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EXECUTIVE SUMMARY

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Commercial catch and effort data are an important source of information for stock assessments of rock lobster. Summaries of these data are provided for fishing years 1979–80 to 2006–07 as well as standardisations of catch per unit effort (CPUE) for each of the nine rock lobster Quota Management Areas (QMAs) for the same period. Summaries of the half-year (seasonal) standardisation procedures performed in CRA 3, CRA 4 and CRA 5 which were used to provide advice to stakeholders and the Ministry of Fisheries are included. New annual CPUE standardisations based on a 1 October–30 September fishing year are provided for CRA 7 and CRA 8 as these are used as input to a new management procedure developed in the spring of 2007.

The spatial distribution of catch by statistical area has varied in most rock lobster QMAs over the 28 years of available data. For example, in CRA 3, Area 911 (Mahia) rose to over 50% of the landed catch in the early 2000s after accounting for less than 30% of the catch in the mid-1990s. In CRA 5, catch taken in Area 916 increased substantially since 2000–01 while there was a corresponding drop in the catch in Area 917. There has been less change in the spatial distribution of catch in other QMAs, notably CRA 2 and CRA 7. There has been an increase in the proportion of catch taken during autumn and winter in most QMAs, including recent shifts in CRA 7, CRA 8, and CRA 9. The shift from a spring/summer to an autumn/winter fishery occurred quite rapidly in the 1990s in most of the east coast QMAs, first in the North Island, followed by CRA 5 in the South Island. For example, in CRA 2, the proportion of catch taken in July rose from 8% to 35% in the six years from 1990–91 to 1996–97. In CRA 5, the proportion of catch taken during spring and summer (October to March) decreased from a peak of 83% in 1990–91 to 10% in 2001–02. An even more rapid shift occurred in CRA 3 which was associated with the change in the management regime in 1992–93. This shift has now reversed in CRA 2, CRA 3, and CRA 4 and is possibly beginning to reverse in CRA 5. There is evidence in the two most recent fishing years that CRA 7 and CRA 8 are beginning to establish predominant July and August fisheries. A recent development in CRA 8 is the landing of nearly 10% of the annual catch in April 2006. Only in CRA 6 has the seasonal distribution of catch remained relatively constant.

There is a reasonable level of consistency among the component statistical areas within most QMAs in the trends shown by the unstandardised CPUE series. This consistency exists in spite of considerable year-to-year variation in these series. CRA 3 is the QMA with the greatest similarity in the CPUE trends among statistical areas.

The standardisation procedure applied to each QMA did not usually result in much change relative to the arithmetic and unstandardised annual indices of CPUE. However, there was a general tendency for the standardisation procedure to upwardly adjust the relative peak CPUE in the late 1990s. This occurred because unstandardised catch rates tend to be lower in winter and these fisheries shifted to predominantly winter fishing when catch rates were high. Standardised CPUE for CRA 1 to CRA 5 show a similar pattern: catch rates that peaked in the early to mid 1980s, then declined steadily to the early 1990s, followed by a rapid rise in CPUE. In CRA 2, CRA 3, and CRA 4, CPUEs peaked towards the end of the decade, and the series continued with various degrees of steady decline, with CRA 4 currently being the most severe. CRA 1 and CRA 5 continued to show an increasing trend in CPUE, although there has been a drop in the CRA 5 CPUE from 2004–05. The timing of these events differ. For example, CRA 2 reached its lowest CPUE in 1987–88 but all the other areas reached it in 1992–93. The year when the peak CPUE was achieved and the relative magnitude of the peak CPUE also differ between these QMAs. Standardised CPUE in CRA 7 and CRA 8 declined steadily from 1979–80 to a low in the mid-to-late 1990s. Relative CPUEs in both QMAs have now risen to the highest levels in each series, with the increases beginning after the first of two TACC reductions which were first made in 1999–2000.

1. INTRODUCTION

Commercial catch and effort data are an important source of information for stock assessments of rock lobster. They are used to provide an annual index of vulnerable biomass for each stock and to estimate the distribution of catch between seasons and among month/area strata. There have been continuing refinements to the way in which rock lobster catch and effort data are checked and corrected (Booth et al. 1994, Vignaux & Kendrick 1998, Sullivan 2004) and the way in which standardised indices of vulnerable biomass are calculated from them (Maunder & Starr 1995).

While the primary use of catch and effort data in stock assessments is to estimate annual indices that are assumed to be proportional to vulnerable biomass, the same data can also be used to examine the spatial and temporal distribution of catch and effort. Such analyses can be important for interpreting changes in overall catch rates for a Quota Management Area. They can also provide information for use in monitoring the fishery. For example, the proportion of catch by month and statistical area is used as a guideline for the allocation of rock lobster catch sampling effort. Earlier versions of this report have been published by Starr & Bentley (2005), Starr (2006) and Starr (2007).

In this report, summaries of the spatial and temporal distribution of the catch and standardised indices of vulnerable biomass are presented. The following information for each QMA is presented:

(a) the number of vessels targeting rock lobster using pots by statistical area and fishing year;

(b) the percentage of catch by statistical area and fishing year,

(c) the percentage of catch by month and fishing year,

(d) the percentage of catch by month and statistical area for the 2006–07 fishing year,

(e) the cumulative monthly catch by fishing year,

(f) the arithmetic catch per unit effort by statistical area and fishing year,

(g) arithmetic, unstandardised, and standardised indices of catch per unit effort for each fishing year.

This report documents half-year (seasonal) standardisation procedures performed in CRA 3, CRA 4 and CRA 5 which were used to provide advice to stakeholders and the Ministry of Fisheries. The CRA 4 and CRA 5 analyses are also used as input into stakeholder decisions on the setting aside (shelving) of quota in these QMAs. As well, new annual CPUE standardisations based on a 1 October–30 September fishing year are provided for CRA 7 and CRA 8 which are used as input to a new management procedure developed in the spring of 2007.

The standardised indices of CPUE are assumed, in the stock assessment, to reflect changes in vulnerable biomass; that is, the total weight of the lobsters that is vulnerable to the fishery and can be legally retained. The annual vulnerable biomass will be affected by changes in management of the fishery (e.g., changes in the size limit or changes to the escape gap regulations), in addition to other factors. The standardisation procedure takes into account changes in the spatial and temporal distribution of fishing effort (at the scale of statistical area), but it cannot adjust for changes in vulnerable biomass caused by management or regulatory changes. Therefore, the CPUE indices within each series will not be directly comparable over the entire range of years if regulations have changed in the mean time. However, this comparison is made implicitly in the stock assessment which is able to adjust its estimates of the vulnerable biomass to account for the regulation changes.

The inability of the standardisation procedure to account for changes in the definition of vulnerable biomass due to management actions needs to be considered when interpreting the CPUE indices presented in this report. For example, there were significant management changes to the CRA 3 fishery in 1992–93, including a change in the size limit for males in the winter. The CPUE indices will reflect the changes in the definitions of the vulnerable biomass before and after this management initiative. It is not possible to directly draw conclusions about the state of the stock based solely on the CPUE series presented in this report because this requires consideration of additional data, such as catch sampling and tagging data, and this is best done in the context of a stock assessment model.

2. METHODS

2.1 Data

Catch and effort data from 1 April 1979 to 30 June 1989 were obtained from the Fisheries Statistics Unit (FSU), and equivalent data from 1 July 1989 to 31 March 2007 were obtained from the Ministry of Fisheries [MFish] Catch Effort Landing Returns (CELR; MFish replog 6881). These data sources were documented by Bentley et al. (2005) and the data are stored and maintained in the CRACE database (Bentley et al. 2005). A further data extract [MFish replog 6932] covered the period 1 April 2007 to 30 September 2007 and was used to extend several CPUE analyses for an additional one-half year for use in evaluated management procedures. These management procedure evaluations (Breen & Kim 2006, Breen et al. 2008) found that adding an additional half year of data greatly improved the capacity of the rule to react to stock abundance changes, thus reducing stock and fishery risk.

2.2 Error checking

All records with error ratings equal to or greater than 2, for the fields FSU statistical area, CELR pots lifted, and CELR statistical area, were excluded from this analysis. The documentation of these error designations, including how they were defined and generated, was described by Bentley et al. (2005).

All records for vessel 4548 (a coded value), which exclusively fishes in CRA 2, have been dropped from this analysis because of an extreme number of outliers from this vessel. All other data have been retained in the analyses.

2.3 Catch correction

A corrected catch weight was calculated by adjusting the estimated catch weight in the effort part of the CELR form by the corresponding landed weight from the landing part of the form. This was done using method B4, described by Bentley et al. (2005). This algorithm summarises the data for every vessel by month and statistical area and corrects the total estimated catch based on the total landed catch for the month. Data for a vessel in a month where the landed catch is zero but the effort is not zero are excluded, and the data from the following month for that vessel are also excluded. The presumption is that some of the catch landed in the second month was held over from the first month, thus breaking the link between the catch and effort data.

2.4 Calculation of number of vessels fishing rock lobster

The number of vessels that fished within each statistical area are counted for each fishing year using the same data set which was used to generate the catch summaries and CPUE standardisation. This data set is based on vessels that target rock lobster and for which the primary method is rock lobster potting.

There are often a relatively large number of vessels that report small quantities of rock lobster in an area during a fishing year. For example, on the landings part of CELR forms, 67 vessels reported landing rock lobsters in CRA 5 during 2001–02. However, 30 of these vessels had a total catch for the year of less than 1 t (5 had less than 10 kg). These vessels may have caught lobster accidentally as bycatch or mistakenly recorded CRA on returns. A “rock lobster” vessel is arbitrarily defined to be a vessel which caught at least 1 t of CRA in the total QMA for a fishing year.

For some Quota Management Areas, there is a significant jump in the estimated number of vessels in the 1989–90 fishing year. This fishing year had two different data sources (FSU and CELR), switching between systems on 1 July 1989. It is possible that, in some instances, each data source may have used different vessel identifiers for the same vessel, causing some duplicate counting. This problem is

restricted to the 1989–90 fishing year, and estimates of vessel numbers for that fishing year should be considered less accurate than for other years.

2.5 Annual indices of CPUE

'Arithmetic', 'unstandardised', and standardised indices of annual CPUE were calculated for each QMA. Arithmetic CPUE (A_y) for the year y is calculated as the total catch for the year divided by the total number of pot lifts in the year:

$$A_y = \frac{\sum_{i \in y} C_i}{\sum_{i \in y} P_i} \qquad \text{Eq. 1}$$

where C_i and P_i are the catch and pot lifts for the vessel-month-area combination i in year y.

Unstandardised CPUE (G_y) for the year y is the geometric mean of the ratio of catch to potlifts for each vessel, month, statistical area combination:

$$G_y = \exp\left[\frac{\sum_{i \in y} \ln\left(C_i / P_i\right)}{n_y}\right] \qquad \text{Eq. 2}$$

where, n_y is the number of vessel-month-area combinations in the year y. It has the same distributional assumptions as the standardised CPUE, but does not take into account changes in the seasonal and spatial distribution of fishing effort. This index is the same as the "year index" calculated by the standardisation procedure without the modification of the additional explanatory variables. Presenting the arithmetic and unstandardised CPUE indices in this report provides a measure of how much the standardisation procedure has modified the series from these two sets of indices.

Standardised CPUE is calculated from a generalised linear model (GLM) (Maunder & Starr 1995) using fishing year, month, and statistical area as explanatory variables. Maunder & Starr (1995) examined alternative methods for standardising rock lobster catch and effort data to obtain indices of abundance. They found that vessel effects were small and suggested that a standardisation based on year, month, and area was superior to a model including vessel effects because it allowed more data to be used. Canonical coefficients and standard errors were calculated for each factor (Francis 1999).

The unstandardised and standardised coefficients (the geometric mean of these series equal 1.0) were multiplied by the geometric mean of the arithmetic CPUE indices (Eq. 1) so that all three sets of indices were scaled to the same mean in terms of kg/potlift for comparability.

Annual CPUE standardisations based on an alternate definition of fishing year (1 October to 30 September) have been prepared for CRA 7 and CRA 8. The methodology used to estimate these series is identical to the methodology used for the standard 1 April to 31 March fishing year and makes use of data up to 30 September 2007.

2.6 Indices by assessment (seasonal) period for CRA 3, CRA 4 and CRA 5

CPUE standardisations based on an "assessment period" have been prepared for CRA 3, CRA 4 and CRA 5. A period is defined as one of two six month seasons, either autumn–winter (1 April to 30 September) or spring–summer (1 October to 31 March). Thus, the fishing year explanatory variable is replaced in the standardisation model by a period explanatory variable. The model becomes

$$\ln(CPUE) = \text{Intercept} + Period + Month + Area + \varepsilon \qquad \text{Eq. 3}$$

The interpretation of the month explanatory variable in the model defined by Eq. 3 differs from the annual model described by Maunder & Starr (1995). In the case of the month categorical variable for an annual model, 11 of 12 months are estimated, with the remaining month set to 1 because of confounding. When the fishing year is split into two seasons, further confounding occurs with the month effects, resulting in dropping one of the month coefficients in each period. The indices are slightly sensitive to the choice of the month dropped, with the estimated coefficients changing by small amounts when different months are successively dropped. A convention has been adopted which sets the month with the most records in each six-month period equal to 1.0 because this month should have the lowest error in most instances. The month coefficients in the seasonal model do not show as much variation as the month effects in an annual model because part of the seasonal variation would be explained by differences between periods. Therefore, the month effect will take into account only the within-period variation, rather than the full seasonal variation within a fishing year.

A further refinement was added to the seasonal standardisation procedure in 2006 by forcing each season (autumn/winter and spring/summer) to have separate geometric means. That is, the geometric mean for each seasonal series was made to equal 1.0, with the final output scaled to the absolute value of the geometric mean of the arithmetic series for each season. This was done so that each series would be scaled to the correct relative level within the stock assessment model. Previously this function was handled by a parameter in the stock assessment model which tended to be poorly estimated.

The final data point for each of the three standardisations by season presented in this report (Autumn-Winter 2007–08) was based on an analysis of data from an incomplete year (1 April to 30 September 2007; see Section 2.1).

3. RESULTS

3.1 Landed catch and TACC

Total landed New Zealand commercial rock lobster catch in 2006–07 increased by about 130 t. Landings in 2006–07 were similar in size to landings in 2001–02 and 2002–03. This increase was due to an increase in TACC from 1 April 2006 in CRA 7 and CRA 8 due to the operation of the NSS decision rule. The TACC increase was offset by a decline in the landings from CRA 4, where stakeholders voluntarily set quota aside in an effort to reduce fishing mortality (Table 1). Consequently, there was a total shortfall of about 160 t when total NZ landings were compared to the total NZ TACC (Table 1). Landings for 2006–07 in CRA QMAs other than CRA 4 were all close to the specified TACCs (Table 1).

There is a reasonably close correspondence in all rock lobster QMAs between the catch reported to the QMR and the sum of the landings from the bottom section of the CELR form (Table 2). However, all QMAs, with the exception of CRA 2, recorded a shortfall in 2006–07 when these totals are compared to the official MHR landing totals. Some QMAs (such as CRA 8 and CRA 6) showed shortfalls of about 10% which may be due to the common practice in these QMAs of holding fish after capture but before landing and the consequent exclusion of these landings from this analysis using the procedure described in Section 2.3. However, there appears to be some year-to-year variation in this ratio: for instance, CRA 8 shows higher retention rates in 2005–06 and 2006–07 than in 2004–05 and CRA 3 reversed a low value observed for this ratio in 2004–05. CRA 5 is showing some stability in this ratio in the past 2–3 years after recording low values for this ratio in the early part of the 2000s.

3.2 CRA 1

Only 13 vessels reported catch from CRA 1 in 2006–07, extending a declining trend in this statistic and which is almost one-third of the vessels reporting in the 1979–80 fishing year (Table 3). There was a large increase in the proportion of the CRA 1 catch taken from Area 901 during the late 1990s, and a corresponding drop in the proportion of catch taken in Areas 902 and 903 (Table 4). This pattern

changed in 2003–04 when over 45% of the catch was taken in Area 902, but Area 901 has once again become dominant, with 40% of the catch taken from Area 901 in both 2005–06 and 2006–07 (Table 3, Table 4). The remaining four statistical areas now account for roughly equal proportions of the remaining catch.

Trends in cumulative monthly catch by fishing year showed relatively stable catch distributions in the early 1980s, with most catch taken in the spring and summer months (Table 5, Figure 2). There was a shift towards a winter and spring fishery in the early 1990s but this trend began to reverse in 2003–04 and then stabilised in 2005–06 and 2006–07. Nearly 70% of the total catch in 2006–07 was taken in between July and October (Table 6). Good catches extended to February 2007 in Area 901.

Arithmetic CPUE trajectories from 1979–80 to 2001–02 showed variable trends between areas, although Area 901 has shown the most increase and it, along with Area 902, had the highest overall CPUE (Table 7, Figure 3). CPUE from all areas combined showed a shallow peak in 1982–83 followed by a long steady decline to 1992–93 (Table 8, Figure 4). Catch rates then increased rapidly to over 1 kg/potlift in 1995–96 and have since remained stable above this level. Catch rates appear to have declined in Area 939 while remaining very high in Areas 901 and 902 (Table 7). The standardised and the two unstandardised series (Eq. 1 and Eq. 2) show increases in 2006–07 relative to the 2005–06 values (Figure 4).

3.3 CRA 2

A total of 36 vessels reported catch from CRA 2, which is similar to the number reporting in 2005–06 and higher than in 2004–05, but is still less than half the number reporting in 1979–80 (Table 9). The relative importance of the four rock lobster statistical areas which make up this QMA has remained relatively constant over the last decade, with Area 906 (western Bay of Plenty) continuing to be the most important statistical area, recording nearly 40% of the annual catch (Table 10). The percentage of catch coming from the eastern Bay of Plenty (Areas 907 and 908) has also remained relatively constant between 40 and 50% since the early 1990s, but the relative contribution between these two statistical areas has varied annually.

The trends in cumulative monthly catch by fishing year show a stable catch distribution in the early 1980s with most of the catch taken in the spring and summer, apart from a high level of catch in July 1989 (Table 11, Figure 5). There was a gradual shift towards a winter fishery in the early 1990s, with about 60% of the 1994–95 catch taken from April to September. This shift peaked between 1996–97 and 1998–99 with over 85% of the catch in each of those three fishing years taken between April and September. The shift then reversed, with over 40% of the catch remaining at the end of October in the most recent four fishing years, while in the latter half of the 1990s less than 10% of the catch was taken after October (Table 11). In 2006–07, most of the catch was taken between July and February, spread between the four statistical areas with Area 906 predominating (Table 12).

Arithmetic CPUE trajectories from 1979–80 show increasing trends in all areas from the early 1990s, with Area 907 showing the strongest increase (Table 13, Figure 6). The overall trend in CPUE for the entire QMA showed a steady increase from the early 1990s to a peak in 1997–98 and 1998–99 followed by a decline to current levels (Table 14, Figure 7). The arithmetic and standardised CPUE trends are very similar, except that the standardised analysis estimated a higher peak for 1997–98 and 1998–99. This was likely caused by the shift in effort towards winter months which caused a reduction in the arithmetic and unstandardised CPUE. The standardised index for 2006–07 is higher than it was in 2005–06, but CPUE has not returned to the high levels observed in the late 1990s and early 2000s (Figure 7).

3.4 CRA 3

As with most other rock lobster QMAs, there has been a decrease since the 1979–80 fishing year in the number of vessels that report catch from CRA 3 (Table 15). The number of vessels declined from

about 80 in the early 1980s to about 30 in the late 1990s. Vessel numbers increased to 39 in 2002–03 but dropped again by 2006–07 (Table 15). Relatively high numbers of vessels (over 50) continued to report catch in this QMA until the 1993–94 fishing year, the year after the TACC was cut by 50% and the fishery shifted to the winter months.

The relative importance of the three rock lobster statistical areas which make up this QMA remained relatively constant to 2000–01, with Area 910 (Gisborne) being the most important (Table 16). Area 911 (Mahia Peninsula) then became the statistical area with the highest catch from the 2001–02 to 2003–04 fishing years, possibly because of the higher catch rates in this area. However, the proportion of the catch recorded in Area 911 dropped in 2004–05 to about 40% and has stayed at this level in 2005–06 and 2006–07 (Table 16).

This fishery was primarily a summer fishery until regulations were changed in 1992–93 to encourage a winter fishery targeted at males by lowering the minimum size limit from June through August to 52 mm tail width from 54 mm tail width. The cumulative monthly catch proportions by fishing year show this shift clearly, with over 60% of the catch taken by the end of August in 1993–94 rising to over 90% in 1996–97 and 1997–98 (Table 17, Figure 8). This shift then reversed, with the winter catch dropping to below 80% taken by the end of August in 2000–01 and to about 50% in the five most recent fishing year (Table 17). There have been significant catches in November and December since 2002–03, when these months were reopened to commercial fishing. In 2006–07, June, July and August remained important months for catch, especially in Area 910, accounting for 46% of the annual catch (Table 18).

Arithmetic CPUE trajectories showed strong increasing trends in all areas beginning in the early 1990s, with Area 909 increasing to a higher level than the other two statistical areas (Table 19, Figure 9). All statistical areas peaked in CPUE in 1997–98 and have since declined. Area 909 appears to have dropped less (to about 0.8 kg/potlift in the early 2000s and rising to 1.0 kg/potlift in 2006–07) while Areas 910 and 911 dropped to about 0.5–0.6 kg/potlift, except for 2004–05 when Area 911 dropped to less than 0.4 kg/potlift. Area 910 dropped to less than 0.5 kg/potlift in 2006–07 while the other two statistical areas recorded increased unstandardised CPUE (Table 18). The overall trend in CPUE for the entire QMA shows a steady increase from the early 1990s to a peak in 1997–98, followed by a decline to a level somewhat higher than observed in the early 1990s (Table 20, Figure 10). The arithmetic, unstandardised, and standardised CPUE trends are all very similar, except that the standardised analysis estimated a relatively higher peak for 1997–98 (Table 20, Figure 10). This was probably caused by the shift in effort towards winter months causing a reduction in average CPUE in the arithmetic series. There was no change in the standardised and unstandardised series from 2005–06 to 2006–07 while the arithmetic series showed a small drop (Table 20, Figure 10).

3.5 CRA 4

Although there has been a decrease since the 1979–80 fishing year in the number of vessels that report catch from CRA 4, the decline is less than in CRA 1, CRA 2, and CRA 3 (Table 21). There was a substantial jump in the number of vessels in 2006–07, going from 54 to 67 in a single year which reversed a drop of 7 vessels between 2004–05 and 2005–06. It is not known why the number of vessels participating in this fishery increased in 2006–07. The single count of 131 vessels in 1989 is probably an artefact of the changeover from the FSU to CELR systems where vessels were likely double-counted because the vessel codes were not properly transferred between the systems.

The relative importance of the five rock lobster statistical areas that make up this QMA has remained consistent for the first 27 years presented, with Area 914 (South Wairarapa) being the most important in terms of total catch (Table 22). However, there was drop in the proportion of catch reported from this area in 2006–07, with Area 914 going from 55 to 43% in a single year while both Area 913 (North Wairarapa) and Area 915 (Palliser) increased.

Before 1992–93, most fishing took place in the spring and summer months, although a significant proportion of the catch was also taken in winter (Table 23, Figure 11). Winter fishing predominated by

the 1994–95 fishing year and this pattern was maintained up to the 2002–03 fishing year, with over 60% of the catch taken from April to August in that year (Table 23, Figure 11). However, this trend has since reversed, with about 40% of the catch taken by the end of August in 2004–05 and 2005–06 and only 20% for the same period in 2006–07. Concurrently, the proportion of catch taken from November to March increased from 40% in 2004–05, to 50% in 2005–06 and to over 60% in 2006–07. Only 22% of the catch was taken between June and September in Areas 912, 913, 914, and 915 in 2006–07 (Table 24).

Arithmetic CPUE trajectories showed an increase in all areas (the data for Area 934 are too sparse to draw a conclusion for that statistical area) beginning in 1992–93 (Table 25, Figure 12). The increase in Area 914 ended by the 1996–97 fishing year, well below the peak catch rates observed in the two more northerly areas, and then remained relatively constant while Areas 912 and 913 increased to much higher levels (Table 25, Figure 12). The four main statistical areas declined to approximately the same mean catch per potlift in 2002–03 and 2003–04, (although Area 914 increased slightly in 2003–04; Table 25). All areas dropped to below 1.0 kg/potlift in 2005–06 and all four areas show a decline in 2006–07, with the largest drop being in Area 914 which went from over 0.9 kg/potlift to less than 0.6 kg/potlift in a single year. The pattern of increase and the peak year for mean catch rate in Areas 912 and 913 resembled similar patterns observed in the CRA 2 and CRA 3 statistical areas (compare Figure 6 and Figure 9 with Figure 12). Note that the year of peak catch rates in CRA 3 is one to two years earlier than the peaks observed in Areas 912 and 913. The overall trend in CPUE for the entire QMA was similar to that for CRA 3, showing a steady increase from the early 1990s to a peak in 1998–99, which is one year later than in CRA 3 (Table 26, Figure 13). The relative decline since the peak fishing year is less for CRA 4 than for CRA 3, with CRA 3 registering a drop of 70 to 80% compared to the peak year while the equivalent reduction for CRA 4 is about 45–50% (compare Table 20 with Table 26). However, CRA 4 is much closer to the minimum CPUE recorded for the series, with the 2006–07 CPUE only 50% greater than the minimum while the equivalent value for CRA 3 is over 130%. The arithmetic, unstandardised, and standardised CPUE trends for CRA 4 are all very similar, except that the standardised analysis estimates a relatively higher peak for 1998–99 (Table 26, Figure 13). This was probably caused by the shift in effort towards winter months, causing a reduction in average CPUE in the arithmetic and unstandardised series.

3.6 CRA 5

The number of vessels fishing in CRA 5 declined since the 1979–80 fishing year, with fewer than 40 vessels reporting in this QMA since 1999–2000 compared to the 80 to 90 which fished there during the 1980s (Table 27). There has been a further gradual attrition in the number of vessels since 2000–01, with the number of reporting vessels dropping to 28 in 2006–07. Six rock lobster statistical areas make up this QMA, but most of the catch is reported from Area 916 (Cape Campbell) and Area 917 (Kaikoura-Motunau) and a lesser amount from Area 933 (Marlborough Sounds; Table 28). The relative catch proportions between these areas have changed somewhat, with Area 916 rising in importance in the last five years to over 40% of the catch along with a corresponding decrease in the relative importance of Area 933. Area 917 has increased in the relative proportion of reported landings in 2006–07, exceeding Area 916 in importance for the first time since 2000–01 (Table 28).

This fishery remained predominantly a summer fishery for longer than any of the North Island QMAs and did not shift to a predominantly winter fishery until 1996–97 (Table 29, Figure 14). Also, unlike the more northern QMAs, the relative proportion of the catch taken in the winter months continued to stay high up to 2003–04, with about 80% of the catch taken by the end of September in 2003–04. However, the April-September percentage dropped to below 70% in both 2004–05 and 2005–06 and was near 60% in 2006–07, indicating that this trend may be reversing. About 50% of the catch was taken between April and August in Areas 916 and 917 in 2006–07, with the peak catch month being May in both Areas 916 and 917 (Table 30). Note that historically May has been a strong catch month in this QMA, with this month accounting for 14–28% of the annual catch since 1996–97 (Table 29).

Arithmetic CPUE trajectories showed similar trends in each of the statistical areas up to 1997–98. At that time, there was an increase in CPUE in all areas, but at a much greater rate in Area 916 (Table 31,

Figure 15). Area 916 increased to catch rates that were much higher than those in the other statistical areas, peaking in 2000–01. The arithmetic catch rate for Area 916 dropped to below 2 kg/potlift in 2005–06 and to 1.7 kg/potlift in 2006–07 after being stable at 2.2 to 2.4 kg/potlift for the previous three fishing years. The overall trend in CPUE for this QMA shows a continuous increase that peaked in 2003–04 and has since dropped in each of three successive years (Table 32, Figure 16). The unstandardised and standardised CPUE trends are nearly identical, while the arithmetic CPUE trend lags behind the two series based on log(CPUE) (Table 32, Figure 16). This difference reflects the different methodologies used to compute the mean catch rate within a year by each index (i.e., the arithmetic mean in Eq. 1 compared to the geometric mean in Eq. 2).

3.7 CRA 6

The number of vessels fishing in CRA 6 fluctuated between 39 and 59 during the 1980s and most of the 1990s. The decline in the number of participating vessels in this QMA has been much less than in the other CRA QMAs. In 1999–2000 the number of vessels dropped to 34 and has since fluctuated around 35 participating vessels (Table 33).

Four rock lobster statistical areas make up the Chatham Islands QMA, with Area 942 (Southeast Chatham Islands) generally having about half of the landings (Table 34). The proportion of the total CRA 6 landings in Area 942 dropped to about 40% in 2006–07, with most of this catch shifting to Area 940. The relative proportions between the remaining areas remained reasonably constant, with the two northern statistical areas (940 and 941) accounting for about 40% of the annual catch.

This fishery has been predominantly a spring-summer (October to February) fishery for its entire history, with little tendency to shift to a winter fishery as on the New Zealand mainland (Table 35, Figure 17). In 2006–07, 65% of the catch was taken between October and February (Table 36).

Arithmetic CPUE trajectories showed a decline in mean annual catch rates in the early 1980s for all areas except for possibly Area 941, which never had the high catch rates seen in the other three statistical areas (Table 37, Figure 18). Area 942 consistently had the highest mean catch rate since the mid 1980s, which possibly explains why this statistical area has the highest overall catch (Table 36). Mean catch rates in all four statistical areas, although variable, have tended to stabilise since the mid 1990s. Catch rates in all four areas may now be increasing, with Area 942 showing an increasing trend since 2002–03 and the other three areas showing an increase since 2004–05 (Area 940 shows a minor decrease in 2006–07). The overall trend in CPUE for the QMA showed a drop in the early 1980s, followed by a period of relative stability near 1.0 kg/potlift through the 1990s (Table 38, Figure 19). CPUE has since increased to nearly 1.7 kg/potlift, with the standardised and unstandardised indices being slightly higher than the arithmetic index in recent years. All three series show a gradual increasing trend since the late 1990s or the early 2000s.

3.8 CRA 7

The number of vessels reporting rock lobster in CRA 7 has dropped more precipitously than in the other rock lobster QMAs, with 70–90 vessels participating in the early 1980s compared to a low of 7 in 1997–98 (Table 39). The number of vessels increased to 25 by 2000–01 but has since dropped to 14 in 2004–05 to 2006–07. There are only two statistical areas in this QMA, with Area 920 accounting for about two-thirds of the catch in most years up to 2003–04, but with a shift towards Area 921 in the three most recent fishing years (Table 40). The distribution between the two statistical areas varies, with the percentage catch in Area 920 dropping to less than 50% in some years, including 2006–07.

The seasonal distribution for this fishery has tended to be relatively consistent over the entire period because this fishery has been restricted by regulation to 21 June to 19 November since the 1992–93 fishing year (for the take of “concession” sized lobsters; Table 41, Figure 20). However, Figure 20 shows that catches accumulated much more quickly in 2004–05 and even more quickly in both 2005–06 and 2006–07, with over 50% of the 2005–06 and 45% of the 2006–07 annual catch taken by the

end of July compared to a more usual expectation of 20 to 36% taken to the end of that month. In 2006–07, 67% of the catch was taken in July and August in combined Areas 920 and 921 (Table 42).

Arithmetic CPUE trajectories showed a decline in mean annual catch rates into the early 1980s, followed by a period of variable catch rates declining to a low in 1999–2000 (Table 43, Figure 21). Area 921 consistently had the higher mean catch rates, but they tended also to be more variable. Both areas had broadly declining trends in mean CPUE to the end of the 1990s, although this pattern is highly variable and has reversed, particularly in Area 921 (Figure 21). The overall trend in CPUE for this QMA also reflects this broad downward trend but there were notable increases in mean CPUE in 1986–87, 1991–92, and 1993–94 (Table 44, Figure 22). Mean CPUE has risen consistently since 1997–98 when the lowest value in the series was recorded to the current 2006–07 value, which is by far the highest in the series at 2 kg/potlift (2005–06 was the next highest) (Figure 22). The arithmetic and standardised CPUE trends are very similar (Table 44, Figure 22).

3.9 CRA 8

Historically, CRA 8 has had the greatest number of vessels of any rock lobster QMA (Table 45). Over 250 vessels reported lobster in the early 1980s, but this total gradually dropped to below 60 at the present time, with a continuous decline in the number of vessels in the fishery since in 1993–94 (Table 45). Seven rock lobster statistical areas make up this QMA, with about 80% of catch reported from Areas 926 to 928 since the mid 1990s (Fiordland; Table 46). Area 926 (Puysegur) increased in relative importance within the three Fiordland statistical areas, accounting for about 50% of the total CRA 8 landings in some recent fishing years. This proportion declined to nearly 40% in 2006–07, with a transfer in catch from Area 926 to Area 927. Area 924 (Stewart Island) is also an important fishery which has contributed between 12 and 23% of the annual landings, with recent levels near 12–16% (Table 46).

The seasonal distribution of catch for this fishery has been relatively consistent over the entire period, with about 60–80% of catch taken from August to November (Table 47, Figure 23). In some years, up to 14% of the annual catch was taken in December and up to 11% in January, probably reflecting poor catches earlier in the fishing year (Table 47). However, this seasonal distribution shifted since 2003–04, with a trend towards an earlier fishery (much as has been observed in the east coast QMAs). Catches from April to the end of July accounted for over 40% of the annual catch in 2006–07, compared to a more usual cumulative total of less than 10% of the annual catch (Figure 23). By the end of September, over 80% of the annual catch had been taken in the four years since 2003–04, including over 90% in 2006–07, compared to less than 60% in 2002–03 and less than 40% in the mid 1990s. Three percent of the annual catch took place in April 2006, increasing to over 10% in April 2007. This is a large change compared to earlier years, when only a small proportion of the total catch was taken in April (usually less than 1%). The April 2007 landings probably represent some lobster held over in holding pots and which were captured in the previous fishing year. About 45% of the total annual catch was taken in Areas 926 to 928 in July, August, and September 2006–07 (Table 48).

Arithmetic CPUE trajectories by statistical area showed a gradual decline in mean annual catch rates during the 1980s and early 1990s (Table 49, Figure 24). Catch rates were relatively stable up to the early 2000s, with Areas 924 and 926 having the highest mean catch rates amongst the high total catch statistical areas (Table 49). Catch rates then improved at a great rate, with rises in all statistical areas except Area 923 to 2006–07 (Table 49). The overall trend in CPUE for this QMA showed a drop from the early 1980s to the early 1990s followed by a period of relative stability. A rising trend followed from 1999–2000, with a very strong rise in 2003–04 and a two further successive rises in 2005–06 and 2006–07, characterised by a large relative error (Table 50, Figure 25). The lowest mean annual CPUE values in this time series were recorded in 1992–93 and 1997–98 (Table 50). The arithmetic, unstandardised, and standardised CPUE trends are all very similar, with the standardised index rising the most steeply of the three (Table 50, Figure 25).

3.10 CRA 9

The number of vessels reporting lobster catch in CRA 9 more than halved from about 20 in the early 1980s to less than 10 in the four most recent fishing years (Table 51). Some of the statistical areas in this QMA did not have any vessels reporting catch in recent fishing years. There are seven rock lobster statistical areas in CRA 9, with Areas 931 and 935 being the most important in size of landings, and there were lower proportions of landings in Areas 930, 936, and 937 (Table 52). The relative contribution of these areas to the total CRA 9 catch have fluctuated widely, but Area 935 consistently has had the highest proportion of landings, probably reflecting the distribution of effort rather than any underlying changes in the relative abundance between statistical areas (Table 52).

The temporal distribution of catch in this fishery shifted away from being a predominantly summer to a late winter fishery in the mid-1990s, with the cumulative catch to the end of September increasing beyond 50% in 1995–96 (Table 53, Figure 26). This shift was particularly strong beginning from 2001–02, with nearly 80% of the annual catch taken by the end of September in that year and which has progressed to nearly 100% by 2006–07 (Table 53). Eighty percent of the 2006–07 catch was taken in June to September in Areas 931 and 935 (Table 54).

The arithmetic CPUE trajectories by statistical area from 1979–80 to 2006–07 are difficult to interpret because many of the year/statistical area combinations cannot be reported because of confidentiality restrictions (Table 55, Figure 27). However, Areas 931 and 935 have shown the highest mean annual catch rates in most years (Table 55). CPUE for this QMA increased strongly from 2002–03 to 2004–05 after a long period of relative stability. This was followed by a flattening of the series in 2005–06 and 2006–07 (Table 56, Figure 28). The arithmetic, unstandardised, and standardised CPUE trends are very similar throughout the series (Table 56, Figure 28).

3.11 CRA 3: standardised CPUE indices by period

Standardised indices by season (autumn-winter: April–September; spring-summer: October–March) have been calculated for CRA 3 (Table 57; Figure 29), beginning from the 1979–80 autumn-winter season and ending with the 2007–08 autumn-winter season. This series was used to provide advice to CRA 3 stakeholders on recent CPUE trends. The trends for each of the two standardised series are similar to each other and similar to the annual CPUE series reported in Figure 10. All three series showed a long period of slow decline to the early 1990s, followed by a steep increase to a peak in 1997–98 which in turn was followed by a decline to present levels. There is some indication that the decline may have levelled out in the most recent three years.

The total deviance explained by the model is high (48%, Table 58), with most of the explanatory power lying with model period. The residual patterns showed some deviation from the lognormal assumption at the extreme tails of the residual distribution, but are reasonable over most of the distribution. There is some contrast in the month explanatory variable, with higher monthly coefficients in June (autumn-winter season) and November (spring-summer season), with a drop in the relative coefficients at the end of each season (Figure 30). Catch rates are lowest in Area 910, which is near Gisborne and which accounts for the majority of the catch in the QMA (Table 18), but the contrast in the relative coefficients between the three statistical areas in low (Figure 30).

3.12 CRA 4: standardised CPUE indices by period

Standardised indices by season (autumn-winter [AW]: April–September; spring-summer [SS]: October–March) have been calculated for CRA 4 (Table 59, Figure 31), beginning from the 1979–80 autumn-winter season and ending with the 2007–08 autumn-winter season. This series was used to provide advice to CRA 4 stakeholders on recent CPUE trends so they could make an informed decision on the voluntary shelving of quota in response to declining catch rates. The amount of quota put aside was based on a set of operational decision rules derived from an earlier CRA 4 stock assessment (Breen & Kim 2006). The trends for each of the two standardised series are somewhat

similar to each other and the AW series is very similar to the annual CPUE series reported in Figure 13. As in CRA 3, these series show a long period of slow decline from the beginning of the series to the early 1990s, followed by a steep increase to a peak in 1998–99 which in turn is followed by a decline to 2001–02, at which point there was an interruption of about 2 years before the stock resumed its decline to present levels.

The total deviance explained by the model is good for these types of models (29%, Table 60), with most of the explanatory power lying with model period. The residual patterns show some deviation from the lognormal assumption at the extreme tails of the residual distribution, but are reasonable throughout the majority of the distribution. There is some contrast in the month explanatory variable, with higher relative monthly coefficients in May/June (autumn-winter season) and November/December (spring-summer season), with the relative coefficients dropping to below 1.0 at the end of each season (Figure 32). Relative catch rates are slightly higher in the more northerly statistical areas of CRA 4 compared to the statistical areas near and in Cook Strait (the coefficients for Areas 912 to 914 are greater than 1.0 while the coefficients for Areas 915 and 934 are below 1.0; Figure 32).

3.13 CRA 5: standardised CPUE indices by period

Standardised indices by season (autumn-winter [AW]: April–September; spring-summer [SS]: October–March) have been calculated for CRA 5 (Table 61, Figure 33), beginning from the 1979–80 autumn-winter season and ending with the 2007–08 autumn-winter season. This series was used to provide advice to CRA 5 stakeholders on recent CPUE trends so that they could make an informed decision on possible voluntary shelving of quota in response to observed catch rates. The decision to put quota aside was based on a set of operational decision rules (P.A. Breen, NIWA, pers.comm.). The trends for each of the two standardised series differ somewhat, with the AW series showing a relatively smaller increase to the peak in the early 2000s than does the SS series and the AW series drops more following the peak (Figure 33). The annual CPUE series (Figure 16) more closely resembles the SS series, except for the decline in the most recent three years which more closely resembles the AW series.

The total deviance explained by the model is good for these types of models (33%, Table 62), with most of the explanatory power lying with model period. The residual patterns show deviation from the lognormal assumption at the extreme tails of the residual distribution, but are reasonable through most of the centre of the distribution. There is contrast in the month explanatory variable, with high relative month coefficients over most of the autumn-winter season (May is highest) and with high relative coefficients in December and January (spring-summer season). The relative coefficients drop to less than 1.0 at the end of each season, as with the other period analyses (Figure 34). Relative catch rates are above 1.0 for Areas 916 and 918 while the remainder are near to or below 1.0 (Figure 34). However the contrast between all five statistical areas is low.

3.14 CRA 7 standardised CPUE: 1 October–30 September fishing year

Annual standardised indices for CRA 7 have been calculated based on an alternate definition for a fishing year, spanning the period 1 October to 30 September year rather than the 1 April–31 March fishing year specified under the QMS (Table 63, Figure 35). More recent data are available to this series (up to 30 September 2007: see Section 2.1) than for the analysis presented in Table 50 and this series forms the input for a management decision rule that has been recently developed for CRA 7 (Breen et al. 2008). This series indicates a drop in the most recent fishing year that is not present in the corresponding CRA 7 1 April–31 March analysis (Figure 22). Examination of the underlying data revealed that there had been in drop in mean CRA 7 CPUE in the six month period from 1 April to 30 September 2007 which was responsible for the decline in the standardised series in the final year.

The total deviance explained by the model is reasonable for this type of model (28%, Table 64), with most of the explanatory power lying with fishing year. The residual patterns showed deviation from

the lognormal assumption at the extreme tails of the residual distribution, but are acceptable for more than 90% of the distribution. There is almost no contrast in the month explanatory variable, except for the relative coefficients for March and April, which are well below 1.0. This is likely to be the result of the fact that fishermen cannot land lobster using the concession Minimum Legal Size from December, resulting in little fishing in these months (Figure 36). As seen in the analysis presented in Section 3.8, Area 921 has a much higher catch rate than Area 920 (Figure 36).

3.15 CRA 8 standardised CPUE: 1 October–30 September fishing year

Annual standardised indices for CRA 8 have been calculated based on an alternate definition for a fishing year, spanning the period 1 October to 30 September year rather than the 1 April–31 March fishing year specified under the QMS for rock lobster (Table 65, Figure 37). More recent data are available to this series (up to 30 September 2007: see Section 2.1) than for the standard analysis and the series forms the input for a management decision rule that has been recently developed for CRA 8 (Breen et al. 2008). This series resembles the 1 April–31 March series presented in Figure 25, except that the increasing trend seen over the past three years seems more attenuated in the 1 October–30 September series.

The total deviance explained by the model is not as high as in the CRA 7 model (21%, Table 66), again with most of the explanatory power lying with fishing year. As with the CRA 7 model, the residual patterns show some deviation from the lognormal assumption at both tails of the residual distribution, but are acceptable throughout the majority of the distribution. The peak catching months extend from September to February, with considerably lower relative catch rates in the winter months (Figure 38). Area 925 (Snares) has the highest relative catch rate, although very little catch is taken from this statistical area (Table 46). The relative catch rates for the other four important statistical areas (Area 924: Stewart Island; Areas 926 to 928: Fiordland) show some contrast, with Areas 924 and 926 being above 1.0 while Areas 927 and 928 have below average relative catch rates (Figure 38).

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Table 1: Reported commercial catch (t), commercial TACC (t), and total allowable catch (TAC) of *Jasus edwardsii* to the Quota Management System by rock lobster QMA for each fishing year since the species was included in the QMS on 1 April 1990. –, TAC not set for QMA

	CRA 1			CRA 2			CRA 3		
Fishing Year	**Catch**	**TACC**	**TAC**	**Catch**	**TACC**	**TAC**	**Catch**	**TACC**	**TAC**
1990–91	131.1	160.1	–	237.6	249.5	–	324.1	437.1	–
1991–92	128.3	146.8	–	229.7	229.4	–	268.8	397.7	–
1992–93	110.5	137.4	–	190.3	214.6	–	191.5	327.5	–
1993–94	127.4	130.5	–	214.9	214.6	–	179.5	163.7	–
1994–95	130.0	130.5	–	212.8	214.6	–	160.7	163.7	–
1995–96	126.7	130.5	–	212.5	214.6	–	156.9	163.7	–
1996–97	129.4	130.5	–	213.2	214.6	–	203.5	204.7	–
1997–98	129.3	130.5	–	234.4	236.1	452.6	223.4	224.9	379.4
1998–99	128.7	131.1	–	232.3	236.1	452.6	325.7	327.0	453.0
1999–00	125.7	131.1	–	235.1	236.1	452.6	326.1	327.0	453.0
2000–01	130.9	131.1	–	235.4	236.1	452.6	328.1	327.0	453.0
2001–02	130.6	131.1	–	225.0	236.1	452.6	289.9	327.0	453.0
2002–03	130.8	131.1	–	205.7	236.1	452.6	291.3	327.0	453.0
2003–04	128.7	131.1	–	196.0	236.1	452.6	215.9	327.0	453.0
2004–05	130.8	131.1	–	197.3	236.1	452.6	162.0	327.0	453.0
2005–06	130.5	131.1	–	225.2	236.1	452.6	170.1	190.0	319.0
2006–07	130.8	131.1	–	226.7	236.1	452.6	178.7	190.0	319.0
2007–08	–	131.1	–	–	236.1	452.6	–	190.0	319.0

	CRA 4			CRA 5			CRA 6		
Fishing Year	**Catch**	**TACC**	**TAC**	**Catch**	**TACC**	**TAC**	**Catch**	**TACC**	**TAC**
1990–91	523.2	576.3	–	308.6	465.2	–	369.7	518.2	–
1991–92	530.5	529.8	–	287.4	426.8	–	388.3	503.0	–
1992–93	495.7	495.7	–	258.8	336.9	–	329.4	503.0	–
1993–94	492.0	495.7	–	311.0	303.2	–	341.8	530.6	–
1994–95	490.4	495.7	–	293.9	303.2	–	312.5	530.6	–
1995–96	487.2	495.7	–	297.6	303.2	–	315.3	530.6	–
1996–97	493.6	495.7	–	300.3	303.2	–	378.3	530.6	–
1997–98	490.4	495.7	–	299.6	303.2	–	338.7	400.0	480.0
1998–99	493.3	495.7	–	298.2	303.2	–	334.2	360.0	370.0
1999–00	576.5	577.0	771.0	349.5	350.0	467.0	322.4	360.0	370.0
2000–01	573.8	577.0	771.0	347.4	350.0	467.0	342.7	360.0	370.0
2001–02	574.1	577.0	771.0	349.1	350.0	467.0	328.7	360.0	370.0
2002–03	575.7	577.0	771.0	348.7	350.0	467.0	336.3	360.0	370.0
2003–04	575.7	577.0	771.0	349.9	350.0	467.0	290.4	360.0	370.0
2004–05	569.9	577.0	771.0	345.1	350.0	467.0	323.0	360.0	370.0
2005–06	504.1	577.0	771.0	349.5	350.0	467.0	351.7	360.0	370.0
2006–07	444.6	577.0	771.0	349.8	350.0	467.0	352.1	360.0	370.0
2007–08	–	577.0	771.0	–	350.0	467.0	–	360.0	370.0

	CRA 7			CRA 8		
Fishing Year	**Catch**	**TACC**	**TAC**	**Catch**	**TACC**	**TAC**
1990–91	133.4	179.4	–	834.5	1152.4	–
1991–92	177.7	164.7	–	962.7	1054.6	–
1992–93	131.6	153.1	–	876.5	986.8	–
1993–94	138.1	138.7	–	896.1	888.1	–
1994–95	120.3	138.7	–	855.6	888.1	–
1995–96	81.3	138.7	–	825.6	888.1	–
1996–97	62.9	138.7	–	862.4	888.1	–
1997–98	36.0	138.7	–	785.6	888.1	–
1998–99	58.6	138.7	–	808.1	888.1	–
1999–00	56.5	111.0	131.0	709.8	711.0	798.0
2000–01	87.2	111.0	131.0	703.4	711.0	798.0
2001–02	76.9	89.0	109.0	572.1	568.0	655.0
2002–03	88.6	89.0	109.0	567.1	568.0	655.0
2003–04	81.4	89.0	109.0	567.6	568.0	655.0
2004–05	94.2	94.9	114.9	603.0	603.4	690.4
2005–06	95.0	94.9	114.9	603.2	603.4	690.4
2006–07	120.2	120.2	140.2	754.5	755.2	842.2
2007–08	–	120.2	140.2	–	755.2	842.2

[1] TACC totals exclude CRA 10 (TACC=0.1 t); catch totals exclude CRA 10 and ET catches (outside EEZ).

Table 1 (cont.): Reported commercial catch (t), TACC and TAC for CRA 9 and for all New Zealand. –, TAC not set for QMA.

	CRA 9			Total		
Fishing Year	Catch	TACC	TAC	Catch[1]	TACC[1]	TAC[1]
1990–91	45.3	54.7		2907.4	3793.0	–
1991–92	47.5	50.2	–	3020.9	3502.9	–
1992–93	45.7	47.0	–	2629.9	3201.9	–
1993–94	45.5	47.0	–	2746.2	2912.1	–
1994–95	45.2	47.0	–	2621.5	2912.1	–
1995–96	45.4	47.0	–	2548.6	2912.1	–
1996–97	46.9	47.0	–	2690.5	2953.1	–
1997–98	46.7	47.0	–	2584.2	2864.1	1312.0
1998–99	46.9	47.0	–	2726.0	2926.8	1275.6
1999–00	47.0	47.0	–	2748.5	2850.2	3442.6
2000–01	47.0	47.0	–	2795.9	2850.2	3442.6
2001–02	46.8	47.0	–	2593.0	2685.2	3277.6
2002–03	47.0	47.0	–	2591.1	2685.2	3277.6
2003–04	45.9	47.0	–	2451.5	2685.2	3277.6
2004–05	47.0	47.0	–	2472.3	2726.4	3318.8
2005–06	46.6	47.0	–	2475.8	2589.4	3184.8
2006–07	47.0	47.0	–	2604.4	2766.6	3362.0
2007–08	–	47.0	–	–	2766.6	3362.0

[1] TACC totals exclude CRA 10 (TACC=0.1 t); catch totals exclude CRA 10 and ET catches (outside EEZ).

Table 2: Ratio of the sum of landed catch from the bottom portion of the CELR forms relative to the reported QMR/MHR catch for each QMA and fishing year. Landed catches from CELRs include only records where error ratings are less than or equal to 1 and have been adjusted using the B4 algorithm (Bentley et al. 2005). The landed catch data from CELRs are the data used to calculate all tables and graphs in this report.

Fishing Year	CRA 1	CRA 2	CRA 3	CRA 4	CRA 5	CRA 6	CRA 7	CRA 8	CRA 9
1990–91	0.96	0.87	1.00	0.99	0.94	0.81	0.89	0.86	1.03
1991–92	1.12	0.92	0.99	0.99	1.00	0.85	0.94	0.93	1.02
1992–93	1.08	0.97	0.99	1.00	0.98	0.83	0.97	0.92	1.04
1993–94	1.06	1.00	1.03	1.00	0.96	0.86	0.98	0.89	1.17
1994–95	0.99	0.95	1.00	1.01	0.96	0.92	0.98	0.90	1.35
1995–96	0.93	0.96	1.02	0.98	0.95	0.94	0.96	0.89	1.24
1996–97	1.01	0.89	0.93	0.94	0.94	0.88	0.92	0.86	1.84
1997–98	0.87	0.89	0.91	0.95	0.95	0.87	0.92	0.85	1.55
1998–99	0.87	0.93	0.87	0.94	0.92	0.83	0.86	0.85	1.45
1999–00	0.98	0.88	0.97	0.94	0.91	0.75	0.58	0.84	1.75
2000–01	0.91	0.95	0.97	0.96	0.87	0.83	0.95	0.87	1.02
2001–02	0.95	0.93	0.94	0.96	0.88	0.85	0.97	0.85	0.93
2002–03	0.96	0.95	0.91	0.98	0.87	0.82	0.95	0.79	0.94
2003–04	0.96	0.95	0.91	0.92	0.96	0.83	1.00	0.83	0.92
2004–05	0.96	0.95	0.88	0.92	1.01	0.88	0.91	0.83	0.89
2005–06	0.92	0.95	0.95	0.87	0.98	0.87	0.94	0.90	1.01
2006–07	0.92	1.00	0.95	0.93	0.97	0.89	0.96	0.90	0.94

Table 3: Number of vessels reporting rock lobster by statistical area from CRA 1, 1979–80 through to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded.

Fishing year	901	902	903	904	939	All
1979–80	5	9	8	7	10	34
1980–81	3	9	10	11	9	34
1981–82	3	8	10	9	8	33
1982–83	3	10	8	9	9	33
1983–84	5	14	6	8	7	31
1984–85	5	14	4	8	7	30
1985–86	5	10	8	10	8	34
1986–87	5	11	12	9	9	35
1987–88	4	10	13	8	9	30
1988–89	5	6	8	6	8	26
1989–90	7	7	5	8	9	27
1990–91	12	10	7	7	8	27
1991–92	8	16	13	12	8	33
1992–93	3	11	7	10	8	31
1993–94	6	8	6	9	6	27
1994–95	4	6	5	9	4	22
1995–96	4	6	5	9	5	23
1996–97	3	3	8	11	5	26
1997–98	2	3	4	7	6	21
1998–99	2	3	3	6	6	19
1999–00	5	3	3	6	6	20
2000–01	4	3	3	6	5	18
2001–02	4	4	3	5	5	18
2002–03	6	6	3	3	6	17
2003–04	2	6	3	3	6	16
2004–05	3	5	4	2	5	15
2005–06	3	5	3	2	5	15
2006–07	5	2	3	2	3	13

Table 4: Percentage of annual catch by statistical area from CRA 1, 1979–80 to 2006–07.

Fishing year	901	902	903	904	939
1979–80	16.9	23.6	19.8	15.3	24.4
1980–81	12.5	31.0	13.4	17.8	25.2
1981–82	11.1	35.4	20.6	12.1	20.8
1982–83	18.3	32.4	12.1	14.1	23.1
1983–84	21.3	31.7	7.9	14.3	24.7
1984–85	16.4	39.6	7.4	14.7	21.9
1985–86	17.4	31.1	8.6	19.2	23.7
1986–87	11.0	25.0	19.5	22.2	22.2
1987–88	18.3	23.9	15.7	18.3	23.8
1988–89	20.1	25.2	12.0	19.6	23.1
1989–90	28.2	20.4	11.3	19.6	20.5
1990–91	27.2	27.8	9.9	14.0	21.0
1991–92	7.9	30.7	16.7	18.4	26.3
1992–93	15.5	28.6	14.0	20.1	21.8
1993–94	27.0	27.9	11.7	16.8	16.6
1994–95	25.2	20.7	13.6	24.4	16.2
1995–96	15.3	16.6	17.0	31.9	19.2
1996–97	16.2	16.2	19.0	30.5	18.1
1997–98	13.8	19.4	16.0	22.9	27.9
1998–99	23.2	18.5	12.0	15.7	30.6
1999–00	45.1	8.3	5.3	10.3	30.9
2000–01	51.5	10.9	8.0	10.2	19.4
2001–02	49.2	9.5	8.5	8.6	24.1
2002–03	36.8	21.1	7.0	6.9	28.3
2003–04	15.4	46.9	6.1	10.1	21.5
2004–05	28.1	30.6	8.1	9.3	23.9
2005–06	40.4	19.1	8.8	10.6	21.1
2006–07	44.8	15.6	13.9	10.0	15.7

Table 5: Percentage of annual catch by month from CRA 1, 1979–80 to 2006–07.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	0.9	0.1	0.1	4.4	9.4	7.3	10.1	16.5	15.8	14.9	16.4	4.2
1980–81	2.1	0.3	0.7	3.7	6.8	4.4	11.9	10.0	19.1	23.9	11.1	5.9
1981–82	1.2	0.1	0.3	2.6	6.4	7.1	11.1	13.4	22.1	22.3	8.9	4.6
1982–83	0.2	0.4	0.4	2.8	6.3	9.6	9.7	16.1	19.6	15.1	12.5	7.2
1983–84	2.0	0.0	0.3	5.5	9.0	7.8	15.8	14.8	14.2	15.1	10.6	4.9
1984–85	1.8	0.7	0.6	4.0	5.1	11.1	13.5	15.4	16.0	14.5	10.1	7.2
1985–86	1.4	0.8	1.1	6.3	8.2	6.6	10.4	13.9	15.0	17.6	12.8	5.7
1986–87	1.7	0.6	1.0	6.1	10.1	10.3	14.5	14.3	13.1	11.4	11.9	5.1
1987–88	1.1	0.4	0.6	3.7	9.1	6.6	14.7	14.2	13.9	17.3	12.0	6.4
1988–89	2.4	1.4	1.0	1.8	7.2	2.4	12.8	18.3	20.7	15.4	9.0	7.6
1989–90	1.1	0.4	0.5	3.9	5.3	8.9	5.9	18.6	20.9	16.9	12.2	5.3
1990–91	0.1	0.2	0.7	4.3	14.9	12.0	14.2	15.0	15.9	11.2	7.1	4.5
1991–92	0.2	0.4	1.1	8.0	9.5	10.3	10.3	9.8	19.7	16.8	9.9	3.9
1992–93	0.1	1.1	1.9	6.3	9.5	8.3	14.0	13.9	14.2	14.9	11.0	4.9
1993–94	0.1	0.3	1.8	7.2	9.2	7.2	18.4	14.7	17.7	12.9	7.9	2.6
1994–95	0.1	0.5	2.4	9.5	15.0	7.6	10.8	17.1	17.2	8.9	7.7	3.1
1995–96	1.2	2.1	2.8	11.9	19.0	18.9	16.8	10.6	6.8	2.4	3.4	4.1
1996–97	1.2	4.9	3.9	18.5	13.8	18.8	15.8	12.3	5.8	2.2	1.7	1.0
1997–98	5.3	6.7	5.4	20.8	20.0	18.4	12.2	4.0	2.4	0.4	0.3	4.0
1998–99	4.8	6.3	7.7	21.1	17.3	20.7	10.9	4.3	3.3	2.9	0.3	0.4
1999–00	3.1	4.4	5.0	19.5	25.7	20.1	13.1	4.7	2.6	0.7	0.2	0.9
2000–01	2.3	2.2	4.9	13.4	23.6	23.3	22.6	4.8	0.9	1.0	0.6	0.5
2001–02	3.3	4.1	5.6	14.8	20.5	26.8	11.4	7.5	3.9	1.3	0.3	0.4
2002–03	4.1	5.0	2.5	15.5	19.0	16.9	21.0	8.4	4.0	3.0	0.2	0.4
2003–04	3.1	0.7	0.5	19.5	15.7	10.3	24.1	8.7	9.8	4.2	2.3	1.0
2004–05	1.9	2.8	3.8	17.8	14.8	12.9	21.4	8.9	2.7	4.4	7.2	1.4
2005–06	2.5	1.0	1.6	9.8	17.8	19.0	21.1	13.5	8.5	3.9	0.9	0.6
2006–07	1.4	2.5	2.2	20.6	19.9	14.6	14.1	8.8	4.6	5.7	4.5	1.0

Table 6: Percentage of catch from CRA 1 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	901	902	903	904	939
Apr	0.3	.	0.1	.	1.0
May	0.4	0.8	.	.	1.4
Jun	0.4	0.6	.	0.7	0.5
Jul	8.6	1.8	4.8	3.2	2.2
Aug	9.5	2.1	4.1	1.6	2.6
Sep	6.7	3.2	1.0	1.1	2.6
Oct	6.0	4.8	0.8	0.9	1.7
Nov	3.6	2.3	.	0.5	2.5
Dec	2.3	0.1	0.2	1.1	1.0
Jan	4.1	.	1.0	0.7	0.0
Feb	2.5	.	1.6	0.3	0.2
Mar	0.6	.	0.3	.	.

Table 7: Arithmetic CPUE (total kg/total potlifts) for CRA 1 by fishing year and statistical area, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	901	902	903	904	939
1979–80	1.91	1.42	0.70	0.52	0.47
1980–81	2.05	1.80	0.71	0.76	0.77
1981–82	2.01	1.78	0.90	0.72	0.78
1982–83	2.87	2.06	0.58	0.72	0.86
1983–84	1.89	1.47	0.60	0.66	1.12
1984–85	1.68	1.37	0.64	0.58	0.77
1985–86	1.16	1.30	0.67	0.62	0.80
1986–87	1.34	0.97	0.74	0.53	0.71
1987–88	1.58	0.94	0.64	0.51	0.64
1988–89	1.62	0.98	0.47	0.68	0.73
1989–90	1.49	1.14	0.50	0.49	0.60
1990–91	1.10	0.68	0.57	0.48	0.60
1991–92	1.45	0.81	0.44	0.41	0.65
1992–93	1.73	0.65	0.47	0.32	0.49
1993–94	1.88	1.03	0.41	0.33	0.50
1994–95	1.76	1.19	0.61	0.47	0.66
1995–96	1.83	1.30	0.90	0.67	1.02
1996–97	2.42	1.04	0.83	0.66	1.27
1997–98	2.12	1.24	0.74	0.52	1.12
1998–99	.	1.18	0.80	0.54	1.08
1999–00	2.85	1.13	0.48	0.34	1.16
2000–01	2.82	1.22	0.72	0.40	0.89
2001–02	2.92	2.77	0.77	0.50	0.86
2002–03	2.05	3.04	0.72	0.36	0.96
2003–04	.	3.29	0.79	0.36	0.81
2004–05	3.48	2.01	1.14	0.58	0.69
2005–06	3.21	2.19	0.81	.	0.57
2006–07	2.88	.	1.17	.	0.78

Table 8: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 1 (kg/potlift) for 1979–80 to 2006–07. (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	0.74	0.77	0.81	0.040
1980–81	1.01	0.90	0.97	0.042
1981–82	1.09	0.91	0.92	0.046
1982–83	1.12	0.95	0.99	0.043
1983–84	1.11	0.99	0.94	0.043
1984–85	0.96	0.93	0.87	0.042
1985–86	0.89	0.83	0.81	0.041
1986–87	0.75	0.79	0.79	0.041
1987–88	0.74	0.74	0.74	0.042
1988–89	0.80	0.69	0.65	0.048
1989–90	0.75	0.74	0.66	0.046
1990–91	0.68	0.64	0.55	0.045
1991–92	0.60	0.64	0.64	0.041
1992–93	0.53	0.53	0.54	0.043
1993–94	0.65	0.61	0.62	0.044
1994–95	0.77	0.78	0.79	0.047
1995–96	0.94	1.06	1.20	0.053
1996–97	0.95	0.99	1.16	0.053
1997–98	0.89	0.96	1.16	0.057
1998–99	1.04	1.16	1.34	0.060
1999–00	1.09	1.05	1.11	0.063
2000–01	1.17	1.09	1.12	0.063
2001–02	1.30	1.25	1.28	0.063
2002–03	1.20	1.23	1.12	0.061
2003–04	1.22	1.14	1.13	0.067
2004–05	1.24	1.42	1.28	0.067
2005–06	1.14	1.49	1.32	0.071
2006–07	1.32	1.62	1.41	0.070

Table 9: Number of vessels reporting rock lobster by statistical area from CRA 2, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded.

Fishing year	905	906	907	908	All
1979–80	12	31	14	27	80
1980–81	12	41	17	25	89
1981–82	16	38	15	26	88
1982–83	16	34	13	24	82
1983–84	14	29	15	20	75
1984–85	10	29	14	24	73
1985–86	14	30	15	23	78
1986–87	12	29	13	18	70
1987–88	6	25	15	18	59
1988–89	8	27	16	11	55
1989–90	14	3	1	1	17
1990–91	13	29	16	20	57
1991–92	12	27	15	17	51
1992–93	9	20	7	18	47
1993–94	8	24	11	15	46
1994–95	9	22	9	14	47
1995–96	9	24	8	16	45
1996–97	8	17	7	13	40
1997–98	12	17	8	10	43
1998–99	10	13	5	10	36
1999–00	8	15	7	9	35
2000–01	11	17	7	12	40
2001–02	11	14	7	10	36
2002–03	9	15	10	9	37
2003–04	9	13	7	9	35
2004–05	6	14	8	11	33
2005–06	12	14	9	9	37
2006–07	9	17	5	11	36

Table 10: Percentage of annual catch by statistical area from CRA 2, 1979–80 to 2006–07.

Fishing year	905	906	907	908
1979–80	10.6	31.4	25.0	32.9
1980–81	9.8	38.6	24.0	27.6
1981–82	12.0	40.0	18.6	29.4
1982–83	14.0	42.9	18.9	24.3
1983–84	13.8	41.5	18.7	26.0
1984–85	11.0	38.8	18.2	31.9
1985–86	11.2	38.4	25.1	25.3
1986–87	9.8	44.1	19.6	26.5
1987–88	8.2	50.2	17.3	24.3
1988–89	10.5	49.8	18.3	21.4
1989–90	68.1	15.2	5.8	10.9
1990–91	14.9	41.8	17.3	26.1
1991–92	11.1	44.8	19.3	24.9
1992–93	14.6	44.0	11.7	29.8
1993–94	15.2	45.1	14.4	25.3
1994–95	14.8	46.4	17.9	20.9
1995–96	13.5	48.2	14.4	23.9
1996–97	15.7	48.9	14.8	20.6
1997–98	14.6	47.2	20.9	17.3
1998–99	18.9	41.1	21.0	19.0
1999–00	15.4	43.0	24.7	17.0
2000–01	16.0	43.6	22.5	18.0
2001–02	15.9	41.7	21.2	21.2
2002–03	15.8	34.2	21.4	28.6
2003–04	18.1	35.2	24.2	22.5
2004–05	11.9	39.0	22.7	26.4
2005–06	16.4	38.6	23.7	21.3
2006–07	15.2	39.1	21.1	24.6

Table 11: Percentage of annual catch by month from CRA 2, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/month cell.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	0.6	0.2	0.3	5.8	11.1	11.6	14.0	15.9	14.4	13.0	8.3	4.9
1980–81	1.1	0.8	2.3	9.8	13.6	10.4	17.0	10.1	13.1	12.1	6.6	3.1
1981–82	1.5	0.7	1.3	7.4	10.1	9.7	16.1	15.4	14.9	11.5	6.4	4.8
1982–83	1.7	0.2	1.2	7.8	11.5	11.1	15.2	15.1	14.9	10.3	6.9	4.1
1983–84	1.4	0.2	1.6	9.7	8.7	9.1	16.8	15.9	12.3	12.4	8.2	3.8
1984–85	1.5	0.3	1.0	7.7	8.9	14.6	18.0	13.1	13.9	11.7	6.0	3.2
1985–86	0.6	0.2	0.5	6.4	9.4	9.2	18.1	15.8	14.0	13.4	8.5	4.0
1986–87	1.0	0.2	0.5	6.4	10.2	11.6	17.5	15.5	15.9	11.3	6.1	3.6
1987–88	0.6	0.1	0.6	9.5	10.8	10.3	16.7	16.9	14.3	11.5	6.1	2.6
1988–89	1.2	0.1	0.9	8.2	13.9	13.1	16.5	11.4	13.3	10.1	6.9	4.2
1989–90	2.2	0.7	2.6	24.3	9.3	10.4	8.9	17.7	10.1	11.1	2.3	0.4
1990–91	0.0	0.1	0.5	7.9	16.7	14.7	16.4	14.6	12.4	8.3	5.8	2.6
1991–92	0.5	0.8	1.4	11.5	12.9	12.9	19.0	15.0	10.3	7.7	5.4	2.5
1992–93	0.4	0.5	2.6	9.8	10.3	11.2	16.6	13.3	13.7	9.3	7.2	5.1
1993–94	0.3	0.1	2.7	13.4	15.6	15.4	18.3	10.9	9.4	8.2	3.7	2.0
1994–95	0.3	0.3	5.2	18.6	18.6	16.0	20.5	10.6	5.0	2.6	1.7	0.8
1995–96	0.4	0.9	7.0	22.5	24.6	19.7	17.0	3.4	1.8	0.6	0.9	1.3
1996–97	3.2	5.9	7.0	35.1	19.6	16.0	6.8	1.8	1.1	1.4	1.1	0.9
1997–98	5.1	3.8	9.3	32.2	18.9	20.0	8.9	0.4	0.9	.	0.1	0.3
1998–99	1.6	4.3	8.2	22.3	21.7	29.6	5.5	2.5	0.6	0.1	2.2	1.6
1999–00	2.1	4.5	3.8	21.1	20.3	22.9	19.3	2.0	0.6	1.2	1.0	1.3
2000–01	4.6	1.8	1.2	10.5	18.7	18.8	24.7	7.9	2.8	1.4	3.1	4.5
2001–02	3.8	2.5	1.6	13.9	14.3	16.9	23.6	9.1	3.9	2.6	3.8	4.1
2002–03	2.8	1.2	1.2	10.3	10.3	8.9	23.2	13.3	10.1	6.2	7.0	5.6
2003–04	2.0	0.6	1.1	7.7	10.9	12.8	19.9	12.5	9.4	11.9	6.4	4.8
2004–05	1.9	1.4	2.1	12.4	9.8	10.9	16.7	14.4	7.3	9.2	7.5	6.3
2005–06	1.7	0.8	0.5	7.3	11.1	14.0	16.4	12.7	11.1	10.0	9.3	4.9
2006–07	1.6	0.5	1.2	10.3	11.5	14.2	18.2	11.8	10.4	9.7	6.1	4.5

Table 12: Percentage of catch from CRA 2 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	905	906	907	908
Apr	0.7	0.8	0.0	0.0
May	0.2	0.2	0.0	.
Jun	0.1	0.1	1.0	0.0
Jul	0.9	4.2	3.0	2.2
Aug	2.5	4.2	2.1	2.7
Sep	2.3	5.6	3.1	3.2
Oct	2.0	7.1	4.9	4.2
Nov	1.6	4.5	3.2	2.5
Dec	2.0	3.0	2.1	3.3
Jan	1.7	4.3	1.1	2.7
Feb	0.9	2.6	0.3	2.4
Mar	0.3	2.4	0.3	1.5

Table 13: Arithmetic CPUE (total kg/total potlifts) for CRA 2 by fishing year and statistical area, 1979–80 to 2006–07.

Fishing year	905	906	907	908
1979–80	0.68	0.40	0.69	0.54
1980–81	0.74	0.55	0.79	0.55
1981–82	0.57	0.53	0.67	0.53
1982–83	0.53	0.43	0.52	0.39
1983–84	0.48	0.35	0.44	0.37
1984–85	0.43	0.33	0.42	0.40
1985–86	0.46	0.39	0.52	0.41
1986–87	0.44	0.36	0.41	0.36
1987–88	0.40	0.35	0.35	0.31
1988–89	0.37	0.37	0.33	0.37
1989–90	0.45	0.26	0.22	0.36
1990–91	0.50	0.46	0.49	0.53
1991–92	0.49	0.43	0.45	0.39
1992–93	0.49	0.39	0.36	0.38
1993–94	0.48	0.45	0.56	0.37
1994–95	0.47	0.55	0.89	0.43
1995–96	0.75	0.72	1.28	0.54
1996–97	0.90	0.77	1.91	0.65
1997–98	0.88	0.85	2.16	0.54
1998–99	0.96	0.88	2.19	0.61
1999–00	0.75	0.71	1.18	0.47
2000–01	0.72	0.68	0.89	0.70
2001–02	0.59	0.47	0.65	0.67
2002–03	0.48	0.36	0.49	0.53
2003–04	0.56	0.36	0.46	0.46
2004–05	0.61	0.40	0.47	0.44
2005–06	0.51	0.49	0.47	0.43
2006–07	0.61	0.53	0.56	0.55

Table 14: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 2 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	0.52	0.53	0.51	0.025
1980–81	0.61	0.61	0.61	0.024
1981–82	0.55	0.52	0.51	0.024
1982–83	0.45	0.43	0.43	0.024
1983–84	0.39	0.35	0.35	0.025
1984–85	0.37	0.34	0.34	0.025
1985–86	0.43	0.40	0.39	0.025
1986–87	0.37	0.36	0.35	0.026
1987–88	0.34	0.31	0.31	0.027
1988–89	0.36	0.34	0.33	0.030
1989–90	0.38	0.35	0.35	0.043
1990–91	0.49	0.48	0.47	0.031
1991–92	0.43	0.44	0.43	0.031
1992–93	0.40	0.42	0.41	0.034
1993–94	0.44	0.44	0.44	0.033
1994–95	0.54	0.52	0.52	0.038
1995–96	0.71	0.78	0.82	0.042
1996–97	0.83	0.81	0.89	0.046
1997–98	0.88	0.98	1.06	0.048
1998–99	0.93	1.07	1.15	0.047
1999–00	0.73	0.81	0.85	0.046
2000–01	0.73	0.76	0.76	0.042
2001–02	0.56	0.53	0.53	0.040
2002–03	0.44	0.43	0.42	0.038
2003–04	0.43	0.43	0.42	0.039
2004–05	0.45	0.49	0.49	0.038
2005–06	0.47	0.51	0.49	0.038
2006–07	0.55	0.57	0.57	0.038

Table 15: Number of vessels reporting rock lobster by statistical area from CRA 3, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded.

Fishing year	909	910	911	All
1979–80	8	45	30	70
1980–81	11	46	36	85
1981–82	15	39	28	77
1982–83	16	44	29	85
1983–84	14	47	32	84
1984–85	14	49	33	86
1985–86	14	43	33	83
1986–87	12	38	29	76
1987–88	11	42	25	72
1988–89	11	30	22	58
1989–90	10	46	24	77
1990–91	9	30	23	58
1991–92	8	32	35	65
1992–93	6	24	32	54
1993–94	7	24	20	48
1994–95	7	21	16	41
1995–96	4	18	12	34
1996–97	4	18	11	32
1997–98	6	17	9	30
1998–99	7	16	9	30
1999–00	6	17	10	32
2000–01	5	17	12	33
2001–02	5	16	13	33
2002–03	5	20	14	38
2003–04	5	19	16	39
2004–05	4	15	16	33
2005–06	4	15	11	29
2006–07	4	13	12	28

Table 16: Percentage of annual catch by statistical area from CRA 3, 1979–80 to 2006–07.

Fishing year	909	910	911
1979–80	12.3	53.0	34.7
1980–81	16.1	44.8	39.1
1981–82	19.2	48.3	32.5
1982–83	16.8	51.9	31.3
1983–84	11.7	52.9	35.4
1984–85	16.7	41.7	41.7
1985–86	15.4	41.8	42.8
1986–87	13.2	51.1	35.7
1987–88	19.8	47.6	32.6
1988–89	14.9	42.0	43.1
1989–90	11.8	52.8	35.5
1990–91	11.0	49.8	39.3
1991–92	11.8	41.1	47.1
1992–93	12.1	40.1	47.9
1993–94	17.9	46.1	36.0
1994–95	16.8	47.7	35.5
1995–96	13.4	54.4	32.2
1996–97	14.9	55.6	29.4
1997–98	17.2	54.9	27.9
1998–99	17.3	59.3	23.4
1999–00	17.2	54.6	28.1
2000–01	15.0	45.4	39.6
2001–02	15.5	35.5	49.1
2002–03	11.9	36.2	51.8
2003–04	13.9	36.1	50.0
2004–05	18.5	41.0	40.5
2005–06	13.5	45.6	40.9
2006–07	15.3	41.2	43.6

Table 17: Percentage of annual catch by month from CRA 3, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/month cell.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	1.4	0.3	5.3	7.2	3.1	4.8	14.8	26.6	16.7	12.1	4.8	2.9
1980–81	2.4	0.5	3.3	8.1	6.5	4.8	11.6	18.5	18.0	14.7	6.4	5.2
1981–82	2.6	0.3	4.7	9.5	4.4	5.3	8.4	12.3	23.4	16.1	5.7	7.3
1982–83	1.6	0.5	4.7	7.6	7.0	3.8	8.7	24.4	17.7	11.4	6.2	6.4
1983–84	2.4	1.2	9.1	7.4	7.0	5.2	11.2	19.6	13.9	12.2	5.3	5.5
1984–85	1.5	0.4	11.2	6.8	3.7	3.7	17.1	21.5	15.7	11.0	5.7	1.5
1985–86	1.8	0.2	6.1	8.1	4.0	3.4	12.8	20.2	17.5	13.1	8.9	3.8
1986–87	1.4	0.1	4.9	5.3	2.7	3.8	18.1	26.0	20.1	11.5	4.5	1.5
1987–88	1.2	0.9	7.7	4.7	5.2	4.4	22.5	15.6	19.4	10.8	4.7	2.8
1988–89	1.1	0.4	4.4	4.1	2.3	8.3	22.3	17.4	16.9	9.1	5.0	8.7
1989–90	1.9	1.1	3.6	4.0	1.7	6.4	10.1	21.8	23.1	14.9	5.9	5.4
1990–91	2.0	1.1	4.0	7.3	3.8	6.5	19.0	22.3	16.7	8.3	6.2	2.8
1991–92	3.7	0.5	2.4	7.9	5.2	4.2	14.4	21.2	20.6	11.2	5.0	3.7
1992–93	1.6	0.8	6.5	6.3	4.8	1.9	7.1	19.0	22.5	17.8	5.9	5.9
1993–94	3.1	2.8	27.1	23.6	8.4	0.2	0.3	0.4	0.3	0.3	29.5	4.1
1994–95	7.5	.	42.9	24.0	14.9	0.3	0.4	0.2	0.6	0.1	7.7	1.6
1995–96	6.1	0.0	38.2	37.7	13.4	0.2	0.4	0.2	0.1	.	3.3	0.6
1996–97	9.2	.	37.5	35.5	15.2	0.5	0.7	0.1	.	.	0.6	0.7
1997–98	7.2	.	32.3	42.9	16.2	0.8	.	.	.	.	0.1	0.6
1998–99	14.4	.	27.9	24.5	21.8	1.5	0.0	.	0.4	.	8.5	0.9
1999–00	4.6	0.1	32.1	31.5	18.3	1.5	0.1	.	.	.	8.8	3.0
2000–01	8.4	.	24.2	20.0	13.4	10.7	0.0	.	.	0.0	15.5	7.8
2001–02	9.1	0.0	25.7	16.9	11.7	0.1	0.5	.	.	0.0	17.3	18.6
2002–03	2.2	.	24.8	16.9	8.3	5.8	8.0	6.7	3.7	5.9	11.1	6.7
2003–04	1.1	.	28.6	15.7	5.2	5.1	8.0	14.4	7.2	4.5	4.9	5.4
2004–05	1.7	.	30.9	13.1	8.2	1.2	4.4	11.3	5.8	9.0	8.5	6.0
2005–06	0.3	.	21.2	21.2	7.9	3.1	9.2	14.3	8.1	4.5	7.1	3.1
2006–07	1.8	.	16.2	16.2	13.2	2.5	7.5	15.5	5.0	7.5	6.3	8.3

Table 18: Percentage of catch from CRA 3 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	909	910	911
Apr	.	1.2	0.5
May	.	.	.
Jun	3.2	10.8	2.2
Jul	4.7	7.2	4.3
Aug	3.0	5.7	4.4
Sep	0.3	0.3	1.9
Oct	0.2	1.1	6.2
Nov	0.9	6.1	8.4
Dec	0.0	1.6	3.4
Jan	0.7	2.1	4.7
Feb	1.0	1.6	3.7
Mar	1.2	3.4	3.7

Table 19: Arithmetic CPUE (total kg/total potlifts) for CRA 3 by fishing year and statistical area, 1979–80 to 2006–07.

Fishing year	909	910	911
1979–80	1.01	0.95	0.84
1980–81	1.20	0.84	0.95
1981–82	1.32	0.89	0.84
1982–83	0.96	0.93	1.01
1983–84	0.80	0.82	0.97
1984–85	0.77	0.64	0.92
1985–86	0.66	0.64	0.89
1986–87	0.69	0.65	0.71
1987–88	0.49	0.39	0.50
1988–89	0.47	0.35	0.60
1989–90	0.56	0.43	0.68
1990–91	0.46	0.42	0.50
1991–92	0.32	0.28	0.38
1992–93	0.34	0.27	0.27
1993–94	0.59	0.46	0.46
1994–95	1.04	0.84	0.85
1995–96	1.22	1.57	1.03
1996–97	2.02	1.87	1.50
1997–98	2.62	2.10	2.12
1998–99	1.94	1.57	1.61
1999–00	1.69	1.50	1.61
2000–01	1.45	0.93	1.61
2001–02	1.00	0.71	1.22
2002–03	0.81	0.55	0.93
2003–04	0.88	0.60	0.60
2004–05	0.82	0.55	0.43
2005–06	0.82	0.59	0.61
2006–07	0.99	0.48	0.62

Table 20: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 3 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	0.91	0.85	0.80	0.022
1980–81	0.93	0.93	0.89	0.021
1981–82	0.93	0.91	0.88	0.021
1982–83	0.96	0.98	0.95	0.021
1983–84	0.86	0.88	0.87	0.020
1984–85	0.75	0.72	0.70	0.020
1985–86	0.73	0.70	0.67	0.020
1986–87	0.67	0.61	0.58	0.022
1987–88	0.44	0.43	0.41	0.022
1988–89	0.45	0.45	0.42	0.025
1989–90	0.51	0.46	0.46	0.023
1990–91	0.45	0.43	0.43	0.023
1991–92	0.33	0.31	0.30	0.022
1992–93	0.28	0.26	0.25	0.022
1993–94	0.48	0.45	0.50	0.033
1994–95	0.87	0.89	0.93	0.043
1995–96	1.30	1.37	1.43	0.048
1996–97	1.76	1.79	1.91	0.049
1997–98	2.18	2.50	2.69	0.051
1998–99	1.63	1.87	2.04	0.047
1999–00	1.56	1.76	1.91	0.045
2000–01	1.19	1.26	1.41	0.040
2001–02	0.95	1.00	1.08	0.039
2002–03	0.73	0.73	0.73	0.032
2003–04	0.63	0.60	0.57	0.032
2004–05	0.52	0.52	0.49	0.035
2005–06	0.62	0.62	0.59	0.035
2006–07	0.58	0.61	0.59	0.034

Table 21: Number of vessels reporting rock lobster by statistical area from CRA 4, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A '.' indicates that no fishing took place in the indicated statistical area/fishing year cell. A '0' indicates that fishing took place but none of the qualified vessels fished.

Fishing year	912	913	914	915	934	All
1979–80	25	32	31	17	0	86
1980–81	26	20	30	19	0	86
1981–82	30	25	27	17	0	88
1982–83	28	22	29	18	0	89
1983–84	26	23	32	17	1	89
1984–85	25	24	32	19	1	90
1985–86	27	21	39	17	1	88
1986–87	25	23	35	17	2	88
1987–88	24	19	35	17	0	85
1988–89	22	24	42	16	0	87
1989–90	33	40	57	19	0	131
1990–91	26	25	32	18	0	85
1991–92	25	33	35	13	1	88
1992–93	31	29	33	11	1	94
1993–94	32	33	38	13	2	100
1994–95	23	29	41	14	4	89
1995–96	19	21	36	14	2	80
1996–97	19	15	35	16	1	74
1997–98	18	15	35	9	.	72
1998–99	22	15	32	11	.	65
1999–00	18	15	33	12	1	70
2000–01	21	13	25	11	1	61
2001–02	22	18	25	13	2	62
2002–03	16	16	25	13	1	65
2003–04	15	16	27	13	.	65
2004–05	16	16	27	10	2	61
2005–06	12	12	25	12	2	54
2006–07	14	15	33	12	4	67

Table 22: Percentage of annual catch by statistical area from CRA 4, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	912	913	914	915	934
1979–80	21.4	30.2	38.2	10.1	0.1
1980–81	32.4	21.7	33.5	12.2	0.2
1981–82	35.6	22.6	29.3	12.4	0.0
1982–83	25.7	21.8	37.6	14.8	0.1
1983–84	19.8	27.8	40.0	12.2	0.1
1984–85	25.1	25.7	37.1	11.6	0.5
1985–86	27.0	21.2	36.7	14.7	0.4
1986–87	21.9	29.3	37.4	11.2	0.3
1987–88	19.3	25.0	44.3	11.4	0.0
1988–89	17.6	27.0	45.5	9.9	0.0
1989–90	23.0	35.2	33.8	7.9	0.0
1990–91	28.3	29.5	31.7	10.5	0.1
1991–92	31.6	29.3	30.0	8.8	0.3
1992–93	30.1	26.3	32.6	10.6	0.4
1993–94	23.8	28.8	36.7	9.9	0.9
1994–95	21.9	24.5	41.7	9.7	2.1
1995–96	22.9	23.1	46.8	6.3	0.9
1996–97	24.6	19.6	46.0	9.2	0.6
1997–98	25.5	22.0	45.0	7.5	.
1998–99	31.3	21.9	38.2	8.5	.
1999–00	26.5	22.4	39.7	10.6	0.8
2000–01	26.9	23.5	37.8	10.9	0.9
2001–02	22.2	21.5	42.2	12.8	1.3
2002–03	23.4	27.0	36.6	12.5	0.5
2003–04	19.3	31.9	40.8	8.0	.
2004–05	15.6	28.4	48.8	6.3	1.0
2005–06	9.7	21.1	55.0	12.9	1.3
2006–07	11.9	22.9	43.2	18.2	3.8

Table 23: Percentage of annual catch by month from CRA 4, 1979–80 to 2006–07.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	0.3	0.5	9.4	9.8	4.6	7.1	13.5	23.4	13.1	10.8	5.3	2.1
1980–81	0.8	3.3	8.6	8.3	7.1	8.8	14.3	13.4	12.8	13.5	6.8	2.4
1981–82	1.4	3.2	7.4	9.6	5.8	10.0	11.8	10.0	13.5	14.9	9.0	3.6
1982–83	0.4	5.4	6.6	8.5	8.2	6.9	11.7	13.8	15.3	12.9	8.2	2.3
1983–84	0.4	3.3	13.1	8.4	8.7	5.8	12.5	16.4	11.5	11.8	5.7	2.6
1984–85	0.2	6.3	13.8	7.1	4.3	7.8	15.4	16.1	13.4	9.9	4.6	1.1
1985–86	0.4	1.4	11.4	8.3	5.3	5.3	12.9	14.8	17.5	14.6	6.5	1.6
1986–87	0.3	3.4	10.7	4.9	2.8	6.6	17.8	17.3	17.0	14.0	4.3	1.1
1987–88	0.5	4.4	10.2	3.7	6.4	4.8	22.7	18.2	14.4	9.3	4.0	1.5
1988–89	0.5	5.1	8.9	4.4	3.4	9.3	16.9	21.5	14.4	8.5	4.3	2.6
1989–90	1.4	3.3	8.0	6.7	2.2	9.0	11.5	19.6	15.1	14.5	6.0	2.6
1990–91	0.3	2.7	8.1	6.4	2.7	11.4	19.2	18.3	13.6	8.6	7.0	1.6
1991–92	1.6	4.3	5.7	11.7	4.7	4.7	17.0	17.9	15.2	11.6	3.8	1.7
1992–93	0.9	2.6	17.2	8.7	3.7	4.0	11.5	17.2	16.2	10.7	4.7	2.5
1993–94	1.1	14.2	17.1	9.5	3.7	1.9	15.3	15.3	14.5	4.6	2.1	0.6
1994–95	3.2	17.5	13.3	10.3	6.6	4.3	13.1	17.2	8.2	4.3	0.8	1.2
1995–96	3.9	25.1	12.1	11.9	6.1	11.8	13.2	7.3	3.1	1.6	1.8	2.1
1996–97	9.3	30.2	18.9	11.1	11.2	10.7	4.4	2.1	0.7	0.5	0.0	1.1
1997–98	7.3	30.6	19.3	18.3	10.0	8.4	3.2	0.2	0.5	1.5	0.3	0.5
1998–99	4.3	21.6	13.2	19.3	18.2	14.0	4.6	1.4	0.5	0.8	1.7	0.5
1999–00	2.4	19.7	20.4	19.9	11.5	19.4	2.1	0.6	2.9	0.5	0.3	0.4
2000–01	5.5	24.3	24.4	16.6	6.2	10.8	6.4	2.9	0.7	0.4	0.8	1.1
2001–02	5.9	14.2	25.2	11.9	9.2	17.0	5.3	4.6	2.0	2.4	1.1	1.3
2002–03	5.6	11.9	22.9	13.5	9.2	13.8	2.7	5.5	2.9	6.2	4.2	1.5
2003–04	4.6	9.1	17.8	15.4	6.2	10.9	11.6	7.3	2.9	6.6	2.4	5.1
2004–05	3.5	9.9	18.1	7.8	3.2	3.3	13.3	7.7	6.2	17.5	7.7	1.9
2005–06	1.4	11.0	10.0	8.5	4.9	3.7	10.2	8.0	17.8	12.2	8.4	3.9
2006–07	0.8	3.0	6.1	5.8	4.3	5.5	11.9	16.8	13.2	18.3	8.8	5.5

Table 24: Percentage of catch from CRA 4 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	912	913	914	915	934
Apr	0.3	0.2	0.1	0.2	0.0
May	0.0	1.0	1.7	0.3	.
Jun	0.4	2.2	2.6	1.0	0.0
Jul	0.4	0.9	2.4	1.7	0.4
Aug	0.6	0.5	1.5	1.4	0.3
Sep	0.7	1.2	2.3	1.2	0.1
Oct	2.4	2.4	4.6	2.1	0.4
Nov	3.1	4.3	6.5	2.2	0.6
Dec	1.1	3.3	7.3	1.0	0.4
Jan	1.2	4.7	9.2	2.8	0.4
Feb	0.8	1.0	3.4	2.8	0.8
Mar	0.9	1.0	1.5	1.6	0.4

Table 25: Arithmetic CPUE (total kg/total potlifts) for CRA 4 by fishing year and statistical area, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	912	913	914	915	934
1979–80	0.93	0.98	0.90	0.56	.
1980–81	1.05	0.77	0.83	0.58	0.93
1981–82	1.09	0.83	0.74	0.59	.
1982–83	0.90	0.94	1.08	0.66	.
1983–84	0.77	1.02	1.05	0.64	.
1984–85	0.86	0.84	0.78	0.55	.
1985–86	0.79	0.77	0.72	0.60	0.75
1986–87	0.85	0.92	0.88	0.61	.
1987–88	0.65	0.78	0.79	0.59	.
1988–89	0.51	0.63	0.69	0.53	.
1989–90	0.64	0.74	0.51	0.41	.
1990–91	0.75	0.53	0.39	0.39	.
1991–92	0.74	0.54	0.38	0.38	.
1992–93	0.63	0.51	0.47	0.46	0.46
1993–94	0.55	0.65	0.62	0.41	.
1994–95	0.78	0.69	0.76	0.46	0.41
1995–96	0.95	0.82	0.92	0.59	0.37
1996–97	1.21	1.03	1.03	0.74	.
1997–98	1.71	1.49	1.07	0.84	.
1998–99	1.72	2.51	1.02	0.72	.
1999–00	1.38	1.80	1.05	1.23	0.84
2000–01	1.16	1.91	1.14	1.11	0.95
2001–02	0.93	1.17	1.08	1.11	0.81
2002–03	1.08	1.18	1.02	1.21	.
2003–04	1.10	1.36	1.08	0.90	.
2004–05	0.77	1.20	1.06	0.70	.
2005–06	0.60	0.94	0.94	0.81	.
2006–07	0.58	0.76	0.57	0.76	1.55

Table 26: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 4 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	0.87	0.86	0.82	0.021
1980–81	0.83	0.82	0.80	0.020
1981–82	0.83	0.86	0.85	0.021
1982–83	0.92	0.94	0.92	0.020
1983–84	0.90	0.85	0.83	0.020
1984–85	0.77	0.78	0.76	0.020
1985–86	0.73	0.74	0.72	0.020
1986–87	0.84	0.79	0.77	0.020
1987–88	0.73	0.69	0.67	0.021
1988–89	0.62	0.58	0.56	0.021
1989–90	0.59	0.57	0.54	0.020
1990–91	0.50	0.51	0.50	0.021
1991–92	0.50	0.52	0.50	0.020
1992–93	0.52	0.50	0.48	0.020
1993–94	0.58	0.56	0.54	0.021
1994–95	0.69	0.68	0.67	0.022
1995–96	0.86	0.84	0.85	0.025
1996–97	1.03	1.08	1.18	0.028
1997–98	1.24	1.29	1.39	0.030
1998–99	1.31	1.44	1.57	0.030
1999–00	1.27	1.35	1.46	0.029
2000–01	1.26	1.17	1.25	0.030
2001–02	1.06	1.04	1.10	0.028
2002–03	1.09	1.14	1.19	0.027
2003–04	1.14	1.19	1.22	0.027
2004–05	1.00	0.96	0.96	0.026
2005–06	0.88	0.84	0.83	0.027
2006–07	0.66	0.73	0.72	0.025

Table 27: Number of vessels reporting rock lobster by statistical area from CRA 5, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A '.' indicates that no fishing took place in the statistical area/fishing year cell. A '0' indicates that fishing took place but none of the qualified vessels fished.

Fishing year	916	917	918	919	932	933	All
1979–80	21	51	13	3	1	9	88
1980–81	19	50	12	1	1	11	86
1981–82	15	51	12	0	2	11	85
1982–83	19	60	13	3	1	13	93
1983–84	16	59	11	1	.	13	93
1984–85	16	60	10	2	0	14	95
1985–86	13	56	11	2	2	15	92
1986–87	11	55	11	4	5	11	91
1987–88	11	51	10	3	2	12	84
1988–89	7	44	9	3	1	9	71
1989–90	15	44	11	0	0	7	67
1990–91	11	40	11	1	3	11	63
1991–92	11	37	21	1	1	11	68
1992–93	12	31	13	0	.	11	59
1993–94	9	35	12	.	0	13	59
1994–95	9	27	8	.	0	11	51
1995–96	12	25	6	1	2	12	49
1996–97	10	22	9	2	1	12	47
1997–98	9	21	7	1	1	12	46
1998–99	6	18	5	.	1	13	41
1999–00	7	21	7	1	1	12	40
2000–01	8	18	6	.	.	10	36
2001–02	10	18	2	.	0	8	35
2002–03	10	17	2	.	.	9	35
2003–04	12	15	2	.	.	11	35
2004–05	12	14	1	.	2	9	33
2005–06	11	15	2	.	0	8	32
2006–07	10	14	2	.	.	8	28

Table 28: Percentage of annual catch by statistical area from CRA 5, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	916	917	918	919	932	933
1979–80	26.7	47.9	12.8	1.1	1.0	10.4
1980–81	29.3	50.2	6.3	0.4	0.3	13.5
1981–82	23.0	52.0	7.3	0.1	1.5	16.1
1982–83	19.9	57.3	4.0	0.7	0.1	18.0
1983–84	19.2	57.5	5.6	0.3	.	17.4
1984–85	19.5	61.4	4.7	0.7	0.1	13.6
1985–86	19.4	62.1	6.7	0.7	0.3	10.8
1986–87	15.9	65.3	7.3	1.9	1.6	8.0
1987–88	22.4	58.0	6.3	3.2	0.7	9.4
1988–89	19.3	58.6	8.2	3.2	0.7	10.0
1989–90	28.4	55.8	10.1	0.1	0.0	5.5
1990–91	28.3	57.4	5.3	0.0	0.6	8.4
1991–92	29.9	46.1	10.9	0.0	0.1	13.0
1992–93	24.9	58.4	7.0	0.2	.	9.6
1993–94	23.5	54.3	8.1	.	0.1	14.1
1994–95	28.0	50.5	4.3	.	0.0	17.2
1995–96	26.9	43.2	3.2	0.0	1.3	25.3
1996–97	24.4	45.0	4.8	0.0	2.1	23.7
1997–98	24.3	42.2	4.4	0.0	2.4	26.8
1998–99	23.2	41.9	5.8	.	3.4	25.6
1999–00	29.4	42.0	4.0	0.0	0.0	24.6
2000–01	31.1	40.1	2.8	.	.	26.0
2001–02	42.6	39.4	1.5	.	0.1	16.3
2002–03	45.4	36.1	1.0	.	.	17.5
2003–04	46.8	33.8	0.9	.	.	18.5
2004–05	43.1	40.2	0.9	.	0.1	15.8
2005–06	44.2	41.0	1.4	.	0.0	13.4
2006–07	41.2	45.6	0.8	.	.	12.4

Table 29: Percentage of annual catch by month from CRA 5, 1979–80 to 2006–07.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	0.7	7.0	6.4	6.2	4.6	7.5	11.6	17.9	13.5	15.6	7.6	1.5
1980–81	1.2	9.0	2.6	3.2	4.5	6.6	13.2	20.4	14.6	16.1	7.6	1.1
1981–82	0.9	6.2	2.6	3.4	2.4	4.8	12.1	18.7	21.2	16.4	8.2	3.1
1982–83	1.3	6.7	3.1	2.9	4.3	5.0	10.5	20.1	20.3	16.0	7.7	2.1
1983–84	1.2	4.8	5.0	4.3	5.5	5.4	8.5	8.8	17.1	23.6	11.8	4.0
1984–85	1.9	8.2	6.0	4.3	2.7	3.8	8.5	19.9	20.0	16.5	6.1	2.0
1985–86	2.7	4.7	2.1	2.8	3.6	4.4	12.4	14.8	21.0	20.8	8.0	2.7
1986–87	3.1	7.7	3.6	2.4	2.0	4.6	9.8	22.3	21.4	16.9	5.2	0.9
1987–88	2.3	4.4	5.1	2.8	4.7	4.2	13.6	18.6	22.2	15.7	4.9	1.3
1988–89	1.5	4.9	3.5	2.7	3.6	6.4	7.9	20.6	20.6	21.6	4.6	2.1
1989–90	2.1	5.1	2.4	2.3	2.3	4.1	7.0	15.8	20.8	25.1	10.4	2.5
1990–91	2.7	3.7	1.6	2.8	2.2	3.9	13.5	24.7	22.7	14.7	6.2	1.3
1991–92	0.4	3.4	1.9	3.8	3.6	4.0	10.8	19.9	19.1	22.1	8.9	2.1
1992–93	0.9	2.5	5.7	3.5	3.7	2.3	7.9	12.0	21.1	25.0	12.2	3.1
1993–94	0.7	6.7	7.3	7.6	5.6	3.8	10.0	13.0	19.9	15.3	7.7	2.2
1994–95	1.8	9.9	4.6	5.2	5.7	5.1	7.0	19.0	17.0	13.3	7.9	3.6
1995–96	1.8	10.9	5.1	5.5	5.0	5.9	10.9	14.3	15.3	10.6	8.2	6.5
1996–97	8.3	20.9	7.4	5.9	7.7	9.0	10.7	8.8	10.2	6.1	3.2	1.6
1997–98	15.2	24.0	10.8	7.8	7.3	7.4	7.7	5.6	5.1	4.6	3.2	1.3
1998–99	7.7	18.0	14.1	11.8	12.9	12.3	9.3	4.0	3.6	2.0	2.2	2.2
1999–00	11.0	19.4	11.7	13.2	12.1	11.6	8.1	2.8	3.1	2.8	2.1	2.1
2000–01	7.6	24.1	16.7	13.9	10.6	10.7	9.1	2.2	1.5	2.5	0.2	1.1
2001–02	9.0	21.2	13.0	17.1	17.4	12.4	4.6	2.4	0.5	0.6	0.9	0.9
2002–03	9.0	21.5	15.8	13.9	15.9	10.1	3.3	2.3	1.1	2.8	2.2	2.3
2003–04	1.4	14.4	20.0	19.1	12.5	13.7	7.6	2.0	2.0	3.9	1.7	1.6
2004–05	3.7	22.6	13.3	13.9	7.1	6.8	6.9	7.9	4.1	10.1	1.9	1.9
2005–06	3.1	28.3	13.0	10.5	8.4	5.6	8.7	7.3	6.1	6.6	1.4	1.0
2006–07	8.7	25.8	11.3	5.9	5.1	4.1	5.5	11.6	7.8	10.7	3.1	0.4

Table 30: Percentage of catch from CRA 5 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	916	917	918	919	932	933
Apr	3.8	4.5	.	.	.	0.4
May	14.1	10.7	.	.	.	1.0
Jun	4.6	5.3	0.0	.	.	1.4
Jul	1.7	2.7	0.5	.	.	1.0
Aug	0.9	3.5	0.3	.	.	0.4
Sep	1.1	2.2	0.0	.	.	0.8
Oct	0.9	2.2	.	.	.	2.4
Nov	1.9	7.2	.	.	.	2.5
Dec	2.6	3.8	.	.	.	1.4
Jan	8.2	1.7	.	.	.	0.8
Feb	1.4	1.4	.	.	.	0.3
Mar	0.0	0.3	0.0	.	.	0.0

Table 31: Arithmetic CPUE (total kg/total potlifts) for CRA 5 by fishing year and statistical area, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	916	917	918	919	932	933
1979–80	0.83	0.68	1.10	0.95	.	0.73
1980–81	1.00	0.87	0.85	1.22	.	0.90
1981–82	0.64	0.86	0.82	.	.	0.81
1982–83	0.67	0.94	0.61	0.67	.	0.90
1983–84	0.64	0.80	0.73	0.40	.	0.74
1984–85	0.75	0.81	0.70	0.43	.	0.65
1985–86	0.77	0.70	0.75	0.44	0.45	0.49
1986–87	0.61	0.67	0.80	0.59	0.84	0.36
1987–88	0.59	0.45	0.71	0.57	.	0.34
1988–89	0.48	0.37	0.71	0.32	.	0.30
1989–90	0.56	0.38	0.63	.	.	0.29
1990–91	0.44	0.42	0.51	.	0.55	0.41
1991–92	0.44	0.31	0.55	.	0.24	0.37
1992–93	0.37	0.34	0.45	.	.	0.31
1993–94	0.43	0.36	0.49	.	.	0.39
1994–95	0.56	0.35	0.37	.	.	0.51
1995–96	0.64	0.39	0.41	.	.	0.63
1996–97	0.69	0.46	0.65	.	.	0.66
1997–98	1.06	0.65	0.61	.	.	0.95
1998–99	1.12	0.76	0.88	.	.	1.04
1999–00	2.13	0.77	0.87	.	.	0.91
2000–01	3.47	0.83	1.40	.	.	0.97
2001–02	2.85	0.84	1.64	.	.	1.06
2002–03	2.25	0.96	1.31	.	.	0.88
2003–04	2.36	1.18	1.38	.	.	0.86
2004–05	2.21	1.00	1.37	.	.	0.87
2005–06	1.90	0.98	1.72	.	.	0.70
2006–07	1.68	1.09	.	.	.	0.68

Table 32: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 5 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	0.76	0.67	0.64	0.024
1980–81	0.90	0.80	0.78	0.027
1981–82	0.79	0.72	0.69	0.028
1982–83	0.84	0.77	0.76	0.026
1983–84	0.75	0.69	0.68	0.026
1984–85	0.76	0.70	0.69	0.026
1985–86	0.68	0.57	0.56	0.026
1986–87	0.63	0.51	0.50	0.027
1987–88	0.47	0.42	0.42	0.027
1988–89	0.39	0.37	0.37	0.030
1989–90	0.43	0.42	0.40	0.031
1990–91	0.43	0.40	0.38	0.030
1991–92	0.37	0.33	0.31	0.027
1992–93	0.35	0.32	0.30	0.029
1993–94	0.39	0.38	0.37	0.031
1994–95	0.42	0.39	0.38	0.033
1995–96	0.49	0.46	0.46	0.034
1996–97	0.56	0.60	0.61	0.036
1997–98	0.79	0.84	0.87	0.039
1998–99	0.89	1.05	1.12	0.042
1999–00	1.00	1.12	1.16	0.041
2000–01	1.16	1.24	1.33	0.047
2001–02	1.27	1.44	1.58	0.052
2002–03	1.27	1.53	1.64	0.050
2003–04	1.42	1.79	1.88	0.049
2004–05	1.27	1.67	1.70	0.048
2005–06	1.18	1.44	1.46	0.048
2006–07	1.18	1.32	1.34	0.049

Table 33: Number of vessels reporting rock lobster by statistical area from CRA 6, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded.

Fishing year	940	941	942	943	All
1979–80	11	13	17	8	39
1980–81	13	12	15	11	42
1981–82	11	16	21	19	45
1982–83	18	17	27	15	54
1983–84	12	16	24	9	50
1984–85	18	18	26	9	53
1985–86	14	19	26	17	57
1986–87	20	14	22	12	48
1987–88	15	17	24	12	47
1988–89	12	13	18	8	42
1989–90	18	18	20	9	55
1990–91	15	14	20	5	40
1991–92	15	19	28	6	46
1992–93	14	20	25	6	50
1993–94	16	19	28	10	54
1994–95	19	15	31	15	59
1995–96	17	15	24	12	51
1996–97	21	14	23	10	50
1997–98	20	11	23	8	50
1998–99	16	11	17	8	42
1999–00	12	9	16	4	34
2000–01	14	8	17	5	33
2001–02	11	10	14	6	32
2002–03	11	8	15	5	32
2003–04	12	12	15	6	35
2004–05	11	10	15	3	34
2005–06	13	10	19	6	35
2006–07	11	13	16	9	36

Table 34: Percentage of annual catch by statistical area from CRA 6, 1979–80 to 2006–07.

Fishing year	940	941	942	943
1979–80	21.5	24.6	38.4	15.5
1980–81	28.5	21.3	31.2	19.0
1981–82	19.6	29.0	34.8	16.6
1982–83	24.6	19.1	40.1	16.1
1983–84	21.8	24.2	38.9	15.1
1984–85	25.6	25.1	36.7	12.6
1985–86	28.4	22.1	33.1	16.5
1986–87	29.0	15.6	37.1	18.3
1987–88	24.0	19.2	41.1	15.7
1988–89	20.4	13.9	50.0	15.6
1989–90	30.0	21.8	38.8	9.4
1990–91	23.4	19.2	50.5	6.9
1991–92	20.9	21.7	51.8	5.6
1992–93	23.0	21.4	47.1	8.5
1993–94	24.7	20.4	45.0	9.9
1994–95	22.5	19.5	49.4	8.7
1995–96	27.9	14.1	46.8	11.2
1996–97	27.0	18.3	42.9	11.7
1997–98	29.1	19.8	43.6	7.5
1998–99	29.0	19.4	43.5	8.2
1999–00	24.0	21.8	47.1	7.1
2000–01	24.1	17.5	51.8	6.6
2001–02	24.2	18.6	48.1	9.0
2002–03	19.5	24.2	43.1	13.2
2003–04	23.4	21.4	45.7	9.5
2004–05	20.0	23.3	51.4	5.4
2005–06	21.8	20.3	48.5	9.4
2006–07	28.1	20.8	40.0	11.0

Table 35: Percentage of annual catch by month from CRA 6, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/month cell.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	.	7.2	8.1	6.1	3.5	3.5	12.1	14.5	15.1	18.5	11.3	.
1980–81	.	2.2	8.5	9.2	2.1	1.7	8.2	14.1	16.8	25.6	11.7	.
1981–82	.	4.8	6.6	4.8	2.9	3.5	18.4	14.6	14.2	15.2	14.8	.
1982–83	.	2.5	10.3	9.1	3.9	3.1	7.6	10.9	11.8	23.1	17.8	.
1983–84	.	1.4	7.0	7.9	6.5	2.6	7.0	17.6	15.9	18.7	15.4	.
1984–85	.	4.1	6.0	5.0	3.2	2.0	12.3	13.7	19.1	20.8	13.8	0.1
1985–86	.	4.1	5.9	3.4	1.8	6.3	12.2	13.0	19.1	14.8	19.2	.
1986–87	.	2.1	4.0	3.3	3.1	2.9	10.7	16.9	20.4	19.9	16.8	.
1987–88	.	1.1	4.6	4.4	4.8	1.3	9.7	15.6	21.3	18.1	15.7	3.3
1988–89	.	3.1	7.2	4.7	2.8	1.4	8.7	14.4	16.9	22.3	18.5	.
1989–90	.	3.6	5.4	5.7	3.3	1.6	9.9	10.4	19.2	21.4	19.5	0.1
1990–91	.	1.9	5.5	3.4	1.6	1.5	16.0	15.0	16.7	17.0	21.3	0.0
1991–92	.	1.4	5.8	3.9	1.8	2.1	10.7	9.4	17.3	30.8	13.8	3.0
1992–93	.	1.3	8.1	7.2	6.0	3.5	2.5	10.2	16.1	20.9	17.6	6.6
1993–94	.	1.6	8.6	8.1	4.7	3.3	8.7	15.9	13.0	14.1	22.0	.
1994–95	0.0	4.4	6.2	5.1	4.4	2.6	8.6	16.1	14.8	20.9	17.0	.
1995–96	.	4.2	6.8	3.8	5.9	6.7	23.7	11.9	10.0	12.2	14.6	0.3
1996–97	.	5.3	8.3	5.7	5.1	8.7	20.3	11.1	12.9	12.5	10.1	0.0
1997–98	0.0	8.0	9.3	8.2	5.3	6.6	11.3	12.1	14.7	11.7	12.7	0.0
1998–99	.	6.5	7.1	5.6	5.2	6.5	16.6	18.7	11.9	9.4	12.6	.
1999–00	.	6.6	7.3	6.2	5.6	8.3	17.7	12.9	11.2	12.1	12.1	0.1
2000–01	.	5.2	6.7	6.7	4.8	9.7	17.8	16.0	10.1	10.8	11.9	0.2
2001–02	.	2.9	7.9	6.3	4.1	4.3	15.1	14.3	13.1	17.0	14.8	0.3
2002–03	.	2.2	6.2	9.5	5.9	5.7	8.0	15.9	11.1	18.4	17.0	0.1
2003–04	.	1.7	5.3	6.6	8.6	6.3	15.9	12.8	12.4	19.1	11.2	0.1
2004–05	.	3.8	7.1	10.0	3.9	4.7	10.1	15.7	12.4	16.8	14.6	0.8
2005–06	.	3.7	6.3	7.2	5.5	5.5	10.4	14.2	18.0	16.7	12.3	0.1
2006–07	.	3.3	8.1	9.6	6.7	6.6	15.7	11.3	12.6	11.7	13.5	1.0

Table 36: Percentage of catch from CRA 6 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	940	941	942	943
Apr	.	.	.	.
May	1.4	0.2	1.3	0.4
Jun	3.1	0.7	3.7	0.6
Jul	2.3	2.0	4.4	0.9
Aug	1.5	1.9	2.7	0.6
Sep	1.7	1.0	3.0	0.8
Oct	3.6	3.4	6.6	2.1
Nov	3.3	2.3	4.8	0.8
Dec	3.8	2.3	5.2	1.3
Jan	3.3	3.4	3.3	1.7
Feb	3.4	3.6	4.8	1.8
Mar	0.7	.	0.3	.

Table 37: Arithmetic CPUE (total kg/total potlifts) for CRA 6 by fishing year and statistical area, 1979–80 to 2006–07.

Fishing year	940	941	942	943
1979–80	2.04	1.43	3.67	3.22
1980–81	2.59	1.38	2.44	2.82
1981–82	2.71	1.40	3.10	2.52
1982–83	2.17	0.97	2.23	2.28
1983–84	2.34	1.28	1.80	1.88
1984–85	1.54	1.07	1.42	1.51
1985–86	1.71	1.14	1.42	1.42
1986–87	1.52	1.32	2.00	1.68
1987–88	1.52	1.09	1.78	1.45
1988–89	1.22	1.09	1.62	1.41
1989–90	1.47	1.09	1.50	1.15
1990–91	1.36	0.92	1.87	0.94
1991–92	1.24	0.86	1.78	1.04
1992–93	0.94	0.81	1.72	0.94
1993–94	0.97	0.90	1.38	0.85
1994–95	1.09	0.74	1.46	0.70
1995–96	1.00	0.77	1.44	0.82
1996–97	0.88	0.84	1.29	0.95
1997–98	0.73	0.77	1.09	0.95
1998–99	0.91	1.04	1.53	1.24
1999–00	0.97	0.94	1.71	0.83
2000–01	0.92	0.92	1.54	0.84
2001–02	0.98	0.87	1.47	1.15
2002–03	1.12	0.99	1.31	1.18
2003–04	1.15	0.76	1.40	0.99
2004–05	1.14	0.89	1.58	1.04
2005–06	1.30	0.91	1.72	1.51
2006–07	1.25	1.03	1.94	1.95

Table 38: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 6 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	2.33	2.10	2.17	0.037
1980–81	2.18	2.03	2.01	0.038
1981–82	2.19	2.28	2.28	0.035
1982–83	1.78	1.62	1.65	0.032
1983–84	1.73	1.63	1.61	0.032
1984–85	1.35	1.30	1.29	0.032
1985–86	1.41	1.37	1.36	0.032
1986–87	1.66	1.51	1.50	0.034
1987–88	1.48	1.34	1.28	0.034
1988–89	1.40	1.28	1.26	0.037
1989–90	1.34	1.20	1.14	0.036
1990–91	1.38	1.19	1.17	0.037
1991–92	1.31	1.27	1.21	0.033
1992–93	1.15	1.23	1.18	0.031
1993–94	1.08	1.06	1.07	0.030
1994–95	1.07	1.04	1.03	0.030
1995–96	1.08	1.03	1.05	0.029
1996–97	1.02	1.10	1.12	0.030
1997–98	0.88	1.03	1.05	0.032
1998–99	1.17	1.25	1.30	0.036
1999–00	1.19	1.30	1.35	0.039
2000–01	1.15	1.19	1.21	0.038
2001–02	1.15	1.18	1.20	0.040
2002–03	1.16	1.26	1.28	0.039
2003–04	1.10	1.20	1.22	0.040
2004–05	1.23	1.40	1.38	0.038
2005–06	1.36	1.48	1.48	0.037
2006–07	1.45	1.64	1.68	0.038

Table 39: Number of vessels reporting rock lobster by statistical area from CRA 7, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded.

Fishing year	920	921	All
1979–80	64	35	90
1980–81	58	35	86
1981–82	50	35	79
1982–83	24	22	42
1983–84	23	22	40
1984–85	39	24	59
1985–86	47	26	66
1986–87	40	25	58
1987–88	41	16	51
1988–89	28	15	38
1989–90	12	7	17
1990–91	28	12	37
1991–92	34	15	46
1992–93	29	11	35
1993–94	32	10	37
1994–95	26	8	32
1995–96	22	16	27
1996–97	16	8	22
1997–98	7	4	7
1998–99	13	9	18
1999–00	13	6	17
2000–01	18	12	25
2001–02	17	9	22
2002–03	18	6	20
2003–04	16	3	17
2004–05	12	4	14
2005–06	10	5	14
2006–07	9	7	14

Table 40: Percentage of annual catch by statistical area from CRA 7, 1979–80 to 2006–07.

Fishing year	920	921
1979–80	61.3	38.7
1980–81	62.0	38.0
1981–82	60.5	39.5
1982–83	53.6	46.4
1983–84	52.3	47.7
1984–85	63.5	36.5
1985–86	74.5	25.5
1986–87	72.6	27.4
1987–88	78.5	21.5
1988–89	70.1	29.9
1989–90	63.9	36.1
1990–91	66.5	33.5
1991–92	71.9	28.1
1992–93	69.9	30.1
1993–94	67.4	32.6
1994–95	64.9	35.1
1995–96	57.2	42.8
1996–97	62.9	37.1
1997–98	51.6	48.4
1998–99	48.3	51.7
1999–00	74.0	26.0
2000–01	50.7	49.3
2001–02	72.8	27.2
2002–03	76.5	23.5
2003–04	70.5	29.5
2004–05	58.4	41.6
2005–06	52.0	48.0
2006–07	49.9	50.1

Table 41: Percentage of annual catch by month from CRA 7, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/month cell.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	1.7	0.0	5.7	18.1	26.8	22.6	13.4	6.5	3.4	1.1	0.6	0.3
1980–81	0.0	0.2	8.6	19.9	33.4	15.4	12.3	5.4	2.1	1.2	0.9	0.6
1981–82	0.1	0.0	8.5	27.5	25.0	19.9	9.3	5.5	1.9	1.6	0.7	0.0
1982–83	0.1	0.0	5.7	25.8	24.3	15.3	11.6	10.0	5.0	1.8	0.3	0.0
1983–84	.	.	5.8	19.0	24.9	19.9	15.4	6.6	5.3	2.0	0.8	0.2
1984–85	0.0	0.0	15.8	30.5	16.6	12.6	11.7	7.6	3.1	1.5	0.5	0.1
1985–86	0.0	0.0	10.9	28.1	25.5	12.9	10.6	5.4	3.8	1.5	1.1	0.1
1986–87	.	0.0	5.6	17.5	19.9	24.9	14.3	8.9	5.7	2.2	0.9	0.1
1987–88	0.0	0.0	7.1	24.7	27.4	16.0	12.0	7.0	2.8	1.6	0.9	0.5
1988–89	0.0	.	4.3	18.6	28.1	14.8	18.3	11.5	1.8	1.5	1.0	0.0
1989–90	.	0.1	2.6	6.0	18.0	27.2	16.5	11.7	8.6	6.5	2.7	0.2
1990–91	0.0	.	7.0	25.0	20.0	19.6	9.1	5.9	6.8	4.2	1.9	0.2
1991–92	0.0	0.0	21.9	34.6	32.7	9.6	0.9	0.2	0.1	.	0.0	.
1992–93	.	.	5.9	18.7	19.9	24.1	17.9	7.8	5.0	0.4	0.3	0.1
1993–94	0.0	.	15.7	40.1	24.4	11.6	8.0	0.1	0.0	0.0	.	.
1994–95	.	0.0	9.4	28.7	33.5	19.6	7.4	1.2	.	.	0.2	.
1995–96	.	0.0	5.9	39.0	26.1	19.9	8.1	1.0	.	.	.	.
1996–97	.	.	4.8	19.4	32.1	19.1	19.2	5.4	.	.	.	.
1997–98	.	.	2.4	17.9	22.9	21.3	13.5	22.0	.	.	.	.
1998–99	.	.	6.0	30.1	21.0	9.1	12.5	20.2	1.0	.	.	.
1999–00	.	.	7.3	20.4	27.5	17.4	14.0	13.5	.	.	.	.
2000–01	.	.	6.6	22.2	28.6	15.6	17.7	9.2	.	0.1	.	.
2001–02	.	.	9.0	27.2	25.7	18.6	12.6	6.9	.	.	0.0	.
2002–03	.	0.0	10.2	21.2	30.5	20.6	15.8	1.8	.	.	.	.
2003–04	.	0.0	7.1	29.1	25.5	15.2	18.4	4.8	.	.	.	.
2004–05	0.0	.	11.5	36.2	30.8	12.8	5.9	2.9	.	.	.	.
2005–06	.	.	9.0	45.7	32.1	10.9	2.0	0.2	.	.	.	.
2006–07	.	.	11.4	33.8	33.5	17.3	3.9	0.1	.	.	.	.

Table 42: Percentage of catch from CRA 7 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	920	921
Apr	.	.
May	.	.
Jun	7.8	3.5
Jul	19.4	14.4
Aug	14.5	19
Sep	6.4	10.8
Oct	1.6	2.3
Nov	0.1	.
Dec	.	.
Jan	.	.
Feb	.	.
Mar	.	.

Table 43: Arithmetic CPUE (total kg/total potlifts) for CRA 7 by fishing year and statistical area, 1979–80 to 2006–07.

Fishing year	920	921
1979–80	0.91	1.39
1980–81	0.75	1.27
1981–82	0.66	1.10
1982–83	0.40	0.72
1983–84	0.33	0.53
1984–85	0.52	0.76
1985–86	0.72	0.85
1986–87	0.74	1.08
1987–88	0.70	0.84
1988–89	0.40	0.61
1989–90	0.28	0.68
1990–91	0.34	0.74
1991–92	0.77	1.02
1992–93	0.33	0.76
1993–94	0.51	1.17
1994–95	0.37	1.06
1995–96	0.24	0.49
1996–97	0.20	0.44
1997–98	0.18	0.36
1998–99	0.25	0.38
1999–00	0.20	0.31
2000–01	0.27	0.49
2001–02	0.45	0.50
2002–03	0.45	1.07
2003–04	0.45	1.88
2004–05	0.55	1.61
2005–06	0.83	1.81
2006–07	1.29	2.12

Table 44: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 7 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	1.05	0.99	0.98	0.031
1980–81	0.89	0.86	0.87	0.033
1981–82	0.79	0.74	0.74	0.034
1982–83	0.50	0.49	0.48	0.037
1983–84	0.40	0.42	0.41	0.038
1984–85	0.59	0.55	0.55	0.038
1985–86	0.75	0.73	0.73	0.037
1986–87	0.81	0.83	0.84	0.039
1987–88	0.73	0.69	0.71	0.041
1988–89	0.45	0.42	0.42	0.047
1989–90	0.36	0.33	0.35	0.044
1990–91	0.41	0.41	0.44	0.042
1991–92	0.83	0.96	0.95	0.053
1992–93	0.40	0.40	0.41	0.045
1993–94	0.63	0.61	0.61	0.056
1994–95	0.48	0.45	0.47	0.052
1995–96	0.31	0.28	0.27	0.052
1996–97	0.25	0.23	0.24	0.056
1997–98	0.24	0.18	0.17	0.061
1998–99	0.30	0.28	0.26	0.061
1999–00	0.22	0.27	0.27	0.065
2000–01	0.35	0.37	0.35	0.058
2001–02	0.46	0.47	0.45	0.063
2002–03	0.52	0.62	0.63	0.068
2003–04	0.58	0.57	0.61	0.076
2004–05	0.75	0.84	0.84	0.091
2005–06	1.12	1.27	1.25	0.102
2006–07	1.60	2.13	1.97	0.098

Table 45: Number of vessels reporting rock lobster by statistical area from CRA 8, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded.

Fishing year	922	923	924	925	926	927	928	All
1979–80	6	48	76	5	67	69	67	271
1980–81	6	50	85	4	63	59	50	253
1981–82	8	39	76	5	68	40	34	221
1982–83	6	32	67	6	71	46	33	214
1983–84	6	41	56	7	73	47	34	208
1984–85	8	33	59	7	70	57	36	212
1985–86	3	38	54	5	63	58	40	208
1986–87	3	28	51	5	56	42	36	187
1987–88	5	24	53	1	57	38	28	173
1988–89	4	29	38	5	43	23	22	135
1989–90	7	36	40	11	78	42	27	178
1990–91	3	15	35	14	65	38	25	134
1991–92	5	19	34	4	71	43	34	143
1992–93	4	16	32	7	52	33	37	144
1993–94	3	19	33	8	51	34	34	143
1994–95	2	10	32	16	42	29	34	122
1995–96	3	10	18	10	36	27	30	112
1996–97	3	11	21	9	36	25	31	111
1997–98	2	12	18	8	36	23	35	107
1998–99	1	11	17	9	34	20	37	104
1999–00	2	13	16	7	29	21	21	91
2000–01	1	8	14	4	32	24	18	87
2001–02	2	6	13	3	34	15	18	74
2002–03	1	2	12	2	33	12	15	69
2003–04	1	5	11	4	29	11	14	66
2004–05	2	6	10	4	29	9	13	62
2005–06	1	6	8	1	28	10	14	60
2006–07	2	4	7.		25	11	13	57

Table 46: Percentage of estimated annual catch by statistical area from CRA 8, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Fishing year	922	923	924	925	926	927	928
1979–80	1.9	12.7	25.6	0.4	22.4	19.5	17.6
1980–81	1.2	11.3	30.5	1.3	24.1	17.1	14.5
1981–82	1.5	11.9	27.5	1.9	32.4	13.8	11.0
1982–83	1.4	9.9	24.9	1.0	33.2	18.8	10.8
1983–84	1.1	10.2	22.3	1.5	35.8	17.2	11.9
1984–85	1.3	9.4	22.0	0.8	30.5	24.9	11.2
1985–86	0.7	10.5	21.3	1.0	29.5	24.2	12.9
1986–87	1.1	9.9	27.8	0.4	30.2	16.2	14.3
1987–88	1.3	12.5	27.8	0.1	32.0	15.5	10.8
1988–89	1.7	16.2	23.8	1.0	32.8	11.5	12.9
1989–90	1.1	9.7	22.8	0.5	36.2	19.1	10.6
1990–91	0.9	6.7	23.0	1.4	37.9	18.9	11.2
1991–92	1.0	6.0	19.6	1.3	32.3	23.1	16.6
1992–93	0.8	5.6	19.5	1.4	33.0	18.4	21.2
1993–94	1.5	6.4	22.9	1.7	30.1	17.4	19.8
1994–95	1.0	3.9	24.2	4.0	27.8	18.7	20.3
1995–96	0.8	5.0	17.1	3.6	30.4	21.2	21.9
1996–97	0.8	5.5	16.1	2.7	33.3	21.7	20.0
1997–98	0.3	4.4	16.6	1.2	32.6	19.3	25.6
1998–99	0.4	6.0	11.6	1.3	35.0	20.0	25.7
1999–00	0.5	6.5	13.7	3.1	36.4	22.8	17.1
2000–01	0.5	3.6	15.6	2.1	40.7	25.3	12.2
2001–02	0.8	3.3	14.8	0.3	42.8	22.9	15.0
2002–03	0.9	1.8	15.5	1.1	48.2	18.3	14.1
2003–04	0.6	3.9	12.9	0.3	51.4	16.8	14.2
2004–05	0.8	3.8	12.1	1.2	49.8	16.6	15.7
2005–06	0.5	2.9	12.3	0.6	45.8	19.7	18.1
2006–07	1.1	3.2	13.4	.	41.2	23.0	18.1

Table 47: Percentage of estimated annual catch by month from CRA 8, 1979–80 to 2006–07.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	0.2	0.3	2.2	4.0	8.4	16.5	25.0	18.9	9.3	8.9	5.0	1.2
1980–81	0.2	0.3	2.4	5.4	7.0	14.4	25.3	21.2	12.6	7.4	3.1	0.8
1981–82	0.1	0.3	1.9	2.7	10.7	22.2	26.0	18.6	9.1	5.2	2.1	1.1
1982–83	0.3	0.2	3.4	3.3	7.2	20.3	29.2	10.5	10.5	8.3	5.5	1.2
1983–84	0.4	0.2	2.1	3.3	5.3	13.2	18.8	22.4	15.5	11.7	5.8	1.4
1984–85	0.2	0.3	1.3	2.4	9.6	24.8	24.8	14.8	10.6	5.6	3.5	2.0
1985–86	0.3	0.7	3.1	3.6	18.5	21.2	21.1	14.3	8.7	4.2	2.9	1.5
1986–87	0.6	0.6	1.4	2.1	9.5	19.1	20.1	20.1	11.7	7.8	4.5	2.6
1987–88	0.4	0.2	0.7	2.2	8.9	19.7	20.2	19.0	12.7	8.0	6.0	1.9
1988–89	0.7	0.7	2.9	3.2	5.7	12.1	17.0	17.9	14.0	16.0	7.3	2.6
1989–90	0.6	0.3	0.8	1.6	11.2	23.0	14.2	19.0	12.3	9.0	6.1	1.9
1990–91	0.3	0.1	0.9	2.5	8.3	17.6	17.1	19.7	10.5	11.9	7.0	4.2
1991–92	0.3	0.4	2.9	3.5	7.1	14.7	18.2	16.0	14.7	12.9	7.2	2.1
1992–93	0.5	0.2	2.2	4.0	8.3	17.4	15.5	15.8	15.1	8.6	8.5	3.9
1993–94	0.1	0.2	1.0	4.5	19.2	27.6	19.8	11.9	7.0	3.4	2.9	2.4
1994–95	0.1	0.4	3.5	5.2	11.2	25.6	18.5	11.4	10.4	9.0	3.3	1.3
1995–96	0.2	0.2	3.0	4.2	11.9	20.4	19.8	18.9	8.3	7.1	4.3	1.9
1996–97	0.2	0.3	2.2	4.0	10.0	19.1	22.4	19.1	11.1	8.2	2.4	0.9
1997–98	0.2	0.3	3.0	4.7	8.1	21.0	21.6	15.9	11.1	9.6	3.6	0.9
1998–99	0.1	0.3	1.4	2.3	7.6	17.5	16.6	22.4	13.1	10.4	6.3	1.8
1999–00	0.0	0.1	0.6	2.1	15.9	24.9	22.5	14.0	8.7	7.9	2.1	1.1
2000–01	0.1	0.0	0.4	2.6	14.9	37.7	15.3	13.0	6.5	4.9	3.7	1.0
2001–02	0.2	0.6	1.2	5.8	14.3	33.2	21.5	14.5	3.6	3.8	1.1	0.2
2002–03	0.8	0.8	0.7	5.3	20.6	31.6	19.2	8.9	3.4	5.0	1.0	2.7
2003–04	0.5	0.8	1.5	10.5	29.5	38.8	10.6	2.2	0.3	3.7	1.1	0.7
2004–05	0.7	2.0	2.8	14.1	22.2	40.5	6.6	2.4	0.7	3.7	2.8	1.4
2005–06	2.6	3.0	7.7	13.6	23.6	36.9	5.7	0.7	0.5	4.2	0.6	1.0
2006–07	10.9	7.4	11.5	11.2	24.7	24.5	3.5	0.2	0.1	0.6	3.3	2.0

Table 48: Percentage of estimated catch from CRA 8 by statistical area and month for 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	922	923	924	925	926	927	928
Apr	.	.	1.6	.	2.4	5.0	1.9
May	.	.	0.2	.	1.8	3.2	2.3
Jun	.	.	0.3	.	2.5	3.5	5.2
Jul	0.0	0.0	0.8	.	4.1	3.2	3.2
Aug	0.7	0.7	6.1	.	12.1	3.1	2.0
Sep	0.4	1.7	4.0	.	12.0	3.3	3.2
Oct	0.0	0.5	0.3	.	2.4	.	0.3
Nov	.	0.1	0.1	.	0.1	.	.
Dec	.	0.0	.	.	0.0	.	0.0
Jan	.	.	.	.	0.3	0.2	.
Feb	.	0.1	.	.	2.0	1.1	0.0
Mar	.	.	0.1	.	1.6	0.4	.

Table 49: Arithmetic CPUE (total kg/total potlifts) for CRA 8 by fishing year and statistical area, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	922	923	924	925	926	927	928
1979–80	1.99	2.23	1.89	5.01	1.84	1.52	1.63
1980–81	1.32	1.90	2.00	7.95	1.96	1.33	1.37
1981–82	1.52	1.81	1.90	10.43	2.14	1.45	1.22
1982–83	1.10	1.82	1.73	4.44	1.99	1.22	1.07
1983–84	0.81	1.18	1.23	4.46	1.53	0.99	1.09
1984–85	0.86	1.25	1.33	3.67	1.30	1.19	0.96
1985–86	0.94	1.49	1.66	13.46	1.51	1.14	1.04
1986–87	1.10	1.17	1.69	2.11	1.23	0.79	0.91
1987–88	1.01	1.45	1.72	.	1.35	0.82	0.91
1988–89	0.54	1.07	1.07	1.58	1.04	0.70	0.69
1989–90	0.81	0.97	1.27	0.60	0.91	0.72	0.71
1990–91	0.61	0.93	1.23	1.38	0.94	0.72	0.57
1991–92	0.42	0.86	1.12	2.02	0.84	0.74	0.68
1992–93	0.47	0.79	1.07	0.93	0.71	0.54	0.57
1993–94	1.21	1.34	1.64	1.78	0.94	0.71	0.65
1994–95	0.73	0.89	1.22	1.29	0.90	0.75	0.70
1995–96	0.92	0.76	1.10	1.24	1.08	0.85	0.69
1996–97	0.80	0.75	0.96	1.20	1.01	0.83	0.72
1997–98	0.64	0.66	0.90	0.94	0.78	0.69	0.62
1998–99	.	0.73	0.71	0.88	1.01	0.86	0.62
1999–00	.	0.75	0.88	0.82	1.14	0.89	0.52
2000–01	.	1.20	1.26	1.56	1.28	0.82	0.55
2001–02	.	1.44	1.33	0.61	1.04	0.79	0.64
2002–03	.	.	1.34	.	1.29	0.93	0.75
2003–04	.	2.75	2.34	1.57	1.92	1.56	0.94
2004–05	.	2.46	1.93	1.15	1.74	1.43	1.15
2005–06	.	4.27	3.08	.	1.93	1.21	1.52
2006–07	.	2.02	3.90	.	2.43	1.56	2.13

Table 50: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 8 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	1.79	2.05	2.06	0.020
1980–81	1.72	1.82	1.79	0.021
1981–82	1.79	1.81	1.72	0.023
1982–83	1.57	1.51	1.47	0.022
1983–84	1.25	1.15	1.11	0.021
1984–85	1.22	1.11	1.07	0.022
1985–86	1.36	1.28	1.27	0.022
1986–87	1.15	1.14	1.13	0.022
1987–88	1.24	1.21	1.18	0.023
1988–89	0.92	0.92	0.88	0.028
1989–90	0.90	0.89	0.82	0.024
1990–91	0.87	0.88	0.82	0.026
1991–92	0.82	0.80	0.79	0.024
1992–93	0.68	0.70	0.71	0.024
1993–94	0.92	0.94	0.95	0.027
1994–95	0.88	0.86	0.86	0.027
1995–96	0.90	0.89	0.88	0.029
1996–97	0.87	0.83	0.83	0.029
1997–98	0.72	0.70	0.71	0.027
1998–99	0.79	0.74	0.73	0.029
1999–00	0.84	0.77	0.75	0.033
2000–01	0.98	0.91	0.90	0.036
2001–02	0.92	0.95	0.97	0.040
2002–03	1.11	1.22	1.25	0.044
2003–04	1.67	1.79	1.85	0.050
2004–05	1.58	1.71	1.80	0.049
2005–06	1.75	1.94	2.20	0.049
2006–07	2.19	2.37	2.80	0.050

Table 51: Number of vessels reporting rock lobster by statistical area from CRA 9, 1979–80 to 2006–07. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A '.' indicates that no fishing took place in the statistical area/fishing year cell. A '0' indicates that fishing took place but none of the qualified vessels fished.

Fishing year	929	930	931	935	936	937	938	All
1979–80	4	6	6	3	6	3	.	23
1980–81	2	4	5	4	8	5	1	23
1981–82	1	3	7	3	4	4	.	20
1982–83	2	3	7	2	4	4	.	19
1983–84	1	3	7	3	6	6	.	22
1984–85	0	3	6	3	6	5	.	21
1985–86	0	2	7	7	6	6	.	20
1986–87	0	2	6	5	6	6	.	20
1987–88	0	2	5	5	6	5	.	19
1988–89	.	1	1	4	5	2	0	10
1989–90	1	4	4	7	3	1	.	18
1990–91	0	1	5	5	2	1	1	12
1991–92	.	1	5	6	0	1	0	13
1992–93	.	3	4	5	0	1	0	12
1993–94	0	3	3	6	0	0	.	12
1994–95	1	6	3	5	0	1	.	16
1995–96	1	4	1	6	1	1	.	14
1996–97	1	6	5	6	1	2	.	18
1997–98	1	6	5	7	4	1	.	19
1998–99	1	5	5	5	1	1	1	16
1999–00	1	7	6	4	0	1	.	17
2000–01	0	3	2	3	3	2	0	9
2001–02	0	2	2	4	2	3	0	11
2002–03	0	1	2	4	2	2	.	10
2003–04	.	1	3	3	2	1	.	9
2004–05	.	0	2	4	2	1	.	8
2005–06	0	1	2	4	1	1	.	8
2006–07	.	1	2	3	.	1	.	7

Table 52: Percentage of estimated annual catch by statistical area from CRA 9, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	929	930	931	935	936	937	938
1979–80	14.7	14.7	28.8	13.1	13.4	15.3	.
1980–81	3.3	10.9	16.9	14.4	29.2	25.0	0.3
1981–82	4.3	8.9	32.5	10.2	20.0	24.1	.
1982–83	7.2	9.0	42.3	16.0	8.5	17.1	.
1983–84	2.0	6.3	50.1	8.2	12.6	20.7	.
1984–85	0.7	12.2	42.1	16.5	12.4	16.1	.
1985–86	0.1	7.0	38.6	18.8	16.3	19.2	.
1986–87	1.0	6.3	34.6	23.2	23.4	11.5	.
1987–88	0.0	2.8	33.5	36.3	16.1	11.2	.
1988–89	.	5.5	19.6	46.9	19.5	8.0	0.4
1989–90	2.0	19.3	23.9	44.0	6.4	4.3	.
1990–91	0.1	3.8	40.3	46.4	5.4	1.8	2.1
1991–92	.	2.6	49.8	40.2	1.3	5.1	0.9
1992–93	.	12.5	41.7	40.2	0.1	3.9	1.6
1993–94	1.4	23.0	26.3	47.5	0.1	1.6	.
1994–95	5.6	31.9	13.2	46.1	0.4	2.8	.
1995–96	5.7	27.9	5.7	43.2	8.8	8.7	.
1996–97	4.8	19.0	22.8	45.5	3.2	4.7	.
1997–98	5.7	16.5	19.7	45.4	9.9	2.9	.
1998–99	4.7	31.1	19.2	35.2	4.5	4.7	0.7
1999–00	2.6	34.9	28.3	28.6	0.6	5.0	.
2000–01	1.2	7.5	33.7	35.3	10.3	11.9	0.0
2001–02	0.1	10.0	24.0	41.6	12.2	11.5	0.6
2002–03	0.3	4.9	27.8	44.4	12.4	10.1	.
2003–04	.	6.3	36.5	30.7	17.6	8.8	.
2004–05	.	2.3	30.3	54.7	8.5	4.2	.
2005–06	0.1	5.8	25.4	56.2	7.4	5.1	.
2006–07	.	5.6	28.8	59.1	.	6.6	.

Table 53: Percentage of estimated annual catch by month from CRA 9, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/month cell.

Fishing year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1979–80	3.4	0.1	0.6	3.6	2.9	2.0	15.0	26.0	11.6	17.5	11.0	6.3
1980–81	0.8	0.1	0.2	2.7	2.7	2.4	13.4	5.7	21.1	32.0	15.0	3.8
1981–82	0.6	0.2	1.4	2.4	3.0	1.2	9.0	19.9	20.7	19.7	14.7	7.3
1982–83	4.0	0.7	2.4	4.6	8.1	3.1	8.2	8.0	16.0	14.8	20.8	9.3
1983–84	2.6	0.9	2.8	11.2	5.2	0.9	5.5	11.6	11.6	21.1	18.4	8.2
1984–85	0.8	2.3	2.3	5.1	5.3	8.3	7.9	16.4	13.4	15.6	14.4	8.2
1985–86	4.4	1.6	0.3	2.9	6.5	10.4	10.4	14.6	17.3	12.8	11.6	7.3
1986–87	2.0	0.6	0.6	4.8	4.3	5.1	9.5	16.2	20.8	15.3	10.6	10.2
1987–88	2.7	0.1	1.7	3.0	5.9	4.8	15.9	18.0	13.6	15.2	11.4	7.8
1988–89	4.4	.	0.5	4.9	3.0	8.3	3.7	13.6	18.6	21.3	12.9	8.8
1989–90	1.3	0.0	0.0	3.9	7.7	16.2	7.7	10.9	12.4	15.7	18.4	5.9
1990–91	0.4	.	.	2.3	5.1	11.9	21.4	12.2	6.4	13.1	11.1	16.2
1991–92	1.1	0.0	2.0	17.1	6.1	8.9	9.8	17.4	12.5	10.1	7.4	7.4
1992–93	0.5	0.8	11.7	11.9	3.4	13.6	11.6	11.1	10.4	9.1	11.7	4.3
1993–94	1.0	0.5	1.0	24.3	9.3	12.7	16.3	7.1	11.0	5.7	8.7	2.5
1994–95	0.3	0.0	4.4	12.0	11.6	13.7	22.4	8.9	13.8	9.4	2.0	1.4
1995–96	0.0	0.5	2.4	7.4	16.5	24.1	23.9	13.1	5.1	3.7	0.5	2.7
1996–97	0.4	0.5	4.6	16.2	17.2	22.3	17.0	8.1	7.3	4.6	0.7	1.1
1997–98	0.2	0.2	12.5	21.0	15.0	17.1	12.0	7.3	7.0	3.6	3.9	0.2
1998–99	1.1	1.2	2.6	8.2	12.7	17.9	12.6	18.4	10.8	8.3	3.7	2.6
1999–00	0.8	1.6	6.4	9.4	15.9	27.2	18.1	12.5	5.6	2.5	0.1	0.0
2000–01	3.2	2.3	6.0	20.4	19.5	12.6	13.9	12.5	6.8	2.5	0.0	0.3
2001–02	4.2	2.7	8.8	25.3	13.5	23.3	13.9	3.8	2.8	0.6	0.6	0.3
2002–03	11.3	5.0	1.9	18.0	14.1	14.2	6.3	8.1	8.1	3.2	8.2	1.6
2003–04	8.0	0.7	1.1	16.1	28.8	9.0	8.7	5.8	9.5	10.7	.	1.6
2004–05	0.8	0.2	3.6	34.6	27.6	16.3	13.3	.	1.1	0.8	0.1	1.5
2005–06	1.3	2.5	12.0	20.6	28.8	29.5	2.6	0.4	0.8	0.2	0.9	0.3
2006–07	3.8	7.8	21.4	30.4	17.5	16.3	.	0.9	1.8	.	.	.

Table 54: Percentage of estimated catch from CRA 9 by statistical area and month for 2006–07 A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that month/statistical area combination.

Month	929	930	931	935	936	937	938
Apr	.	1.5	.	2.4	.	.	.
May	.	2.7	.	4.9	.	0.2	.
Jun	.	1.4	4.8	15.2	.	.	.
Jul	.	.	8.5	20.4	.	1.5	.
Aug	.	.	6.2	9.1	.	2.2	.
Sep	.	.	9.0	6.8	.	0.5	.
Oct	.	.	.	.	.	.	.
Nov	.	.	.	.	.	0.9	.
Dec	.	.	0.2	0.3	.	1.3	.
Jan	.	.	.	.	.	.	.
Feb	.	.	.	.	.	.	.
Mar	.	.	.	.	.	.	.

Table 55: Arithmetic CPUE (total kg/total potlifts) for CRA 9 by fishing year and statistical area, 1979–80 to 2006–07. A '.'indicates that the value was not available because there were fewer than 3 vessels or there was no fishing in that year/statistical area combination.

Fishing year	929	930	931	935	936	937	938
1979–80	1.21	1.03	2.51	0.63	0.68	1.30	.
1980–81	0.65	1.05	2.28	0.82	0.88	1.80	.
1981–82	0.73	0.83	2.35	0.49	0.63	1.28	.
1982–83	0.82	0.48	1.58	0.69	0.46	0.83	.
1983–84	.	0.70	1.81	0.63	0.44	0.89	.
1984–85	.	0.61	1.78	0.75	0.51	0.77	.
1985–86	.	0.53	1.07	0.67	0.54	0.72	.
1986–87	.	0.64	1.14	0.90	0.79	0.63	.
1987–88	.	.	0.89	1.20	0.61	0.61	.
1988–89	.	0.42	.	1.29	0.52	0.66	.
1989–90	0.46	0.61	1.44	1.06	0.42	0.47	.
1990–91	.	.	1.37	0.86	1.17	.	0.70
1991–92	.	.	1.36	0.81	.	.	.
1992–93	.	0.63	1.43	0.78	.	.	.
1993–94	.	1.20	1.49	1.28	.	.	.
1994–95	.	0.66	1.33	1.23	.	.	.
1995–96	0.50	0.70	.	1.27	.	.	.
1996–97	.	0.70	0.86	1.25	.	.	.
1997–98	0.83	0.55	0.61	1.02	1.06	.	.
1998–99	0.63	0.74	1.22	0.98	.	.	.
1999–00	.	0.74	0.99	1.01	.	.	.
2000–01	0.72	0.70	.	0.74	0.47	.	.
2001–02	.	0.54	1.81	0.66	.	0.92	.
2002–03	.	.	.	1.21	.	.	.
2003–04	.	.	1.79	2.21	.	.	.
2004–05	.	.	.	2.30	.	.	.
2005–06	.	.	.	2.15	.	1.58	.
2006–07	.	.	2.94	1.69	.	.	.

Table 56: Annual arithmetic, unstandardised, and standardised (with standard error) CPUE indices for CRA 9 (kg/potlift). (s.e.=standard error).

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	1.11	1.06	1.17	0.049
1980–81	1.14	1.11	1.26	0.049
1981–82	0.98	0.91	0.96	0.056
1982–83	0.86	0.79	0.81	0.056
1983–84	0.94	0.87	0.84	0.057
1984–85	0.89	0.80	0.80	0.055
1985–86	0.74	0.70	0.70	0.056
1986–87	0.87	0.82	0.82	0.057
1987–88	0.85	0.87	0.84	0.061
1988–89	0.81	0.76	0.82	0.074
1989–90	0.84	0.72	0.74	0.063
1990–91	0.98	0.90	0.82	0.080
1991–92	0.93	0.98	0.85	0.078
1992–93	0.88	1.03	0.94	0.081
1993–94	1.30	1.17	1.11	0.081
1994–95	0.93	0.82	0.88	0.071
1995–96	0.98	0.97	1.07	0.081
1996–97	0.98	0.95	0.95	0.071
1997–98	0.79	0.81	0.82	0.069
1998–99	0.92	1.03	1.08	0.072
1999–00	0.88	0.90	0.90	0.074
2000–01	0.93	1.02	1.05	0.086
2001–02	0.82	1.02	1.02	0.091
2002–03	1.11	1.21	1.19	0.090
2003–04	1.63	1.89	1.72	0.111
2004–05	2.14	2.43	2.25	0.121
2005–06	2.22	2.08	2.05	0.112
2006–07	1.94	2.16	2.09	0.136

Table 57: Standardised indices for each period with associated standard error and the corresponding arithmetic (unstandardised) CPUE (kg/potlift) for CRA 3 from period 69 (autumn/winter 1979–80) through period 125 (autumn/winter 2007–08). [s.e.=standard error; N/A: not available]

Fishing	Autumn/winter season				Spring/summer season			
year	Period	Arithmetic	Standardised	s.e.	Period	Arithmetic	Standardised	s.e.
1979–80	69	0.75	0.73	0.038	70	0.97	0.81	0.029
1980–81	71	0.85	0.85	0.036	72	0.96	0.87	0.028
1981–82	73	0.84	0.81	0.036	74	0.97	0.88	0.029
1982–83	75	0.87	0.93	0.034	76	1.00	0.91	0.029
1983–84	77	0.79	0.84	0.033	78	0.90	0.83	0.028
1984–85	79	0.65	0.64	0.032	80	0.80	0.71	0.028
1985–86	81	0.58	0.57	0.032	82	0.79	0.71	0.029
1986–87	83	0.47	0.49	0.037	84	0.75	0.62	0.030
1987–88	85	0.36	0.38	0.034	86	0.47	0.42	0.030
1988–89	87	0.34	0.36	0.042	88	0.49	0.45	0.033
1989–90	89	0.34	0.36	0.038	90	0.58	0.51	0.030
1990–91	91	0.33	0.38	0.037	92	0.51	0.44	0.032
1991–92	93	0.24	0.25	0.036	94	0.37	0.31	0.031
1992–93	95	0.18	0.19	0.035	96	0.32	0.29	0.032
1993–94	97	0.42	0.39	0.039	98	0.65	0.77	0.067
1994–95	99	0.88	0.84	0.048	100	0.87	0.94	0.112
1995–96	101	1.31	1.31	0.052	102	1.20	1.24	0.139
1996–97	103	1.77	1.75	0.052	104	1.66	2.15	0.178
1997–98	105	2.19	2.42	0.054	106	1.99	2.78	0.219
1998–99	107	1.62	1.81	0.051	108	2.11	2.86	0.127
1999–00	109	1.60	1.72	0.051	110	1.36	1.95	0.102
2000–01	111	1.17	1.23	0.047	112	1.27	1.58	0.085
2001–02	113	0.91	0.94	0.050	114	1.02	1.18	0.069
2002–03	115	0.73	0.68	0.046	116	0.73	0.72	0.048
2003–04	117	0.71	0.60	0.047	118	0.54	0.50	0.047
2004–05	119	0.56	0.46	0.049	120	0.48	0.48	0.052
2005–06	121	0.66	0.61	0.053	122	0.58	0.54	0.049
2006–07	123	0.59	0.56	0.051	124	0.56	0.55	0.048
2007–08	125	0.64	0.60	0.054	126	N/A	N/A	N/A

Table 58: Proportion of the total deviance explained by each variable in the standardised CPUE model used in the CRA 3 management decision making.

	Iteration		
Variable	1	2	3
Period	0.411		
Month	0.072	0.461	
Area	0.015	0.431	0.482
Additional deviance explained	0.000	0.050	0.021

Table 59: Standardised indices for each period with associated standard error and the corresponding arithmetic (unstandardised) CPUE (kg/potlift) for CRA 4 from period 69 (autumn/winter 1979–80) through period 125 (autumn/winter 2007–08). [s.e.=standard error; N/A: not available]

Fishing	Autumn/winter season				Spring/summer season			
year	Period	Arithmetic	Standardised	s.e.	Period	Arithmetic	Standardised	s.e.
1979–80	69	0.79	0.82	0.034	70	0.92	0.86	0.028
1980–81	71	0.85	0.85	0.032	72	0.82	0.80	0.028
1981–82	73	0.83	0.87	0.033	74	0.83	0.87	0.029
1982–83	75	0.89	0.94	0.031	76	0.93	0.94	0.027
1983–84	77	0.92	0.89	0.031	78	0.90	0.83	0.027
1984–85	79	0.76	0.77	0.030	80	0.78	0.77	0.029
1985–86	81	0.61	0.64	0.030	82	0.80	0.83	0.028
1986–87	83	0.68	0.69	0.031	84	0.93	0.87	0.028
1987–88	85	0.60	0.58	0.032	86	0.80	0.78	0.029
1988–89	87	0.50	0.50	0.032	88	0.69	0.64	0.030
1989–90	89	0.48	0.46	0.031	90	0.66	0.65	0.028
1990–91	91	0.42	0.43	0.032	92	0.55	0.58	0.029
1991–92	93	0.40	0.43	0.029	94	0.57	0.58	0.029
1992–93	95	0.45	0.41	0.029	96	0.58	0.57	0.029
1993–94	97	0.50	0.45	0.029	98	0.67	0.66	0.033
1994–95	99	0.61	0.59	0.029	100	0.84	0.80	0.038
1995–96	101	0.79	0.73	0.030	102	1.07	1.10	0.046
1996–97	103	1.00	1.06	0.031	104	1.61	1.42	0.068
1997–98	105	1.22	1.24	0.033	106	1.67	1.69	0.082
1998–99	107	1.28	1.35	0.033	108	1.85	2.14	0.074
1999–00	109	1.25	1.32	0.032	110	1.73	1.71	0.076
2000–01	111	1.20	1.05	0.034	112	1.88	1.95	0.067
2001–02	113	1.01	0.94	0.032	114	1.39	1.46	0.058
2002–03	115	0.98	0.97	0.033	116	1.74	1.68	0.050
2003–04	117	1.01	1.01	0.035	118	1.49	1.62	0.046
2004–05	119	0.79	0.74	0.035	120	1.30	1.32	0.040
2005–06	121	0.79	0.73	0.039	122	0.94	0.95	0.038
2006–07	123	0.51	0.61	0.040	124	0.71	0.77	0.033
2007–08	125	0.48	0.52	0.046	126	N/A	N/A	N/A

Table 60: Proportion of the total deviance explained by each variable in the standardised CPUE model used in the CRA 4 management decision making.

	Iteration		
Variable	1	2	3
Period	0.221		
Month	0.047	0.262	
Area	0.020	0.245	0.286
Additional deviance explained	0.000	0.042	0.023

Table 61: Standardised indices for each period with associated standard error and the corresponding arithmetic (unstandardised) CPUE (kg/potlift) for CRA 5 from period 69 (autumn/winter 1979–80) through period 125 (autumn/winter 2007–08). [s.e.=standard error; N/A: not available]

Fishing	Autumn/winter season				Spring/summer season			
year	Period	Arithmetic	Standardised	s.e.	Period	Arithmetic	Standardised	s.e.
1979–80	69	0.75	0.64	0.039	70	0.76	0.65	0.033
1980–81	71	0.80	0.72	0.041	72	0.95	0.82	0.037
1981–82	73	0.64	0.58	0.045	74	0.84	0.78	0.036
1982–83	75	0.66	0.71	0.040	76	0.91	0.80	0.035
1983–84	77	0.68	0.67	0.040	78	0.78	0.69	0.035
1984–85	79	0.69	0.70	0.041	80	0.79	0.68	0.036
1985–86	81	0.56	0.51	0.041	82	0.72	0.61	0.035
1986–87	83	0.52	0.46	0.042	84	0.67	0.53	0.037
1987–88	85	0.41	0.38	0.042	86	0.50	0.45	0.037
1988–89	87	0.33	0.34	0.046	88	0.42	0.39	0.039
1989–90	89	0.35	0.35	0.054	90	0.44	0.42	0.039
1990–91	91	0.34	0.35	0.051	92	0.45	0.40	0.038
1991–92	93	0.25	0.26	0.044	94	0.41	0.35	0.036
1992–93	95	0.25	0.26	0.045	96	0.39	0.34	0.038
1993–94	97	0.33	0.34	0.045	98	0.43	0.39	0.043
1994–95	99	0.35	0.33	0.047	100	0.46	0.44	0.046
1995–96	101	0.40	0.38	0.049	102	0.56	0.53	0.047
1996–97	103	0.50	0.52	0.047	104	0.67	0.73	0.056
1997–98	105	0.74	0.75	0.051	106	0.95	1.01	0.062
1998–99	107	0.84	0.99	0.053	108	1.10	1.24	0.069
1999–00	109	0.96	1.00	0.052	110	1.19	1.29	0.069
2000–01	111	1.13	1.11	0.057	112	1.35	1.70	0.083
2001–02	113	1.28	1.30	0.059	114	1.22	1.75	0.111
2002–03	115	1.24	1.31	0.061	116	1.36	1.84	0.087
2003–04	117	1.30	1.32	0.060	118	1.96	2.45	0.086
2004–05	119	1.17	1.19	0.063	120	1.51	2.01	0.074
2005–06	121	1.05	1.08	0.062	122	1.58	1.88	0.075
2006–07	123	0.97	1.02	0.062	124	1.78	1.91	0.079
2007–08	125	0.98	1.05	0.067	126	N/A	N/A	N/A

Table 62: Proportion of the total deviance explained by each variable in the standardised CPUE model used in the CRA 5 management decision making.

	Iteration		
Variable	1	2	3
Period	0.278		
Area	0.029	0.305	
Month	0.021	0.299	0.326
Additional deviance explained	0.000	0.027	0.022

Table 63: Annual standardised CPUE analysis used to operate the 2007–08 CRA 7 decision rule. This analysis is based on a 1 October–30 September fishing year (see Section 3.14). [s.e.=standard error]

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	0.94	0.97	0.98	0.033
1980–81	0.80	0.77	0.77	0.033
1981–82	0.50	0.50	0.50	0.036
1982–83	0.44	0.45	0.44	0.038
1983–84	0.58	0.54	0.54	0.038
1984–85	0.76	0.71	0.71	0.038
1985–86	0.75	0.73	0.73	0.038
1986–87	0.78	0.81	0.84	0.041
1987–88	0.47	0.47	0.48	0.043
1988–89	0.37	0.31	0.32	0.048
1989–90	0.45	0.45	0.48	0.042
1990–91	0.70	0.63	0.65	0.042
1991–92	0.42	0.44	0.43	0.055
1992–93	0.52	0.56	0.58	0.047
1993–94	0.55	0.50	0.50	0.056
1994–95	0.32	0.31	0.30	0.051
1995–96	0.24	0.22	0.22	0.055
1996–97	0.22	0.18	0.18	0.059
1997–98	0.29	0.25	0.24	0.062
1998–99	0.26	0.29	0.29	0.064
1999–00	0.33	0.34	0.33	0.060
2000–01	0.46	0.48	0.46	0.061
2001–02	0.48	0.53	0.53	0.064
2002–03	0.57	0.63	0.66	0.077
2003–04	0.79	0.74	0.78	0.082
2004–05	1.02	1.17	1.13	0.098
2005–06	1.55	1.87	1.74	0.099
2006–07	1.23	1.49	1.44	0.098

Table 64: Proportion of the total deviance explained by each variable in the standardised CPUE model used to operate the 2007–08 CRA 7 decision rule.

	Iteration		
Variable	1	2	3
Fishing year	0.219		
Area	0.053	0.266	
Month	0.006	0.229	0.275
Additional deviance explained	0.000	0.048	0.009

Table 65: Annual standardised CPUE analysis used to operate the 2007–08 CRA 8 decision rule. This analysis is based on a 1 October–30 September fishing year (see Section 3.15). [s.e.=standard error]

Fishing year	Arithmetic	Unstandardised	Standardised	s.e.
1979–80	1.84	2.04	2.03	0.021
1980–81	1.78	1.86	1.77	0.022
1981–82	1.60	1.62	1.57	0.022
1982–83	1.41	1.29	1.25	0.022
1983–84	1.32	1.25	1.19	0.021
1984–85	1.35	1.23	1.20	0.021
1985–86	1.17	1.10	1.09	0.022
1986–87	1.20	1.20	1.17	0.023
1987–88	1.14	1.13	1.07	0.024
1988–89	0.92	0.90	0.86	0.026
1989–90	0.87	0.87	0.80	0.025
1990–91	0.81	0.83	0.81	0.024
1991–92	0.80	0.78	0.77	0.024
1992–93	0.79	0.80	0.79	0.024
1993–94	0.90	0.90	0.92	0.027
1994–95	0.88	0.89	0.87	0.028
1995–96	0.86	0.83	0.83	0.029
1996–97	0.81	0.77	0.78	0.028
1997–98	0.77	0.72	0.72	0.029
1998–99	0.84	0.81	0.79	0.029
1999–00	0.96	0.85	0.83	0.034
2000–01	0.86	0.88	0.88	0.036
2001–02	1.05	1.07	1.08	0.041
2002–03	1.53	1.69	1.70	0.045
2003–04	1.55	1.63	1.75	0.048
2004–05	1.73	1.87	2.07	0.047
2005–06	2.20	2.42	2.87	0.049
2006–07	2.35	2.54	2.96	0.050

Table 66: Proportion of the total deviance explained by each variable in the standardised CPUE model used to operate the 2007–08 CRA 8 decision rule.

	Iteration		
Variable	1	2	3
Fishing year	0.126		
Month	0.045	0.179	
Area	0.038	0.161	0.211
Additional deviance explained	0.000	0.053	0.033

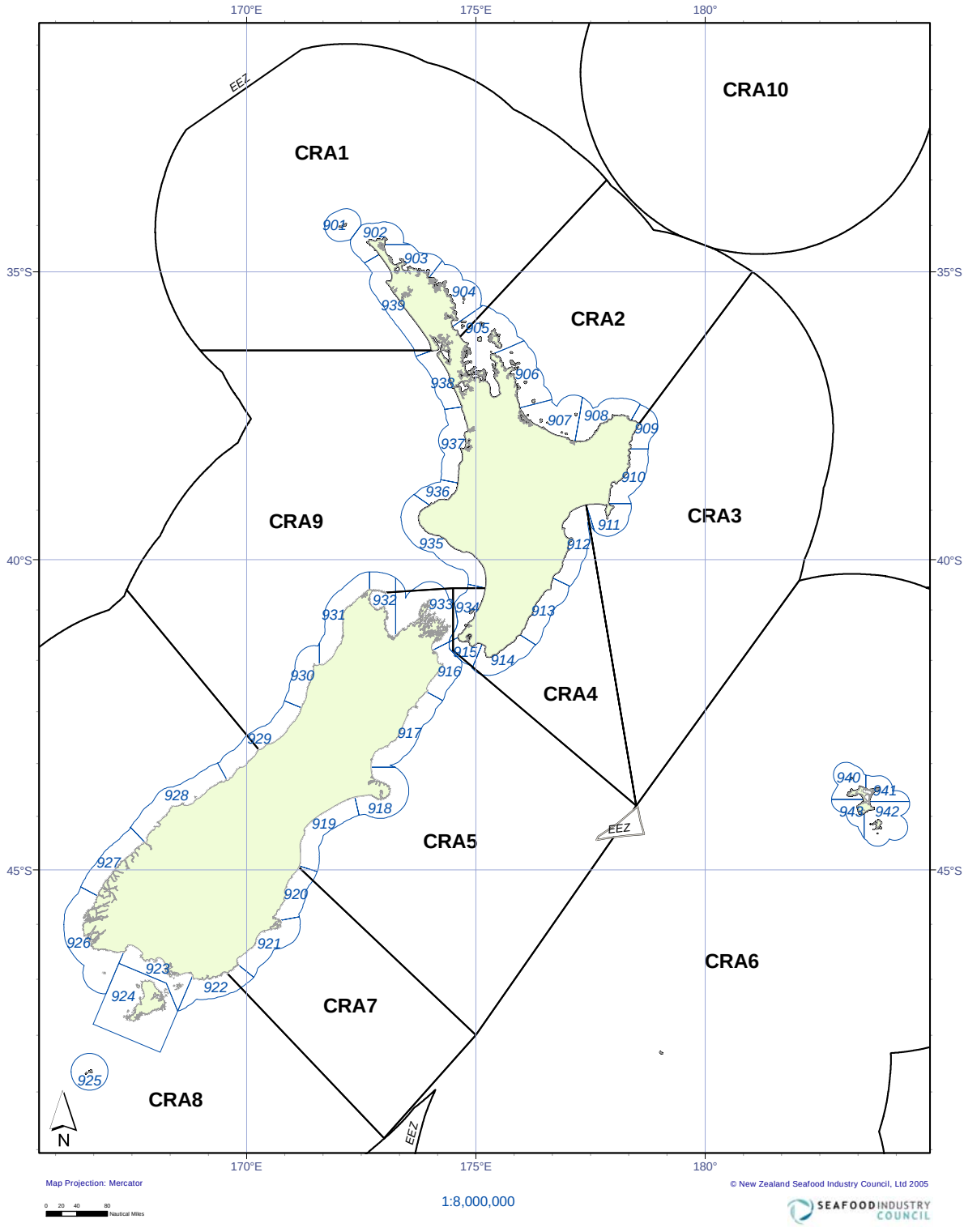

Figure 1: Map of rock lobster statistical areas and Quota Management Areas.

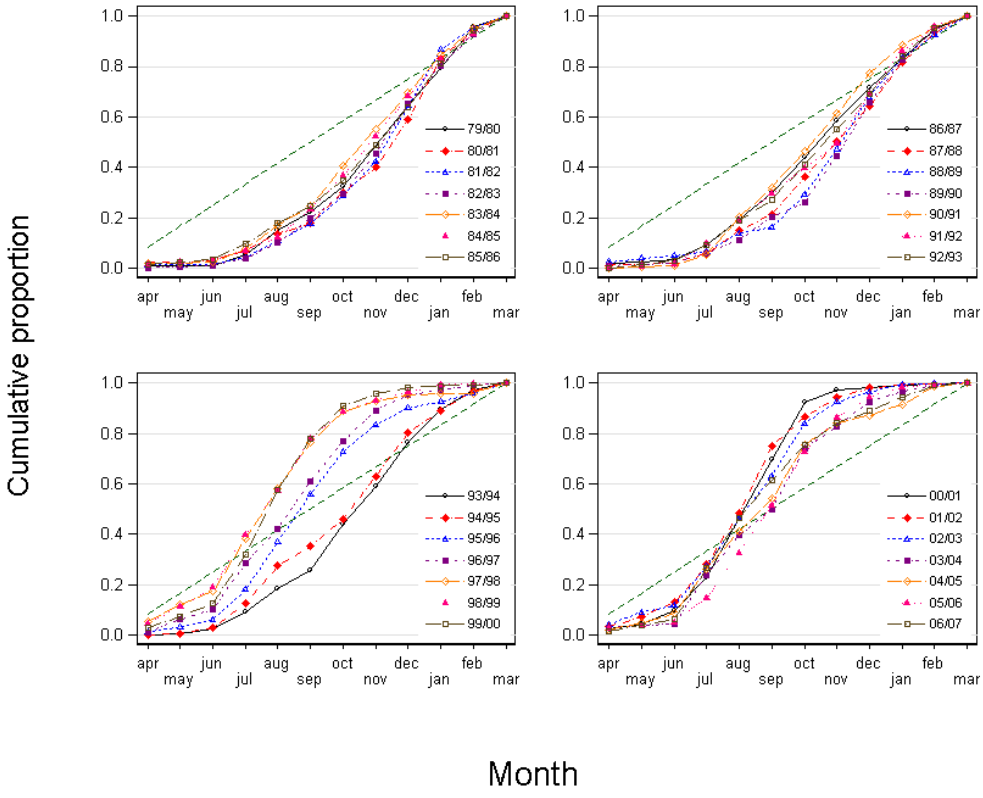

Figure 2: **Cumulative catch percentages by fishing month for CRA 1, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.**

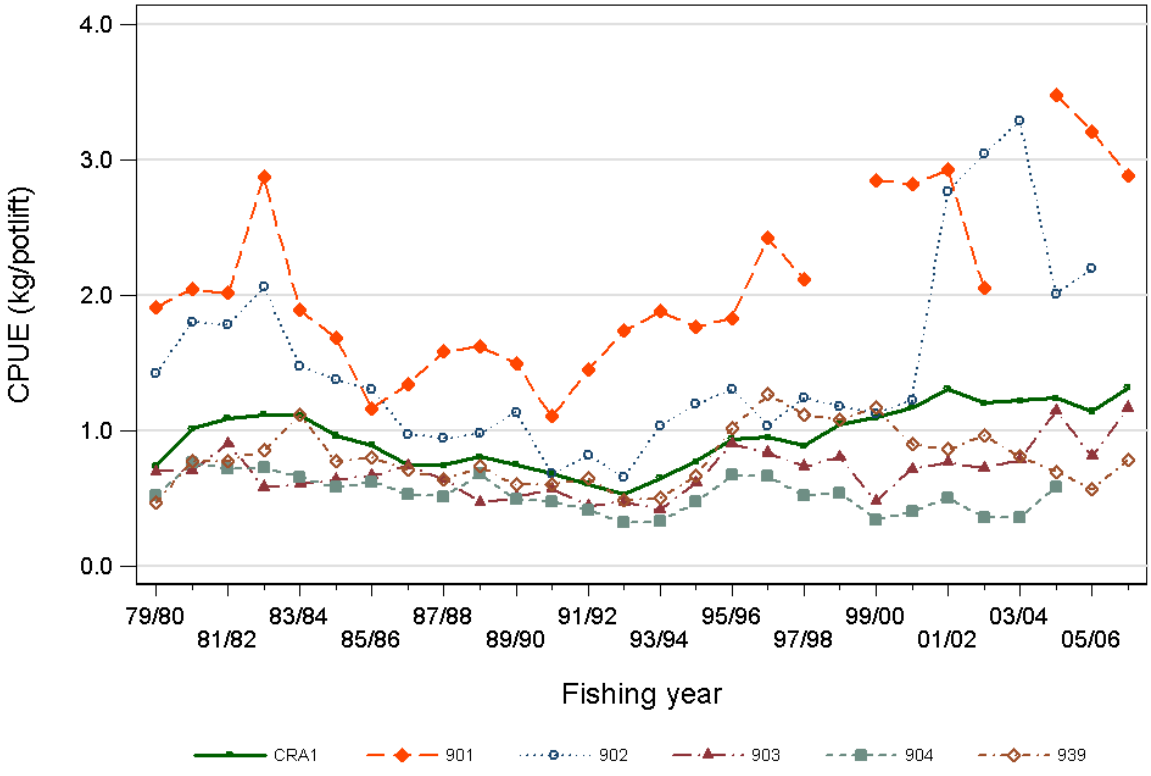

Figure 3: **Arithmetic CPUE (total kg/total potlifts) for CRA 1 by fishing year and statistical area from 1979–80 to 2006–07.**

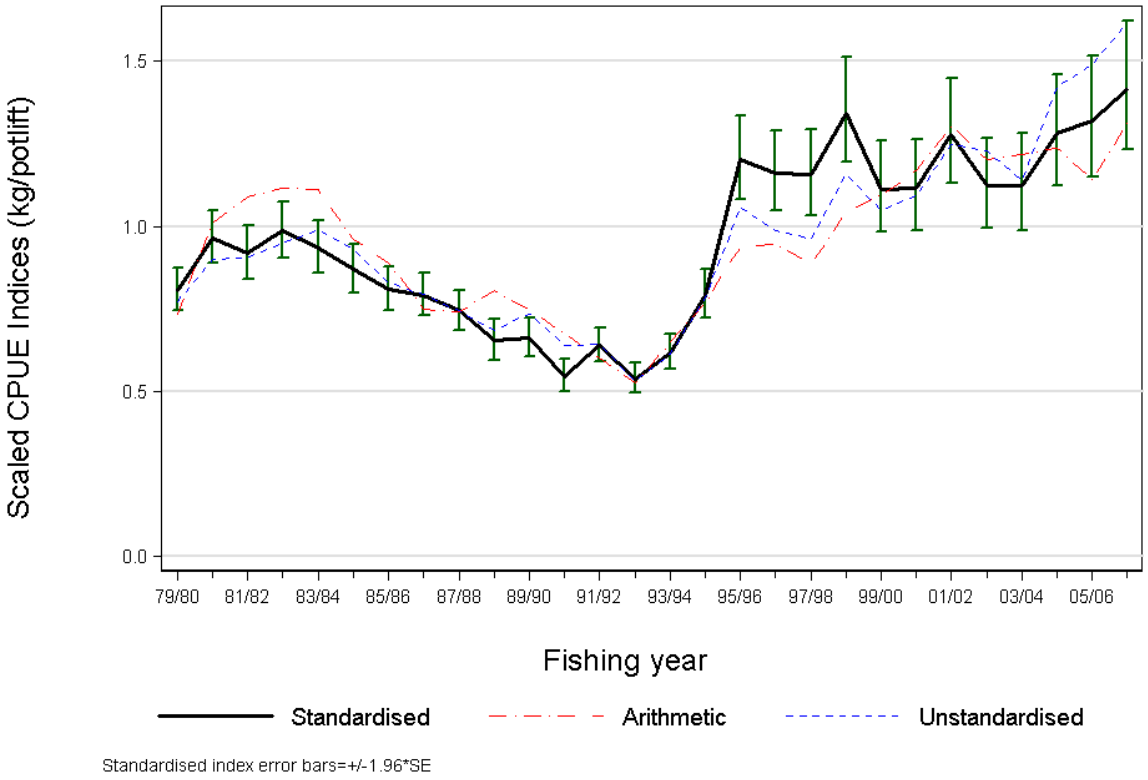

Figure 4: **Annual CPUE indices for CRA 1: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 0.93 kg/potlift.**

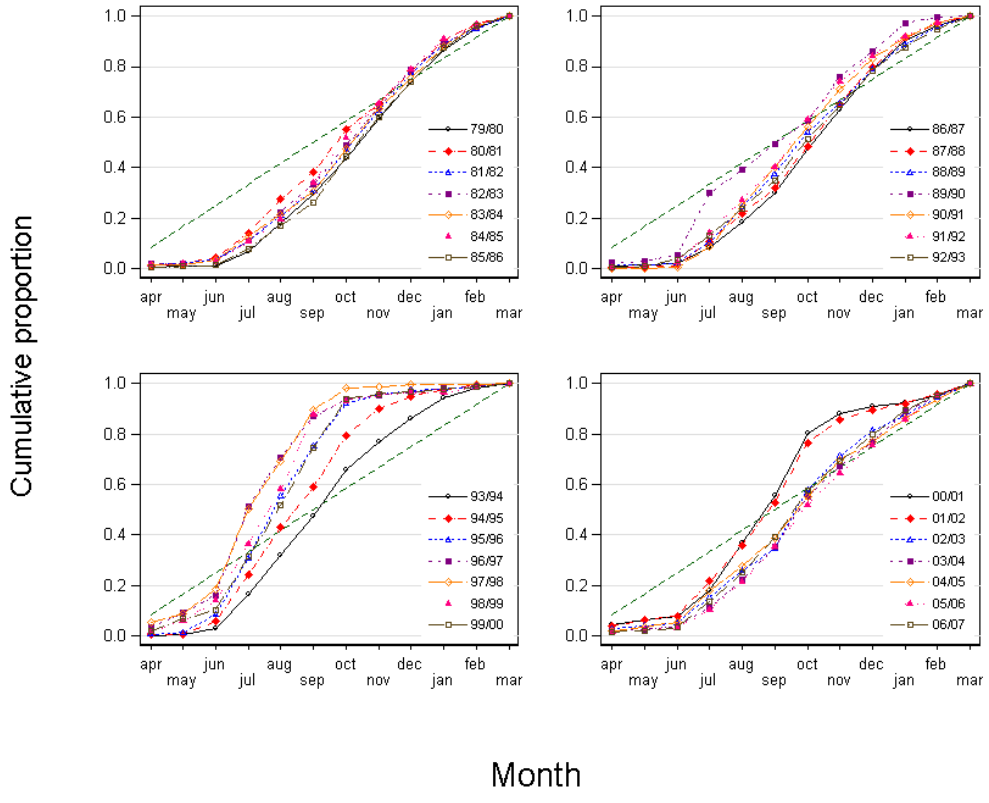

Figure 5: **Cumulative catch percentages by fishing month for CRA 2, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.**

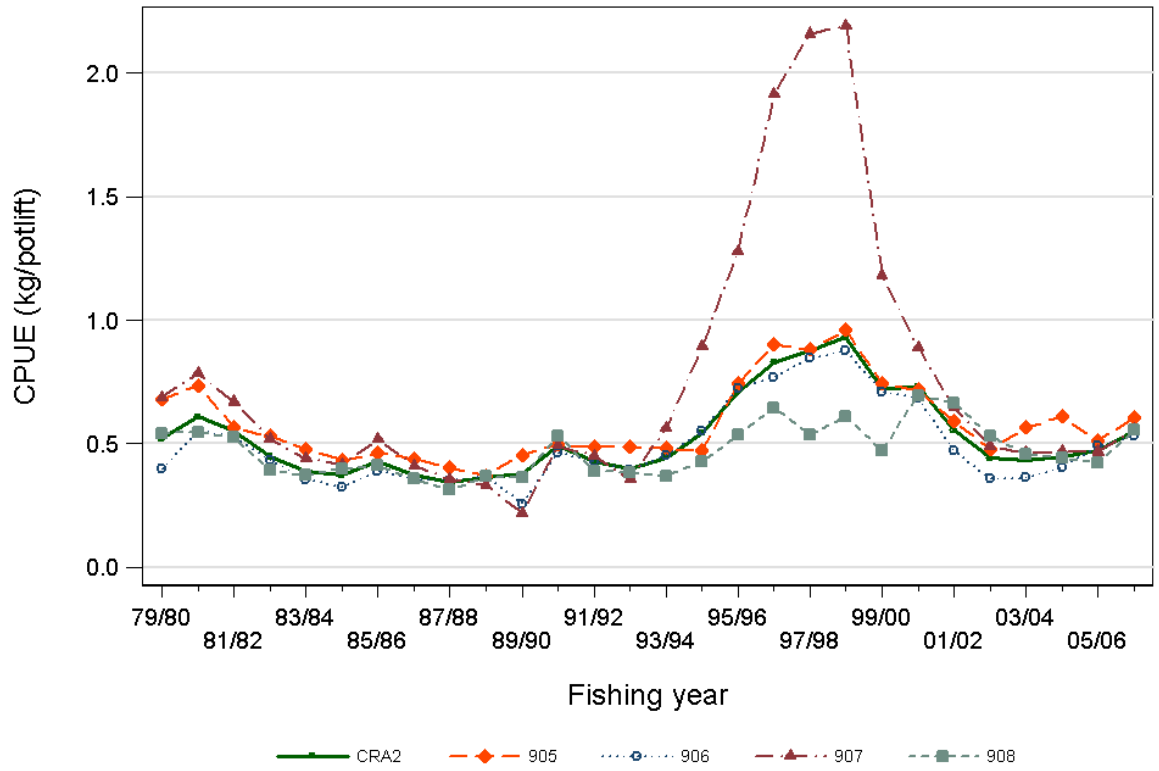

Figure 6: **Arithmetic CPUE (total kg/total potlifts) for CRA 2 by fishing year and statistical area from 1979–80 to 2006–07.**

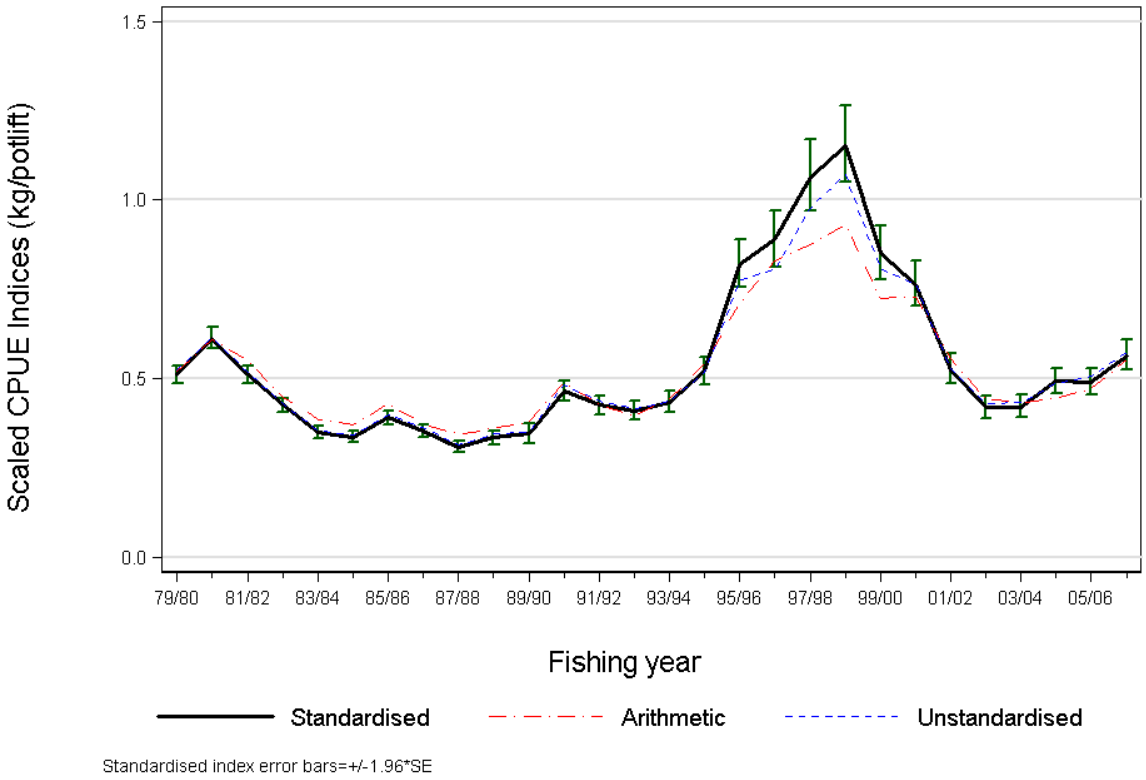

Figure 7: **Annual CPUE indices for CRA 2: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 0.51 kg/potlift.**

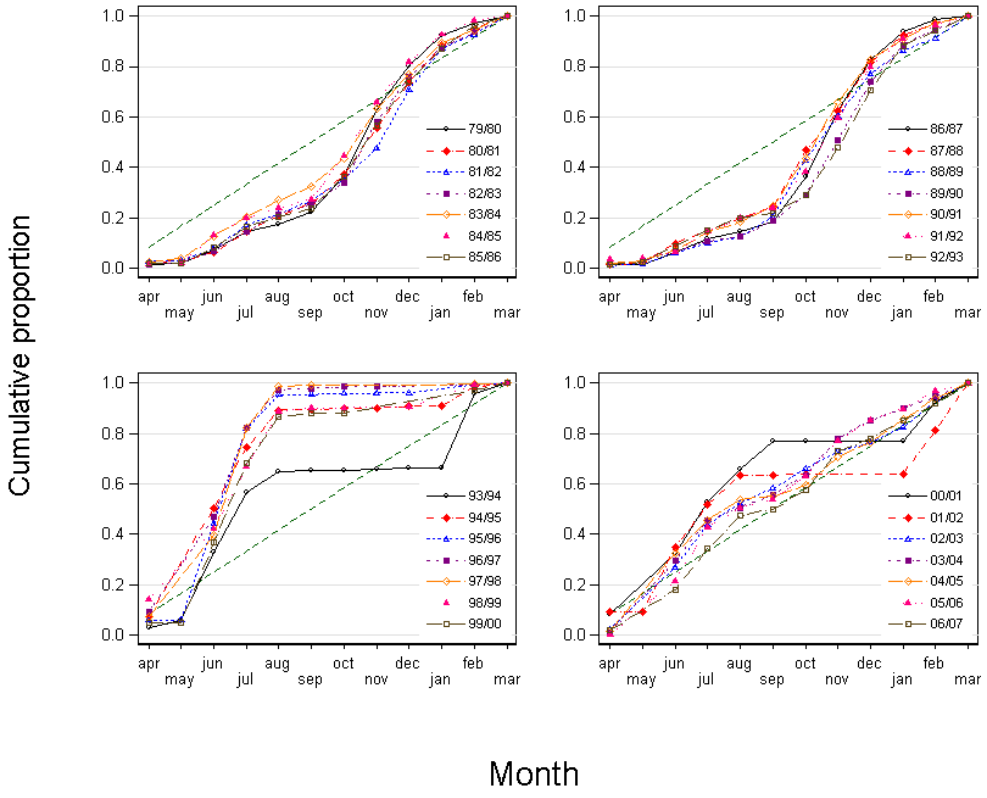

Figure 8: Cumulative catch percentages by fishing month for CRA 3, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

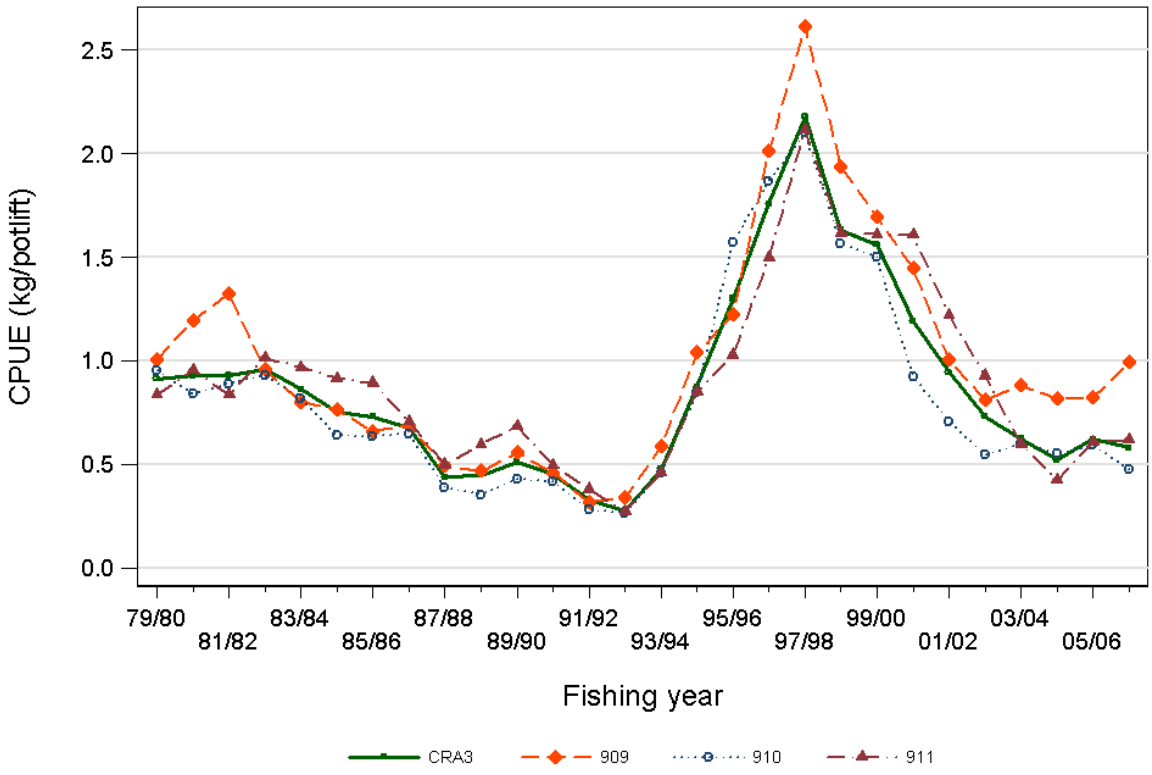

Figure 9: Arithmetic CPUE (total kg/total potlifts) for CRA 3 by fishing year and statistical area from 1979–80 to 2006–07.

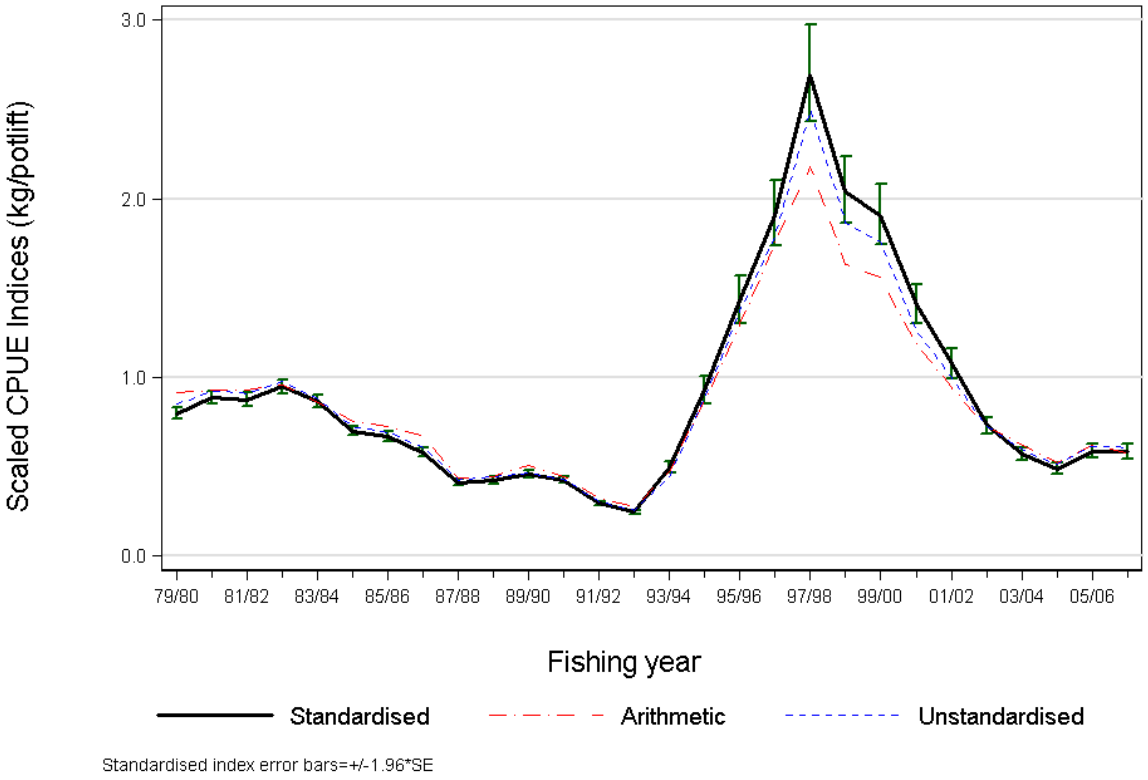

Figure 10: Annual CPUE indices for CRA 3: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 0.76 kg/potlift.

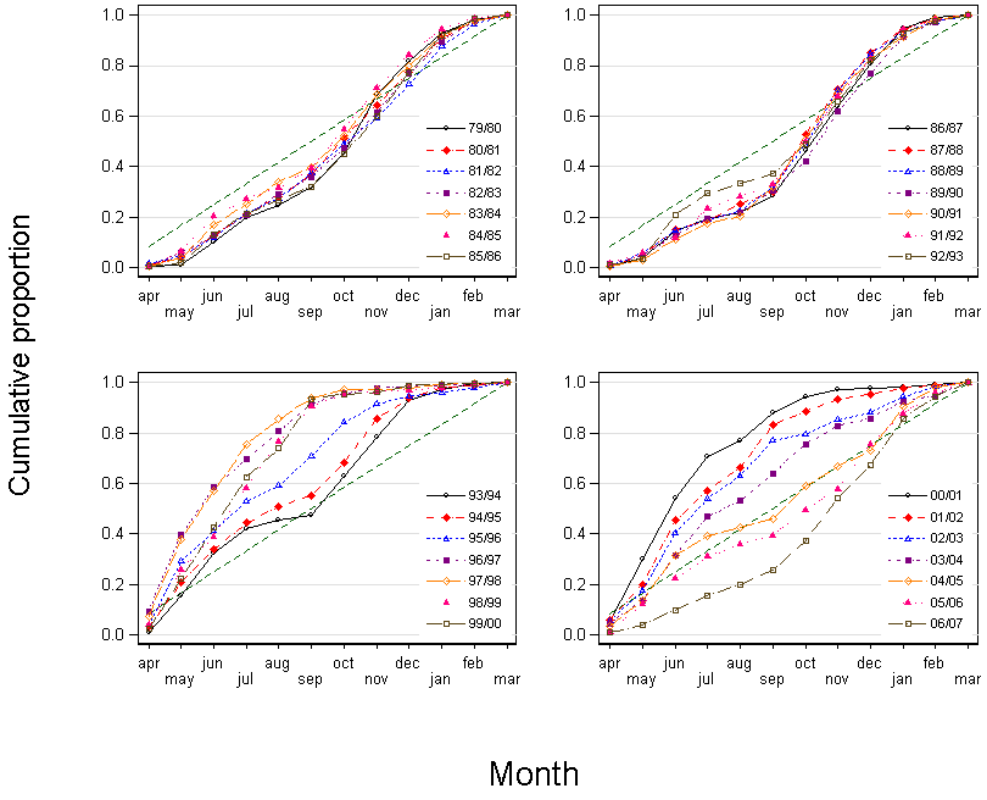

Figure 11: Cumulative catch percentages by fishing month for CRA 4, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

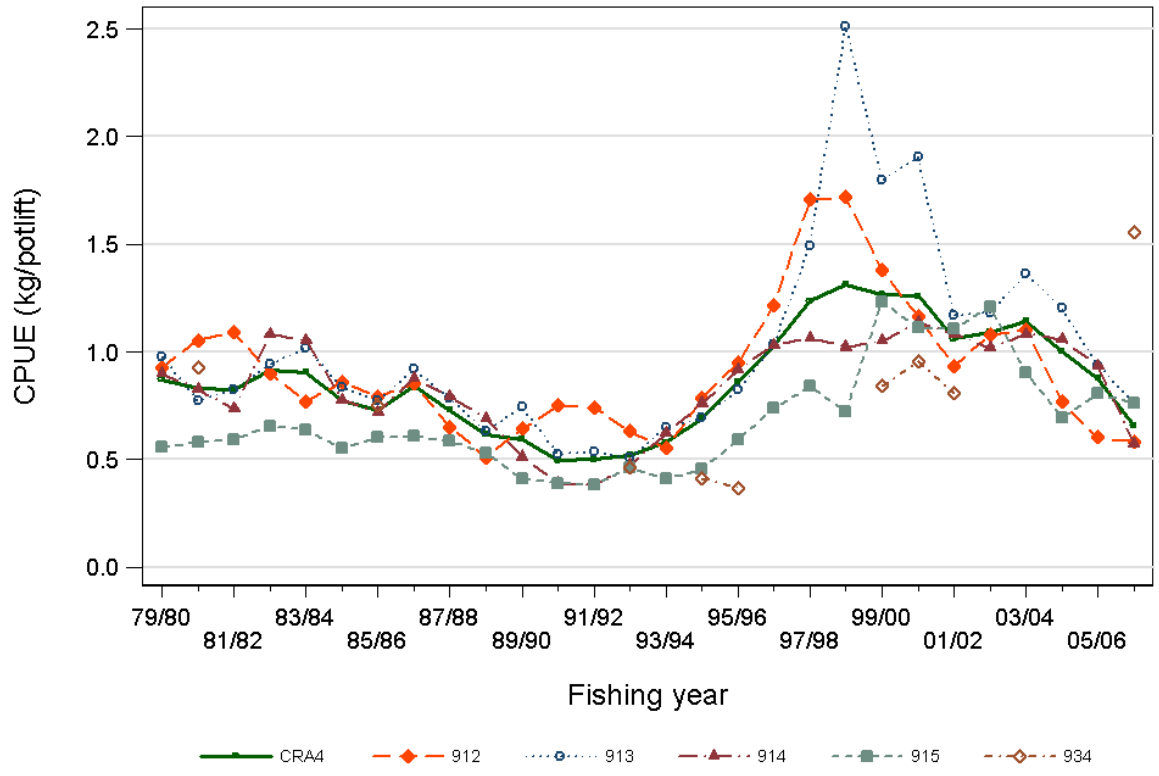

Figure 12: Arithmetic CPUE (total kg/total potlifts) for CRA 4 by fishing year and statistical area from 1979–80 to 2006–07.

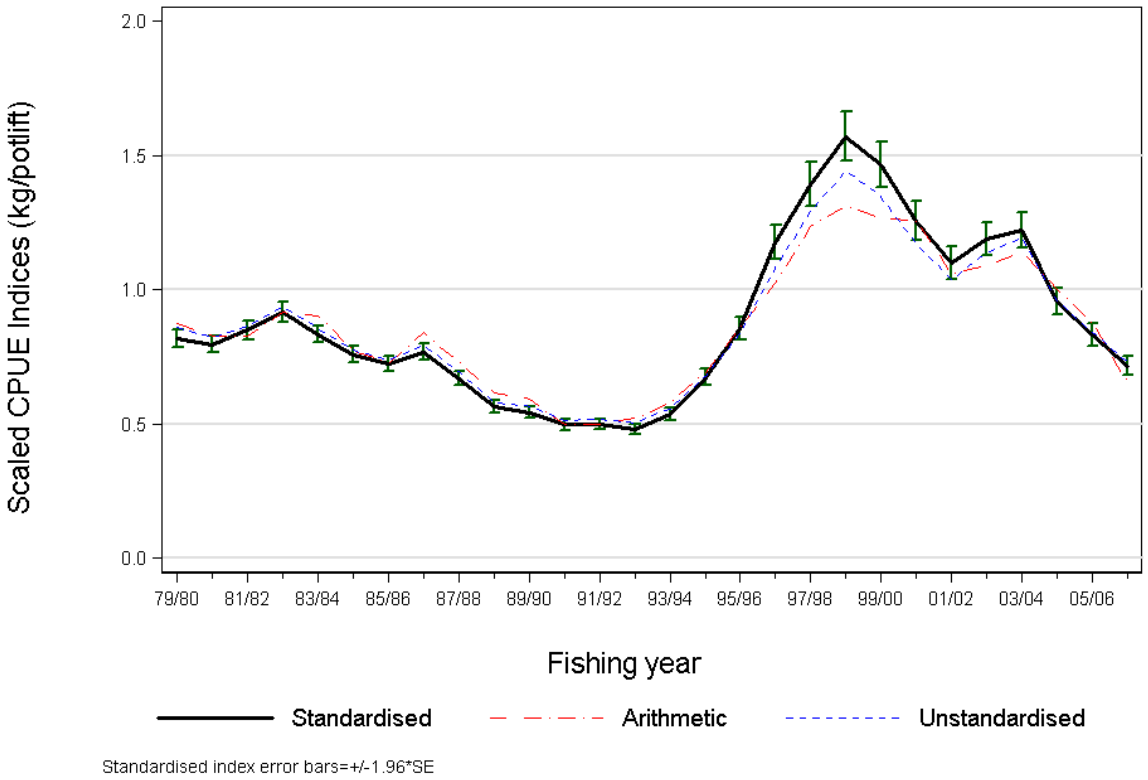

Figure 13: Annual CPUE indices for CRA 4: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 0.83 kg/potlift.

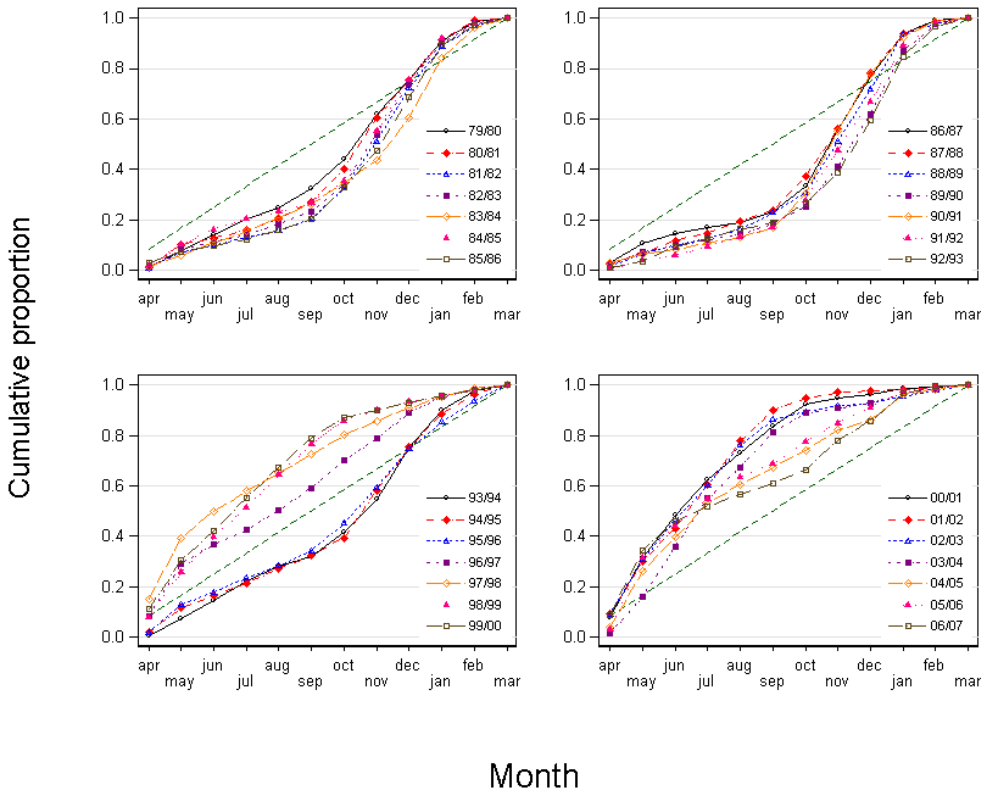

Figure 14: Cumulative catch percentages by fishing month for CRA 5, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

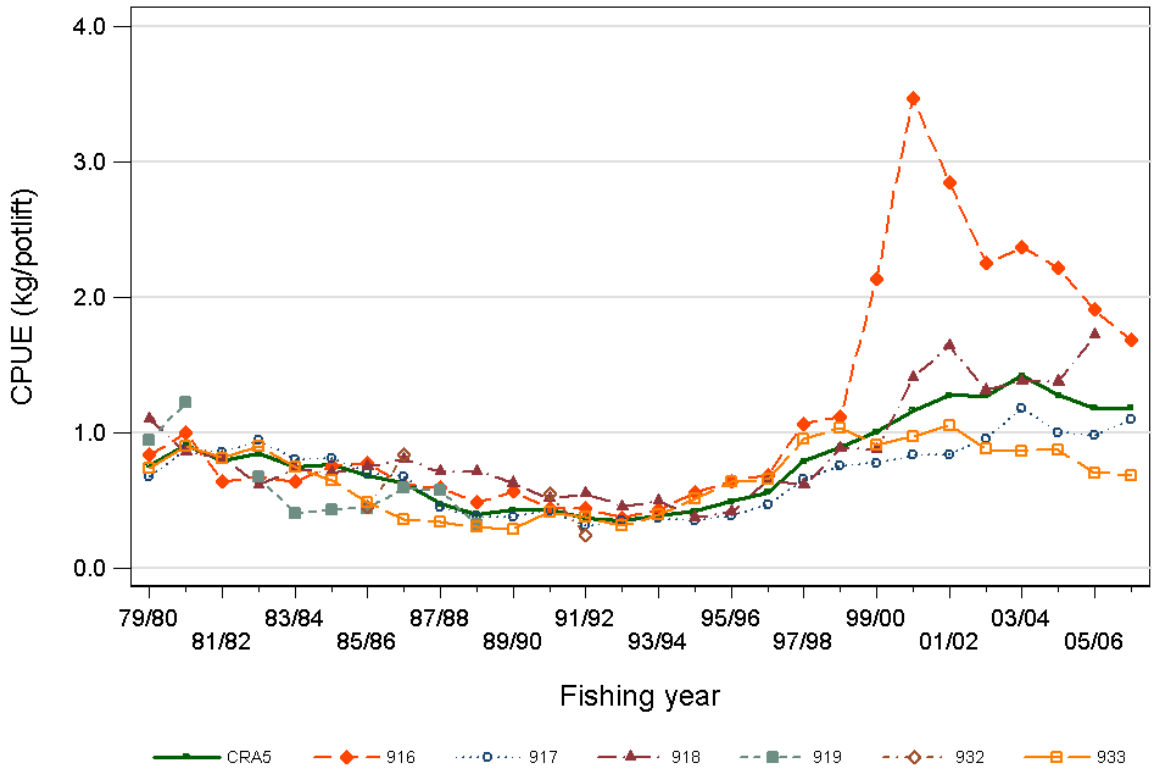

Figure 15: Arithmetic CPUE (total kg/total potlifts) for CRA 5 by fishing year and statistical area from 1979–80 to 2006–07.

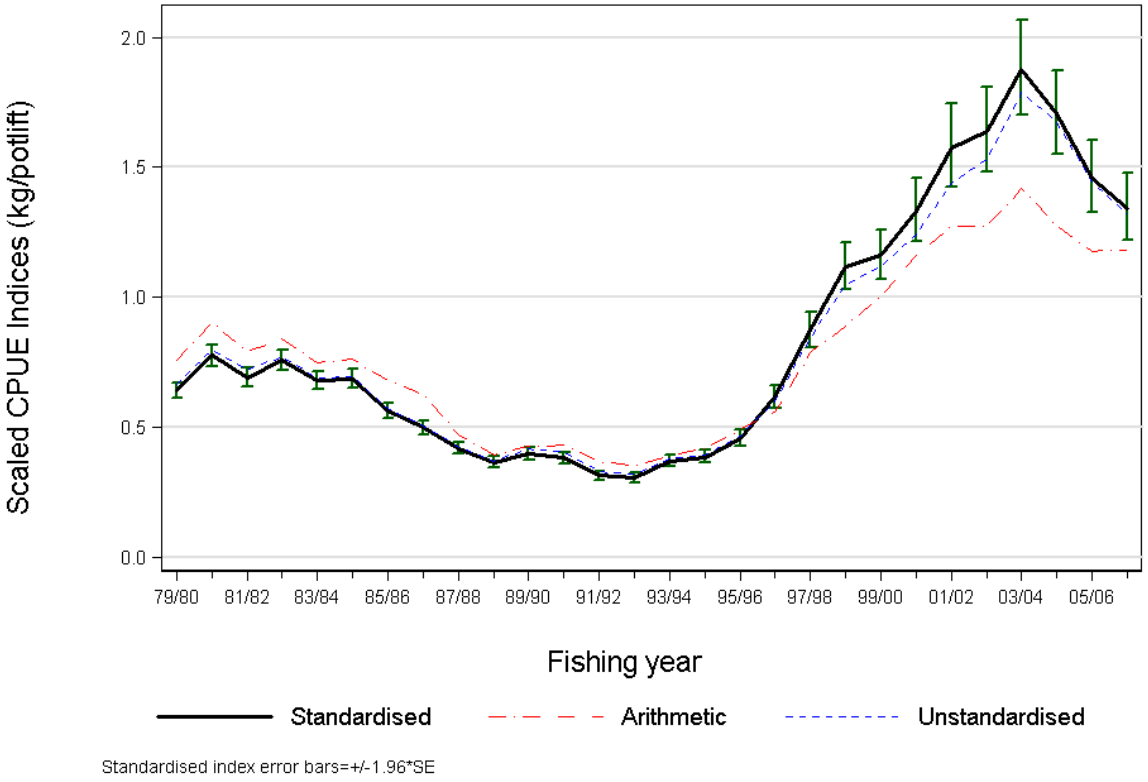

Figure 16: Annual CPUE indices for CRA 5: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 0.71 kg/potlift.

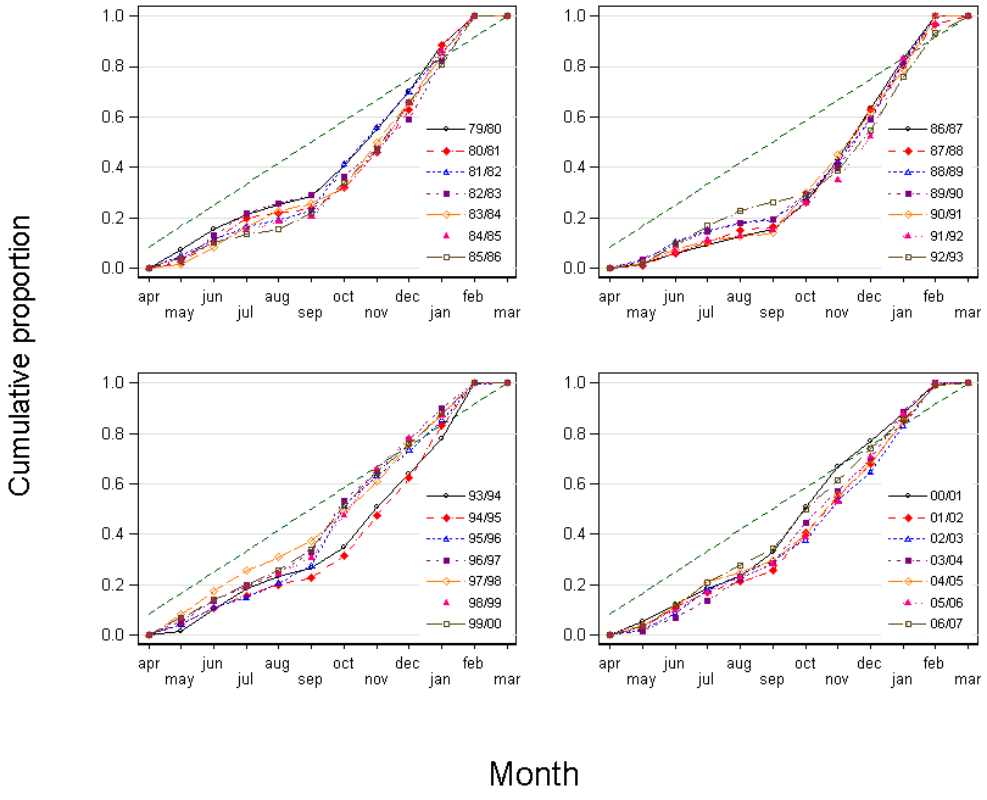

Figure 17: Cumulative catch percentages by fishing month for CRA 6, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

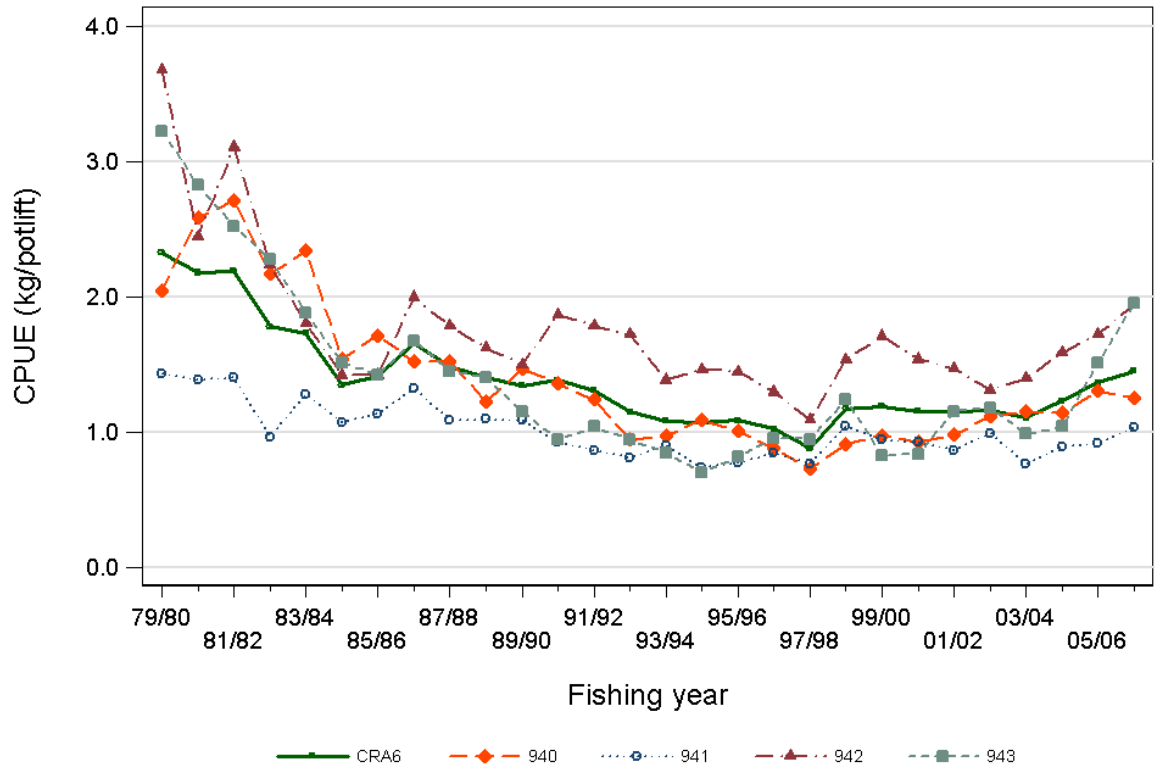

Figure 18: Arithmetic CPUE (total kg/total potlifts) for CRA 6 by fishing year and statistical area from 1979–80 to 2006–07.

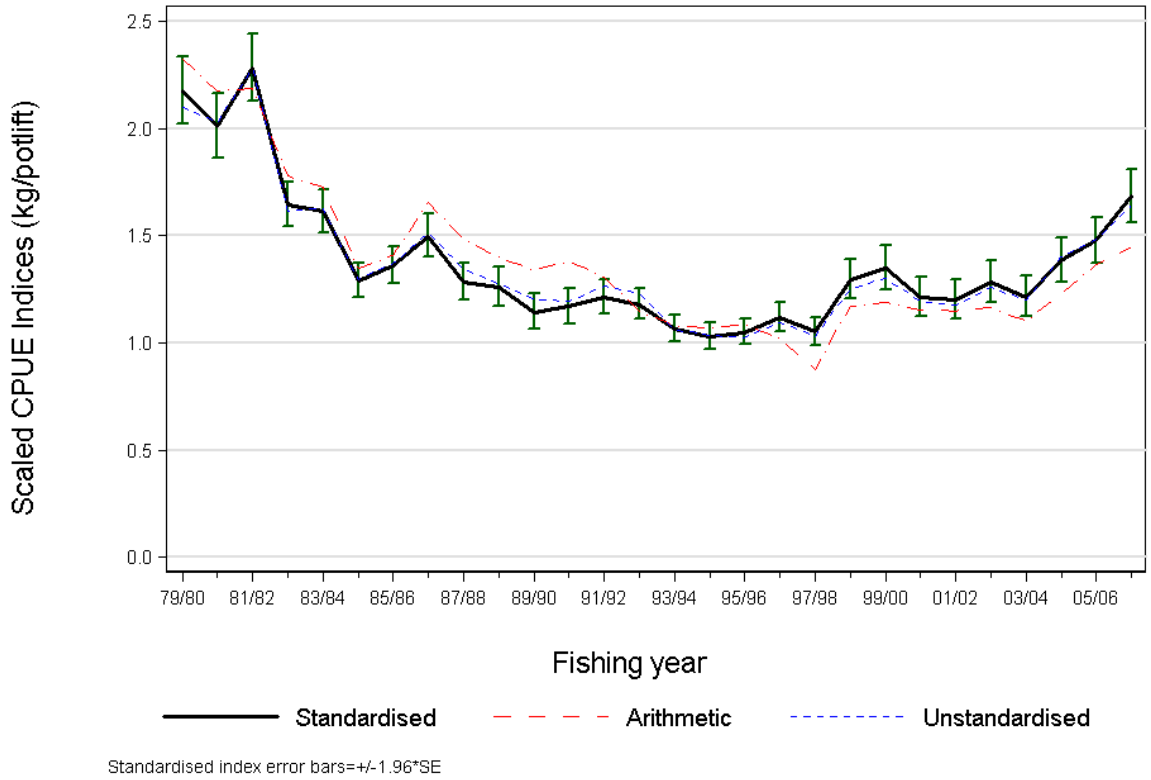

Figure 19: Annual CPUE indices for CRA 6: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 1.34 kg/potlift.

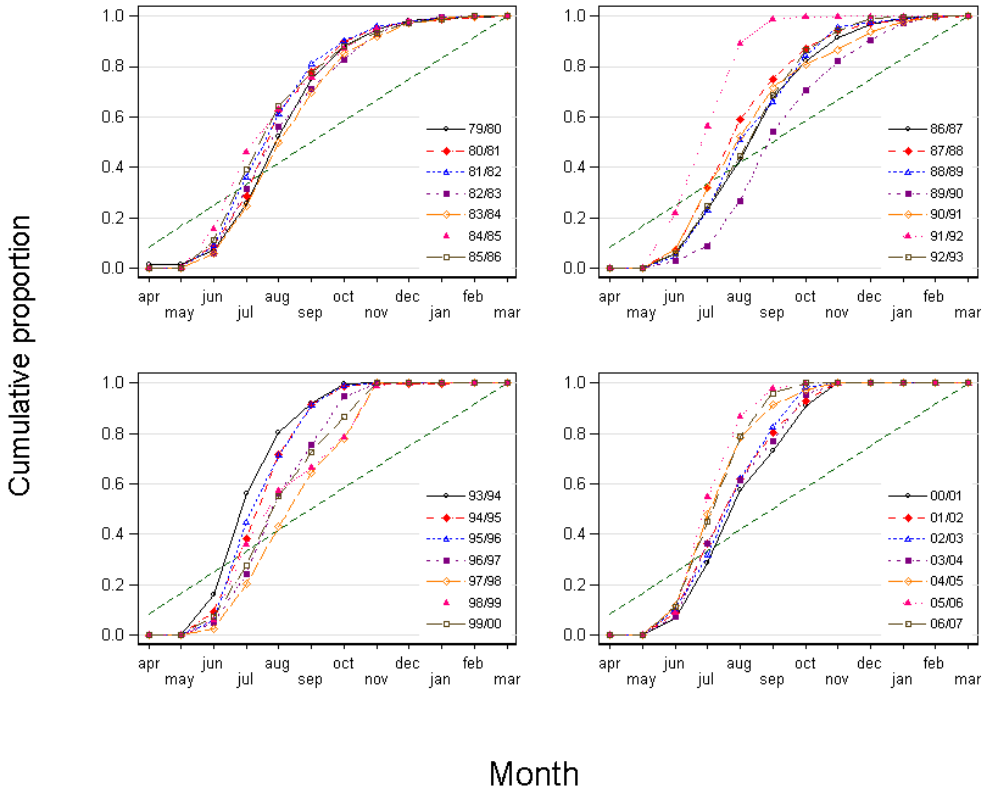

Figure 20: Cumulative catch percentages by fishing month for CRA 7, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

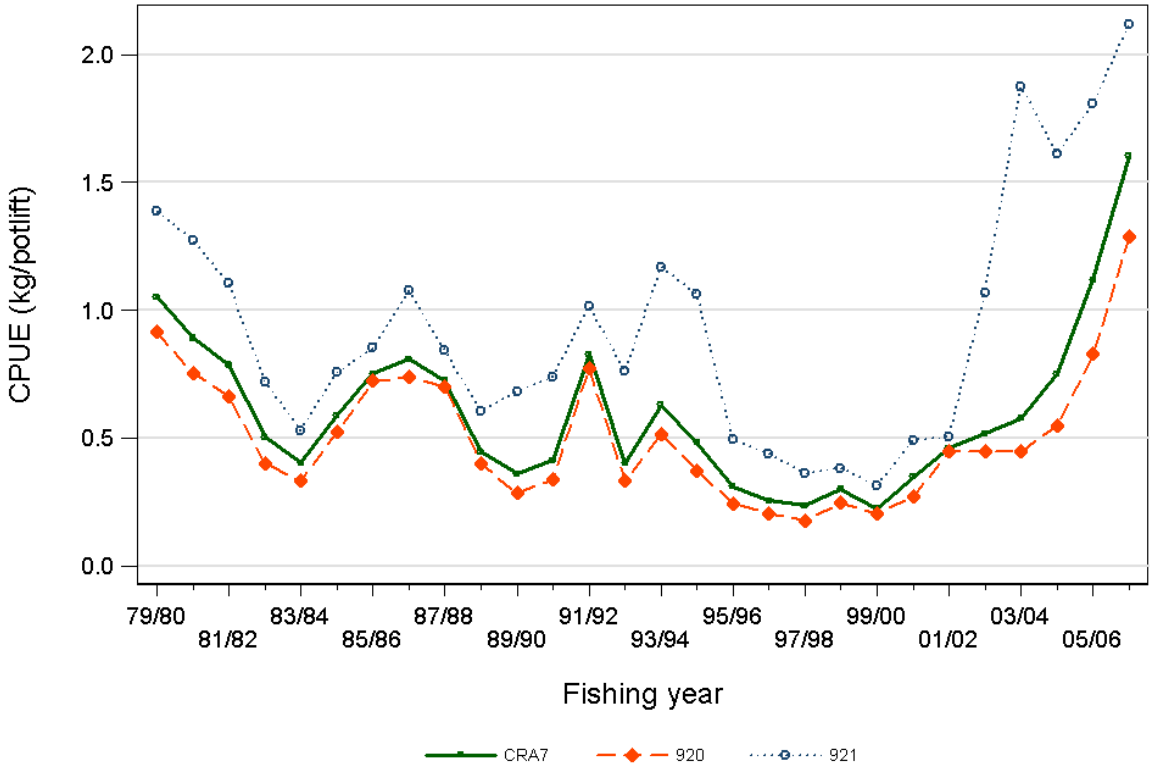

Figure 21: Arithmetic CPUE (total kg/total potlifts) for CRA 7 by fishing year and statistical area from 1979–80 to 2006–07.

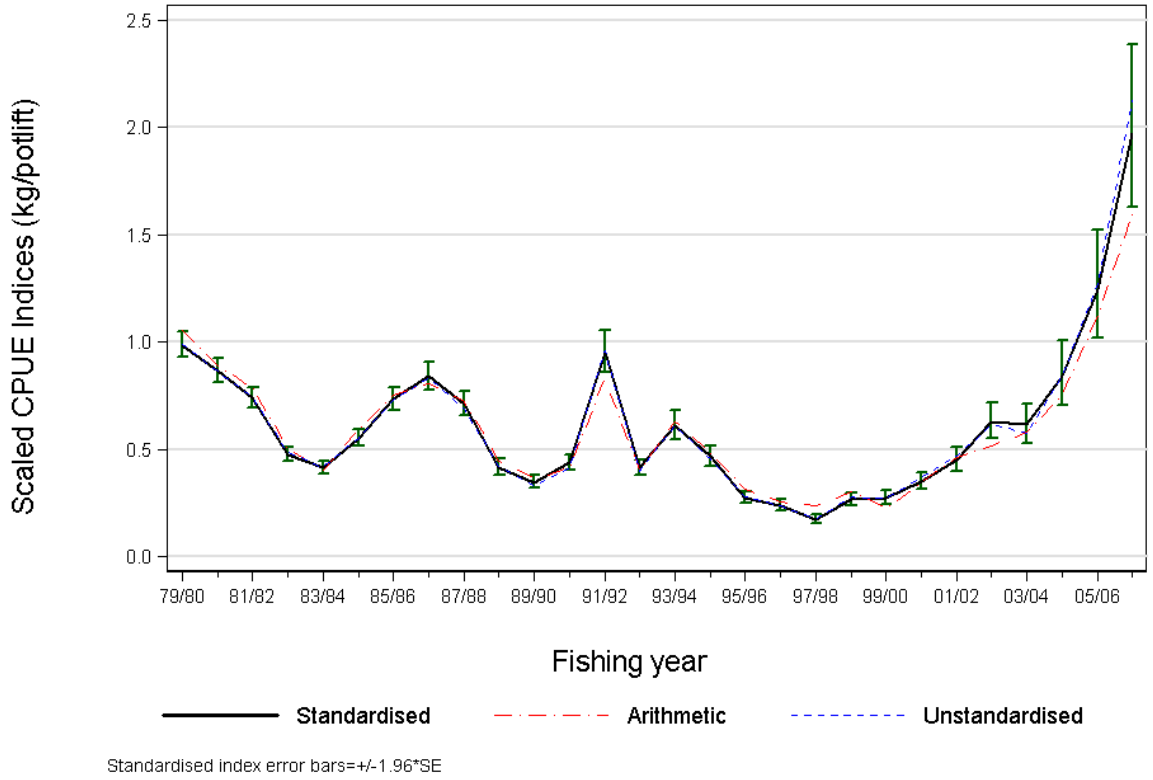

Figure 22: Annual CPUE indices for CRA 7: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 0.53 kg/potlift.

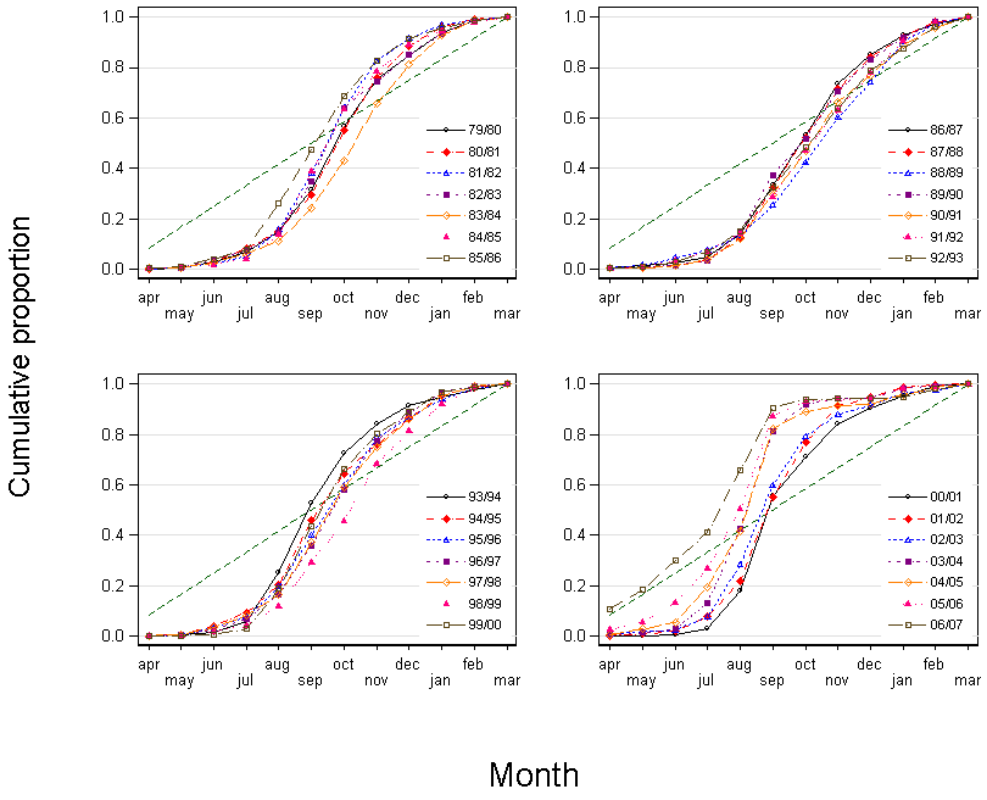

Figure 23: Cumulative catch percentages by fishing month for CRA 8, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

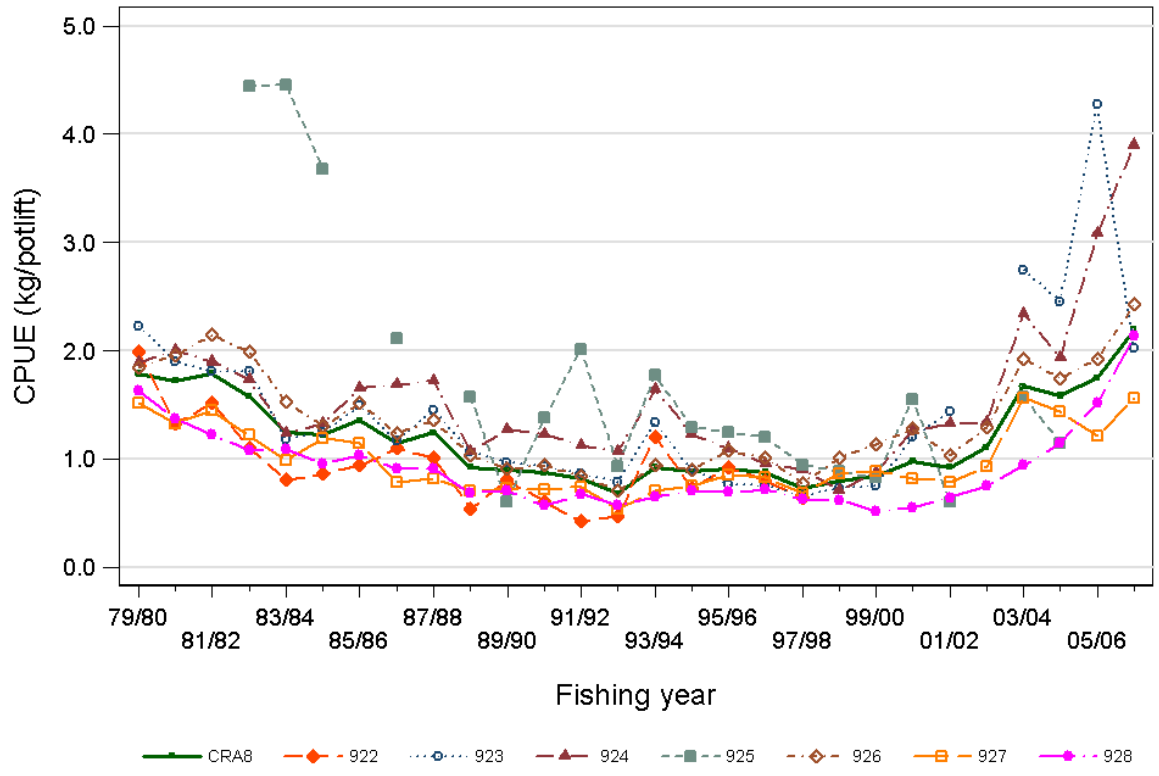

Figure 24: Arithmetic CPUE (total kg/total potlifts) for CRA 8 by fishing year and statistical area from 1979–80 to 2006–07.

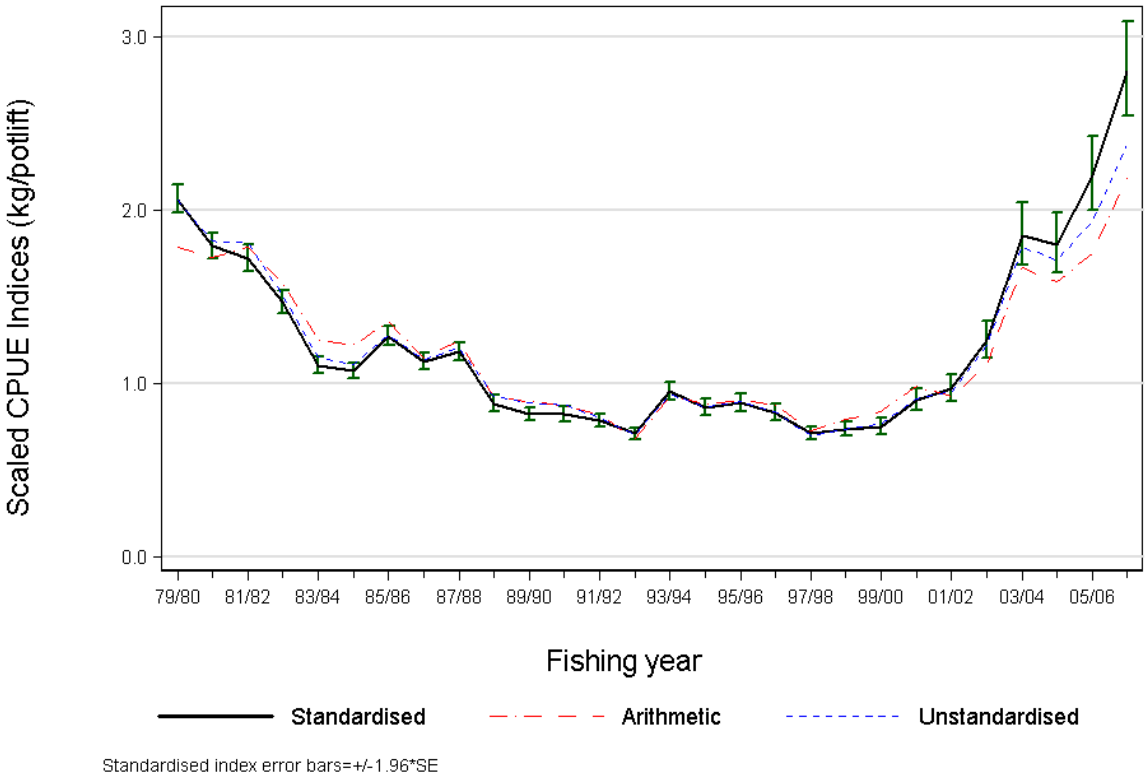

Figure 25: Annual CPUE indices for CRA 8: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. 1979–80 to 2006–07. The geometric mean for each series = 1.13 kg/potlift.

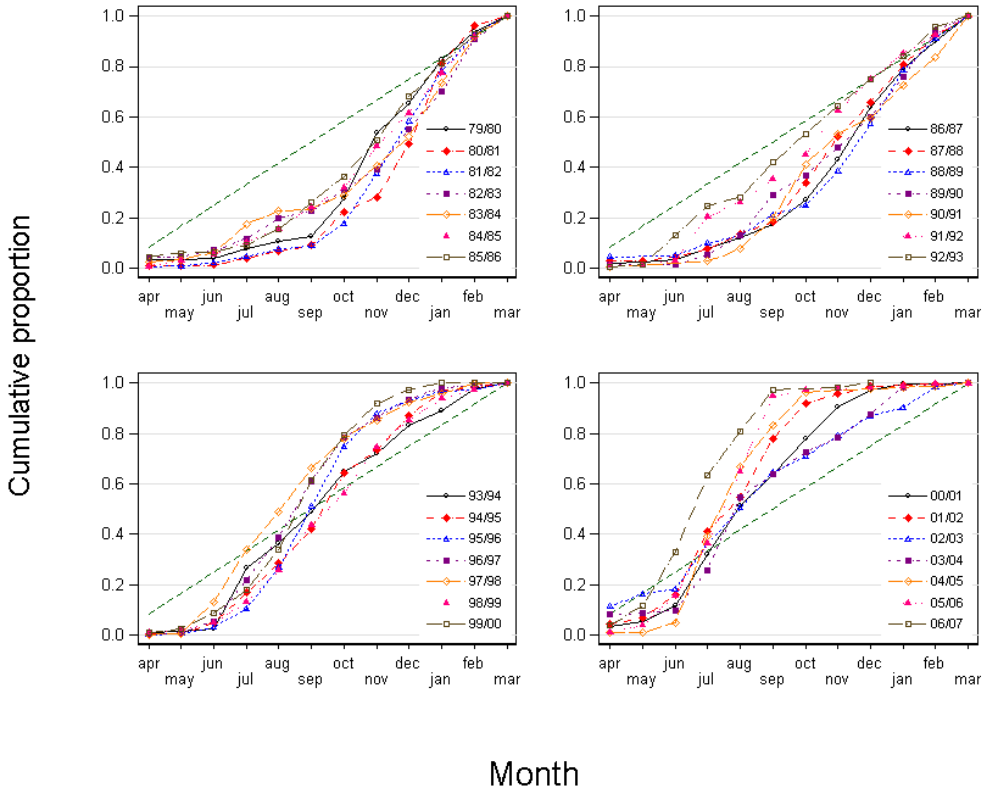

Figure 26: Cumulative catch percentages by fishing month for CRA 9, 1979–80 to 2006–07. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

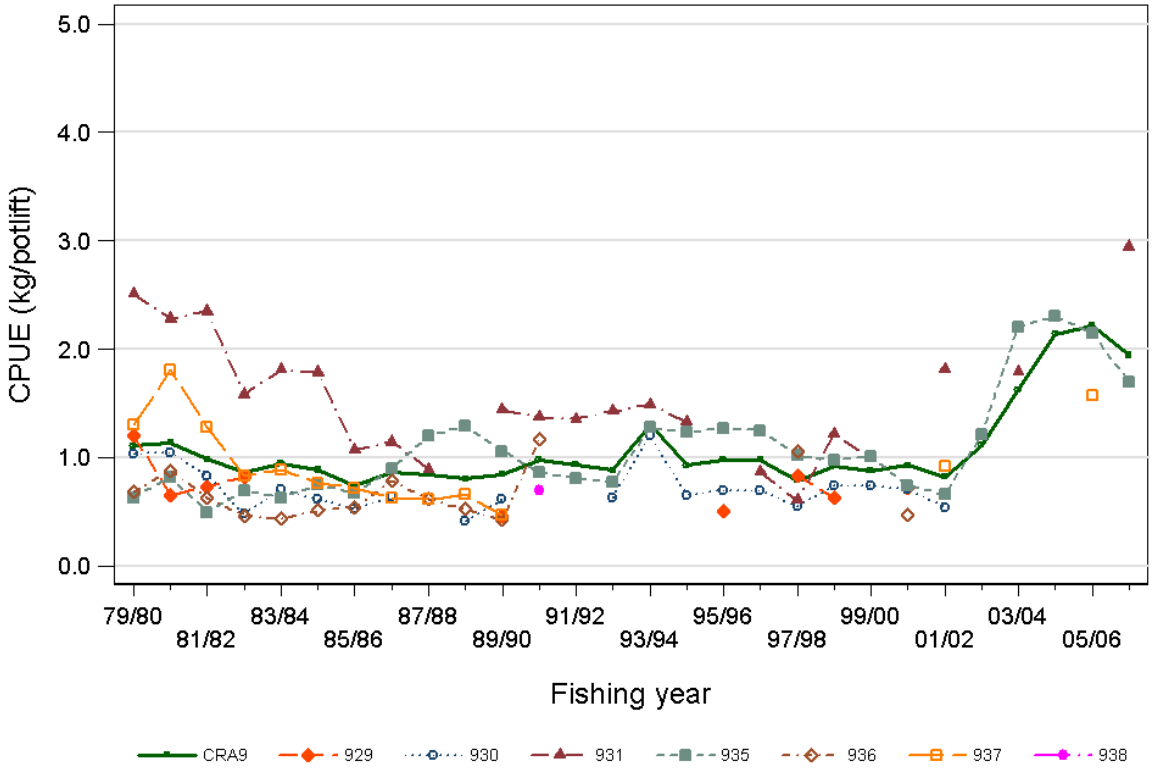

Figure 27: Arithmetic CPUE (total kg/total potlifts) for CRA 9 by fishing year and statistical area from 1979–80 to 2006–07.

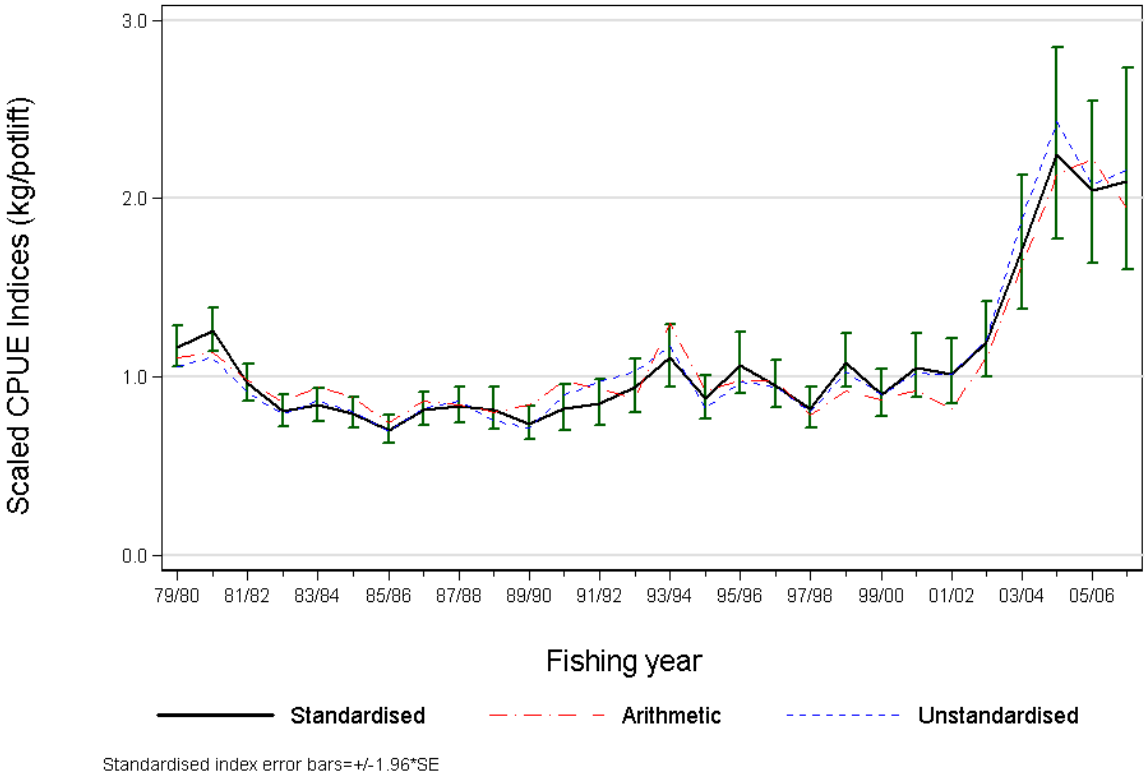

Figure 28: Annual CPUE indices for CRA 9: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2006–07. The geometric mean for each series = 1.03 kg/potlift.

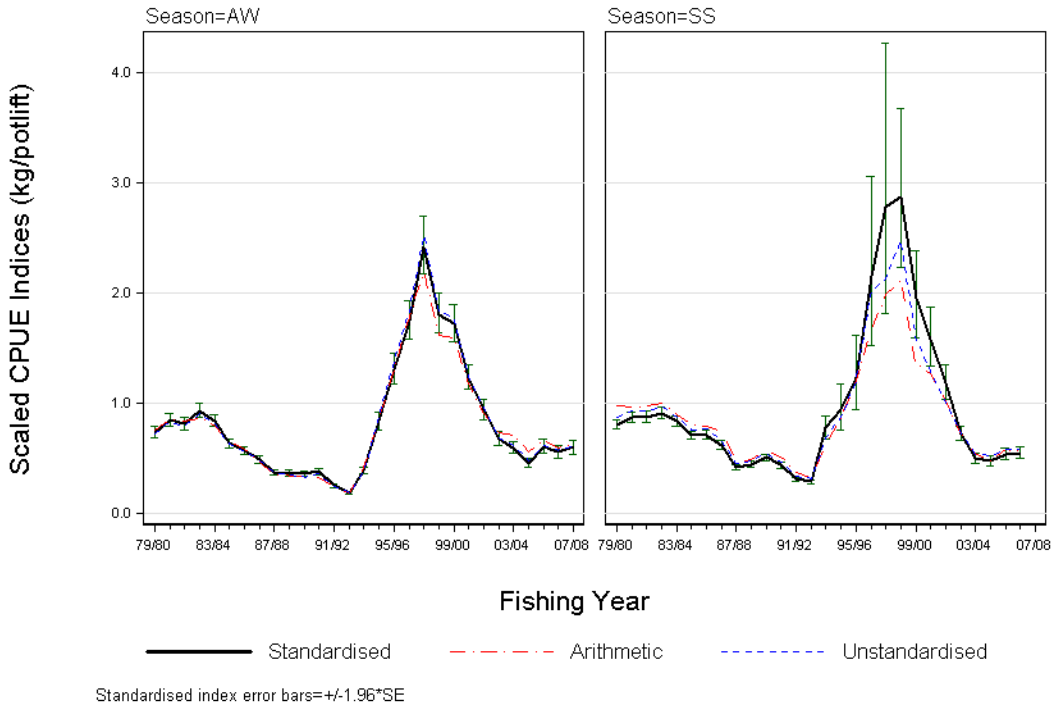

Figure 29: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by season and fishing year for CRA 3: 1979–80 to 2007–08 (final year for autumn/winter only). Vertical bars are 95% confidence intervals. The geometric mean for the autumn/winter series [left panel] = 0.68 kg/potlift and for the spring/summer [SS] series [right panel] = 0.79 kg/potlift.

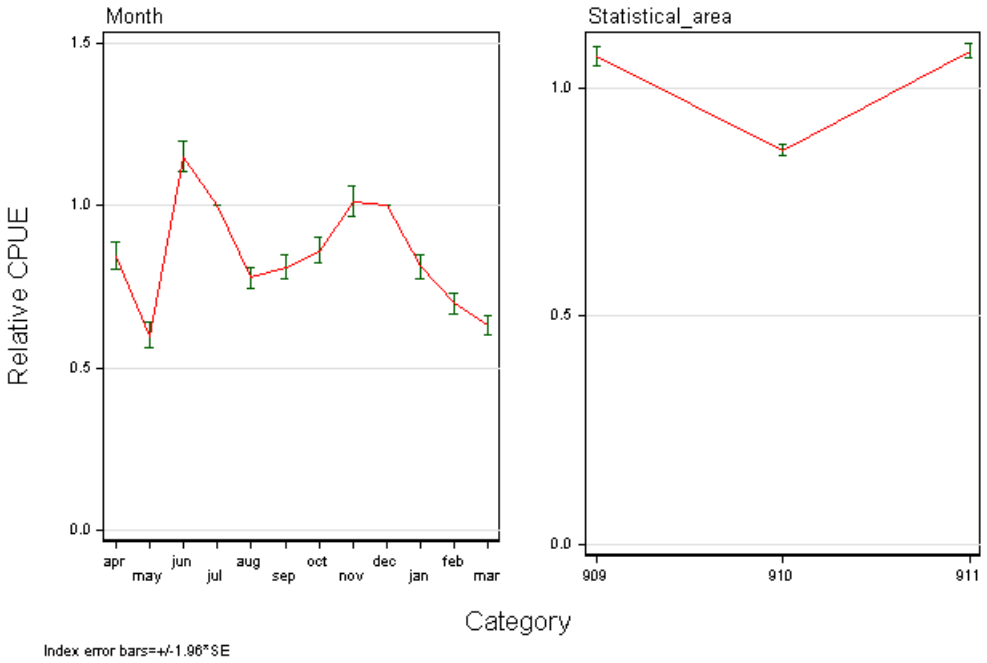

Figure 30: Coefficients for month and statistical area from the CRA 3 CPUE standardisation. The statistical area coefficients are in canonical form (Francis 1999). The coefficients for the reference months (July and December) equal 1.0 with s.e. of zero.

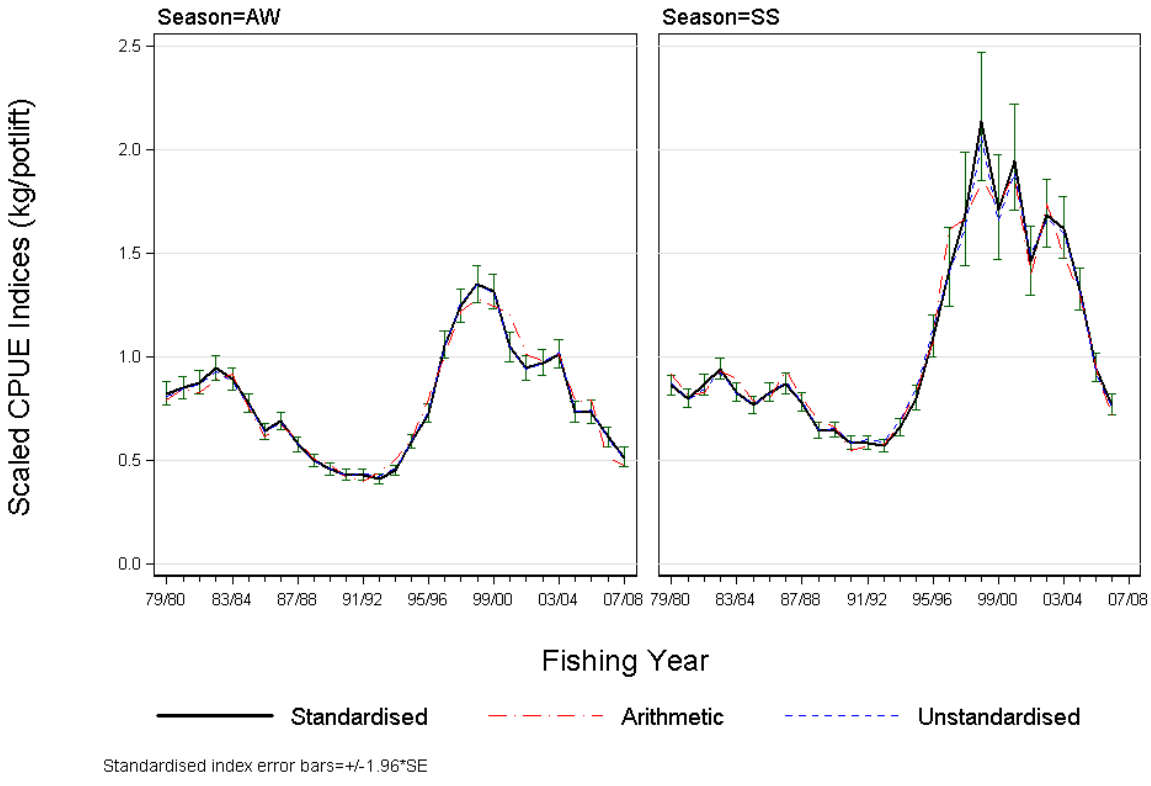

Figure 31: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by season and fishing year for CRA 4: 1979–80 to 2007–08 (final year for autumn/winter only). Vertical bars are 95% confidence intervals. The geometric mean for the autumn/winter series [left panel] = 0.73 kg/potlift and for the spring/summer [SS] series [right panel] = 0.98 kg/potlift.

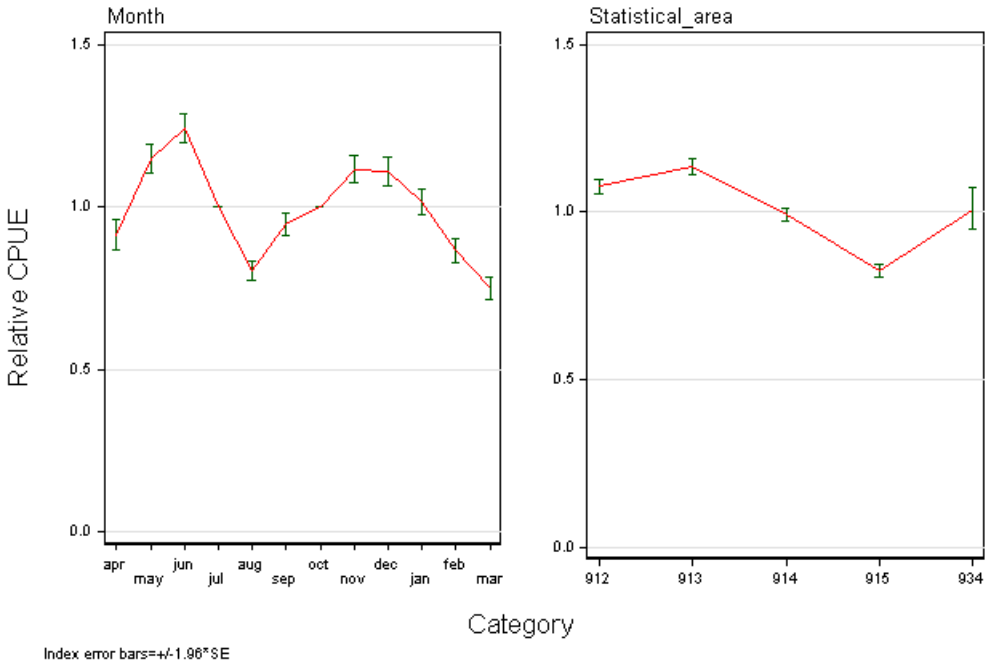

Figure 32: Coefficients for month and statistical area from the CRA 4 CPUE standardisation. The statistical area coefficients are in canonical form (Francis 1999). The coefficients for the reference months (July and October) equal 1.0 with s.e. of zero.

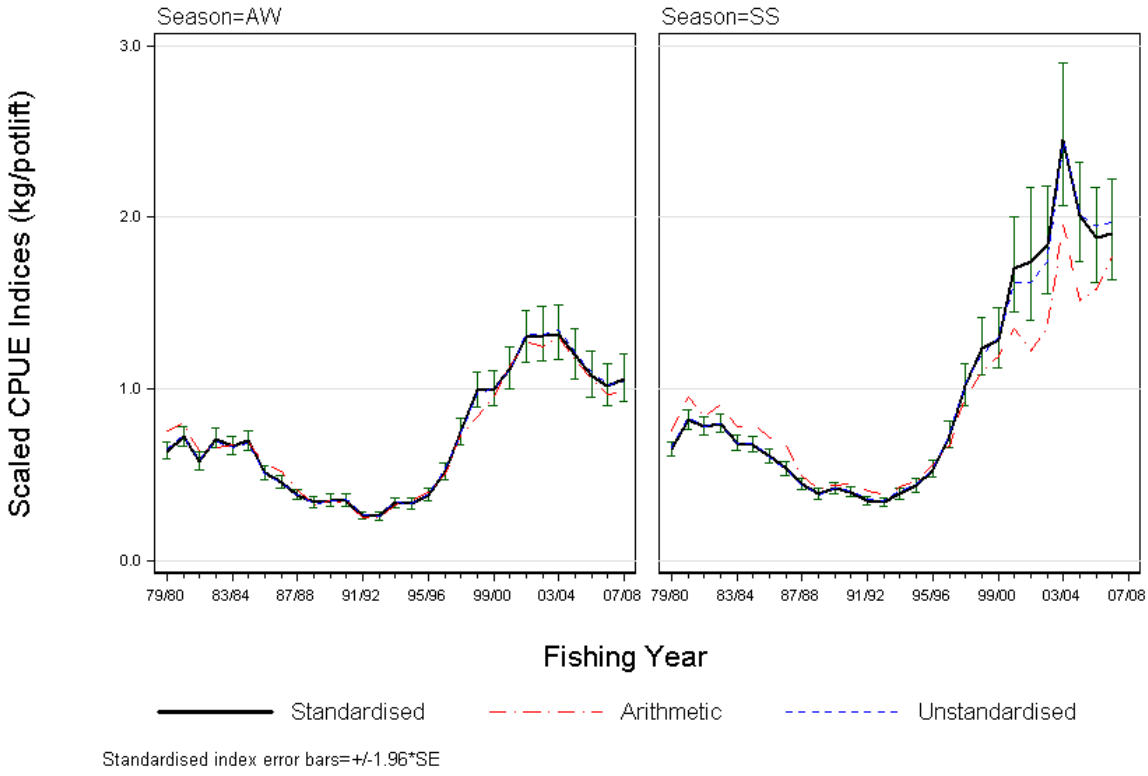

Figure 33: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by season and fishing year for CRA 5: 1979–80 to 2007–08 (final year for autumn/winter only). Vertical bars are 95% confidence intervals. The geometric mean for the autumn/winter series [left panel] = 0.63 kg/potlift and for the spring/summer [SS] series [right panel] = 0.80 kg/potlift.

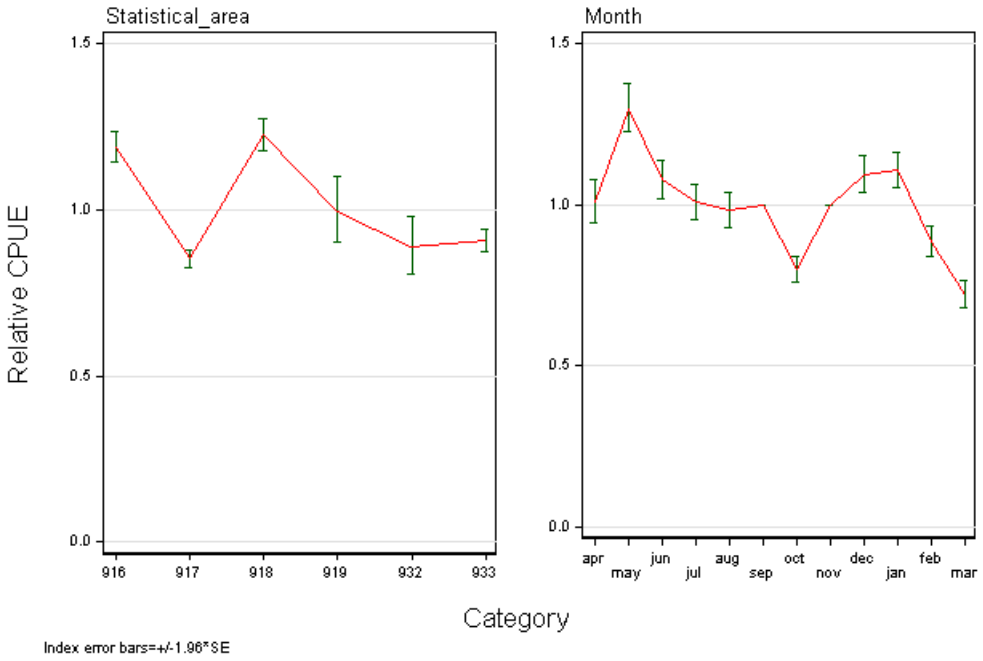

Figure 34: Coefficients for statistical area and month from the CRA 5 CPUE standardisation. The statistical area coefficients are in canonical form (Francis 1999). The coefficients for the reference months (September and November) equal 1.0 with s.e. of zero.

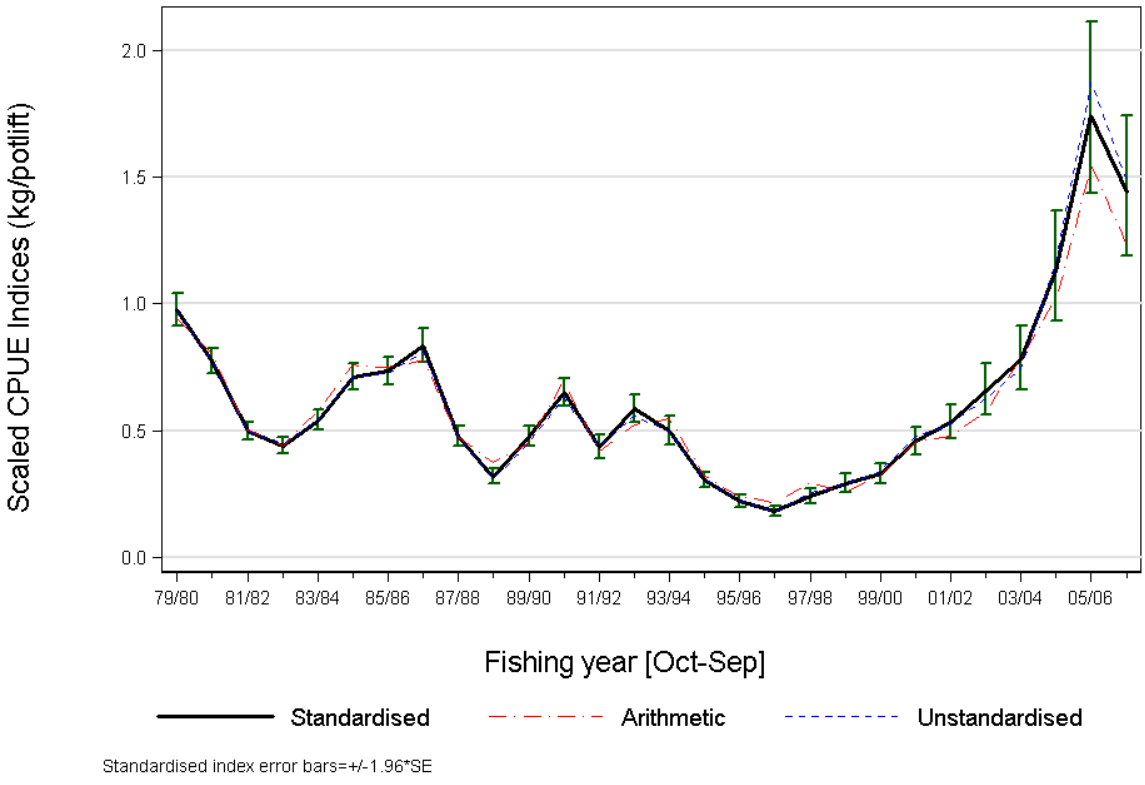

Figure 35: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by 1 October–30 September fishing year for CRA 7 from 1979–80 to 2006–07. Vertical bars are 95% confidence intervals. The geometric mean for each series = 0.53 kg/potlift.

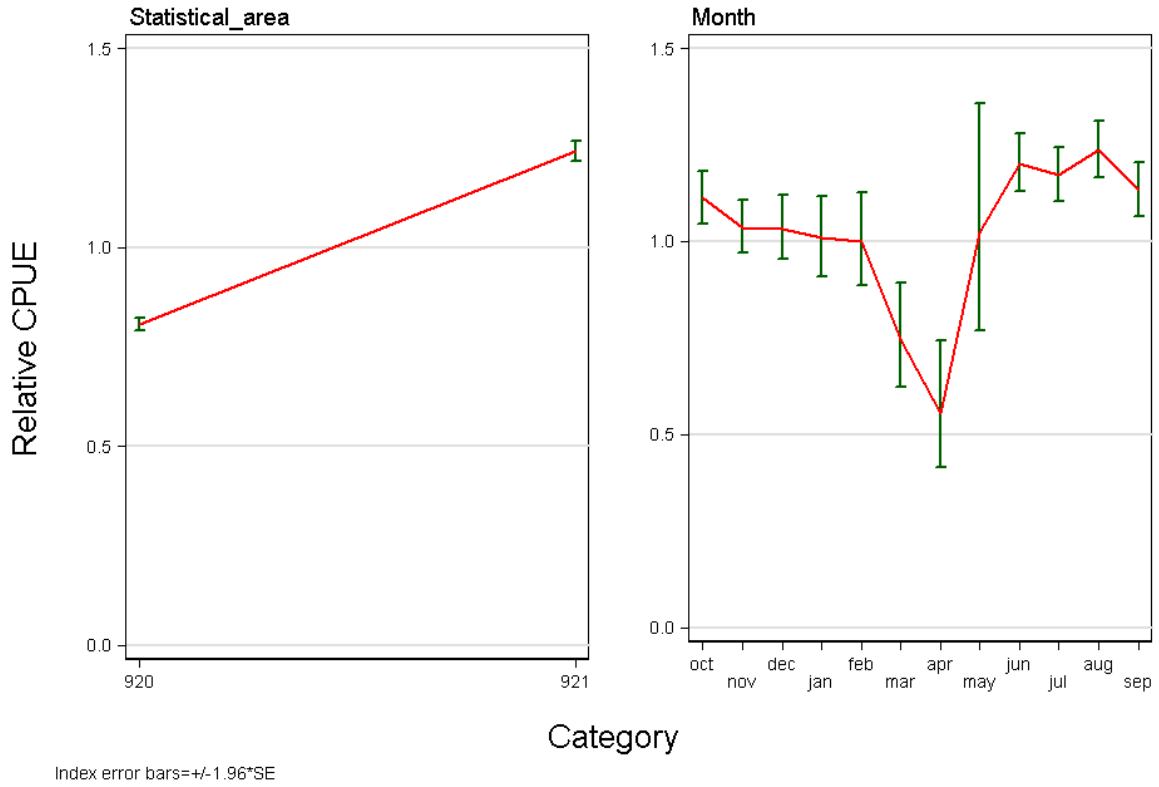

Figure 36: Coefficients for statistical area and month from the CRA 7 CPUE standardisation based on a 1 October–30 September fishing year. Both sets of coefficients are in canonical form (Francis 1999).

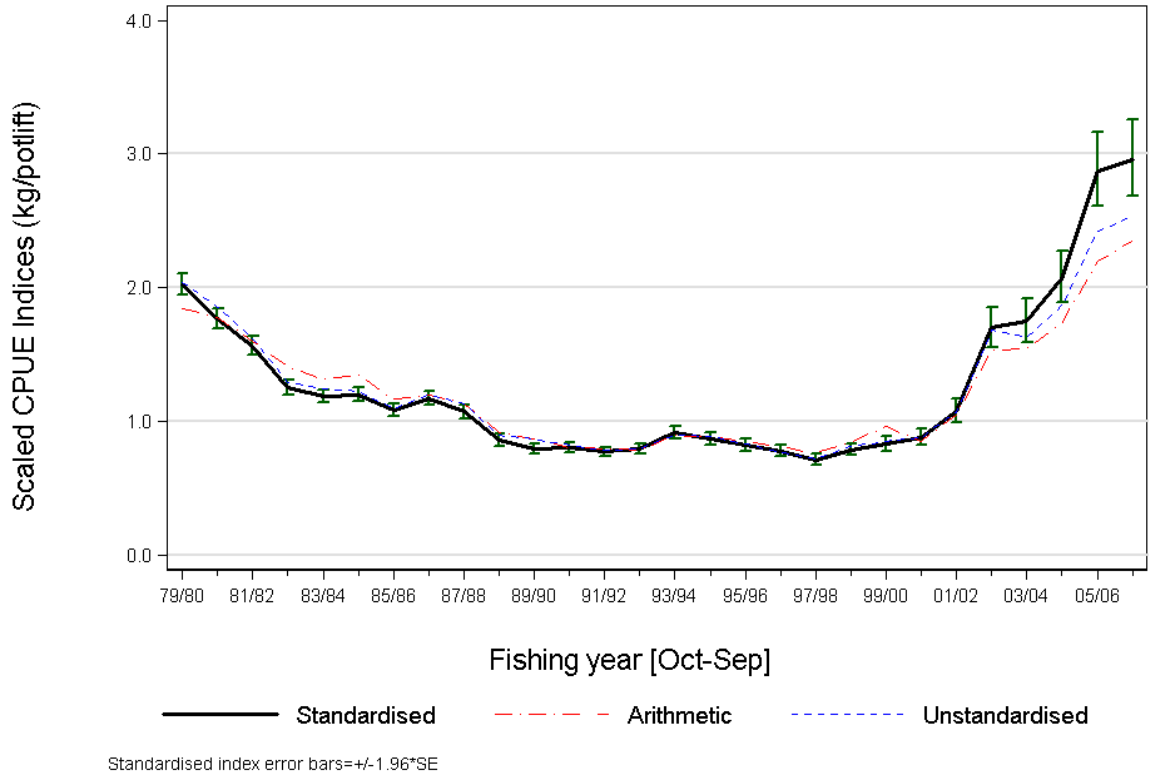

Figure 37: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by 1 October–30 September fishing year for CRA 8 from 1979–80 to 2006–07. Vertical bars are 95% confidence intervals. The geometric mean for each series = 1.16 kg/potlift.

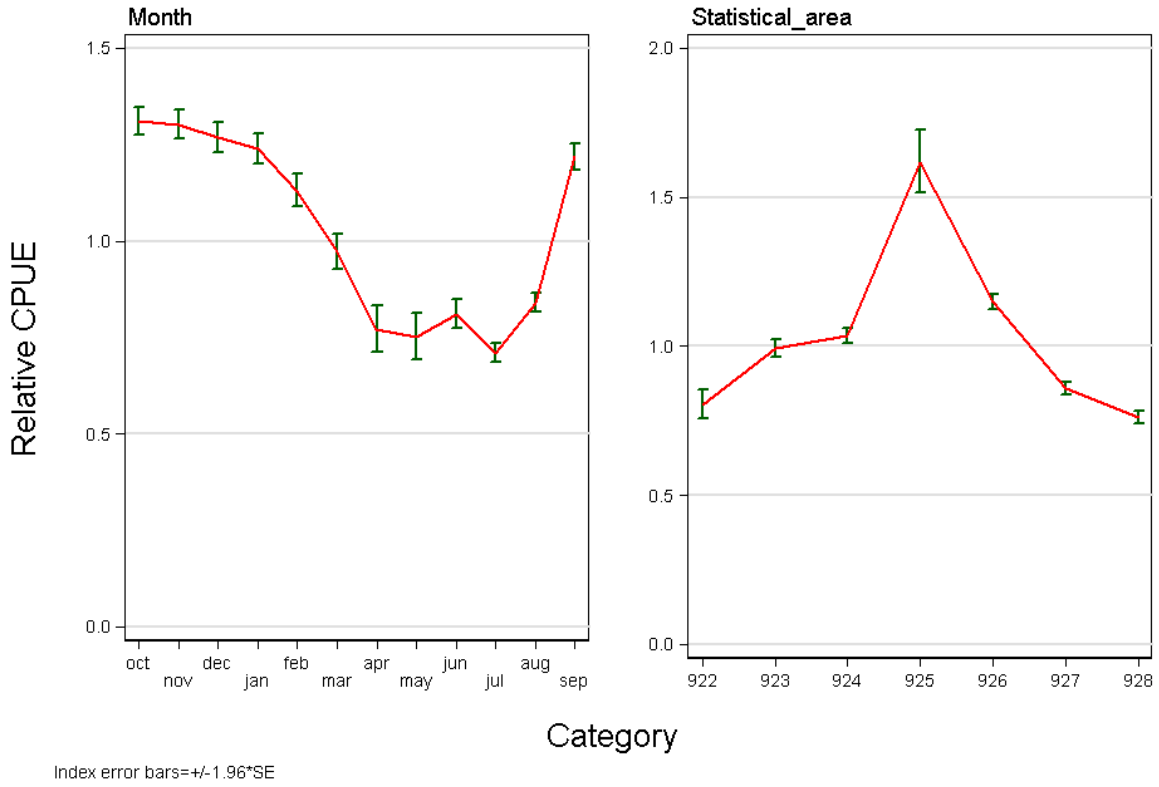

Figure 38: Coefficients for month and statistical area from the CRA 8 CPUE standardisation based on a 1 October–30 September fishing year. Both sets of coefficients are in canonical form (Francis 1999).