loc* area codes (see also table *t_locality codes*).



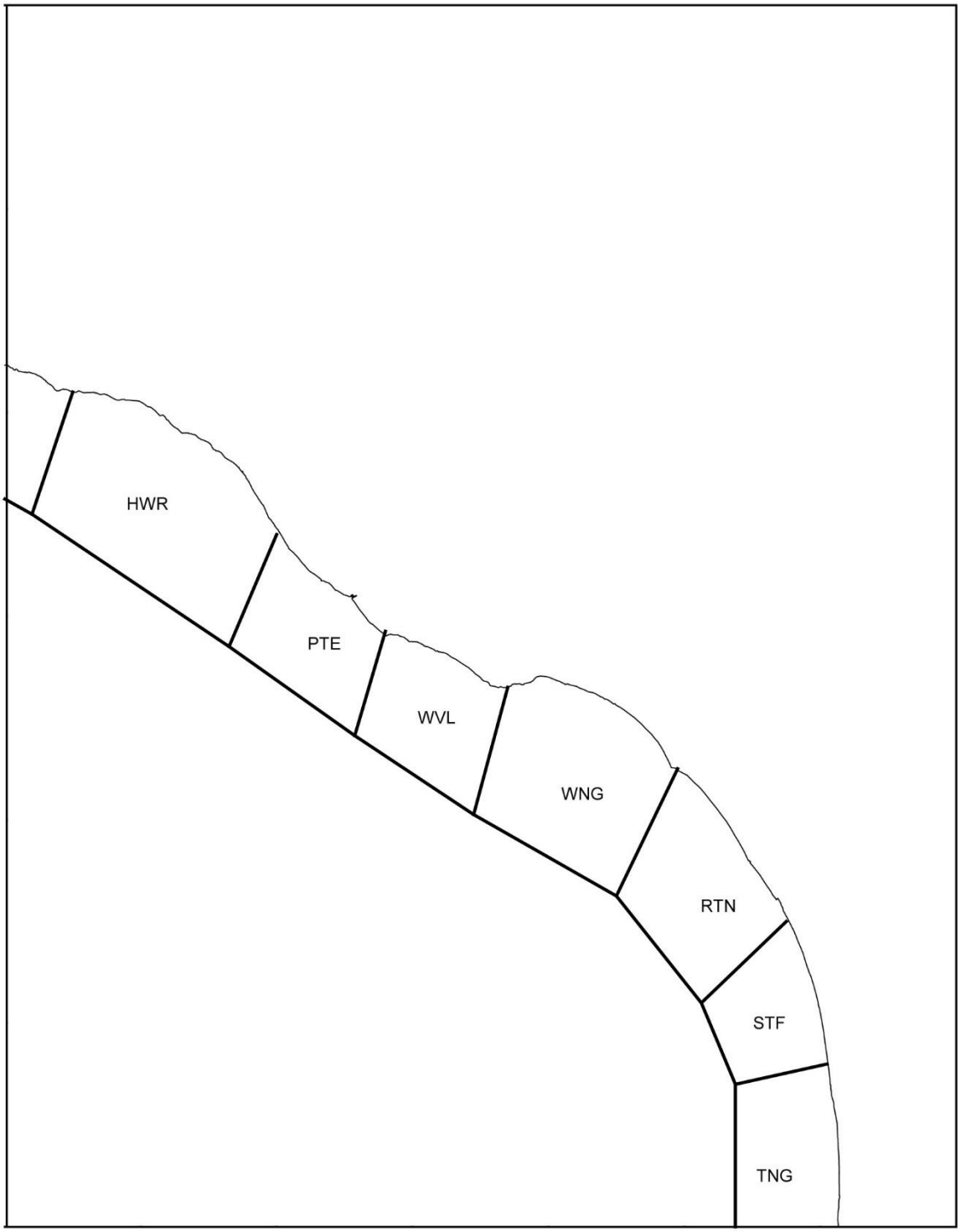
West coast North Island and Manukau *fish_loc* area codes (see also table *t_locality codes*).



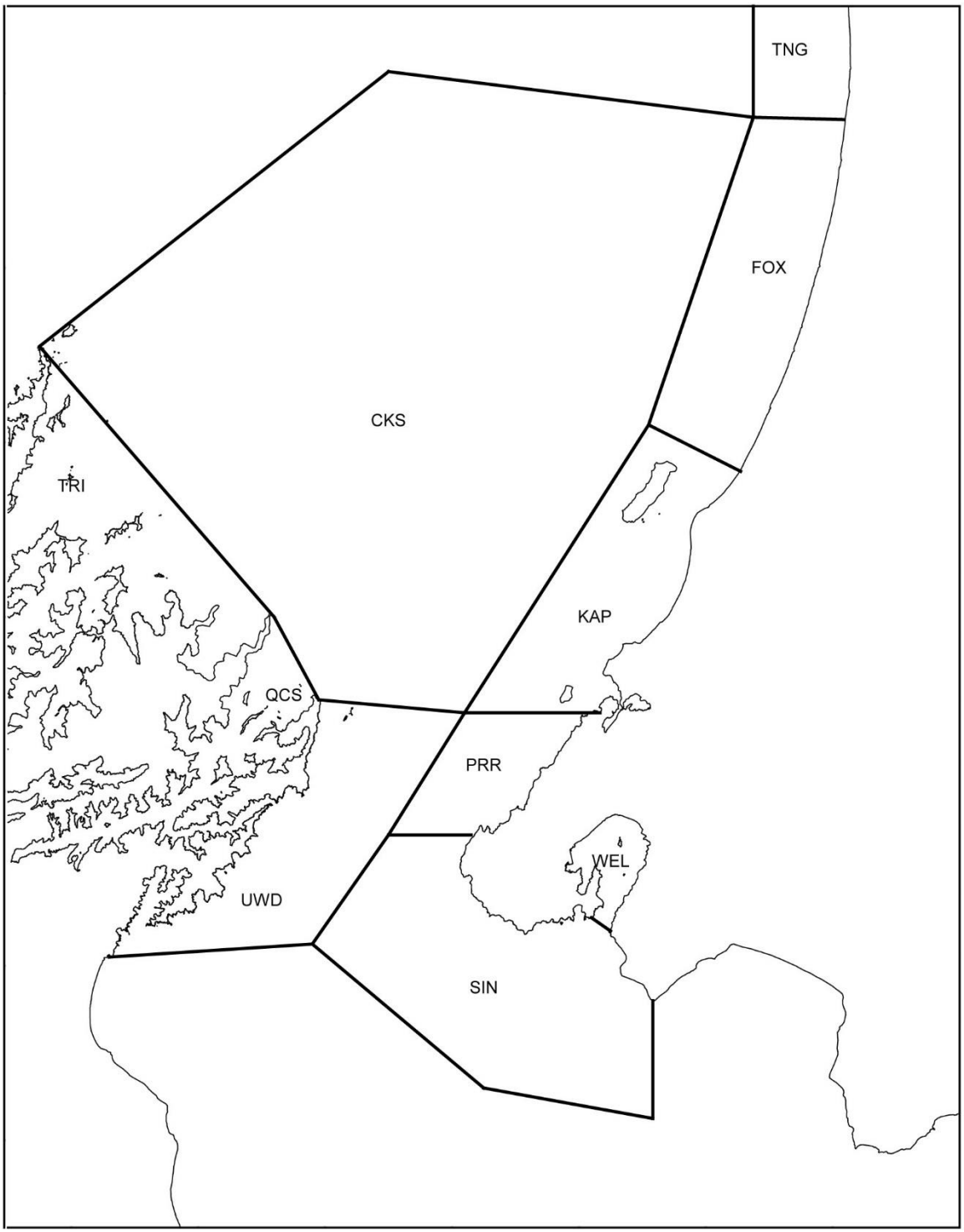
West coast North Island including Kawhia harbour *fish_loc* area codes



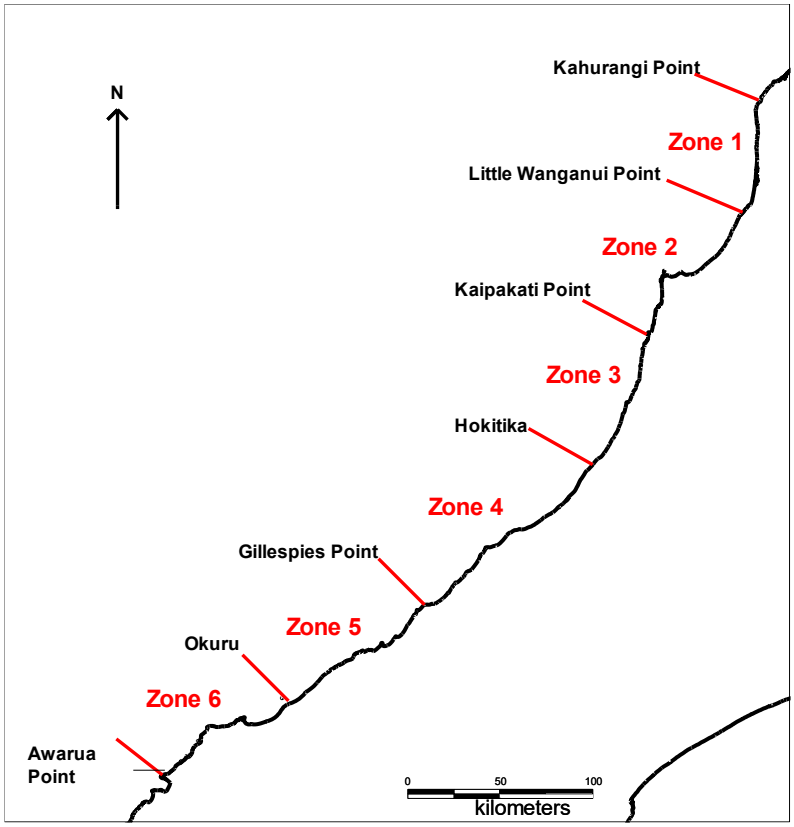
West coast North Island *fish_loc* area codes in Taranaki region.



West coast North Island *fish_loc* area codes in FMA8 (see also table *t_locality codes*).

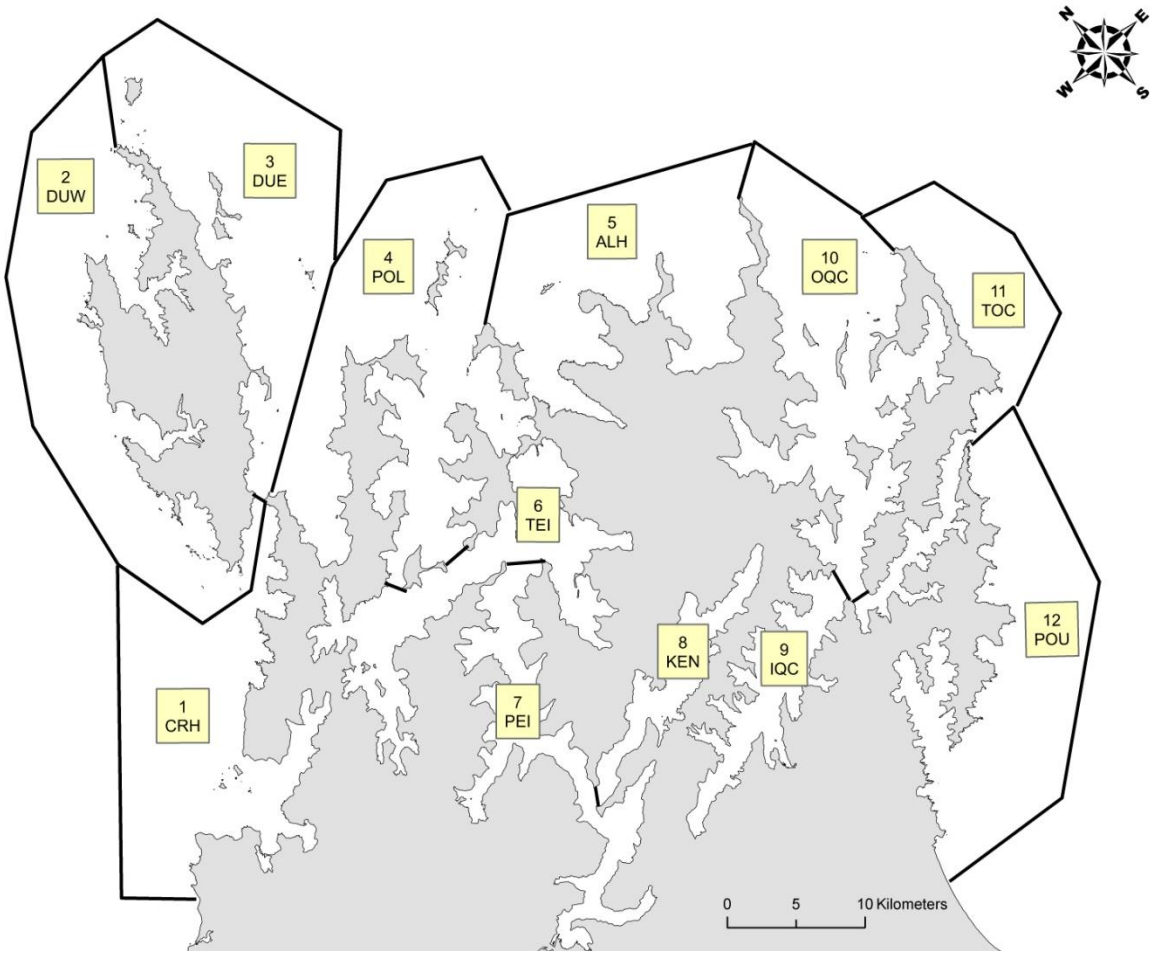


West coast North Island and Cook Strait *fish_loc* area codes
(see also table *t_locality codes*).



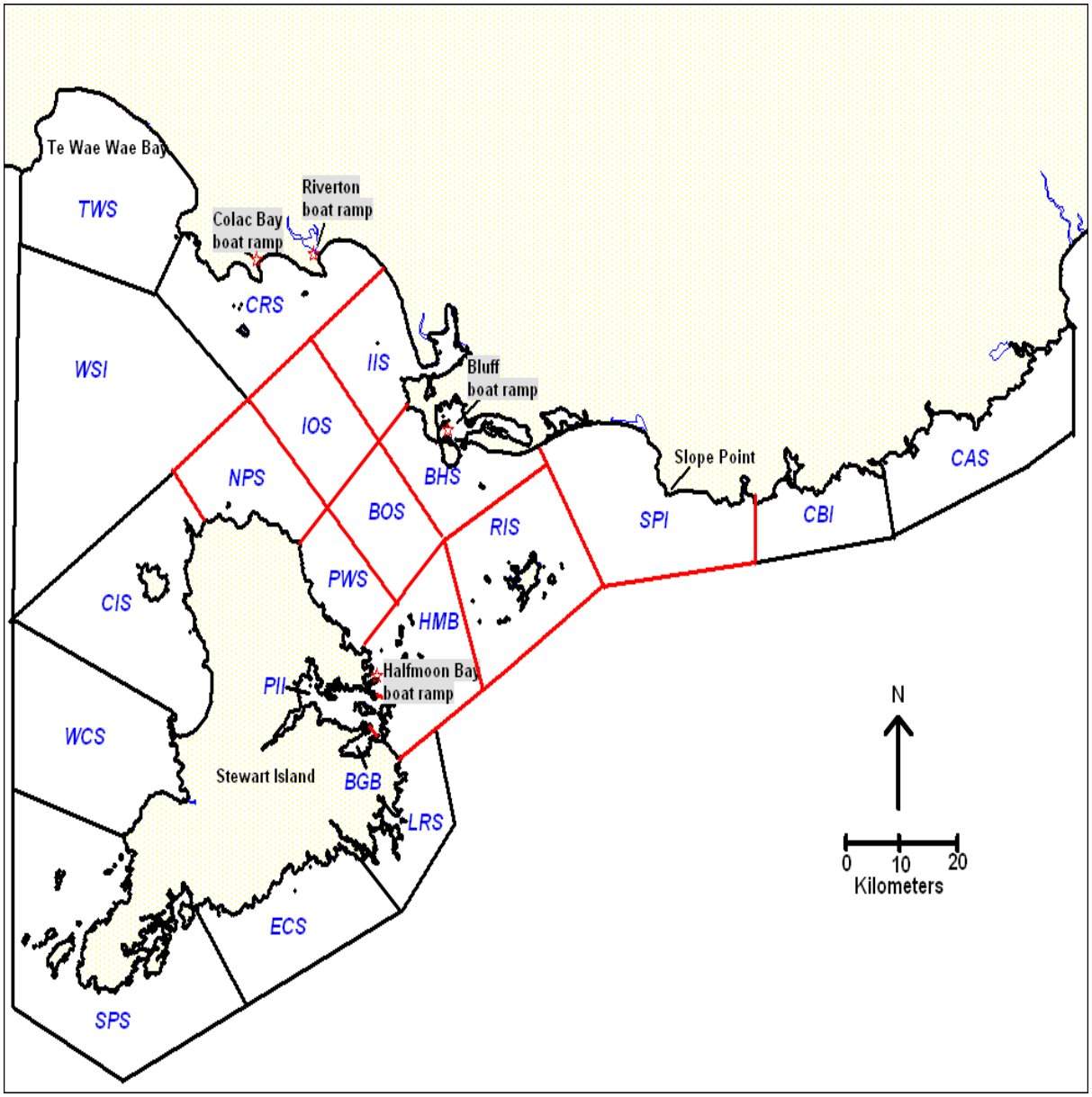
Fish zones 1-6 defined for use during the aerial survey, West Coast, South Island, New Zealand, showing the survey area from Kahurangi Point to Awarua Point. Refer *survey* code WCS06.

The study area for the second Marlborough Sounds, South Island survey which encompasses the waters between (and including) Croisilles Harbour and Port Underwood, as well as the waters of the outer sounds and surrounding D'Urville Island. This survey was given the *survey* code of MBS06.



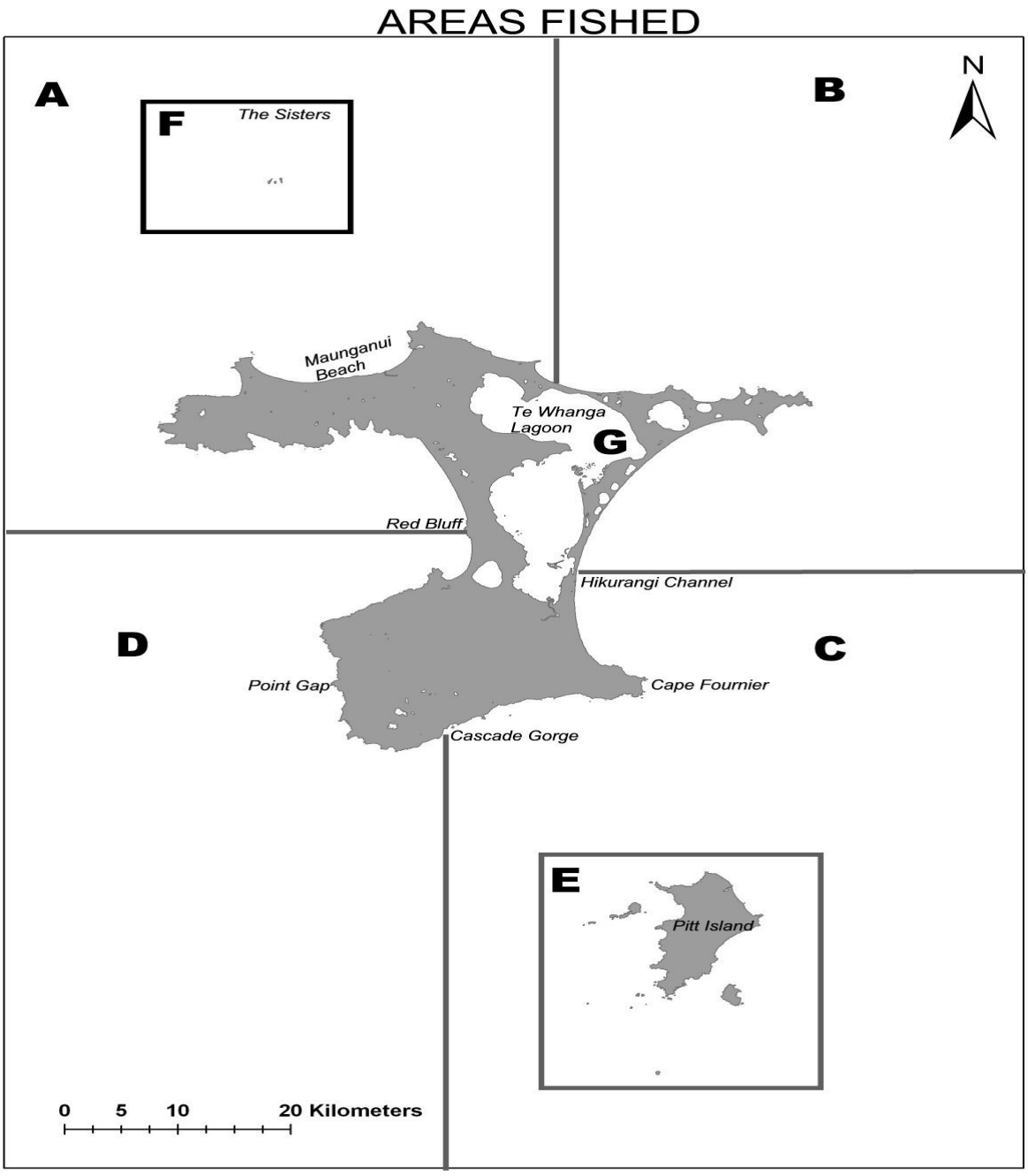
The 12 zones were defined for use during this diary survey and associated ramp and aerial survey. CRH=Croisilles Harbour, DUW=D'Urville Island West, DUE=D'Urville Island East, POL=Port Ligar, ALH= Alligator Head, TEI=Tennyson Inlet, PEI= Pelorus Inner, KEN= Kenepuru Sound, IQC= Inner Queen Charlotte, OQC=Outer Queen Charlotte, TOC=Tory Channel, POU=Port Underwood. These areas are recorded in the *fish_loc* attribute in the database.

The study area for the Southland, South Island survey. This survey was given the *survey* code of SOU09



The 21 fish_loc's defined for this survey:
TWS = Te Waewae Bay, CRS = Colac Bay, Riverton, WSI = West of Stewart Island, IIS = Inner Invercargill, BHS = Bluff Harbour, IOS = Outer Invercargill, BOS = Outer Bluff, RIS = Ruapuke Island, SPI = Inner Slope Point, Southland, CBI = Inner Curio Bay, Southland, ECS = East Coast of Stewart Island, WCS = West Coast of Stewart Island, CAS = Catlins, Southland, HMB = Halfmoon Bay, Stewart Island, PII = Paterson Inlet, Stewart Island, BGB = Big Glory Bay, Stewart Island, PWS = 'Port William, Stewart Island, CIS = Codfish Island, Stewart Island, NPS = Northen Point of Stewart Island, SPS = Southern Point of Stewart Island, LRS = Lords River, Stewart Island

The study area for the Chatham Island diary & logbook survey's. These survey's were given the *survey* code of CHT08.



The above fish_loc's for this survey were recoded to:
A = CIA, B = CIB, C = CIC, D = CID, E = CIE, F = CIF