

**Rock lobster catch and effort data: summaries and CPUE
standardisations, 1979–80 to 2008–09**

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**New Zealand Fisheries Assessment Report 2010/47
December 2010**

**Published by Ministry of Fisheries
Wellington
2010**

**ISSN 1175-1584 (print)
ISSN 1179-5352 (online)**

©
**Ministry of Fisheries
2010**

Starr, P.J. (2010).
Rock lobster catch and effort data: summaries and CPUE standardisations,
1979–80 to 2008–09.
New Zealand Fisheries Assessment Report 2010/47..

This series continues the informal
New Zealand Fisheries Assessment Research Document series
which ceased at the end of 1999.

EXECUTIVE SUMMARY

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New Zealand Fisheries Assessment Report 2010/47.

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 2008–09 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. The CRA 3 seasonal analysis served as input to an updated CRA 3 assessment which informed the operating model used to evaluate a new management procedure for CRA 3. Annual CPUE standardisations based on a 1 October–30 September fishing year are provided for CRA 3, CRA 5, CRA 7 and CRA 8. These analyses, along with the seasonal analysis for CRA 4, are used as input to management procedure decision rules that form the basis for making TAC changes in these QMAs.

The spatial distribution of catch by statistical area has varied in most rock lobster QMAs over the 30 years of available data. For example, in CRA 3, Area 911 (Mahia) rose to more than 50% of the landed catch in the early 2000s after being less than 30% of the catch in the mid 1990s. In CRA 5, catch taken in Area 916 increased substantially from 2000–01 with a corresponding drop in the proportion of catch taken in Area 917. These changes have since reversed, showing that the relative importance of statistical areas within a QMA is dynamic. There has been less change in the spatial distribution of catch in some other QMAs, notably CRA 2 and CRA 6, where the distribution between statistical areas has remained relatively consistent over time. 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 east coast. 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. This shift has now reversed in CRA 2, CRA 3, and CRA 4 and may be changing in CRA 5. There is evidence in the two most recent fishing years that CRA 7 and CRA 8 are becoming July and August fisheries. A recent development in CRA 8 is the landing of more than 10% of the annual catch in April in most recent three fishing years.

There is consistency in the trends shown by the unstandardised CPUE series among the component statistical areas within most QMAs. 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 tended 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: peaking in the early to mid 1980s, then declining steadily to the early 1990s, then followed by a rapid rise in CPUE. In CRA 2, CRA 3, and CRA 4, CPUEs peaked towards the end of the decade, and these series then declined to low levels by the early 2000s. The CPUE trends for these three QMAs have now either levelled out or are increasing, with CRA 4 changing in 2008–09. CRA 1 and CRA 5 showed increasing trends in CPUE beyond the end of 1990s, although there was a drop in the CRA 5 CPUE from 2004–05 which reversed in 2008–09. CRA 2 reached its lowest CPUE in 1987–88 but the other north and east coast CRA QMAs recorded nadirs 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 then rose to the highest levels in each series, with the increases beginning after the first of two TACC (Total Annual Commercial Catch) reductions were made in 1999–2000. CRA 7, however, has shown a strong decrease associated with the autumn-winter data introduced from the incomplete 2009–10 fishing year.

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/statistical 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). Earlier versions of this report have been published by Starr & Bentley (2005) and Starr (2006, 2007, 2009a, 2009b).

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 catches and catch rates for a Quota Management Area (see Figure 1). 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.

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

- (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 also documents half-year (seasonal) standardisation procedures performed for CRA 3, CRA 4, and CRA 5. These were used to provide advice to stakeholders and the Ministry of Fisheries. The CRA 4 seasonal CPUE estimate is also used as input to a management procedure that sets catch limits for the next 1 April–31 March fishing year for this QMA. This report documents annual CPUE standardisations based on a 1 October–30 September fishing year for CRA 3, CRA 5, CRA 7, and CRA 8, which are used as inputs to management procedures (Breen et al. 2009b) to set the TAC (Total Annual Catch) in the following 1 April–31 March fishing year.

The standardised indices of CPUE are assumed to reflect changes in vulnerable biomass by stock assessments and management procedures. The vulnerable biomass is the total weight of lobsters that can be captured by the fishery and legally retained. The vulnerable biomass will be affected by changes in the management of the fishery (e.g., changes in the size limit or changes to the escape gap regulations) in addition to other factors such as changes in abundance and the spatial and temporal distribution of fishing effort. The standardisation procedure takes into account these latter changes (at the scale of statistical area and month), but cannot adjust for changes in vulnerable biomass caused by management or regulatory changes, such as size limit or escape gap changes. Therefore, the CPUE indices within each series will not be comparable across the entire series if regulations such as these have changed the component of the stock that is vulnerable to commercial fishing during the period of analysis. Adjustments are made explicitly in the stock assessments to account for the effect of regulation changes on the vulnerable biomass.

Changes in the definition of vulnerable biomass due to management actions need 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 1993–94, 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 due to this management initiative. It is not possible to draw conclusions directly about the state of the stock based solely on the CPUE series presented in this report, largely because of changes over time in the definition of vulnerable biomass. The stock assessment model is better able to make these comparisons because it includes additional information such as catch sampling weights and tagging data as well as the information in CPUE about stock abundance trends.

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 2009 were obtained from the Ministry of Fisheries [MFish] Catch Effort Landing Returns (CELR; MFish relog 7454A). These data sources were documented by Bentley et al. (2005) and the data were stored and maintained in the CRACE database (Bentley et al. 2005). A further data extract [MFish relog 7454C], covering the period 1 April 2009 to 30 September 2009, was used to extend several CPUE analyses for an additional one-half year for use in management procedures. Management procedure evaluations (Breen et al. 2008, Breen et al. 2009a, 2009b) 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. Total annual landings, total annual commercial catch (TACC) limits, and total annual catch (TAC) limits were obtained from Ministry of Fisheries Quota Management Reports [QMR] from 1 April 1990 to 31 March 2001 and from Monthly Harvest Returns [MHR] after 1 April 2001.

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 are excluded from a vessel in a month where the landed catch is zero but the effort is not zero, and the data from the following month from 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 is determined 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 any of the statistical areas that make up the QMA within a fishing year.

For some Quota Management Areas, there is uncertainty in the estimated number of vessels for 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 appears to be 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 year y is calculated as the total catch for the year divided by the total number of pot lifts in the year:

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

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:

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

where, n_y is the number of vessel-month-area combinations in year y . It has the same distributional assumptions as the standardised CPUE (lognormal), 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 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).

For comparability, the unstandardised and standardised coefficients (the geometric mean of these series equals 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.

Annual CPUE standardisations based on an alternative definition of fishing year (1 October to 30 September) have been prepared for CRA 3, CRA 5, 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 2008.

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

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

where ε is an error term

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 annual model, the *month* categorical variable is estimated for 11 months with the remaining month set to 1 because of parameter 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 generally have the lowest standard error. 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 in 2006 to the seasonal standardisation procedure by scaling the geometric mean of each seasonal standardised CPUE series (autumn/winter and spring/summer) to equal 1.0 and then scaling to the geometric mean of the arithmetic series (Eq. 1) 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 2009–10) was based on an analysis of data from an incomplete year (1 April 2009 to 30 September 2010; see Section 2.1).

3. RESULTS

3.1 Landed catch and TACC

Total landed New Zealand commercial rock lobster catch in 2008–09 rose to above 2600 t, a level similar to that observed in 2006–07 and the highest level since 2000–01 (Table 1). This increase is entirely due to an increase in CRA 8 landings in response to a TACC increase resulting from the operation of the CRA 8 management procedure. This increase also offset a further decrease in CRA 4 landings in response to the operation of its management procedure. All CRA QMAs, apart from CRA 4, reported landings that were close to or at the specified TACCs (Table 1).

There is a correspondence in all rock lobster QMAs between the catch reported to the QMR/MHR system and the sum of the landings from the bottom section of the CELR form (Table 2). However, all QMAs recorded a shortfall in 2008–09 when the totals landed to the Licensed Fish Receivers (LFRs) were compared to the official QMR/MHR landing totals. These shortfalls were in part due to the grooming procedure used to prepare the data for analysis as well as the exclusion of some landings through the operation of method B4 (see Section 2.3) (Bentley et al. 2005). The B4 procedure was implemented because some QMAs (such as CRA 6 and CRA 8) hold fish after capture in specially designed pots before landing them. These landings, when they can be identified, should be excluded

from these analyses because of the potential for bias in CPUE, resulting from the breaking of the link between catch and the corresponding effort. There appears to be some year-to-year variation in the ratio of LFR landings to reported QMR/MHR catches: for instance, CRA 8 showed higher ratios in 2005–06 to 2008–09 than those observed in 2004–05 and earlier. CRA 3 reversed a low value observed for this ratio in 2004–05. CRA 5 showed a drop in this ratio in 2007–08 and 2008–09 compared to the preceding 4 years, with the final two ratios similar to those observed in the late 1990s and the early 2000s. All CRA QMAs have ratios of LFR landings relative to MHR reports in 2008–09 near 0.9, with the exception of CRA 6 and CRA 9, which are near 0.85 (Table 2).

The numbers of vessels by QMA generally show a steady downward trend beginning from the early 1990s (Table 3). Vessel numbers tended to be higher in the 1980s in all QMAs and there is one year (1989–90) where there is evidence of inaccurate recording of vessels in some QMAs in the change-over from the previous FSU catch recording system to the current (CELR) system (see Section 2.4). The total number of vessels declined by 48% since the early 1990s which was when rock lobster entered the Quota Management System (QMS) (comparing the 1990–91 to 1992–93 average number of vessels to the 2006–07 to 2008–09 vessel average, see Table 3).

3.2 CRA 1

Only 13 vessels reported catch from CRA 1 in 2006–07 to 2008–09, extending a declining trend in this statistic to about one-third of the vessels reporting in the 1979–80 fishing year (Table 4). 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 5). This pattern changed in 2003–04 when over 45% of the catch was taken in Area 902, but the predominance of Area 901 returned over the next few years, with over 40% of the catch taken from Area 901 since 2005–06 (Table 5). The remaining four statistical areas each account for less than 20% of the remaining catch, depending on the fishing year.

Trends in cumulative monthly catch by fishing year showed relatively stable catch distributions in the early 1980s, with most catch taken in the late winter and spring months (Table 6, Figure 2). There was a shift towards a winter–spring fishery in the mid 1990s, with July–October accounting for 67–83% of the total annual catches since 1995–96, up from 25–45% before that fishing year. The July–October percentage of catch was 71% in 2008–09 (Table 7). Catches extended to January 2009 in Areas 901, 903, and 904.

Arithmetic CPUE trajectories from 1979–80 to 2001–02 showed variable trends between areas, although Area 901 showed a consistent increasing trend since the mid 1990s (Table 8, Figure 3). Area 902 had quite high CPUE values in the early 2000s, but these have since dropped, although the CPUEs from this statistical area are currently exceeded only by Area 901 (Table 8). CPUE from all areas combined showed a shallow peak in 1982–83 followed by a long steady decline to 1992–93 (Table 9, Figure 4). Catch rates then increased rapidly to above 1 kg/potlift in 1995–96 and remained at this level up to 2003–04 when catch rates again increased. The standardised index was near 1.8 kg/potlift in 2008–09 (Table 9). This increase in CPUE appears to be primarily driven by Area 901, which is the only statistical area showing a consistently increasing trend amongst the five statistical areas in this QMA (see Table 8). The two unstandardised series (Eq. 1 and Eq. 2) show a drop in CPUE from 2007–08 to 2008–09, while the standardised index increases slightly (Figure 4).

3.3 CRA 2

Thirty-one vessels reported catch from CRA 2 in 2008–09, a value similar to that seen in 2007–08 but which is a drop of 4–5 vessels compared to those reporting in 2005–06 and 2006–07 and which is less than half the number reporting in 1979–80 (Table 10). 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 35–45% of the annual catch since 1990–91 (Table 11). The percentage of catch coming from the eastern Bay of Plenty (combined Areas 907 and 908) has also remained relatively constant between 40 and 50% since the mid 1990s, but the relative contribution between these two statistical areas has varied between years.

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 12, 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 being taken from November onwards in the most recent seven fishing years, while in the latter half of the 1990s less than 10% of the catch was taken after October (Table 12). In 2008–09, over 90% of the catch was taken between July and February, spread between the four statistical areas with Area 906 predominating (Table 13).

Arithmetic CPUE trajectories showed increasing trends in all areas from the early 1990s, with Area 907 showing a much stronger increase than the other statistical areas (Table 14, Figure 6). The overall trend in arithmetic 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, reached in 2002–03 (Table 15, Figure 7). The arithmetic and standardised CPUE trends were 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 resulted in reduced arithmetic and unstandardised CPUEs. The standardised indices reached a minor peak in 2006–07 and appeared to have since declined slightly. CPUE has not returned to the high levels observed between 1995–96 and 2000–01 (Table 15, Figure 7).

3.4 CRA 3

As with all other rock lobster QMAs, there has been a decrease since the 1979–80 fishing year in the number of vessels that reported catch from CRA 3 (Table 16). This number declined from about 80 in the early 1980s to about 30 in the late 1990s. Vessel numbers increased to 38–39 in 2002–03 and 2004–04 but dropped to fewer than 30 by 2005–06 (Table 16). Relatively high numbers of vessels (near 50 or more) continued to report catch in this QMA until the 1993–94 fishing year, the year after the TACC was cut by 50% and the main 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 17). 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 since then, with another drop to 34% in 2008–09 (Table 17).

This fishery was primarily a summer fishery until regulations were changed for the 1993–94 fishing year to encourage the development of a winter fishery targeted at males. Regulation changes included lowering the minimum size limit for males in the winter months of June to August from 54 to 52 mm tail width, prohibiting the take of females in the same period, and closing the fishery from the beginning of September to the end of November (Sullivan 2004). The cumulative monthly catch proportions by fishing year showed the shift to a winter fishery, with over 60% of the catch taken by the end of August in 1993–94 rising to nearly 90% in 1995–96 and remaining above 80% in 1999–

2000 (Table 18, Figure 8). This shift then reversed, with the winter catch (June–August) dropping to 58% in 2000–01 and has since fluctuated around 50%, with 54% taken in these months in 2008–09 (Table 18). There have been significant catches in November and December since 2002–03, when these months were reopened to commercial fishing. June, July, and August have remained important months for catch, especially in Area 910, with 30% of the total 2008–09 catch coming from that statistical area in those three months (Table 19). The effect of a voluntary commercial closure in Areas 909 and 910 from the beginning of September to mid January can be seen in Table 19, with virtually no catch reported from these two statistical areas in September to December (about 0.5% of the total 2008–09 landings came from these three months for these two statistical areas).

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 20, Figure 9). CPUE in all statistical areas peaked in 1997–98 and has since declined. Area 909 dropped less (to about 0.8 kg/potlift in the early 2000s and rising to 1.0 kg/potlift in 2006–07 to 2008–09) while Areas 910 and 911 dropped to about 0.5–0.6 kg/potlift, except for 2004–05 when Area 911 dropped to about 0.4 kg/potlift. Area 910 dropped to less than 0.5 kg/potlift in 2006–07, but Areas 910 and 911 recorded increased unstandardised CPUE in 2008–09 relative to the previous fishing year (see Table 19). The overall trend in CPUE for the entire QMA showed a steady increase from the early 1990s to a peak in 1997–98, followed by a decline to a level somewhat higher than was observed in the early 1990s (Table 21, Figure 10). The arithmetic, unstandardised, and standardised CPUE trends were all very similar, except that the standardised analysis estimated a relatively higher peak for 1997–98 (Table 21, Figure 10). This was probably caused by the shift in effort towards winter months causing a reduction in average CPUE in the arithmetic series. All three sets of indices (arithmetic, unstandardised, and standardised) increased from about 0.6 in 2007–08 to about 0.7 kg/potlift in 2008–09 (Table 21, Figure 10).

3.5 CRA 4

Although there has been a decrease in the number of vessels that reported catch from CRA 4 since the 1979–80 fishing year, the relative decline was less than that observed in CRA 1, CRA 2, and CRA 3 (Table 22; see Table 3). There was a jump in the number of vessels in 2006–07, going from 54 to 66 in a single year, reversing a drop of 8 vessels in the previous year. Vessel numbers returned to a declining trend in 2007–08, dropping to 53 and then to 42 in 2008–09. The single count of 131 vessels in 1989 is probably an artefact of the changeover from the FSU to CELR systems where vessels may have been double-counted because vessel codes were not properly transferred between the systems (see Section 2.4).

The relative importance of the five rock lobster statistical areas that make up this QMA has remained relatively consistent, with Area 914 (South Wairarapa) being the most important in terms of total catch (Table 23). However, there has been a decreasing trend in the proportion of catch reported from this area since the peak (55%) observed in 2005–06, with corresponding increases in Area 913 (North Wairarapa) and Area 915 (Palliser).

Before 1993–94, most fishing took place in the spring and summer months, with only about 25–30% of the catch taken from April to August (Table 24, Figure 11). From 1994–95, the period from April to August accounted for over 50% of the total catch and these five months continued to account for over 50% of the catch up to 2002–03, peaking at 86% in 1997–98 (Table 24, Figure 11). This trend has since reversed, dropping to 42% of the catch taken by the end of August in 2004–05 and 35% in 2005–06, followed by a drop to below 20% for these same five months from 2006–07 to 2008–09. Concurrently, the proportion of catch taken from November to March has increased from 40% in 2004–05, to 50% in 2005–06 and to near to or above 60% from 2006–07 to 2008–09. Only 28% of the total catch in 2008–09 was taken between April and September in Areas 912, 913, 914, and 915 (Table 25).

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 from 1992–93 (Table 26, 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 near 1.0 kg/potlift while Areas 912 and 913 increased to much higher levels (Table 26, Figure 12). CPUE in the four main statistical areas declined to about the same mean catch per potlift by 2001–02, with all being near 1.0 kg/potlift (Table 26). CPUEs in these statistical areas dropped to below 1.0 kg/potlift in 2005–06 and have remained below that level since then. Area 914 has shown the greatest drop, going below 0.5 kg/potlift in 2007–08 but returning to 0.6 kg/potlift in the most recent fishing year. The patterns 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 was 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 was one year later than in CRA 3 (Table 27, Figure 13). The relative decline since the peak fishing year (1997–98 for CRA 3 and 1998–99 for CRA 4) was slightly less for CRA 4 than for CRA 3, with CRA 3 registering a drop of 74–82% compared to the peak year over the six years from 2003–04 to 2008–09 while the equivalent reduction for CRA 4 is 21 to 62% in these same six successive fishing years (compare Table 21 with Table 27). The 2008–09 decline from the peak year is 74% in CRA 3 compared to 55% in CRA 4. However, CRA 4 was much closer to the minimum CPUE recorded for the series, with the 2007–08 CPUE 24% greater and the 2008–09 CPUE 47% greater than the minimum. The equivalent values for CRA 3 was over 140% for both years. The arithmetic, unstandardised, and standardised CPUE trends for CRA 4 were all very similar, except that the standardised analysis estimated a higher peak for 1998–99 (Table 27, 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 because these months have lower absolute CPUE values. The standardised CPUE index for CRA 4 was 0.71 kg/potlift in 2008–09, up from 0.60 kg/potlift in 2007–08 and reversing a declining trend that began in 2004–05 (Figure 13).

3.6 CRA 5

The number of vessels fishing in CRA 5 declined substantially since the 1979–80 fishing year, with fewer than 40 vessels reporting in this QMA since 2000–01 compared to the 80 to 90 vessels which fished there during the 1980s (Table 28). The number of vessels fishing in this QMA continued to decline since 2000–01, with the number of reporting vessels dropping below 30 from 2006–07. Six rock lobster statistical areas make up this QMA, but most of the catch was reported from Area 916 (Cape Campbell) and Area 917 (Kaikoura-Motunau) and a lesser amount from Area 933 (Marlborough Sounds; Table 29). The relative catch proportions between these areas has changed somewhat, with Area 916 rising in importance in the early 2000s, peaking at 44% of the total annual catch in 2005–06. Since then, this statistical area has declined in relative importance to about 30% of the total annual catch in 2008–09 (Table 29). There has been a corresponding increase in the importance of Area 917, which neared 50% of the total catch for 2008–09 (Table 29). The other three statistical areas accounted for about 20% of the annual catch, with most of that occurring in Area 933.

This fishery remained predominantly a summer fishery for longer than any of the North Island QMAs and did not shift to a winter fishery until 1996–97, when the proportion of the annual catch taken in April to September exceeded 50% (Table 30, Figure 14). Also, unlike the more northerly QMAs, the relative proportion of the catch taken in the winter months continued to stay high, exceeding 80% in the April to September period up to 2003–04. This trend has reversed somewhat, with the winter six month period accounting for 61 to 69% of the annual catch (this value is 68% for 2008–09). About 52% of the catch was taken between April and July in Areas 916 and 917 in 2008–09, with the peak catch month being May in both Areas 916 and 917 (Table 31). 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 (see Table 30).

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, with the most pronounced being in Area 916 (Table 32, Figure 15). CPUE in Area 916 increased to much higher levels and more quickly than in other statistical areas, peaking in 2000–01. The arithmetic catch rate for Area 916 dropped to below 2 kg/potlift in 2005–06 and was near 1.7 kg/potlift in both 2006–07 and 2007–08 before increasing to 2.0 kg/potlift in 2008–09. The overall trend in CPUE for this QMA showed a continuous increase that peaked in 2003–04, then dropped in three successive fishing years and finally stabilised between 2006–07 and 2007–08 before rising again in 2008–09 (Table 33, Figure 16). The unstandardised and standardised CPUE trends were nearly identical, while the arithmetic CPUE trend lagged behind the two lognormal series (Table 33, Figure 16). This difference reflected the different methods 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. In 1999–2000 the number of participating vessels dropped to 34 and has since fluctuated around 35 (Table 34). The relative decline in the number of participating vessels in this QMA has been much less than in the other CRA QMAs.

Four rock lobster statistical areas make up the Chatham Islands QMA, with Area 942 (Southeast Chatham Islands) generally having about 40–50% of the total landings for the QMA since 1990–91 (Table 35). 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 and some to Area 943. The percentage of catch in Area 941 has remained near 20% (Table 35). The two northern statistical areas (940 and 941) accounted for 40–50% of the annual catch in recent years.

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 36, Figure 17). In 2008–09, 71% of the catch was taken between October and February, with 33% of the annual catch coming from Area 942 during those same months (Table 37).

Arithmetic CPUE trajectories showed a decline in mean annual catch rates in the early to mid 1980s for all areas, except for possibly Area 941 which never had the high catch rates seen in the other three statistical areas (Table 38, Figure 18). Area 942 consistently had the highest mean catch rate since the mid 1980s, which accounts for why this statistical area has the highest overall catch (Table 38). Mean catch rates in all four statistical areas, although variable, stabilised during the mid to late 1990s and now appear to be increasing in all statistical areas, with variability between years in some areas. 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 39, Figure 19). CPUE then increased to nearly 1.6 kg/potlift in 2006–07 and has remained at this level since then. The standardised and unstandardised indices were slightly higher than the arithmetic index in recent years, with all three series showing 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 dropped more precipitously in this QMA than in the other eight rock lobster QMAs, with 70–90 vessels participating in the early 1980s compared to a low of 7 in 1997–98 (Table 40). The number of vessels then increased to 25 by 2000–01, dropped to 14 in 2004–05 to 2006–07, increased to 20 in 2007–08 before dropping to 15 in 2008–09. 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 more equal distribution of catch between the two areas from 2004–05 to 2006–07, followed by shifting back to predominantly Area 920 in 2007–08 and 2008–09 (Table 41).

The seasonal distribution for this fishery has tended to be relatively consistent over most of the period reported 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 (Sullivan 2004), Table 42, Figure 20). However, Figure 20 shows that catches accumulated very quickly in 2004–05 and even more quickly in both 2005–06 and 2006–07, with 55% 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. This trend has changed again, with only 30% of the annual catch accumulated in 2007–08 and 13% in 2008–09 by the end of July. Sixty-eight percent of the catch was taken from August to October 2008 in combined Areas 920 and 921, a trend which is said to reflect current market conditions (Malcolm Lawson, CRA 8 CRAMAC, pers. comm.) (Table 43).

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 44, Figure 21). Area 921 consistently had 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 was variable and has reversed, particularly in Area 921 (Figure 21). The overall trend in CPUE for this QMA also reflected this downward trend, but there were notable increases in mean CPUE in 1986–87, 1991–92, and 1993–94 (Table 45, Figure 22). Mean CPUE has risen consistently since 1997–98, the nadir of the series. The index for 2007–08 (1.6 kg/potlift) represents a drop from the 2006–07 value of 1.75 kg/potlift, but the 2008–09 value is 2.0 kg/potlift, the highest in the series (Figure 22). The two unstandardised CPUE series and the standardised series show similar trends, with the arithmetic series lying below the standardised and unstandardised series (Table 45, Figure 22).

3.9 CRA 8

Historically, CRA 8 has had the greatest number of vessels of any rock lobster QMA (Table 46). Over 250 vessels reported at least 1 t of lobster in the early 1980s, but this total gradually dropped to its present value of around 60, with an almost continuous decline in the number of vessels operating in the fishery from at least 1993–94 (Table 46). This decline is proportionately almost as great as the decline in vessels observed for CRA 7 (see Table 3). Seven rock lobster statistical areas make up this QMA, with about 80% of the catch reported from Areas 926 to 928 since the mid 1990s (which comprise Fiordland; Table 47). 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 and then to 36% in 2007–08 and 29% in 2008–09, with a transfer in catch from Area 926 to Area 927 in 2006–07 and to Area 928 in 2007–08 and 2008–09. Area 924 (Stewart Island) has also been an important fishery which contributed between 12 and 23% of the annual landings, with recent levels near 12–16% (Table 47).

The seasonal distribution of catch for this fishery has been relatively consistent over the entire period (except for the most recent 3 years), with about 60–80% of catch taken from August to November (Table 48, 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 48). The seasonal distribution of catch started to shift after 2003–04, with a trend towards an earlier fishery (similar to that 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, 45% in 2007–08, and 49% in 2008–09, compared to a more usual cumulative total of less than 10% of the annual catch before 2003–04 for the same period (Figure 23). Over 80% of the annual catch was taken by the end of September in the six years since 2003–04, including 90% in 2006–07, 83% in 2007–08, and 91% in 2008–09, 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 2005, increasing to over 11% in April 2006, 13% in April 2007, and 15% in April 2008. 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%). It is likely that some of these recent April landings included lobsters captured in the previous fishing year which were held over in holding pots. Forty-four percent of the total annual catch was taken in Areas 926 to 928 in July, August, and September 2008 (Table 49).

Arithmetic CPUE trajectories by statistical area showed a gradual decline in mean annual catch rates during the 1980s and early 1990s (Table 50, Figure 24). Catch rates by statistical area were relatively stable up to the early 2000s, with Areas 924 and 926 having the highest mean catch rates amongst the statistical areas with high total catch (Table 50). Catch rates then improved at a great rate, with rising trends in all statistical areas up to the current fishing year (2008–09, Table 50). 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 successive rises from 2005–06 to 2008–09, all characterised by relatively large standard errors (Table 51, Figure 25). The lowest mean annual CPUE values in this time series were recorded in 1992–93 and 1997–98 (Table 51). The arithmetic, unstandardised, and standardised CPUE trends were all very similar, with the standardised index rising the most steeply of the three (Table 51, Figure 25).

3.10 CRA 9

The number of vessels reporting lobster catch in CRA 9 more than halved from above 20 in the early 1980s to fewer than 10 after 2002–03 and only 6 in 2008–09 (Table 52). Some of the statistical areas or months in this QMA did not have any vessels reporting catch or many of the statistical area or monthly cells fail the MFish-imposed criterion of requiring at least three vessels reporting before summary data can be presented, resulting in summary tables which are missing a considerable amount of information. 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 53). The relative contributions of these areas to the total CRA 9 catch have fluctuated widely, but Area 935 consistently 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 53).

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 past 50% in 1995–96 (Table 54, Figure 26). This shift has been particularly strong from 2004–05, with over 80% of the annual catch taken by the end of September in that year, increasing to over 90% from 2005–06 to 2007–08 (Table 54). This trend may be shifting, because the total percentage taken from April to September dropped to 79% in 2008–09 catch, indicating a shift to later months (62% was taken in Areas 931 and 935 from August to October 2008; Table 55). Note that most of the cells in Table 55 fail the MFish criterion of 3 vessels reporting.

The arithmetic CPUE trajectories by statistical area from 1979–80 to 2008–09 are difficult to interpret because many of the year/statistical area combinations cannot be reported because of confidentiality restrictions (Table 56, Figure 27). However, Areas 931 and 935 have shown the highest mean annual catch rates in most years (Table 56). 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, and then by a decline to 2008–09 (Table 57, Figure 28). The unstandardised and standardised CPUE trends are similar throughout the series, as is the arithmetic series except for 2008–09, where that series does not drop as much as the geometric series (Table 57, Figure 28).

3.11 Comparison of standardised CPUE trends across the nine CRA QMAs

A comparison plot of the standardised CPUE series for the nine CRA QMAs (see Figure 1) showed that CRA 2, CRA 6, and CRA 9 showed drops in CPUE in 2008–09, although the declines in CRA 2 and CRA 6 are relatively minor (Figure 29). All other CRA QMAs showed increases in 2008–09, including CRA 3 and CRA 4. Both of these QMAs, as well as CRA 5, show increases in 2008–09 which reverse previously declining trends. Finally, CRA 1, CRA 7, and CRA 8 all show strong increasing trends in standardised CPUE since the early 2000s. The lowest values of CPUE in 2008–09 were observed in CRA 2, CRA 3, and CRA 4, all of which have mean CPUE values between 0.5–0.7 kg/potlift. The highest CPUE values in 2008–09 were found in CRA 5, CRA 6, CRA 1, CRA 7,

and CRA 8, all of which exceeded 1.5 kg/potlift, with a maximum mean catch rate of 4.0 kg/potlift in CRA 8.

3.12 CRA 3: standardised CPUE indices by period

Standardised indices by season (autumn-winter [AW]: April–September; spring-summer [SS]: October–March) have been calculated for CRA 3 (Table 58; Figure 30), beginning with the 1979–80 autumn-winter season and ending with the 2009–10 autumn-winter season. This series was used as input to an updated CRA 3 assessment (omitting the final 2009–10 data point which wasn't available at the time of the assessment), which in turn informed the operating model that was the basis for evaluating a new management procedure for this QMA (Breen et al. 2009a). The trends for the AW and SS standardised series and the annual CPUE series (see Figure 10) are similar. 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 was then followed by a decline to a nadir in 2004–05. Since that year, all three series showed a gradually increasing trend to the most recent (2008–09) fishing year.

The total deviance explained by the standardisation analysis was high (47%, Table 59), with most of the explanatory power lying with the variable *period*. The residual patterns showed some deviation from the lognormal assumption at the extreme tails of the residual distribution, but were acceptable over most of the distribution. There was some contrast in the *month* variable, with higher monthly coefficients in June (autumn-winter season) and November (spring-summer season), and with a drop in the relative coefficients at the end of each season (Figure 31). Catch rates are lowest in Area 910, which is near Gisborne and which accounts for most of the catch in the QMA (see Table 19), but the contrast in the relative coefficients between the three statistical areas is low (Figure 31).

3.13 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 60, Figure 32), beginning from the 1979–80 autumn-winter season and ending with the 2009–10 autumn-winter season. This series was used to provide advice to the Minister of Fisheries and to the CRA 4 stakeholders on recent CPUE trends and for the operation of a management procedure (Breen & Kim 2006, Breen et al. 2009b) used to set the 2010–11 Total Allowable Catch. The trends for the AW and SS standardised series were similar to each other and the AW series was very similar to the annual CPUE series reported in Figure 13. As in CRA 3, these series showed 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 followed by another decline to 2007–08. The declining trend may now have been reversed in response to severe cutbacks in commercial catches in recent years (see Table 1).

The total deviance explained by the standardisation analysis was good (28%, Table 61), with most of the explanatory power lying with the variable *period*. The residual patterns showed some deviation from the lognormal assumption at the extreme tails of the residual distribution, but were acceptable throughout most of the distribution. There was contrast in the *month* variable, with higher relative monthly coefficients in May-June (autumn-winter season) and November-December (spring-summer season), and with the relative coefficients dropping to below 1.0 at the end of each season (Figure 33). Relative catch rates were 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 were greater than 1.0 while the coefficients for Areas 915 and 934 were below 1.0; Figure 33).

3.14 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 62, Figure 34), beginning from the 1979–80 autumn-winter season and ending with the 2009–10 autumn-winter season. This series was used to provide advice to CRA 5 stakeholders and to the NRLMG on recent CPUE trends. The trends for the AW and SS standardised series differed somewhat, with the AW series showing a relatively smaller increase to a peak in 2003–04 than did the SS series, followed by a slightly greater proportional drop by the SS series to a nadir in 2007–08 (the AW series reached its nadir a year earlier in 2006–07) (Figure 34). Both the AW and SS series show an upturn in the most recent one to three fishing years, depending on which seasonal series is being examined. The annual CPUE series (see Figure 16) more closely resembled the SS series, showing the same nadir in both 2006–07 and 2007–08 and a recovery in 2008–09 (see Table 33).

The total deviance explained by the model was good (34%, Table 63), with most of the explanatory power lying with the *period* variable. The residual patterns showed deviation from the lognormal assumption at the extreme tails of the residual distribution, but were acceptable throughout most of the distribution. There was contrast in the *month* variable, with high relative coefficients over most of the autumn-winter season (May was highest in the autumn-winter months) and with high relative coefficients in December and January (spring-summer season). The relative coefficients dropped to less than 1.0 at the end of each season, as with the other seasonal standardised analyses (Figure 35). Relative catch rates were above 1.0 for Areas 916 and 918 while the remainder were near to or below 1.0 (Figure 35). However, the contrast among all five statistical areas was low.

3.15 CRA 3 standardised CPUE: 1 October–30 September fishing year

Annual standardised indices for CRA 3 have been calculated based on an alternative definition for a fishing year, spanning the 1 October to 30 September year rather than the 1 April–31 March fishing year specified under the QMS for rock lobster (Table 64, Figure 36). More recent data were available for this series (up to 30 September 2009: see Section 2.1) than for the analysis presented in Table 21 and this series formed the input for the management procedure decision rule that was developed in 2009 for CRA 3 (Breen et al. 2009a). This series closely resembled the 1 April–31 March series presented in Figure 10, but there was a suggestion that the upturn observed in 2008–09 was slightly stronger with the 1 October–30 September series (compare Table 21 with Table 64).

The total deviance explained by the standardisation analysis was very good (45%, Table 65), with most of the explanatory power lying with the *fishing year* variable and some in the *month* variable. The standardised residuals showed some deviation from the lognormal assumption at the extreme tails of the residual distribution, but were acceptable for about 95% of the distribution. There was strong contrast in the *month* variable, with quite high relative coefficients for October to January and June and low coefficients for March to May and August and September (Figure 37). As with the analysis presented in Section 3.4, Area 910 had the lowest relative catch rate, but there was very little contrast between the three statistical areas that make up this QMA (Figure 37).

3.16 CRA 5 standardised CPUE: 1 October–30 September fishing year

Annual standardised indices for CRA 5 have been calculated based on an alternative definition for a fishing year, spanning the 1 October to 30 September year rather than the 1 April–31 March fishing year specified under the QMS for rock lobster (Table 66, Figure 38). More recent data were available for this series (up to 30 September 2009: see Section 2.1) than for the analysis presented in Table 33 and this series formed the input for the management procedure decision rule that was developed for CRA 5 in 2008 (Breen et al. 2009b). This series closely resembled the 1 April–31 March series presented in Figure 16, but the upturn observed for the 2008–09 index was much stronger with the 1 October–30 September series (compare Table 33 with Table 66).

The total deviance explained by the standardisation analysis was good (34%, Table 67), with most of the explanatory power lying with the *fishing year* variable and lesser amounts with the *month* and *statistical area* variables. The standardised residuals showed some deviation from the lognormal assumption at the extreme tails of the residual distribution, but were acceptable for at least 95% of the distribution. There was contrast in the *month* variable, with high relative coefficients estimated from November to February (Figure 39). None of the winter months had coefficients greater than 1.0, with the exception of May which was slightly above 1.0. As with the analysis presented in Section 3.6, Areas 916 and 918 had higher catch rates than the other statistical areas in this QMA, with the remainder all having coefficients less than 1.0 (Figure 39).

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

Annual standardised indices for CRA 7 have been calculated based on an alternative definition for a fishing year, spanning the 1 October to 30 September year rather than the 1 April–31 March fishing year specified under the QMS for rock lobster (Table 68, Figure 40). More recent data were available for this series (up to 30 September 2009: see Section 2.1) than for the analysis presented in Table 45 and this series formed the input for the management procedure decision rule that was developed for CRA 7 (Breen et al. 2008, 2009b). This series showed a very strong drop in the final year (1 October 2008 to 30 September 2009) compared to the strongly increasing trend without a drop that was estimated when the April–September 2009 data were omitted (see Figure 22 for the 1 April–31 March series and Figure 40 for the 1 October–30 September series). Therefore, this change in direction for the series was entirely due to these additional data but this result cannot be corroborated until the data for 1 October 2009 to 31 March 2010 become available.

The total deviance explained by the standardisation analysis was good (29%, Table 69), with most of the explanatory power lying with the *fishing year* variable. The standardised residuals showed deviation from the lognormal assumption at the extreme tails of the residual distribution, but were acceptable for at least 95% of the distribution. There was almost no contrast in the *month* variable, except for the March and April relative coefficients, which were well below 1.0. Fishermen cannot land lobster using the concession Minimum Legal Size from December, resulting in little fishing in these months and low relative catch rates (Figure 41). As with the analysis presented in Section 3.8, Area 921 had a much higher catch rate than Area 920 (Figure 41).

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

Annual standardised indices for CRA 8 have been calculated based on an alternative definition for a fishing year, spanning the 1 October to 30 September year rather than the 1 April–31 March fishing year specified under the QMS for rock lobster (Table 70, Figure 42). More recent data were available for this series (up to 30 September 2009: see Section 2.1) than for the analysis presented in Table 51 and this series formed the input for the management procedure decision rule that was developed for CRA 8 (Breen et al. 2008, Breen et al. 2009b). This series resembled the 1 April–31 March series presented in Figure 25, except that the increasing trend seen over the past five years was more rapid with the 1 October–30 September series than with the 1 April–31 March series, but the two series gave very similar indices for 2008–09 (compare Table 51 with Table 70).

The total deviance explained by the standardisation analysis was not as high as in the other offset year models (23%, Table 71), again with most of the explanatory power lying with the *fishing year* variable. As with the other offset year models, the standardised residuals showed some deviation from the lognormal assumption at both tails of the residual distribution, but were acceptable in the central 90–95% of the distribution. The peak catching months extended from September to February, with considerably lower relative catch rates in the winter months (Figure 43). Area 925 (Snares) had the highest relative catch rate, although very little catch has been taken from this statistical area (see Table 47). The relative catch rates for the other four important statistical areas (Area 924: Stewart Island; Areas 926 to 928: Fiordland) showed some contrast, with Areas 924 and 926 being above 1.0 while Areas 927 and 928 were less than 1.0 (Figure 43).

4. ACKNOWLEDGMENTS

This work was done for Objective 3 of Ministry of Fisheries Research Project CRA2006–01C contracted to the New Zealand Rock Lobster Industry Council Limited. Earlier work by Nokome Bentley in developing the CRACE database and for putting together the form of this document is gratefully acknowledged.

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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. N/A: current (incomplete) fishing year (Sources: QMR [1990–91 to 2000–01]; MHR [2001–02 to 2008–09])

| Fishing Year | Catch | TACC | CRA 1 | | | CRA 2 | | | CRA 3 | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | | 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 | 129.6 | 131.1 | – | 229.7 | 236.1 | 452.6 | 172.4 | 190.0 | 319.0 | |
| 2008–09 | 131.0 | 131.1 | – | 232.1 | 236.1 | 452.6 | 188.8 | 190.0 | 319.0 | |
| 2009–10 | N/A | 131.1 | – | N/A | 236.1 | 452.6 | N/A | 164.0 | 293.0 | |

| Fishing Year | Catch | TACC | CRA 4 | | | CRA 5 | | | CRA 6 | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | | | 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 | 315.2 | 577.0 | 771.0 | 349.8 | 350.0 | 467.0 | 356.0 | 360.0 | 370.0 | |
| 2008–09 | 249.3 | 577.0 | 771.0 | 349.7 | 350.0 | 467.0 | 355.0 | 360.0 | 370.0 | |
| 2009–10 | N/A | 266.0 | 461.0 | N/A | 350.0 | 467.0 | N/A | 360.0 | 370.0 | |

Table 1 (cont.): Reported commercial catch (t), TACC and TAC for CRA 7, CRA 8, CRA 9 and for all New Zealand. –, TAC not set for QMA.

| Fishing Year | Catch | TACC | CRA 7 | | | CRA 8 | | | CRA 9 | |
|--------------|--------------------|-------------------|------------------|-------|--------|--------|-------|------|-------|--|
| | | | TAC | Catch | TACC | TAC | Catch | TACC | TAC | |
| 1990–91 | 133.4 | 179.4 | – | 834.5 | 1152.4 | – | 45.3 | 54.7 | – | |
| 1991–92 | 177.7 | 164.7 | – | 962.7 | 1054.6 | – | 47.5 | 50.2 | – | |
| 1992–93 | 131.6 | 153.1 | – | 876.5 | 986.8 | – | 45.7 | 47.0 | – | |
| 1993–94 | 138.1 | 138.7 | – | 896.1 | 888.1 | – | 45.5 | 47.0 | – | |
| 1994–95 | 120.3 | 138.7 | – | 855.6 | 888.1 | – | 45.2 | 47.0 | – | |
| 1995–96 | 81.3 | 138.7 | – | 825.6 | 888.1 | – | 45.4 | 47.0 | – | |
| 1996–97 | 62.9 | 138.7 | – | 862.4 | 888.1 | – | 46.9 | 47.0 | – | |
| 1997–98 | 36.0 | 138.7 | – | 785.6 | 888.1 | – | 46.7 | 47.0 | – | |
| 1998–99 | 58.6 | 138.7 | – | 808.1 | 888.1 | – | 46.9 | 47.0 | – | |
| 1999–00 | 56.5 | 111.0 | 131.0 | 709.8 | 711.0 | 798.0 | 47.0 | 47.0 | – | |
| 2000–01 | 87.2 | 111.0 | 131.0 | 703.4 | 711.0 | 798.0 | 47.0 | 47.0 | – | |
| 2001–02 | 76.9 | 89.0 | 109.0 | 572.1 | 568.0 | 655.0 | 46.8 | 47.0 | – | |
| 2002–03 | 88.6 | 89.0 | 109.0 | 567.1 | 568.0 | 655.0 | 47.0 | 47.0 | – | |
| 2003–04 | 81.4 | 89.0 | 109.0 | 567.6 | 568.0 | 655.0 | 45.9 | 47.0 | – | |
| 2004–05 | 94.2 | 94.9 | 114.9 | 603.0 | 603.4 | 690.4 | 47.0 | 47.0 | – | |
| 2005–06 | 95.0 | 94.9 | 114.9 | 603.2 | 603.4 | 690.4 | 46.6 | 47.0 | – | |
| 2006–07 | 120.2 | 120.2 | 140.2 | 754.9 | 755.2 | 842.2 | 47.0 | 47.0 | – | |
| 2007–08 | 120.1 | 120.2 | 140.2 | 752.4 | 755.2 | 842.2 | 47.0 | 47.0 | – | |
| 2008–09 | 120.3 | 123.9 | 143.9 | 966.0 | 966.0 | 1053.0 | 47.0 | 47.0 | – | |
| 2009–10 | N/A | 189.0 | 209.0 | N/A | 1019.0 | 1110.0 | N/A | 47.0 | – | |
| | | | Total NZ | | | | | | | |
| Fishing Year | Catch ¹ | TACC ¹ | TAC ¹ | | | | | | | |
| 1990–91 | 2907.4 | 3793.0 | – | | | | | | | |
| 1991–92 | 3020.9 | 3502.9 | – | | | | | | | |
| 1992–93 | 2629.9 | 3201.9 | – | | | | | | | |
| 1993–94 | 2746.2 | 2912.1 | – | | | | | | | |
| 1994–95 | 2621.5 | 2912.1 | – | | | | | | | |
| 1995–96 | 2548.6 | 2912.1 | – | | | | | | | |
| 1996–97 | 2690.5 | 2953.1 | – | | | | | | | |
| 1997–98 | 2584.2 | 2864.1 | 1312.0 | | | | | | | |
| 1998–99 | 2726.0 | 2926.8 | 1275.6 | | | | | | | |
| 1999–00 | 2748.5 | 2850.2 | 3442.6 | | | | | | | |
| 2000–01 | 2795.9 | 2850.2 | 3442.6 | | | | | | | |
| 2001–02 | 2593.0 | 2685.2 | 3277.6 | | | | | | | |
| 2002–03 | 2591.1 | 2685.2 | 3277.6 | | | | | | | |
| 2003–04 | 2451.5 | 2685.2 | 3277.6 | | | | | | | |
| 2004–05 | 2472.3 | 2726.4 | 3318.8 | | | | | | | |
| 2005–06 | 2475.8 | 2589.4 | 3184.8 | | | | | | | |
| 2006–07 | 2604.8 | 2766.6 | 3362.0 | | | | | | | |
| 2007–08 | 2472.3 | 2766.6 | 3362.0 | | | | | | | |
| 2008–09 | 2639.1 | 2981.0 | 3576.5 | | | | | | | |
| 2009–10 | N/A | 2762.2 | 3362.6 | | | | | | | |

¹ TACC totals exclude CRA 10 (TACC=0.1 t); catch totals exclude CRA 10 and ET catches (outside EEZ). There is no TAC for CRA 10

Table 2: Ratio of the sum of landed LFR catch from the bottom portion of the CELR forms 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, apart from Table 1.

| Fishing Year | CRA 1 | CRA 2 | CRA 3 | CRA 4 | CRA 5 | CRA 6 | CRA 7 | CRA 8 | CRA 9 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1990-91 | 0.96 | 0.86 | 1.00 | 0.99 | 0.94 | 0.81 | 0.89 | 0.86 | 1.03 |
| 1991-92 | 1.12 | 0.91 | 0.99 | 0.99 | 1.00 | 0.84 | 0.94 | 0.93 | 1.02 |
| 1992-93 | 1.08 | 0.96 | 0.99 | 1.00 | 0.98 | 0.83 | 0.97 | 0.92 | 1.04 |
| 1993-94 | 1.06 | 0.99 | 1.03 | 1.00 | 0.96 | 0.85 | 0.98 | 0.89 | 1.17 |
| 1994-95 | 0.99 | 0.93 | 1.00 | 1.01 | 0.96 | 0.92 | 0.98 | 0.90 | 1.35 |
| 1995-96 | 0.93 | 0.93 | 1.02 | 0.98 | 0.95 | 0.94 | 0.96 | 0.88 | 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 | 0.87 | 0.91 | 0.95 | 0.94 | 0.87 | 0.92 | 0.85 | 1.55 |
| 1998-99 | 0.87 | 0.90 | 0.87 | 0.94 | 0.92 | 0.83 | 0.86 | 0.85 | 1.45 |
| 1999-00 | 0.98 | 0.86 | 0.97 | 0.94 | 0.90 | 0.75 | 0.58 | 0.84 | 1.74 |
| 2000-01 | 0.91 | 0.93 | 0.96 | 0.96 | 0.87 | 0.82 | 0.95 | 0.87 | 1.02 |
| 2001-02 | 0.95 | 0.93 | 0.94 | 0.96 | 0.87 | 0.85 | 0.97 | 0.85 | 0.93 |
| 2002-03 | 0.96 | 0.93 | 0.91 | 0.98 | 0.86 | 0.82 | 0.95 | 0.79 | 0.94 |
| 2003-04 | 0.96 | 0.94 | 0.91 | 0.92 | 0.94 | 0.83 | 1.00 | 0.83 | 0.92 |
| 2004-05 | 0.96 | 0.92 | 0.88 | 0.92 | 1.00 | 0.86 | 0.91 | 0.82 | 0.89 |
| 2005-06 | 0.92 | 0.94 | 0.95 | 0.87 | 0.97 | 0.86 | 0.94 | 0.90 | 1.01 |
| 2006-07 | 0.92 | 0.99 | 0.95 | 0.91 | 0.97 | 0.89 | 0.95 | 0.90 | 0.94 |
| 2007-08 | 0.95 | 0.91 | 0.95 | 0.88 | 0.92 | 0.88 | 0.95 | 0.88 | 0.89 |
| 2008-09 | 0.94 | 0.91 | 0.93 | 0.88 | 0.93 | 0.85 | 0.90 | 0.88 | 0.84 |

Table 3: Summary table showing the number of vessels reporting rock lobster by CRA QMA and for all of New Zealand, 1979–80 to 2008–09. Vessels recorded as catching less than 1 t in a year for an entire QMA have been excluded (along with vessel #4548). The problem fishing year with overlapping vessel codes from the previous FSU and the current CELR catch reporting systems has been indicated in bold type.

| Fishing year | CRA1 | CRA2 | CRA3 | CRA4 | CRA5 | CRA6 | CRA7 | CRA8 | CRA9 | All QMAs |
|--------------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|------------|-----------|------------|
| 1979–80 | 34 | 80 | 70 | 86 | 88 | 39 | 90 | 271 | 23 | 768 |
| 1980–81 | 34 | 89 | 85 | 86 | 86 | 42 | 86 | 253 | 23 | 778 |
| 1981–82 | 33 | 88 | 77 | 88 | 85 | 45 | 79 | 221 | 20 | 728 |
| 1982–83 | 33 | 82 | 85 | 89 | 93 | 54 | 42 | 214 | 19 | 708 |
| 1983–84 | 31 | 75 | 84 | 89 | 93 | 50 | 40 | 208 | 22 | 690 |
| 1984–85 | 30 | 73 | 86 | 90 | 95 | 53 | 59 | 212 | 21 | 715 |
| 1985–86 | 34 | 78 | 83 | 88 | 92 | 57 | 66 | 208 | 20 | 721 |
| 1986–87 | 35 | 70 | 76 | 88 | 91 | 48 | 58 | 187 | 20 | 663 |
| 1987–88 | 30 | 59 | 72 | 85 | 84 | 47 | 51 | 173 | 19 | 618 |
| 1988–89 | 26 | 55 | 58 | 87 | 71 | 42 | 38 | 135 | 10 | 518 |
| 1989–90 | 27 | 17 | 77 | 131 | 66 | 55 | 17 | 178 | 18 | 577 |
| 1990–91 | 27 | 57 | 58 | 85 | 62 | 40 | 37 | 134 | 12 | 503 |
| 1991–92 | 33 | 51 | 65 | 88 | 68 | 45 | 46 | 143 | 13 | 542 |
| 1992–93 | 31 | 47 | 54 | 94 | 59 | 50 | 35 | 144 | 12 | 519 |
| 1993–94 | 27 | 46 | 48 | 100 | 59 | 53 | 37 | 143 | 12 | 518 |
| 1994–95 | 22 | 47 | 41 | 89 | 51 | 59 | 32 | 122 | 16 | 474 |
| 1995–96 | 23 | 44 | 34 | 80 | 49 | 51 | 27 | 112 | 14 | 429 |
| 1996–97 | 26 | 40 | 32 | 74 | 47 | 50 | 22 | 111 | 18 | 410 |
| 1997–98 | 21 | 42 | 30 | 72 | 45 | 50 | 7 | 107 | 19 | 386 |
| 1998–99 | 19 | 35 | 30 | 65 | 41 | 42 | 18 | 104 | 16 | 361 |
| 1999–00 | 20 | 34 | 32 | 70 | 39 | 34 | 17 | 91 | 17 | 347 |
| 2000–01 | 18 | 39 | 33 | 61 | 36 | 33 | 25 | 87 | 9 | 336 |
| 2001–02 | 18 | 36 | 33 | 62 | 34 | 32 | 22 | 74 | 11 | 316 |
| 2002–03 | 17 | 37 | 38 | 65 | 34 | 32 | 20 | 69 | 10 | 316 |
| 2003–04 | 16 | 34 | 39 | 65 | 34 | 35 | 17 | 66 | 9 | 312 |
| 2004–05 | 15 | 31 | 33 | 61 | 32 | 34 | 14 | 62 | 8 | 284 |
| 2005–06 | 15 | 36 | 29 | 54 | 31 | 35 | 14 | 60 | 8 | 276 |
| 2006–07 | 13 | 35 | 28 | 66 | 28 | 36 | 14 | 57 | 7 | 281 |
| 2007–08 | 13 | 32 | 28 | 53 | 27 | 35 | 20 | 59 | 7 | 269 |
| 2008–09 | 13 | 31 | 26 | 42 | 26 | 35 | 15 | 64 | 6 | 257 |
| Mean: | | | | | | | | | | |
| 1979–80 to 1983–84 | 33.0 | 82.8 | 80.2 | 87.6 | 89.0 | 46.0 | 67.4 | 233.4 | 21.4 | 734.4 |
| Mean: | | | | | | | | | | |
| 2004–05 to 2008–09 | 13.8 | 33.0 | 28.8 | 55.2 | 28.8 | 35.0 | 15.4 | 60.4 | 7.2 | 273.4 |
| Percent drop | -58% | -60% | -64% | -37% | -68% | -24% | -77% | -74% | -66% | -63% |

Table 4: Number of vessels reporting rock lobster by statistical area from CRA 1, 1979–80 to 2008–09. 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 |
| 2007–08 | 5 | 4 | 4 | 2 | 3 | 13 |
| 2008–09 | 6 | 3 | 3 | 2 | 3 | 13 |

Table 5: Percentage of annual catch by statistical area from CRA 1, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (6 instances) in the year/statistical area cell.

| 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 | 28.3 | 20.4 | 11.3 | 19.7 | 20.4 |
| 1990–91 | 27.2 | 27.9 | 10.0 | 14.0 | 20.9 |
| 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 | 16.3 | 16.1 | 19.1 | 30.6 | 18.0 |
| 1997–98 | 13.8 | 19.4 | 16.0 | 22.9 | 27.9 |
| 1998–99 | . | 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 | . | 47.0 | 6.1 | 10.2 | 21.5 |
| 2004–05 | 28.2 | 30.7 | 7.8 | 9.3 | 24.0 |
| 2005–06 | 40.3 | 19.1 | 8.8 | . | 21.2 |
| 2006–07 | 44.8 | . | 13.9 | . | 15.7 |
| 2007–08 | 52.7 | 15.4 | 10.8 | 9.1 | 12.1 |
| 2008–09 | 45.0 | 16.2 | 11.2 | . | 16.4 |

Table 6: Percentage of annual catch by month from CRA 1, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (8 instances over 7 years representing an average catch loss of 0.5%/year) or no fishing in the year/month cell.

| Fishing year | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|--------------|-----|-----|-----|------|------|------|------|------|------|------|------|-----|
| 1979–80 | 0.9 | . | 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 | . | . | 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 | . | 0.3 | 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 | 4.0 | 5.3 | 8.9 | 5.9 | 18.6 | 20.9 | 16.9 | 12.2 | 5.2 |
| 1990–91 | 0.1 | 0.2 | 0.7 | 4.3 | 14.9 | 12.0 | 14.3 | 14.8 | 15.9 | 11.3 | 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 | 5.0 | 3.9 | 18.5 | 13.9 | 18.9 | 15.7 | 12.2 | 5.9 | 2.3 | 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 | . | 0.9 |
| 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 | . | 0.4 |
| 2002–03 | 4.1 | 5.0 | 2.5 | 15.5 | 19.0 | 16.9 | 21.0 | 8.4 | 4.0 | 3.0 | . | 0.4 |
| 2003–04 | 3.1 | 0.7 | 0.5 | 19.5 | 15.7 | 10.3 | 24.1 | 8.5 | 9.9 | 4.2 | 2.3 | 1.0 |
| 2004–05 | 1.9 | 2.8 | 3.8 | 17.9 | 14.4 | 13.0 | 21.5 | 8.9 | 2.7 | 4.5 | 7.2 | 1.4 |
| 2005–06 | . | 1.0 | 1.6 | 9.8 | 17.7 | 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 |
| 2007–08 | 3.5 | 4.1 | 2.7 | 14.5 | 17.9 | 18.6 | 11.7 | 9.9 | 6.3 | 6.1 | 2.7 | 1.8 |
| 2008–09 | 7.1 | 4.5 | 1.2 | 12.3 | 16.9 | 24.9 | 17.0 | 6.5 | 5.8 | 3.7 | . | . |

Table 7: Percentage of catch from CRA 1 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (27 instances representing 35.4% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 901 | 902 | 903 | 904 | 939 |
|-------|------|-----|-----|-----|-----|
| Apr | x | x | x | . | 5.5 |
| May | x | x | x | . | 1.9 |
| Jun | x | x | x | x | . |
| Jul | 7.2 | x | 2.3 | x | . |
| Aug | 8.9 | 3.8 | 0.2 | x | x |
| Sep | 11.1 | x | 3.7 | x | 5.3 |
| Oct | 7.9 | x | 2.5 | x | x |
| Nov | x | x | x | x | . |
| Dec | 3.0 | . | 1.2 | x | . |
| Jan | x | . | x | x | . |
| Feb | . | . | . | . | . |
| Mar | . | . | . | . | . |

Table 8: Arithmetic CPUE (total kg/total potlifts) for CRA 1 by fishing year and statistical area, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (6 instances) in the year/statistical area cell.

| 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 | 1.03 | 0.83 | 0.66 | 1.25 |
| 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 | 1.09 | 0.58 | 0.69 |
| 2005–06 | 3.19 | 2.19 | 0.81 | . | 0.57 |
| 2006–07 | 2.88 | . | 1.17 | . | 0.78 |
| 2007–08 | 3.29 | 1.97 | 1.12 | 0.56 | 1.08 |
| 2008–09 | 3.62 | 1.85 | 1.09 | . | 1.34 |

Table 9: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), and standardised (with standard error) CPUE indices for CRA 1 (kg/potlift) for 1979–80 to 2008–09. (s.e.=standard error).

| Fishing year | Arithmetic | Unstandardised | Standardised | s.e. |
|--------------|------------|----------------|--------------|-------|
| 1979–80 | 0.74 | 0.76 | 0.80 | 0.041 |
| 1980–81 | 1.01 | 0.88 | 0.96 | 0.042 |
| 1981–82 | 1.09 | 0.89 | 0.91 | 0.046 |
| 1982–83 | 1.12 | 0.93 | 0.98 | 0.044 |
| 1983–84 | 1.11 | 0.97 | 0.93 | 0.043 |
| 1984–85 | 0.96 | 0.91 | 0.86 | 0.043 |
| 1985–86 | 0.89 | 0.81 | 0.80 | 0.041 |
| 1986–87 | 0.75 | 0.78 | 0.79 | 0.041 |
| 1987–88 | 0.74 | 0.73 | 0.74 | 0.042 |
| 1988–89 | 0.80 | 0.67 | 0.65 | 0.049 |
| 1989–90 | 0.75 | 0.71 | 0.64 | 0.047 |
| 1990–91 | 0.68 | 0.62 | 0.54 | 0.046 |
| 1991–92 | 0.60 | 0.63 | 0.64 | 0.041 |
| 1992–93 | 0.53 | 0.52 | 0.53 | 0.043 |
| 1993–94 | 0.65 | 0.60 | 0.61 | 0.044 |
| 1994–95 | 0.77 | 0.77 | 0.79 | 0.047 |
| 1995–96 | 0.94 | 1.04 | 1.20 | 0.054 |
| 1996–97 | 0.94 | 0.97 | 1.16 | 0.053 |
| 1997–98 | 0.89 | 0.95 | 1.16 | 0.058 |
| 1998–99 | 1.04 | 1.14 | 1.34 | 0.061 |
| 1999–00 | 1.09 | 1.03 | 1.11 | 0.064 |
| 2000–01 | 1.17 | 1.07 | 1.12 | 0.063 |
| 2001–02 | 1.30 | 1.23 | 1.28 | 0.064 |
| 2002–03 | 1.20 | 1.21 | 1.12 | 0.061 |
| 2003–04 | 1.22 | 1.12 | 1.12 | 0.067 |
| 2004–05 | 1.23 | 1.39 | 1.27 | 0.067 |
| 2005–06 | 1.14 | 1.46 | 1.31 | 0.071 |
| 2006–07 | 1.32 | 1.59 | 1.41 | 0.071 |
| 2007–08 | 1.64 | 2.14 | 1.72 | 0.067 |
| 2008–09 | 1.57 | 2.06 | 1.78 | 0.076 |

Table 10: Number of vessels reporting rock lobster by statistical area from CRA 2, 1979–80 to 2008–09.
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 | 23 | 8 | 15 | 44 |
| 1996–97 | 8 | 17 | 7 | 13 | 40 |
| 1997–98 | 12 | 16 | 8 | 10 | 42 |
| 1998–99 | 10 | 12 | 5 | 10 | 35 |
| 1999–00 | 8 | 14 | 7 | 9 | 34 |
| 2000–01 | 11 | 16 | 7 | 12 | 39 |
| 2001–02 | 11 | 14 | 7 | 10 | 36 |
| 2002–03 | 9 | 15 | 10 | 9 | 37 |
| 2003–04 | 8 | 13 | 7 | 9 | 34 |
| 2004–05 | 5 | 13 | 8 | 11 | 31 |
| 2005–06 | 12 | 13 | 9 | 9 | 36 |
| 2006–07 | 9 | 16 | 5 | 11 | 35 |
| 2007–08 | 9 | 12 | 6 | 10 | 32 |
| 2008–09 | 10 | 13 | 4 | 9 | 31 |

Table 11: Percentage of annual catch by statistical area from CRA 2, 1979–80 to 2008–09.

| 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 | 13.8 | 47.6 | 14.7 | 23.9 |
| 1996–97 | 15.7 | 48.9 | 14.8 | 20.6 |
| 1997–98 | 15.0 | 45.9 | 21.4 | 17.7 |
| 1998–99 | 19.3 | 39.8 | 21.6 | 19.3 |
| 1999–00 | 15.7 | 41.7 | 25.2 | 17.4 |
| 2000–01 | 16.3 | 42.3 | 23.0 | 18.4 |
| 2001–02 | 15.9 | 41.7 | 21.2 | 21.2 |
| 2002–03 | 14.6 | 34.7 | 21.8 | 29.0 |
| 2003–04 | 17.2 | 35.6 | 24.5 | 22.7 |
| 2004–05 | 11.2 | 38.3 | 23.4 | 27.1 |
| 2005–06 | 16.7 | 37.7 | 24.1 | 21.6 |
| 2006–07 | 15.4 | 38.2 | 21.4 | 25.0 |
| 2007–08 | 15.7 | 39.7 | 21.3 | 23.3 |
| 2008–09 | 14.9 | 36.8 | 23.7 | 24.6 |

Table 12: Percentage of annual catch by month from CRA 2, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (3 instances over 2 years representing an average catch loss of 0.2%/year) or no fishing in the 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 | . | 0.1 | 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 | 7.2 | 22.4 | 24.6 | 19.7 | 16.7 | 3.4 | 1.8 | 0.6 | 0.9 | 1.3 |
| 1996–97 | 3.2 | 5.8 | 7.0 | 35.1 | 19.6 | 16.0 | 6.8 | 1.8 | 1.1 | 1.4 | 1.1 | 0.9 |
| 1997–98 | 5.3 | 3.8 | 9.3 | 32.0 | 18.9 | 19.8 | 9.1 | 0.4 | 1.0 | . | . | . |
| 1998–99 | 1.7 | 4.3 | 8.0 | 21.8 | 21.8 | 29.7 | 5.6 | 2.5 | 0.6 | 0.1 | 2.2 | 1.6 |
| 1999–00 | 2.1 | 4.4 | 3.7 | 21.2 | 20.3 | 23.0 | 19.0 | 2.0 | 0.6 | 1.2 | 1.0 | 1.3 |
| 2000–01 | 4.7 | 1.8 | 1.2 | 10.6 | 18.8 | 19.1 | 24.2 | 7.7 | 2.9 | 1.4 | 3.2 | 4.6 |
| 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 | 10.4 | 10.5 | 9.0 | 23.5 | 13.4 | 9.7 | 6.1 | 6.8 | 5.5 |
| 2003–04 | 2.0 | 0.6 | 1.1 | 7.8 | 10.7 | 12.6 | 19.9 | 12.6 | 9.3 | 12.1 | 6.5 | 4.9 |
| 2004–05 | 2.0 | 1.5 | 2.2 | 12.6 | 9.7 | 10.4 | 16.6 | 14.3 | 7.4 | 9.5 | 7.6 | 6.2 |
| 2005–06 | 1.8 | 0.9 | 0.5 | 7.5 | 11.1 | 14.1 | 16.2 | 12.5 | 11.1 | 10.2 | 9.4 | 4.8 |
| 2006–07 | 1.6 | 0.5 | 1.2 | 10.2 | 11.6 | 14.2 | 18.1 | 11.5 | 10.6 | 9.9 | 6.0 | 4.5 |
| 2007–08 | 1.4 | 0.6 | 1.1 | 8.8 | 11.4 | 14.0 | 14.5 | 15.9 | 10.2 | 10.4 | 7.4 | 4.3 |
| 2008–09 | 2.3 | 0.7 | 0.8 | 8.3 | 12.5 | 13.6 | 18.5 | 16.1 | 9.6 | 8.6 | 4.8 | 4.4 |

Table 13: Percentage of catch from CRA 2 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (6 instances representing 1.0% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 905 | 906 | 907 | 908 |
|-------|-----|-----|-----|-----|
| Apr | 0.7 | 1.6 | . | x |
| May | 0.5 | x | . | . |
| Jun | x | x | 0.5 | x |
| Jul | 1.1 | 1.6 | 3.2 | 2.4 |
| Aug | 1.8 | 4.7 | 3.5 | 2.4 |
| Sep | 1.9 | 4.0 | 4.1 | 3.7 |
| Oct | 2.5 | 6.2 | 6.5 | 3.2 |
| Nov | 1.5 | 6.4 | 4.1 | 4.0 |
| Dec | 1.2 | 4.3 | 1.3 | 2.9 |
| Jan | 0.9 | 3.6 | x | 3.6 |
| Feb | 1.3 | 2.0 | . | 1.4 |
| Mar | 1.3 | 2.2 | . | 0.9 |

Table 14: Arithmetic CPUE (total kg/total potlifts) for CRA 2 by fishing year and statistical area, 1979–80 to 2008–09.

| 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 | 0.74 | 0.70 | 1.28 | 0.52 |
| 1996–97 | 0.90 | 0.77 | 1.91 | 0.65 |
| 1997–98 | 0.88 | 0.80 | 2.16 | 0.54 |
| 1998–99 | 0.96 | 0.83 | 2.19 | 0.61 |
| 1999–00 | 0.75 | 0.67 | 1.18 | 0.47 |
| 2000–01 | 0.72 | 0.65 | 0.89 | 0.70 |
| 2001–02 | 0.59 | 0.47 | 0.65 | 0.67 |
| 2002–03 | 0.43 | 0.36 | 0.49 | 0.53 |
| 2003–04 | 0.53 | 0.36 | 0.46 | 0.46 |
| 2004–05 | 0.56 | 0.39 | 0.47 | 0.44 |
| 2005–06 | 0.51 | 0.47 | 0.47 | 0.43 |
| 2006–07 | 0.61 | 0.51 | 0.56 | 0.55 |
| 2007–08 | 0.57 | 0.55 | 0.60 | 0.43 |
| 2008–09 | 0.60 | 0.44 | 0.82 | 0.48 |

Table 15: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 0.024 |
| 1980–81 | 0.61 | 0.62 | 0.62 | 0.023 |
| 1981–82 | 0.55 | 0.52 | 0.52 | 0.022 |
| 1982–83 | 0.45 | 0.43 | 0.43 | 0.023 |
| 1983–84 | 0.39 | 0.36 | 0.35 | 0.023 |
| 1984–85 | 0.37 | 0.34 | 0.34 | 0.023 |
| 1985–86 | 0.43 | 0.40 | 0.39 | 0.024 |
| 1986–87 | 0.37 | 0.37 | 0.36 | 0.025 |
| 1987–88 | 0.34 | 0.32 | 0.31 | 0.025 |
| 1988–89 | 0.36 | 0.35 | 0.34 | 0.028 |
| 1989–90 | 0.38 | 0.35 | 0.35 | 0.040 |
| 1990–91 | 0.49 | 0.49 | 0.47 | 0.029 |
| 1991–92 | 0.43 | 0.44 | 0.43 | 0.029 |
| 1992–93 | 0.40 | 0.42 | 0.41 | 0.032 |
| 1993–94 | 0.44 | 0.44 | 0.44 | 0.031 |
| 1994–95 | 0.54 | 0.52 | 0.53 | 0.036 |
| 1995–96 | 0.69 | 0.72 | 0.76 | 0.040 |
| 1996–97 | 0.83 | 0.81 | 0.89 | 0.043 |
| 1997–98 | 0.85 | 0.93 | 1.01 | 0.045 |
| 1998–99 | 0.91 | 1.02 | 1.10 | 0.044 |
| 1999–00 | 0.71 | 0.79 | 0.83 | 0.043 |
| 2000–01 | 0.71 | 0.74 | 0.74 | 0.040 |
| 2001–02 | 0.56 | 0.53 | 0.53 | 0.037 |
| 2002–03 | 0.44 | 0.43 | 0.42 | 0.036 |
| 2003–04 | 0.43 | 0.43 | 0.42 | 0.037 |
| 2004–05 | 0.43 | 0.47 | 0.47 | 0.036 |
| 2005–06 | 0.47 | 0.49 | 0.48 | 0.036 |
| 2006–07 | 0.54 | 0.56 | 0.56 | 0.036 |
| 2007–08 | 0.53 | 0.55 | 0.54 | 0.038 |
| 2008–09 | 0.53 | 0.51 | 0.50 | 0.039 |

Table 16: Number of vessels reporting rock lobster by statistical area from CRA 3, 1979–80 to 2008–09.
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 |
| 2007–08 | 3 | 13 | 12 | 28 |
| 2008–09 | 4 | 13 | 9 | 26 |

Table 17: Percentage of annual catch by statistical area from CRA 3, 1979–80 to 2008–09.

| 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 | 35.4 |
| 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 | 12.0 | 36.3 | 51.8 |
| 2003–04 | 13.9 | 36.1 | 50.0 |
| 2004–05 | 18.5 | 41.0 | 40.4 |
| 2005–06 | 13.5 | 45.6 | 40.9 |
| 2006–07 | 15.3 | 41.2 | 43.5 |
| 2007–08 | 16.0 | 45.8 | 38.2 |
| 2008–09 | 20.9 | 44.9 | 34.2 |

Table 18: Percentage of annual catch by month from CRA 3, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (32 instances over 9 years representing an average catch loss of 1.1%/year) or no fishing in the 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 | 4.1 | 1.7 | 6.4 | 10.1 | 21.8 | 23.1 | 14.8 | 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 | . | . | . | . | . | 29.5 | 4.1 |
| 1994–95 | 7.5 | . | 42.9 | 24.0 | 14.9 | . | . | . | . | . | 7.7 | 1.6 |
| 1995–96 | 6.1 | . | 38.2 | 37.7 | 13.4 | . | . | . | . | . | 3.3 | 0.6 |
| 1996–97 | 9.2 | . | 37.5 | 35.5 | 15.2 | 0.5 | . | . | . | . | . | 0.7 |
| 1997–98 | 7.2 | . | 32.3 | 42.9 | 16.2 | . | . | . | . | . | . | 0.6 |
| 1998–99 | 14.4 | . | 27.9 | 24.5 | 21.8 | . | . | . | . | . | 8.5 | 0.9 |
| 1999–00 | 4.6 | . | 32.1 | 31.5 | 18.3 | . | . | . | . | . | 8.8 | 3.0 |
| 2000–01 | 8.4 | . | 24.2 | 20.0 | 13.4 | 10.8 | . | . | . | . | 15.5 | 7.8 |
| 2001–02 | 9.1 | . | 25.7 | 16.9 | 11.7 | . | . | . | . | . | 17.3 | 18.6 |
| 2002–03 | 2.2 | . | 24.8 | 16.9 | 8.4 | 5.8 | 8.0 | 6.6 | 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 | 5.3 |
| 2004–05 | 1.7 | . | 30.8 | 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 | . | 16.3 | 16.2 | 13.1 | 2.6 | 7.5 | 15.5 | 5.0 | 7.5 | 6.3 | 8.3 |
| 2007–08 | 0.6 | . | 15.7 | 23.8 | 10.0 | 2.6 | 6.0 | 15.5 | 5.5 | 4.8 | 7.5 | 8.0 |
| 2008–09 | 2.7 | . | 21.6 | 21.1 | 11.3 | 1.4 | 3.8 | 6.1 | 4.7 | 12.2 | 12.3 | 2.7 |

Table 19: Percentage of catch from CRA 3 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (6 instances representing 6.2% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 909 | 910 | 911 |
|-------|-----|------|-----|
| Apr | . | 2.6 | 0.1 |
| May | . | . | . |
| Jun | x | 13.4 | 3.1 |
| Jul | 6.5 | 9.9 | 4.7 |
| Aug | 2.6 | 6.4 | 2.3 |
| Sep | . | x | 1.4 |
| Oct | x | . | 3.7 |
| Nov | x | . | 5.9 |
| Dec | x | . | 4.5 |
| Jan | 2.8 | 5.5 | 3.9 |
| Feb | 2.8 | 6.0 | 3.4 |
| Mar | x | 0.9 | 1.2 |

Table 20: Arithmetic CPUE (total kg/total potlifts) for CRA 3 by fishing year and statistical area, 1979–80 to 2008–09.

| 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 | 0.42 |
| 2005–06 | 0.82 | 0.59 | 0.61 |
| 2006–07 | 0.99 | 0.48 | 0.62 |
| 2007–08 | 1.02 | 0.60 | 0.51 |
| 2008–09 | 1.06 | 0.72 | 0.58 |

Table 21: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 0.69 | 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 | 0.43 | 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 | 1.42 | 0.048 |
| 1996–97 | 1.76 | 1.79 | 1.91 | 0.049 |
| 1997–98 | 2.18 | 2.49 | 2.68 | 0.052 |
| 1998–99 | 1.63 | 1.86 | 2.03 | 0.047 |
| 1999–00 | 1.56 | 1.76 | 1.90 | 0.045 |
| 2000–01 | 1.19 | 1.26 | 1.41 | 0.040 |
| 2001–02 | 0.95 | 1.00 | 1.07 | 0.039 |
| 2002–03 | 0.73 | 0.73 | 0.73 | 0.032 |
| 2003–04 | 0.62 | 0.60 | 0.57 | 0.032 |
| 2004–05 | 0.52 | 0.51 | 0.49 | 0.035 |
| 2005–06 | 0.62 | 0.62 | 0.59 | 0.035 |
| 2006–07 | 0.58 | 0.60 | 0.57 | 0.034 |
| 2007–08 | 0.60 | 0.63 | 0.60 | 0.036 |
| 2008–09 | 0.71 | 0.72 | 0.70 | 0.041 |

Table 22: Number of vessels reporting rock lobster by statistical area from CRA 4, 1979–80 to 2008–09. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A ‘.’ indicates no fishing in the statistical area/fishing year cell. A ‘0’ indicates that fishing took place but no 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 | 11 | 4 | 66 |
| 2007–08 | 10 | 11 | 24 | 11 | 6 | 53 |
| 2008–09 | 10 | 13 | 18 | 7 | 1 | 42 |

Table 23: Percentage of annual catch by statistical area from CRA 4, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (17 instances) or no fishing (3 instances) in the year/statistical area cell.

| Fishing year | 912 | 913 | 914 | 915 | 934 |
|--------------|------|------|------|------|-----|
| 1979–80 | 21.4 | 30.2 | 38.2 | 10.1 | . |
| 1980–81 | 32.4 | 21.7 | 33.5 | 12.2 | 0.2 |
| 1981–82 | 35.6 | 22.6 | 29.3 | 12.4 | . |
| 1982–83 | 25.7 | 21.8 | 37.6 | 14.8 | . |
| 1983–84 | 19.8 | 27.8 | 40.0 | 12.2 | . |
| 1984–85 | 25.1 | 25.7 | 37.1 | 11.6 | . |
| 1985–86 | 27.0 | 21.2 | 36.7 | 14.7 | 0.4 |
| 1986–87 | 21.9 | 29.3 | 37.4 | 11.2 | . |
| 1987–88 | 19.3 | 25.0 | 44.3 | 11.4 | . |
| 1988–89 | 17.6 | 27.0 | 45.5 | 9.9 | . |
| 1989–90 | 23.0 | 35.3 | 33.8 | 7.9 | . |
| 1990–91 | 28.3 | 29.5 | 31.7 | 10.5 | . |
| 1991–92 | 31.6 | 29.3 | 30.0 | 8.8 | . |
| 1992–93 | 30.1 | 26.3 | 32.6 | 10.6 | 0.4 |
| 1993–94 | 23.8 | 28.8 | 36.7 | 9.9 | . |
| 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 | . |
| 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 | 21.6 | 42.3 | 12.8 | 1.3 |
| 2002–03 | 23.4 | 27.0 | 36.5 | 12.5 | . |
| 2003–04 | 19.3 | 31.9 | 40.8 | 8.0 | . |
| 2004–05 | 15.6 | 28.4 | 48.8 | 6.3 | . |
| 2005–06 | 9.7 | 21.1 | 55.0 | 12.9 | . |
| 2006–07 | 12.1 | 23.3 | 43.9 | 16.9 | 3.9 |
| 2007–08 | 15.9 | 21.0 | 38.4 | 21.1 | 3.6 |
| 2008–09 | 18.7 | 28.7 | 35.5 | 14.9 | . |

Table 24: Percentage of annual catch by month from CRA 4, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels or no fishing in the year/month cell.

| 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 | 30.3 | 18.9 | 11.1 | 11.2 | 10.7 | 4.4 | 2.1 | 0.7 | 0.5 | . | 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 | 21.5 | 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 | 16.9 | 5.3 | 4.6 | 2.0 | 2.4 | 1.1 | 1.3 |
| 2002–03 | 5.6 | 11.9 | 22.9 | 13.6 | 9.1 | 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 | 3.8 |
| 2006–07 | 0.8 | 3.0 | 6.0 | 5.6 | 4.1 | 5.4 | 11.9 | 16.8 | 13.3 | 18.5 | 8.9 | 5.6 |
| 2007–08 | . | 2.8 | 3.8 | 6.1 | 3.9 | 6.8 | 10.6 | 19.4 | 13.9 | 15.5 | 11.7 | 5.5 |
| 2008–09 | 0.1 | . | 7.4 | 6.8 | 5.5 | 7.6 | 14.1 | 15.4 | 18.4 | 20.1 | 4.3 | 0.3 |

Table 25: Percentage of catch from CRA 4 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (9 instances representing 2.6% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 912 | 913 | 914 | 915 | 934 |
|-------|-----|-----|-----|-----|-----|
| Apr | . | x | . | x | . |
| May | . | x | . | . | . |
| Jun | 1.4 | 2.8 | 2.3 | 1.0 | . |
| Jul | 1.2 | 1.4 | 3.0 | 1.2 | . |
| Aug | 0.6 | 0.8 | 1.8 | 1.5 | x |
| Sep | 1.7 | 0.8 | 2.6 | 2.0 | x |
| Oct | 3.7 | 3.5 | 4.0 | 2.1 | x |
| Nov | 3.0 | 3.4 | 7.2 | 1.7 | x |
| Dec | 2.6 | 8.0 | 5.7 | 2.2 | . |
| Jan | 3.1 | 6.4 | 8.2 | 2.4 | . |
| Feb | 1.3 | 1.6 | 0.7 | 0.7 | . |
| Mar | x | x | . | . | . |

Table 26: Arithmetic CPUE (total kg/total potlifts) for CRA 4 by fishing year and statistical area, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (17 instances) or no fishing (3 instances) in the year/statistical area cell

| 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 | 0.70 | 1.55 |
| 2007–08 | 0.66 | 0.71 | 0.47 | 0.79 | 0.81 |
| 2008–09 | 0.71 | 0.85 | 0.58 | 0.85 | . |

Table 27: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 0.86 | 0.025 |
| 1996–97 | 1.03 | 1.08 | 1.18 | 0.028 |
| 1997–98 | 1.24 | 1.29 | 1.40 | 0.030 |
| 1998–99 | 1.31 | 1.43 | 1.56 | 0.030 |
| 1999–00 | 1.27 | 1.35 | 1.47 | 0.029 |
| 2000–01 | 1.26 | 1.17 | 1.26 | 0.029 |
| 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 | 0.65 | 0.70 | 0.68 | 0.024 |
| 2007–08 | 0.60 | 0.61 | 0.60 | 0.028 |
| 2008–09 | 0.71 | 0.74 | 0.71 | 0.033 |

Table 28: Number of vessels reporting rock lobster by statistical area from CRA 5, 1979–80 to 2008–09. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A ‘.’ indicates no fishing in the statistical area/fishing year cell. A ‘0’ indicates fishing but no 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 | 10 | 0 | 0 | 7 | 66 |
| 1990–91 | 11 | 40 | 10 | 1 | 3 | 11 | 62 |
| 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 | 8 | 21 | 7 | 1 | 1 | 12 | 45 |
| 1998–99 | 6 | 18 | 5 | . | 1 | 13 | 41 |
| 1999–00 | 7 | 20 | 7 | 1 | 1 | 12 | 39 |
| 2000–01 | 8 | 18 | 6 | . | . | 10 | 36 |
| 2001–02 | 10 | 17 | 2 | . | 0 | 8 | 34 |
| 2002–03 | 10 | 16 | 2 | . | . | 9 | 34 |
| 2003–04 | 12 | 14 | 2 | . | . | 11 | 34 |
| 2004–05 | 12 | 13 | 1 | . | 2 | 9 | 32 |
| 2005–06 | 11 | 14 | 2 | . | 0 | 8 | 31 |
| 2006–07 | 10 | 14 | 2 | . | . | 8 | 28 |
| 2007–08 | 8 | 14 | 2 | . | 0 | 7 | 27 |
| 2008–09 | 6 | 12 | 5 | 1 | . | 7 | 26 |

Table 29: Percentage of annual catch by statistical area from CRA 5, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (31 instances) or no fishing (18 instances) in the year/statistical area cell

| Fishing year | 916 | 917 | 918 | 919 | 932 | 933 |
|--------------|------|------|------|-----|-----|------|
| 1979–80 | 26.7 | 47.9 | 12.8 | 1.1 | . | 10.4 |
| 1980–81 | 29.3 | 50.2 | 6.3 | 0.4 | . | 13.5 |
| 1981–82 | 23.0 | 52.0 | 7.3 | . | . | 16.1 |
| 1982–83 | 19.9 | 57.3 | 4.0 | 0.7 | . | 18.0 |
| 1983–84 | 19.2 | 57.5 | 5.6 | 0.3 | . | 17.4 |
| 1984–85 | 19.5 | 61.4 | 4.7 | 0.7 | . | 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 | . | 9.4 |
| 1988–89 | 19.3 | 58.6 | 8.2 | 3.2 | . | 10.0 |
| 1989–90 | 28.7 | 56.1 | 9.5 | . | . | 5.6 |
| 1990–91 | 28.4 | 57.6 | 4.9 | . | 0.6 | 8.4 |
| 1991–92 | 29.9 | 46.2 | 10.9 | . | 0.1 | 13.0 |
| 1992–93 | 24.9 | 58.4 | 7.0 | . | . | 9.6 |
| 1993–94 | 23.5 | 54.3 | 8.1 | . | . | 14.1 |
| 1994–95 | 28.0 | 50.5 | 4.3 | . | . | 17.2 |
| 1995–96 | 26.9 | 43.2 | 3.2 | . | . | 25.3 |
| 1996–97 | 24.4 | 45.0 | 4.8 | . | . | 23.7 |
| 1997–98 | 23.9 | 42.4 | 4.4 | . | . | 26.9 |
| 1998–99 | 23.3 | 41.7 | 5.8 | . | . | 25.7 |
| 1999–00 | 29.6 | 41.7 | 4.0 | . | . | 24.7 |
| 2000–01 | 31.0 | 40.1 | 2.8 | . | . | 26.1 |
| 2001–02 | 42.8 | 39.2 | 1.5 | . | . | 16.4 |
| 2002–03 | 45.8 | 35.6 | 1.0 | . | . | 17.6 |
| 2003–04 | 47.8 | 32.4 | 0.9 | . | . | 18.9 |
| 2004–05 | 43.4 | 39.7 | 0.9 | . | . | 16.0 |
| 2005–06 | 44.4 | 40.8 | 1.4 | . | . | 13.4 |
| 2006–07 | 41.2 | 45.6 | . | . | . | 12.4 |
| 2007–08 | 37.4 | 45.3 | . | . | . | 16.2 |
| 2008–09 | 30.5 | 48.6 | 3.6 | . | . | 17.3 |

Table 30: Percentage of annual catch by month from CRA 5, 1979–80 to 2008–09.

| 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 | 2.2 | 5.1 | 2.4 | 2.4 | 2.0 | 4.0 | 6.9 | 15.8 | 20.8 | 25.4 | 10.4 | 2.5 |
| 1990–91 | 2.7 | 3.8 | 1.6 | 2.8 | 2.1 | 3.9 | 13.4 | 24.8 | 22.8 | 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 | 24.1 | 10.9 | 7.6 | 7.3 | 7.4 | 7.7 | 5.6 | 5.1 | 4.5 | 3.2 | 1.3 |
| 1998–99 | 7.7 | 18.0 | 14.1 | 11.5 | 12.9 | 12.3 | 9.3 | 4.0 | 3.7 | 2.0 | 2.2 | 2.2 |
| 1999–00 | 11.1 | 19.0 | 11.7 | 13.3 | 12.1 | 11.6 | 8.2 | 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 | 21.3 | 13.1 | 17.2 | 17.2 | 12.4 | 4.6 | 2.3 | 0.5 | 0.6 | 0.9 | 0.9 |
| 2002–03 | 9.1 | 21.7 | 15.9 | 13.4 | 15.8 | 10.1 | 3.3 | 2.3 | 1.0 | 2.8 | 2.3 | 2.3 |
| 2003–04 | 1.4 | 14.3 | 19.7 | 18.7 | 12.7 | 13.9 | 7.8 | 2.0 | 2.1 | 3.9 | 1.8 | 1.7 |
| 2004–05 | 3.7 | 22.6 | 13.2 | 13.9 | 7.1 | 6.7 | 7.0 | 7.9 | 4.1 | 10.1 | 1.9 | 1.7 |
| 2005–06 | 3.1 | 28.4 | 12.9 | 10.5 | 8.3 | 5.6 | 8.8 | 7.3 | 6.2 | 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 |
| 2007–08 | 10.0 | 25.7 | 8.4 | 6.2 | 4.3 | 6.1 | 6.9 | 4.9 | 8.8 | 13.7 | 3.9 | 1.1 |
| 2008–09 | 10.9 | 24.0 | 15.8 | 7.0 | 3.2 | 6.8 | 8.6 | 4.6 | 3.4 | 14.5 | 0.9 | 0.3 |

Table 31: Percentage of catch from CRA 5 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (15 instances representing 3.6% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 916 | 917 | 918 | 919 | 932 | 933 |
|-------|------|------|-----|-----|-----|-----|
| Apr | 4.0 | 6.4 | . | . | . | 0.5 |
| May | 10.0 | 13.1 | . | . | . | 0.9 |
| Jun | 3.6 | 9.9 | x | . | . | 1.9 |
| Jul | x | 3.7 | 0.8 | . | . | 1.6 |
| Aug | x | 2.1 | x | . | . | 0.7 |
| Sep | x | 2.8 | 0.9 | x | . | 2.7 |
| Oct | x | 2.6 | 1.0 | . | . | 4.9 |
| Nov | x | 2.0 | . | . | . | 2.5 |
| Dec | 1.1 | 0.9 | x | . | . | 1.3 |
| Jan | 9.6 | 4.5 | x | . | . | x |
| Feb | x | 0.2 | x | . | . | x |
| Mar | x | 0.3 | . | . | . | . |

Table 32: Arithmetic CPUE (total kg/total potlifts) for CRA 5 by fishing year and statistical area, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (31 instances) or no fishing (18 instances) in the year/statistical area cell

| | | | | | | |
|--------------|------|------|------|------|------|------|
| 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 | 0.58 | . | . | 0.29 |
| 1990–91 | 0.44 | 0.42 | 0.48 | . | 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 | 1.05 | 0.65 | 0.61 | . | . | 0.95 |
| 1998–99 | 1.12 | 0.75 | 0.88 | . | . | 1.04 |
| 1999–00 | 2.13 | 0.77 | 0.87 | . | . | 0.91 |
| 2000–01 | 3.48 | 0.83 | 1.40 | . | . | 0.97 |
| 2001–02 | 2.84 | 0.83 | 1.64 | . | . | 1.06 |
| 2002–03 | 2.25 | 0.93 | 1.31 | . | . | 0.88 |
| 2003–04 | 2.36 | 1.11 | 1.38 | . | . | 0.86 |
| 2004–05 | 2.21 | 0.98 | 1.37 | . | . | 0.87 |
| 2005–06 | 1.90 | 0.97 | 1.72 | . | . | 0.70 |
| 2006–07 | 1.68 | 1.09 | . | . | . | 0.68 |
| 2007–08 | 1.73 | 1.20 | . | . | . | 0.68 |
| 2008–09 | 2.00 | 1.37 | 1.52 | . | . | 0.70 |

Table 33: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 0.026 |
| 1981–82 | 0.79 | 0.73 | 0.69 | 0.027 |
| 1982–83 | 0.84 | 0.77 | 0.76 | 0.025 |
| 1983–84 | 0.75 | 0.69 | 0.68 | 0.025 |
| 1984–85 | 0.76 | 0.70 | 0.69 | 0.025 |
| 1985–86 | 0.68 | 0.57 | 0.56 | 0.025 |
| 1986–87 | 0.63 | 0.51 | 0.50 | 0.026 |
| 1987–88 | 0.47 | 0.43 | 0.42 | 0.026 |
| 1988–89 | 0.39 | 0.37 | 0.37 | 0.029 |
| 1989–90 | 0.42 | 0.41 | 0.39 | 0.030 |
| 1990–91 | 0.43 | 0.40 | 0.38 | 0.029 |
| 1991–92 | 0.37 | 0.33 | 0.31 | 0.027 |
| 1992–93 | 0.35 | 0.32 | 0.31 | 0.028 |
| 1993–94 | 0.39 | 0.38 | 0.37 | 0.030 |
| 1994–95 | 0.42 | 0.39 | 0.39 | 0.032 |
| 1995–96 | 0.49 | 0.47 | 0.46 | 0.033 |
| 1996–97 | 0.56 | 0.60 | 0.62 | 0.035 |
| 1997–98 | 0.78 | 0.84 | 0.87 | 0.038 |
| 1998–99 | 0.89 | 1.05 | 1.12 | 0.041 |
| 1999–00 | 1.00 | 1.10 | 1.14 | 0.040 |
| 2000–01 | 1.16 | 1.25 | 1.34 | 0.046 |
| 2001–02 | 1.27 | 1.36 | 1.49 | 0.051 |
| 2002–03 | 1.26 | 1.47 | 1.57 | 0.049 |
| 2003–04 | 1.39 | 1.63 | 1.70 | 0.048 |
| 2004–05 | 1.26 | 1.52 | 1.54 | 0.047 |
| 2005–06 | 1.17 | 1.39 | 1.40 | 0.047 |
| 2006–07 | 1.18 | 1.32 | 1.35 | 0.048 |
| 2007–08 | 1.19 | 1.33 | 1.35 | 0.048 |
| 2008–09 | 1.28 | 1.42 | 1.47 | 0.051 |

Table 34: Number of vessels reporting rock lobster by statistical area from CRA 6, 1979–80 to 2008–09. 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 | 5 | 45 |
| 1992–93 | 14 | 20 | 25 | 6 | 50 |
| 1993–94 | 16 | 19 | 28 | 9 | 53 |
| 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 |
| 2007–08 | 10 | 11 | 12 | 7 | 35 |
| 2008–09 | 15 | 10 | 15 | 5 | 35 |

Table 35: Percentage of annual catch by statistical area from CRA 6, 1979–80 to 2008–09.

| 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 | 21.9 | 38.7 | 9.4 |
| 1990–91 | 23.4 | 19.2 | 50.5 | 6.9 |
| 1991–92 | 21.2 | 22.0 | 52.3 | 4.5 |
| 1992–93 | 23.1 | 21.2 | 47.5 | 8.2 |
| 1993–94 | 24.9 | 20.2 | 45.4 | 9.5 |
| 1994–95 | 22.5 | 19.5 | 49.4 | 8.7 |
| 1995–96 | 27.9 | 14.1 | 46.8 | 11.2 |
| 1996–97 | 27.0 | 18.2 | 43.0 | 11.8 |
| 1997–98 | 29.2 | 19.9 | 43.4 | 7.4 |
| 1998–99 | 29.0 | 19.4 | 43.5 | 8.2 |
| 1999–00 | 24.0 | 21.6 | 47.2 | 7.1 |
| 2000–01 | 24.1 | 17.4 | 51.8 | 6.6 |
| 2001–02 | 24.2 | 18.5 | 48.2 | 9.1 |
| 2002–03 | 19.5 | 24.2 | 43.1 | 13.2 |
| 2003–04 | 23.4 | 21.4 | 45.7 | 9.5 |
| 2004–05 | 20.3 | 23.7 | 50.5 | 5.5 |
| 2005–06 | 22.0 | 20.5 | 48.0 | 9.5 |
| 2006–07 | 28.3 | 20.9 | 39.7 | 11.2 |
| 2007–08 | 26.5 | 19.2 | 41.3 | 13.1 |
| 2008–09 | 24.2 | 18.0 | 43.9 | 13.8 |

Table 36: Percentage of annual catch by month from CRA 6, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (14 instances over 13 years representing an average catch loss of 0.1%/year) or no fishing in the 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 | . |
| 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 | . |
| 1990–91 | . | 1.9 | 5.5 | 3.4 | 1.6 | 1.5 | 16.0 | 15.0 | 16.7 | 17.0 | 21.3 | . |
| 1991–92 | . | 1.4 | 5.9 | 4.0 | 1.8 | 2.1 | 10.7 | 9.6 | 17.4 | 30.9 | 13.5 | 2.8 |
| 1992–93 | . | 1.3 | 8.2 | 7.3 | 6.0 | 3.3 | 2.4 | 10.1 | 16.0 | 20.9 | 17.7 | 6.7 |
| 1993–94 | . | 1.6 | 8.7 | 8.2 | 4.8 | 3.2 | 8.8 | 15.7 | 13.1 | 14.0 | 21.9 | . |
| 1994–95 | . | 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 | 13.0 | 12.5 | 10.1 | . |
| 1997–98 | . | 8.0 | 9.4 | 8.2 | 5.4 | 6.7 | 11.3 | 12.1 | 14.8 | 11.7 | 12.4 | . |
| 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 | 17.6 | 12.9 | 11.2 | 12.1 | 12.0 | . |
| 2000–01 | . | 5.2 | 6.8 | 6.7 | 4.8 | 9.7 | 17.8 | 16.0 | 10.2 | 10.7 | 11.9 | . |
| 2001–02 | . | 2.9 | 7.9 | 6.3 | 4.1 | 4.3 | 15.1 | 14.3 | 13.2 | 17.0 | 14.8 | . |
| 2002–03 | . | 2.2 | 6.2 | 9.5 | 5.9 | 5.7 | 8.0 | 15.9 | 11.1 | 18.4 | 17.0 | . |
| 2003–04 | . | 1.7 | 5.3 | 6.6 | 8.6 | 6.3 | 15.9 | 12.8 | 12.4 | 19.0 | 11.2 | . |
| 2004–05 | . | 3.9 | 7.1 | 10.1 | 3.9 | 4.8 | 10.3 | 15.1 | 12.4 | 17.0 | 14.9 | 0.6 |
| 2005–06 | . | 3.8 | 6.4 | 7.2 | 5.5 | 5.5 | 10.3 | 14.1 | 18.1 | 16.8 | 12.3 | . |
| 2006–07 | . | 3.3 | 8.1 | 9.6 | 6.7 | 6.7 | 15.7 | 11.3 | 12.7 | 11.6 | 13.6 | . |
| 2007–08 | . | 1.4 | 4.9 | 9.7 | 8.7 | 6.5 | 5.7 | 17.2 | 13.5 | 20.4 | 11.8 | . |
| 2008–09 | . | 2.5 | 6.9 | 6.7 | 5.8 | 7.0 | 15.9 | 16.6 | 10.1 | 17.8 | 10.7 | . |

Table 37: Percentage of catch from CRA 6 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (3 instances representing 1.3% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 940 | 941 | 942 | 943 |
|-------|-----|-----|-----|-----|
| Apr | . | . | . | . |
| May | 0.9 | x | 1.0 | x |
| Jun | 2.4 | 1.2 | 2.5 | x |
| Jul | 2.1 | 1.4 | 2.2 | 0.9 |
| Aug | 1.8 | 0.9 | 2.1 | 1.0 |
| Sep | 2.0 | 1.1 | 3.1 | 0.7 |
| Oct | 3.5 | 2.3 | 7.4 | 2.7 |
| Nov | 3.6 | 3.2 | 7.6 | 2.3 |
| Dec | 0.7 | 2.5 | 5.3 | 1.6 |
| Jan | 3.8 | 3.1 | 8.8 | 2.1 |
| Feb | 3.5 | 2.1 | 3.8 | 1.4 |
| Mar | . | . | . | . |

Table 38: Arithmetic CPUE (total kg/total potlifts) for CRA 6 by fishing year and statistical area, 1979–80 to 2008–09.

| 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 | 0.84 |
| 1992–93 | 0.94 | 0.79 | 1.72 | 0.91 |
| 1993–94 | 0.97 | 0.88 | 1.38 | 0.80 |
| 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 | 1.08 | 0.94 |
| 1998–99 | 0.91 | 1.04 | 1.53 | 1.24 |
| 1999–00 | 0.97 | 0.94 | 1.71 | 0.83 |
| 2000–01 | 0.92 | 0.91 | 1.54 | 0.83 |
| 2001–02 | 0.98 | 0.86 | 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 | 1.53 | 1.04 |
| 2005–06 | 1.30 | 0.91 | 1.69 | 1.51 |
| 2006–07 | 1.25 | 1.03 | 1.91 | 1.96 |
| 2007–08 | 1.38 | 1.15 | 2.03 | 1.40 |
| 2008–09 | 1.34 | 1.33 | 1.69 | 1.49 |

Table 39: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 0.036 |
| 1980–81 | 2.18 | 2.04 | 2.01 | 0.037 |
| 1981–82 | 2.19 | 2.28 | 2.28 | 0.034 |
| 1982–83 | 1.78 | 1.62 | 1.64 | 0.031 |
| 1983–84 | 1.73 | 1.63 | 1.61 | 0.031 |
| 1984–85 | 1.35 | 1.30 | 1.29 | 0.031 |
| 1985–86 | 1.41 | 1.37 | 1.36 | 0.031 |
| 1986–87 | 1.66 | 1.52 | 1.50 | 0.033 |
| 1987–88 | 1.48 | 1.35 | 1.30 | 0.033 |
| 1988–89 | 1.40 | 1.28 | 1.26 | 0.036 |
| 1989–90 | 1.34 | 1.19 | 1.13 | 0.035 |
| 1990–91 | 1.38 | 1.20 | 1.17 | 0.036 |
| 1991–92 | 1.29 | 1.24 | 1.21 | 0.032 |
| 1992–93 | 1.14 | 1.21 | 1.17 | 0.031 |
| 1993–94 | 1.07 | 1.04 | 1.04 | 0.029 |
| 1994–95 | 1.07 | 1.04 | 1.03 | 0.029 |
| 1995–96 | 1.08 | 1.03 | 1.05 | 0.028 |
| 1996–97 | 1.02 | 1.09 | 1.11 | 0.029 |
| 1997–98 | 0.88 | 1.03 | 1.05 | 0.031 |
| 1998–99 | 1.17 | 1.25 | 1.29 | 0.035 |
| 1999–00 | 1.19 | 1.29 | 1.33 | 0.038 |
| 2000–01 | 1.15 | 1.17 | 1.19 | 0.037 |
| 2001–02 | 1.15 | 1.16 | 1.18 | 0.038 |
| 2002–03 | 1.16 | 1.26 | 1.28 | 0.038 |
| 2003–04 | 1.10 | 1.20 | 1.21 | 0.038 |
| 2004–05 | 1.21 | 1.36 | 1.34 | 0.037 |
| 2005–06 | 1.35 | 1.45 | 1.44 | 0.036 |
| 2006–07 | 1.44 | 1.60 | 1.64 | 0.037 |
| 2007–08 | 1.53 | 1.59 | 1.62 | 0.038 |
| 2008–09 | 1.50 | 1.58 | 1.60 | 0.038 |

Table 40: Number of vessels reporting rock lobster by statistical area from CRA 7, 1979–80 to 2008–09.
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 |
| 2007–08 | 15 | 8 | 20 |
| 2008–09 | 11 | 5 | 15 |

Table 41: Percentage of annual catch by statistical area from CRA 7, 1979–80 to 2008–09.

| 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 | 72.7 | 27.3 |
| 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 | 51.4 | 48.6 |
| 2007–08 | 64.5 | 35.5 |
| 2008–09 | 64.7 | 35.3 |

Table 42: Percentage of annual catch by month from CRA 7, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (33 instances over 23 years representing an average catch loss of 0.1%/year) or no fishing in the year/month cell.

| Fishing year | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|--------------|-----|-----|------|------|------|------|------|------|-----|-----|-----|-----|
| 1979–80 | 1.7 | . | 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 | . | . | 5.7 | 25.8 | 24.3 | 15.3 | 11.6 | 10.0 | 5.0 | 1.8 | 0.3 | . |
| 1983–84 | . | . | 5.8 | 19.0 | 24.9 | 19.9 | 15.4 | 6.6 | 5.3 | 2.0 | 0.8 | 0.2 |
| 1984–85 | . | . | 15.8 | 30.5 | 16.6 | 12.6 | 11.7 | 7.6 | 3.1 | 1.5 | 0.5 | 0.1 |
| 1985–86 | . | . | 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 | . | 7.1 | 24.7 | 27.4 | 16.0 | 12.0 | 7.0 | 2.8 | 1.6 | 0.9 | 0.5 |
| 1988–89 | . | . | 4.3 | 18.6 | 28.1 | 14.8 | 18.3 | 11.5 | 1.8 | 1.5 | 1.0 | . |
| 1989–90 | . | . | 2.6 | 6.0 | 18.0 | 27.2 | 16.5 | 11.7 | 8.6 | 6.5 | 2.7 | 0.2 |
| 1990–91 | . | . | 7.0 | 25.0 | 20.0 | 19.6 | 9.1 | 5.9 | 6.8 | 4.2 | 1.9 | 0.2 |
| 1991–92 | . | . | 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 | . | . |
| 1993–94 | . | . | 15.7 | 40.1 | 24.4 | 11.6 | 8.0 | 0.1 | . | . | . | . |
| 1994–95 | . | . | 9.4 | 28.7 | 33.5 | 19.6 | 7.4 | 1.2 | . | . | . | . |
| 1995–96 | . | . | 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 | . | . | . | . |
| 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 | . | . | . | . |
| 2001–02 | . | . | 9.0 | 27.1 | 25.7 | 18.6 | 12.6 | 6.9 | . | . | . | . |
| 2002–03 | . | . | 10.2 | 21.2 | 30.5 | 20.6 | 15.8 | 1.8 | . | . | . | . |
| 2003–04 | . | . | 7.1 | 29.1 | 25.5 | 15.2 | 18.4 | 4.8 | . | . | . | . |
| 2004–05 | . | . | 11.5 | 36.2 | 30.8 | 12.8 | 5.9 | 2.9 | . | . | . | . |
| 2005–06 | . | . | 9.0 | 45.7 | 32.1 | 10.9 | 2.0 | . | . | . | . | . |
| 2006–07 | . | . | 11.1 | 33.3 | 33.3 | 17.6 | 4.4 | . | . | . | . | . |
| 2007–08 | . | . | 3.3 | 26.5 | 34.4 | 24.3 | 10.6 | 0.6 | . | . | . | . |
| 2008–09 | . | . | 3.7 | 9.2 | 36.2 | 31.9 | 18.9 | . | . | . | . | . |

Table 43: Percentage of catch from CRA 7 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (3 instances representing 0.7% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 920 | 921 |
|-------|------|------|
| Apr | . | . |
| May | . | . |
| Jun | 3.1 | x |
| Jul | 6.1 | 3.0 |
| Aug | 20.9 | 15.3 |
| Sep | 23.1 | 8.8 |
| Oct | 11.4 | 7.5 |
| Nov | x | x |
| Dec | . | . |
| Jan | . | . |
| Feb | . | . |
| Mar | . | . |

Table 44: Arithmetic CPUE (total kg/total potlifts) for CRA 7 by fishing year and statistical area, 1979–80 to 2008–09.

| 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 | 1.27 | 2.04 |
| 2007–08 | 1.14 | 1.81 |
| 2008–09 | 1.54 | 2.05 |

Table 45: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 0.98 | 0.97 | 0.031 |
| 1980–81 | 0.89 | 0.85 | 0.86 | 0.033 |
| 1981–82 | 0.79 | 0.73 | 0.73 | 0.034 |
| 1982–83 | 0.50 | 0.48 | 0.47 | 0.037 |
| 1983–84 | 0.40 | 0.41 | 0.41 | 0.038 |
| 1984–85 | 0.59 | 0.55 | 0.55 | 0.038 |
| 1985–86 | 0.75 | 0.72 | 0.73 | 0.037 |
| 1986–87 | 0.81 | 0.82 | 0.83 | 0.039 |
| 1987–88 | 0.73 | 0.68 | 0.70 | 0.041 |
| 1988–89 | 0.45 | 0.41 | 0.41 | 0.047 |
| 1989–90 | 0.36 | 0.32 | 0.34 | 0.044 |
| 1990–91 | 0.41 | 0.41 | 0.43 | 0.042 |
| 1991–92 | 0.83 | 0.95 | 0.94 | 0.053 |
| 1992–93 | 0.40 | 0.39 | 0.41 | 0.045 |
| 1993–94 | 0.63 | 0.60 | 0.60 | 0.056 |
| 1994–95 | 0.48 | 0.45 | 0.46 | 0.052 |
| 1995–96 | 0.31 | 0.28 | 0.27 | 0.052 |
| 1996–97 | 0.25 | 0.23 | 0.23 | 0.056 |
| 1997–98 | 0.24 | 0.17 | 0.17 | 0.061 |
| 1998–99 | 0.30 | 0.27 | 0.26 | 0.061 |
| 1999–00 | 0.22 | 0.27 | 0.27 | 0.065 |
| 2000–01 | 0.35 | 0.36 | 0.35 | 0.058 |
| 2001–02 | 0.46 | 0.46 | 0.45 | 0.063 |
| 2002–03 | 0.52 | 0.61 | 0.62 | 0.068 |
| 2003–04 | 0.58 | 0.57 | 0.61 | 0.076 |
| 2004–05 | 0.75 | 0.83 | 0.83 | 0.091 |
| 2005–06 | 1.12 | 1.25 | 1.23 | 0.102 |
| 2006–07 | 1.56 | 1.87 | 1.75 | 0.095 |
| 2007–08 | 1.31 | 1.66 | 1.60 | 0.083 |
| 2008–09 | 1.69 | 2.04 | 2.01 | 0.096 |

Table 46: Number of vessels reporting rock lobster by statistical area from CRA 8, 1979–80 to 2008–09. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A ‘.’ indicates no fishing in the statistical area/fishing year cell.

| 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 |
| 2007–08 | 2 | 5 | 12 | 3 | 22 | 13 | 16 | 59 |
| 2008–09 | 2 | 4 | 14 | 2 | 21 | 13 | 17 | 64 |

Table 47: Percentage of annual catch by statistical area from CRA 8, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (16 instances) or no fishing (1 instance) in the year/statistical area cell

| 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 | . | 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 | 8.9 | 23.0 | 0.5 | 36.5 | 19.3 | 10.7 |
| 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 | 19.6 | 1.4 | 33.0 | 18.4 | 21.2 |
| 1993–94 | 1.5 | 6.4 | 22.9 | 1.7 | 30.2 | 17.4 | 19.8 |
| 1994–95 | 1.0 | 3.9 | 24.2 | 4.0 | 27.8 | 18.7 | 20.3 |
| 1995–96 | 0.8 | 5.1 | 17.0 | 3.6 | 30.4 | 21.1 | 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 | 19.2 | 25.6 |
| 1998–99 | . | 6.0 | 11.6 | 1.3 | 35.0 | 20.0 | 25.7 |
| 1999–00 | . | 6.5 | 13.7 | 3.1 | 36.4 | 22.8 | 17.1 |
| 2000–01 | . | 3.6 | 15.5 | 2.1 | 40.8 | 25.3 | 12.1 |
| 2001–02 | . | 3.3 | 14.9 | 0.3 | 42.8 | 22.9 | 15.0 |
| 2002–03 | . | . | 15.6 | . | 48.4 | 18.3 | 13.9 |
| 2003–04 | . | 3.9 | 12.8 | 0.3 | 51.5 | 16.8 | 14.2 |
| 2004–05 | . | 3.8 | 12.1 | 1.2 | 50.0 | 16.7 | 15.6 |
| 2005–06 | . | 2.9 | 12.4 | . | 45.9 | 19.8 | 18.0 |
| 2006–07 | . | 3.2 | 13.4 | . | 41.2 | 23.0 | 18.1 |
| 2007–08 | . | 2.5 | 13.3 | 0.8 | 35.6 | 21.3 | 25.6 |
| 2008–09 | . | 0.4 | 15.3 | . | 29.0 | 22.4 | 32.1 |

Table 48: Percentage of annual catch by month from CRA 8, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (5 instances over 5 years representing an average catch loss of 0.1%/year) or no fishing in the month/year cell.

| 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 | 11.1 | 22.9 | 13.9 | 19.2 | 12.4 | 9.0 | 6.2 | 2.0 |
| 1990–91 | 0.3 | . | 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 | 19.7 | 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 | 2.9 | 4.2 | 11.9 | 20.4 | 19.9 | 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 | 2.4 | 7.6 | 17.5 | 16.6 | 22.4 | 13.2 | 10.4 | 6.3 | 1.8 |
| 1999–00 | . | 0.1 | 0.6 | 2.1 | 16.0 | 24.9 | 22.5 | 14.0 | 8.7 | 7.9 | 2.1 | 1.1 |
| 2000–01 | 0.1 | . | 0.4 | 2.6 | 14.9 | 37.7 | 15.3 | 13.0 | 6.5 | 4.9 | 3.7 | 1.0 |
| 2001–02 | . | 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 | 20.7 | 31.6 | 19.2 | 8.8 | 3.4 | 4.9 | 1.0 | 2.7 |
| 2003–04 | 0.5 | 0.8 | 1.5 | 10.5 | 29.6 | 38.8 | 10.6 | 2.1 | 0.3 | 3.6 | 1.1 | 0.7 |
| 2004–05 | 0.7 | 2.0 | 2.8 | 14.0 | 22.2 | 40.6 | 6.6 | 2.4 | 0.7 | 3.7 | 2.8 | 1.4 |
| 2005–06 | 2.6 | 3.0 | 7.6 | 13.5 | 23.7 | 37.1 | 5.7 | 0.7 | 0.5 | 4.2 | 0.6 | 0.9 |
| 2006–07 | 10.9 | 7.4 | 11.5 | 11.0 | 24.7 | 24.6 | 3.5 | 0.2 | 0.1 | 0.6 | 3.3 | 2.0 |
| 2007–08 | 12.7 | 8.5 | 12.5 | 11.6 | 17.1 | 20.8 | 3.6 | 1.0 | 0.4 | 8.2 | 3.2 | 0.3 |
| 2008–09 | 14.8 | 12.5 | 7.1 | 14.4 | 19.7 | 22.7 | 4.2 | 0.5 | . | 4.0 | . | 0.1 |

Table 49: Percentage of catch from CRA 8 by statistical area and month for 2008–09. An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (23 instances representing 4.5% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 922 | 923 | 924 | 925 | 926 | 927 | 928 |
|-------|-----|-----|-----|-----|-----|-----|-----|
| Apr | . | . | x | . | 1.9 | 5.2 | 5.7 |
| May | . | . | x | . | 3.6 | 4.1 | 4.9 |
| Jun | . | . | . | x | 1.0 | 2.6 | 3.5 |
| Jul | x | . | 0.6 | . | 3.1 | 3.5 | 7.2 |
| Aug | x | x | 4.2 | x | 8.3 | 2.0 | 5.0 |
| Sep | x | x | 7.3 | . | 7.5 | 2.9 | 4.6 |
| Oct | x | x | 0.6 | . | 2.4 | 0.4 | x |
| Nov | x | x | x | . | x | x | . |
| Dec | . | . | x | . | x | . | . |
| Jan | . | x | x | . | 1.0 | 1.6 | 0.9 |
| Feb | . | . | . | . | . | . | . |
| Mar | . | x | . | . | x | . | 0.0 |

Table 50: Arithmetic CPUE (total kg/total potlifts) for CRA 8 by fishing year and statistical area, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (16 instances) or no fishing (1 instance) in the year/statistical area cell

| 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 | 0.87 | 1.27 | 0.60 | 0.90 | 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 | 1.33 | 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 | 1.09 | 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 | 0.68 | 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 | 0.74 |
| 2003–04 | . | 2.75 | 2.32 | 1.57 | 1.92 | 1.56 | 0.94 |
| 2004–05 | . | 2.46 | 1.92 | 1.15 | 1.74 | 1.43 | 1.13 |
| 2005–06 | . | 4.27 | 3.08 | . | 1.92 | 1.21 | 1.50 |
| 2006–07 | . | 2.02 | 3.90 | . | 2.41 | 1.56 | 2.13 |
| 2007–08 | . | 3.82 | 2.78 | 2.87 | 1.99 | 2.20 | 3.97 |
| 2008–09 | . | 3.58 | 3.34 | . | 2.55 | 2.99 | 4.68 |

Table 51: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 2.04 | 0.020 |
| 1980–81 | 1.72 | 1.82 | 1.77 | 0.021 |
| 1981–82 | 1.79 | 1.81 | 1.71 | 0.023 |
| 1982–83 | 1.57 | 1.51 | 1.46 | 0.022 |
| 1983–84 | 1.25 | 1.15 | 1.10 | 0.021 |
| 1984–85 | 1.22 | 1.11 | 1.06 | 0.022 |
| 1985–86 | 1.36 | 1.28 | 1.26 | 0.022 |
| 1986–87 | 1.15 | 1.13 | 1.11 | 0.022 |
| 1987–88 | 1.24 | 1.20 | 1.17 | 0.023 |
| 1988–89 | 0.92 | 0.92 | 0.88 | 0.028 |
| 1989–90 | 0.89 | 0.87 | 0.80 | 0.024 |
| 1990–91 | 0.87 | 0.87 | 0.81 | 0.026 |
| 1991–92 | 0.82 | 0.80 | 0.78 | 0.024 |
| 1992–93 | 0.68 | 0.70 | 0.70 | 0.024 |
| 1993–94 | 0.92 | 0.93 | 0.94 | 0.027 |
| 1994–95 | 0.88 | 0.86 | 0.85 | 0.027 |
| 1995–96 | 0.90 | 0.89 | 0.87 | 0.029 |
| 1996–97 | 0.87 | 0.83 | 0.82 | 0.029 |
| 1997–98 | 0.72 | 0.69 | 0.70 | 0.028 |
| 1998–99 | 0.79 | 0.73 | 0.73 | 0.029 |
| 1999–00 | 0.84 | 0.77 | 0.74 | 0.033 |
| 2000–01 | 0.98 | 0.90 | 0.89 | 0.036 |
| 2001–02 | 0.92 | 0.95 | 0.95 | 0.040 |
| 2002–03 | 1.10 | 1.17 | 1.19 | 0.044 |
| 2003–04 | 1.67 | 1.75 | 1.80 | 0.050 |
| 2004–05 | 1.58 | 1.69 | 1.76 | 0.049 |
| 2005–06 | 1.75 | 1.89 | 2.12 | 0.050 |
| 2006–07 | 2.19 | 2.37 | 2.74 | 0.049 |
| 2007–08 | 2.47 | 2.71 | 2.96 | 0.048 |
| 2008–09 | 3.22 | 3.43 | 3.96 | 0.047 |

Table 52: Number of vessels reporting rock lobster by statistical area from CRA 9, 1979–80 to 2008–09. Vessels recorded as catching less than 1 t in a year for the entire QMA have been excluded. A ‘.’ indicates no fishing in the statistical area/fishing year cell. A ‘0’ indicates fishing 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 |
| 2007–08 | . | 1 | 2 | 3 | 1 | 1 | . | 7 |
| 2008–09 | . | 1 | 2 | 2 | 0 | 1 | . | 6 |

Table 53: Percentage of annual catch by statistical area from CRA 9, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (70 instances) or no fishing (31 instances) in the year/statistical area cell

| 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 | . |
| 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 | . | 6.3 | 50.1 | 8.2 | 12.6 | 20.7 | . |
| 1984–85 | . | 12.2 | 42.1 | 16.5 | 12.4 | 16.1 | . |
| 1985–86 | . | 7.0 | 38.6 | 18.8 | 16.3 | 19.2 | . |
| 1986–87 | . | 6.3 | 34.6 | 23.2 | 23.4 | 11.5 | . |
| 1987–88 | . | . | 33.5 | 36.3 | 16.1 | 11.2 | . |
| 1988–89 | . | 5.5 | . | 46.9 | 19.5 | 8.0 | . |
| 1989–90 | 2.1 | 19.5 | 24.2 | 43.4 | 6.5 | 4.4 | . |
| 1990–91 | . | . | 40.4 | 46.5 | 5.3 | . | 2.1 |
| 1991–92 | . | . | 49.8 | 40.2 | . | . | . |
| 1992–93 | . | 12.5 | 41.7 | 40.2 | . | . | . |
| 1993–94 | . | 23.0 | 26.3 | 47.5 | . | . | . |
| 1994–95 | . | 31.9 | 13.2 | 46.1 | . | . | . |
| 1995–96 | 5.7 | 27.9 | . | 43.2 | . | . | . |
| 1996–97 | . | 19.0 | 22.8 | 45.5 | . | . | . |
| 1997–98 | 5.7 | 16.5 | 19.7 | 45.4 | 9.9 | . | . |
| 1998–99 | 4.7 | 31.1 | 19.2 | 35.2 | . | . | . |
| 1999–00 | . | 34.8 | 28.4 | 28.7 | . | . | . |
| 2000–01 | 1.2 | 7.5 | . | 35.3 | 10.3 | . | . |
| 2001–02 | . | 10.0 | 24.0 | 41.6 | . | 11.5 | . |
| 2002–03 | . | . | . | 44.4 | . | . | . |
| 2003–04 | . | . | 36.5 | 30.7 | . | . | . |
| 2004–05 | . | . | . | 54.7 | . | . | . |
| 2005–06 | . | . | . | 56.2 | . | 5.1 | . |
| 2006–07 | . | . | 28.8 | 59.1 | . | . | . |
| 2007–08 | . | . | . | 63.9 | . | . | . |
| 2008–09 | . | . | . | 39.6 | . | . | . |

Table 54: Percentage of annual catch by month from CRA 9, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (58 instances over 24 years representing an average catch loss of 2.2%/year) or no fishing in the year/month cell.

| Fishing year | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|--------------|------|-----|------|------|------|------|------|------|------|------|------|------|
| 1979–80 | 3.4 | . | 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 | . | 2.4 | 4.6 | 8.1 | 3.1 | 8.2 | 8.0 | 16.0 | 14.8 | 20.8 | 9.3 |
| 1983–84 | 2.6 | . | . | 11.2 | 5.2 | 0.9 | 5.5 | 11.6 | 11.6 | 21.1 | 18.4 | 8.2 |
| 1984–85 | 0.8 | 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 | . | . | 3.0 | 5.9 | 4.8 | 15.9 | 18.0 | 13.6 | 15.2 | 11.4 | 7.8 |
| 1988–89 | 4.4 | . | . | 4.9 | 3.0 | 8.3 | 3.7 | 13.6 | 18.6 | 21.3 | 12.9 | 8.8 |
| 1989–90 | 1.3 | . | . | 3.9 | 7.6 | 16.1 | 7.8 | 10.6 | 12.5 | 15.8 | 18.3 | 6.0 |
| 1990–91 | 0.4 | . | . | 2.2 | 5.1 | 11.9 | 21.4 | 12.2 | 6.4 | 13.1 | 11.1 | 16.2 |
| 1991–92 | 1.1 | . | . | 17.1 | 6.1 | 8.9 | 9.8 | 17.4 | 12.5 | 10.1 | 7.4 | 7.4 |
| 1992–93 | 0.5 | . | 11.7 | 11.9 | 3.4 | 13.6 | 11.6 | 11.1 | 10.4 | 9.1 | 11.7 | 4.3 |
| 1993–94 | 1.0 | . | 1.0 | 24.3 | 9.3 | 12.7 | 16.3 | 7.1 | 11.0 | 5.7 | 8.7 | 2.5 |
| 1994–95 | . | . | 4.4 | 12.0 | 11.6 | 13.7 | 22.4 | 8.9 | 13.8 | 9.4 | 2.0 | 1.4 |
| 1995–96 | . | . | 2.4 | 7.4 | 16.5 | 24.1 | 23.9 | 13.1 | 5.1 | 3.7 | 0.5 | . |
| 1996–97 | . | 0.5 | 4.6 | 16.2 | 17.2 | 22.3 | 17.0 | 8.1 | 7.3 | 4.6 | 0.7 | 1.1 |
| 1997–98 | . | . | 12.5 | 21.0 | 15.0 | 17.1 | 12.0 | 7.3 | 7.0 | 3.6 | 3.9 | . |
| 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 | 27.3 | 18.2 | 12.5 | 5.7 | 2.2 | . | . |
| 2000–01 | 3.2 | 2.3 | 6.0 | 20.4 | 19.5 | 12.6 | 13.9 | 12.5 | 6.8 | . | . | . |
| 2001–02 | 4.2 | 2.7 | 8.8 | 25.3 | 13.5 | 23.3 | 13.9 | 3.8 | 2.8 | . | . | . |
| 2002–03 | 11.3 | 5.0 | 1.9 | 18.0 | 14.1 | 14.2 | 6.3 | 8.1 | 8.1 | 3.2 | 8.2 | . |
| 2003–04 | 8.0 | 0.7 | . | 16.1 | 28.8 | 9.0 | 8.7 | 5.8 | 9.5 | 10.7 | . | . |
| 2004–05 | . | . | 3.6 | 34.6 | 27.6 | 16.3 | 13.3 | . | 1.1 | . | . | . |
| 2005–06 | . | 2.5 | 12.0 | 20.6 | 28.8 | 29.5 | 2.6 | . | 0.8 | . | . | . |
| 2006–07 | . | 7.8 | 21.4 | 30.4 | 17.5 | 16.3 | . | . | 1.8 | . | . | . |
| 2007–08 | . | . | 16.1 | 39.2 | 23.5 | 12.2 | . | . | . | . | . | . |
| 2008–09 | . | 2.9 | 7.4 | 11.4 | 22.8 | 34.4 | 12.9 | . | 1.7 | . | . | . |

Table 55: Percentage of catch from CRA 9 by statistical area and month for 2008–09 An ‘x’ indicates fewer than 3 vessels in the month/statistical area cell (35 instances representing 85.7% of the catch). A ‘.’ indicates no fishing in the month/statistical area cell.

| Month | 929 | 930 | 931 | 935 | 936 | 937 | 938 |
|-------|-----|-----|-----|------|-----|-----|-----|
| Apr | . | . | . | x | . | x | . |
| May | x | . | . | x | . | x | . |
| Jun | x | x | . | x | x | x | . |
| Jul | x | x | . | x | . | x | . |
| Aug | x | x | . | 14.3 | x | x | . |
| Sep | x | x | . | x | x | x | . |
| Oct | . | x | . | . | x | x | . |
| Nov | . | . | . | . | x | x | . |
| Dec | . | . | . | x | x | x | . |
| Jan | . | . | . | . | . | x | . |
| Feb | . | . | . | x | . | x | . |
| Mar | . | . | . | . | . | x | . |

Table 56: Arithmetic CPUE (total kg/total potlifts) for CRA 9 by fishing year and statistical area, 1979–80 to 2008–09. A ‘.’ indicates fewer than 3 vessels (70 instances) or no fishing (31 instances) in the year/statistical area cell

| 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 | 1.03 | 0.42 | 0.47 | . |
| 1990–91 | . | . | 1.37 | 0.86 | 1.14 | . | 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 | . | . | . |
| 2007–08 | . | . | . | 1.76 | . | . | . |
| 2008–09 | . | . | . | 2.43 | . | . | . |

Table 57: Annual arithmetic (Eq. 1), unstandardised (Eq. 2), 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 | 1.07 | 1.19 | 0.050 |
| 1980–81 | 1.14 | 1.12 | 1.28 | 0.049 |
| 1981–82 | 0.98 | 0.92 | 0.98 | 0.057 |
| 1982–83 | 0.86 | 0.80 | 0.82 | 0.056 |
| 1983–84 | 0.94 | 0.88 | 0.86 | 0.057 |
| 1984–85 | 0.89 | 0.81 | 0.81 | 0.056 |
| 1985–86 | 0.74 | 0.70 | 0.72 | 0.057 |
| 1986–87 | 0.87 | 0.83 | 0.83 | 0.058 |
| 1987–88 | 0.85 | 0.88 | 0.85 | 0.061 |
| 1988–89 | 0.81 | 0.76 | 0.83 | 0.074 |
| 1989–90 | 0.83 | 0.72 | 0.75 | 0.064 |
| 1990–91 | 0.98 | 0.91 | 0.83 | 0.080 |
| 1991–92 | 0.93 | 0.99 | 0.86 | 0.079 |
| 1992–93 | 0.88 | 1.04 | 0.95 | 0.082 |
| 1993–94 | 1.30 | 1.19 | 1.11 | 0.082 |
| 1994–95 | 0.93 | 0.83 | 0.89 | 0.071 |
| 1995–96 | 0.98 | 0.99 | 1.08 | 0.082 |
| 1996–97 | 0.98 | 0.96 | 0.96 | 0.071 |
| 1997–98 | 0.79 | 0.82 | 0.83 | 0.070 |
| 1998–99 | 0.92 | 1.04 | 1.09 | 0.072 |
| 1999–00 | 0.87 | 0.91 | 0.91 | 0.075 |
| 2000–01 | 0.93 | 1.03 | 1.07 | 0.087 |
| 2001–02 | 0.82 | 1.03 | 1.04 | 0.092 |
| 2002–03 | 1.11 | 1.22 | 1.22 | 0.091 |
| 2003–04 | 1.63 | 1.91 | 1.75 | 0.111 |
| 2004–05 | 2.14 | 2.46 | 2.28 | 0.121 |
| 2005–06 | 2.22 | 2.10 | 2.08 | 0.113 |
| 2006–07 | 1.94 | 2.19 | 2.13 | 0.137 |
| 2007–08 | 1.85 | 1.89 | 1.80 | 0.134 |
| 2008–09 | 1.75 | 1.23 | 1.22 | 0.113 |

Table 58: Standardised indices for each fishing year/season with associated standard error and the corresponding arithmetic (Eq. 1) CPUE (kg/potlift) for CRA 3 from autumn/winter 1979–80 through autumn/winter 2009–10 [s.e.=standard error; N/A: not available]

| Fishing year | Autumn/winter season | | | Spring/summer season | | |
|--------------|----------------------|--------------|-------|----------------------|--------------|-------|
| | Arithmetic | Standardised | s.e. | Arithmetic | Standardised | s.e. |
| 1979–80 | 0.75 | 0.74 | 0.038 | 0.97 | 0.81 | 0.029 |
| 1980–81 | 0.85 | 0.85 | 0.035 | 0.96 | 0.87 | 0.028 |
| 1981–82 | 0.84 | 0.82 | 0.035 | 0.97 | 0.88 | 0.029 |
| 1982–83 | 0.87 | 0.93 | 0.034 | 1.00 | 0.91 | 0.029 |
| 1983–84 | 0.79 | 0.84 | 0.032 | 0.90 | 0.83 | 0.028 |
| 1984–85 | 0.65 | 0.64 | 0.032 | 0.80 | 0.71 | 0.028 |
| 1985–86 | 0.58 | 0.57 | 0.032 | 0.79 | 0.72 | 0.029 |
| 1986–87 | 0.47 | 0.49 | 0.036 | 0.75 | 0.62 | 0.030 |
| 1987–88 | 0.36 | 0.38 | 0.034 | 0.47 | 0.42 | 0.030 |
| 1988–89 | 0.34 | 0.36 | 0.041 | 0.49 | 0.45 | 0.033 |
| 1989–90 | 0.34 | 0.36 | 0.038 | 0.58 | 0.51 | 0.030 |
| 1990–91 | 0.33 | 0.38 | 0.037 | 0.51 | 0.44 | 0.032 |
| 1991–92 | 0.24 | 0.25 | 0.035 | 0.37 | 0.31 | 0.030 |
| 1992–93 | 0.18 | 0.19 | 0.035 | 0.32 | 0.29 | 0.032 |
| 1993–94 | 0.42 | 0.39 | 0.039 | 0.65 | 0.77 | 0.067 |
| 1994–95 | 0.88 | 0.84 | 0.048 | 0.86 | 0.93 | 0.112 |
| 1995–96 | 1.31 | 1.31 | 0.053 | 1.20 | 1.24 | 0.139 |
| 1996–97 | 1.76 | 1.70 | 0.052 | 1.66 | 2.15 | 0.179 |
| 1997–98 | 2.18 | 2.41 | 0.054 | 1.99 | 2.76 | 0.219 |
| 1998–99 | 1.60 | 1.75 | 0.052 | 2.02 | 2.73 | 0.127 |
| 1999–00 | 1.59 | 1.71 | 0.052 | 1.35 | 1.93 | 0.102 |
| 2000–01 | 1.17 | 1.23 | 0.047 | 1.27 | 1.57 | 0.085 |
| 2001–02 | 0.91 | 0.94 | 0.050 | 1.02 | 1.17 | 0.069 |
| 2002–03 | 0.73 | 0.68 | 0.046 | 0.72 | 0.72 | 0.048 |
| 2003–04 | 0.71 | 0.60 | 0.047 | 0.54 | 0.50 | 0.047 |
| 2004–05 | 0.56 | 0.46 | 0.049 | 0.48 | 0.48 | 0.052 |
| 2005–06 | 0.66 | 0.61 | 0.053 | 0.58 | 0.54 | 0.049 |
| 2006–07 | 0.59 | 0.56 | 0.051 | 0.56 | 0.55 | 0.048 |
| 2007–08 | 0.63 | 0.59 | 0.054 | 0.57 | 0.57 | 0.050 |
| 2008–09 | 0.75 | 0.68 | 0.060 | 0.65 | 0.66 | 0.060 |
| 2009–10 | 0.83 | 0.89 | 0.063 | N/A | N/A | N/A |

Table 59: Proportion of the total deviance explained by each variable in the standardised CPUE model used in the CRA 3 management decision making.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Period | 0.403 | | |
| Month | 0.072 | 0.453 | |
| Area | 0.015 | 0.422 | 0.473 |
| Additional deviance explained | 0.000 | 0.050 | 0.020 |

Table 60: Standardised indices for each fishing year/season with associated standard error and the corresponding arithmetic (Eq. 1) CPUE (kg/potlift) for CRA 4 from autumn/winter 1979–80 through autumn/winter 2009–10 [s.e.=standard error; N/A: not available]

| Fishing year | Autumn/winter season | | | Spring/summer season | | |
|--------------|----------------------|--------------|-------|----------------------|--------------|-------|
| | Arithmetic | Standardised | s.e. | Arithmetic | Standardised | s.e. |
| 1979–80 | 0.79 | 0.82 | 0.034 | 0.92 | 0.86 | 0.028 |
| 1980–81 | 0.85 | 0.85 | 0.032 | 0.82 | 0.79 | 0.028 |
| 1981–82 | 0.83 | 0.87 | 0.033 | 0.83 | 0.86 | 0.029 |
| 1982–83 | 0.89 | 0.94 | 0.031 | 0.93 | 0.94 | 0.027 |
| 1983–84 | 0.92 | 0.89 | 0.031 | 0.90 | 0.82 | 0.027 |
| 1984–85 | 0.76 | 0.77 | 0.030 | 0.78 | 0.76 | 0.029 |
| 1985–86 | 0.61 | 0.64 | 0.030 | 0.80 | 0.82 | 0.028 |
| 1986–87 | 0.68 | 0.68 | 0.031 | 0.93 | 0.87 | 0.028 |
| 1987–88 | 0.60 | 0.57 | 0.032 | 0.80 | 0.78 | 0.029 |
| 1988–89 | 0.50 | 0.50 | 0.032 | 0.69 | 0.64 | 0.030 |
| 1989–90 | 0.48 | 0.45 | 0.032 | 0.66 | 0.64 | 0.028 |
| 1990–91 | 0.42 | 0.43 | 0.032 | 0.55 | 0.58 | 0.029 |
| 1991–92 | 0.40 | 0.43 | 0.030 | 0.57 | 0.58 | 0.029 |
| 1992–93 | 0.45 | 0.41 | 0.029 | 0.58 | 0.57 | 0.029 |
| 1993–94 | 0.50 | 0.45 | 0.029 | 0.67 | 0.66 | 0.033 |
| 1994–95 | 0.61 | 0.59 | 0.029 | 0.84 | 0.80 | 0.038 |
| 1995–96 | 0.79 | 0.73 | 0.031 | 1.07 | 1.09 | 0.046 |
| 1996–97 | 0.99 | 1.04 | 0.031 | 1.54 | 1.41 | 0.069 |
| 1997–98 | 1.22 | 1.23 | 0.033 | 1.67 | 1.69 | 0.083 |
| 1998–99 | 1.28 | 1.34 | 0.033 | 1.84 | 2.10 | 0.074 |
| 1999–00 | 1.24 | 1.31 | 0.032 | 1.72 | 1.68 | 0.076 |
| 2000–01 | 1.20 | 1.04 | 0.034 | 1.88 | 1.94 | 0.067 |
| 2001–02 | 1.01 | 0.94 | 0.033 | 1.38 | 1.45 | 0.058 |
| 2002–03 | 0.98 | 0.96 | 0.033 | 1.74 | 1.68 | 0.050 |
| 2003–04 | 1.01 | 1.01 | 0.035 | 1.49 | 1.60 | 0.047 |
| 2004–05 | 0.79 | 0.73 | 0.035 | 1.30 | 1.32 | 0.040 |
| 2005–06 | 0.79 | 0.73 | 0.039 | 0.94 | 0.94 | 0.038 |
| 2006–07 | 0.51 | 0.61 | 0.040 | 0.71 | 0.76 | 0.033 |
| 2007–08 | 0.48 | 0.53 | 0.046 | 0.64 | 0.68 | 0.036 |
| 2008–09 | 0.52 | 0.57 | 0.051 | 0.82 | 0.85 | 0.044 |
| 2009–10 | 0.84 | 0.87 | 0.053 | N/A | N/A | N/A |

Table 61: Proportion of the total deviance explained by each variable in the standardised CPUE model used in the CRA 4 management decision making.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Period | 0.215 | | |
| Month | 0.045 | 0.255 | |
| Area | 0.018 | 0.236 | 0.275 |
| Additional deviance explained | 0.000 | 0.040 | 0.021 |

Table 62: Standardised indices for each fishing year/season with associated standard error and the corresponding arithmetic (Eq. 1) CPUE (kg/potlift) for CRA 5 from autumn/winter 1979–80 through autumn/winter 2009–10 [s.e.=standard error; N/A: not available]

| Fishing Year | Autumn/winter season | | | Spring/summer season | | |
|--------------|----------------------|--------------|-------|----------------------|--------------|-------|
| | Arithmetic | Standardised | s.e. | Arithmetic | Standardised | s.e. |
| 1979–80 | 0.75 | 0.63 | 0.039 | 0.76 | 0.64 | 0.033 |
| 1980–81 | 0.80 | 0.72 | 0.041 | 0.95 | 0.81 | 0.037 |
| 1981–82 | 0.64 | 0.58 | 0.045 | 0.84 | 0.78 | 0.036 |
| 1982–83 | 0.66 | 0.71 | 0.040 | 0.91 | 0.80 | 0.035 |
| 1983–84 | 0.68 | 0.67 | 0.040 | 0.78 | 0.68 | 0.035 |
| 1984–85 | 0.69 | 0.70 | 0.041 | 0.79 | 0.67 | 0.036 |
| 1985–86 | 0.56 | 0.51 | 0.041 | 0.72 | 0.60 | 0.035 |
| 1986–87 | 0.52 | 0.45 | 0.042 | 0.67 | 0.53 | 0.037 |
| 1987–88 | 0.41 | 0.38 | 0.042 | 0.50 | 0.44 | 0.037 |
| 1988–89 | 0.33 | 0.34 | 0.046 | 0.42 | 0.39 | 0.039 |
| 1989–90 | 0.35 | 0.35 | 0.054 | 0.44 | 0.42 | 0.039 |
| 1990–91 | 0.34 | 0.35 | 0.051 | 0.45 | 0.40 | 0.038 |
| 1991–92 | 0.25 | 0.26 | 0.044 | 0.41 | 0.35 | 0.036 |
| 1992–93 | 0.25 | 0.26 | 0.045 | 0.39 | 0.34 | 0.039 |
| 1993–94 | 0.32 | 0.34 | 0.045 | 0.43 | 0.39 | 0.043 |
| 1994–95 | 0.35 | 0.33 | 0.047 | 0.46 | 0.43 | 0.046 |
| 1995–96 | 0.40 | 0.38 | 0.049 | 0.56 | 0.53 | 0.047 |
| 1996–97 | 0.50 | 0.52 | 0.047 | 0.67 | 0.73 | 0.056 |
| 1997–98 | 0.74 | 0.74 | 0.051 | 0.95 | 1.01 | 0.062 |
| 1998–99 | 0.84 | 0.99 | 0.053 | 1.10 | 1.23 | 0.069 |
| 1999–00 | 0.96 | 1.00 | 0.052 | 1.19 | 1.28 | 0.069 |
| 2000–01 | 1.13 | 1.12 | 0.057 | 1.35 | 1.68 | 0.083 |
| 2001–02 | 1.27 | 1.29 | 0.059 | 1.22 | 1.74 | 0.111 |
| 2002–03 | 1.24 | 1.31 | 0.061 | 1.39 | 1.93 | 0.088 |
| 2003–04 | 1.30 | 1.32 | 0.060 | 1.95 | 2.45 | 0.086 |
| 2004–05 | 1.17 | 1.19 | 0.063 | 1.51 | 2.00 | 0.074 |
| 2005–06 | 1.05 | 1.07 | 0.062 | 1.58 | 1.88 | 0.076 |
| 2006–07 | 0.97 | 1.02 | 0.062 | 1.77 | 1.90 | 0.079 |
| 2007–08 | 0.98 | 1.05 | 0.067 | 1.79 | 1.72 | 0.074 |
| 2008–09 | 1.15 | 1.17 | 0.065 | 1.68 | 1.94 | 0.087 |
| 2009–10 | 1.41 | 1.51 | 0.073 | N/A | N/A | N/A |

Table 63: Proportion of the total deviance explained by each variable in the standardised CPUE model used in the CRA 5 management decision making.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Period | 0.293 | | |
| Area | 0.028 | 0.319 | |
| Month | 0.026 | 0.314 | 0.340 |
| Additional deviance explained | 0.000 | 0.026 | 0.021 |

Table 64: Annual standardised CPUE analysis used to operate the 2008–09 CRA 3 management procedure 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 | 0.93 | 0.89 | 0.85 | 0.022 |
| 1980–81 | 0.92 | 0.92 | 0.87 | 0.021 |
| 1981–82 | 0.94 | 0.96 | 0.93 | 0.021 |
| 1982–83 | 0.92 | 0.93 | 0.92 | 0.021 |
| 1983–84 | 0.81 | 0.79 | 0.77 | 0.020 |
| 1984–85 | 0.74 | 0.70 | 0.67 | 0.020 |
| 1985–86 | 0.71 | 0.67 | 0.64 | 0.022 |
| 1986–87 | 0.64 | 0.54 | 0.52 | 0.021 |
| 1987–88 | 0.44 | 0.44 | 0.41 | 0.024 |
| 1988–89 | 0.44 | 0.43 | 0.42 | 0.024 |
| 1989–90 | 0.49 | 0.48 | 0.47 | 0.023 |
| 1990–91 | 0.41 | 0.36 | 0.36 | 0.023 |
| 1991–92 | 0.31 | 0.27 | 0.26 | 0.022 |
| 1992–93 | 0.36 | 0.35 | 0.34 | 0.024 |
| 1993–94 | 0.79 | 0.83 | 0.87 | 0.039 |
| 1994–95 | 1.24 | 1.30 | 1.36 | 0.047 |
| 1995–96 | 1.73 | 1.71 | 1.82 | 0.048 |
| 1996–97 | 2.17 | 2.48 | 2.67 | 0.051 |
| 1997–98 | 1.60 | 1.80 | 2.01 | 0.050 |
| 1998–99 | 1.63 | 1.87 | 2.02 | 0.047 |
| 1999–00 | 1.19 | 1.30 | 1.47 | 0.042 |
| 2000–01 | 0.99 | 1.06 | 1.16 | 0.043 |
| 2001–02 | 0.82 | 0.78 | 0.87 | 0.037 |
| 2002–03 | 0.72 | 0.70 | 0.69 | 0.033 |
| 2003–04 | 0.55 | 0.53 | 0.50 | 0.033 |
| 2004–05 | 0.57 | 0.59 | 0.56 | 0.036 |
| 2005–06 | 0.59 | 0.60 | 0.57 | 0.035 |
| 2006–07 | 0.60 | 0.61 | 0.59 | 0.035 |
| 2007–08 | 0.66 | 0.67 | 0.63 | 0.038 |
| 2008–09 | 0.74 | 0.82 | 0.79 | 0.043 |

Table 65: Proportion of the total deviance explained by each variable in the standardised CPUE model used to operate the 2008–09 CRA 3 management procedure decision rule.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Fishing year | 0.345 | | |
| Area | 0.077 | 0.436 | |
| Month | 0.015 | 0.364 | 0.454 |
| Additional deviance explained | 0.000 | 0.091 | 0.018 |

Table 66: Annual standardised CPUE analysis used to operate the 2008–09 CRA 5 management procedure decision rule. This analysis is based on a 1 October–30 September fishing year (see Section 3.16). [s.e.=standard error]

| Fishing year | Arithmetic | Unstandardised | Standardised | s.e. |
|--------------|------------|----------------|--------------|-------|
| 1979–80 | 0.77 | 0.70 | 0.67 | 0.024 |
| 1980–81 | 0.86 | 0.75 | 0.71 | 0.027 |
| 1981–82 | 0.78 | 0.77 | 0.75 | 0.026 |
| 1982–83 | 0.84 | 0.76 | 0.75 | 0.025 |
| 1983–84 | 0.75 | 0.70 | 0.69 | 0.025 |
| 1984–85 | 0.73 | 0.62 | 0.61 | 0.026 |
| 1985–86 | 0.67 | 0.55 | 0.54 | 0.026 |
| 1986–87 | 0.60 | 0.48 | 0.47 | 0.026 |
| 1987–88 | 0.45 | 0.41 | 0.40 | 0.028 |
| 1988–89 | 0.41 | 0.38 | 0.37 | 0.031 |
| 1989–90 | 0.42 | 0.41 | 0.39 | 0.030 |
| 1990–91 | 0.40 | 0.35 | 0.34 | 0.028 |
| 1991–92 | 0.37 | 0.33 | 0.31 | 0.027 |
| 1992–93 | 0.36 | 0.35 | 0.34 | 0.028 |
| 1993–94 | 0.40 | 0.38 | 0.37 | 0.030 |
| 1994–95 | 0.44 | 0.43 | 0.41 | 0.032 |
| 1995–96 | 0.53 | 0.54 | 0.54 | 0.032 |
| 1996–97 | 0.71 | 0.74 | 0.76 | 0.036 |
| 1997–98 | 0.87 | 1.01 | 1.04 | 0.039 |
| 1998–99 | 0.98 | 1.07 | 1.13 | 0.040 |
| 1999–00 | 1.14 | 1.20 | 1.23 | 0.043 |
| 2000–01 | 1.29 | 1.40 | 1.49 | 0.047 |
| 2001–02 | 1.24 | 1.37 | 1.51 | 0.052 |
| 2002–03 | 1.31 | 1.48 | 1.58 | 0.049 |
| 2003–04 | 1.28 | 1.55 | 1.61 | 0.050 |
| 2004–05 | 1.17 | 1.42 | 1.44 | 0.046 |
| 2005–06 | 1.12 | 1.34 | 1.36 | 0.047 |
| 2006–07 | 1.20 | 1.37 | 1.40 | 0.050 |
| 2007–08 | 1.33 | 1.41 | 1.43 | 0.048 |
| 2008–09 | 1.48 | 1.70 | 1.74 | 0.055 |

Table 67: Proportion of the total deviance explained by each variable in the standardised CPUE model used to operate the 2008–09 CRA 5 management procedure decision rule.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Fishing year | 0.262 | | |
| Area | 0.027 | 0.311 | |
| Month | 0.028 | 0.287 | 0.336 |
| Additional deviance explained | 0.000 | 0.049 | 0.025 |

Table 68: Annual standardised CPUE analysis used to operate the 2008–09 CRA 7 management procedure decision rule. This analysis is based on a 1 October–30 September fishing year (see Section 3.17). [s.e.=standard error]

| Fishing year | Arithmetic | Unstandardised | Standardised | s.e. |
|--------------|------------|----------------|--------------|-------|
| 1979–80 | 0.94 | 0.97 | 0.97 | 0.033 |
| 1980–81 | 0.80 | 0.77 | 0.77 | 0.033 |
| 1981–82 | 0.50 | 0.49 | 0.49 | 0.036 |
| 1982–83 | 0.44 | 0.45 | 0.44 | 0.039 |
| 1983–84 | 0.58 | 0.54 | 0.54 | 0.038 |
| 1984–85 | 0.76 | 0.71 | 0.71 | 0.038 |
| 1985–86 | 0.75 | 0.72 | 0.73 | 0.038 |
| 1986–87 | 0.78 | 0.81 | 0.83 | 0.041 |
| 1987–88 | 0.47 | 0.47 | 0.47 | 0.043 |
| 1988–89 | 0.37 | 0.31 | 0.32 | 0.048 |
| 1989–90 | 0.45 | 0.45 | 0.47 | 0.042 |
| 1990–91 | 0.70 | 0.63 | 0.64 | 0.042 |
| 1991–92 | 0.42 | 0.44 | 0.43 | 0.055 |
| 1992–93 | 0.52 | 0.56 | 0.58 | 0.047 |
| 1993–94 | 0.54 | 0.49 | 0.49 | 0.056 |
| 1994–95 | 0.32 | 0.30 | 0.30 | 0.051 |
| 1995–96 | 0.24 | 0.22 | 0.22 | 0.056 |
| 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 | 0.065 |
| 1999–00 | 0.32 | 0.34 | 0.33 | 0.060 |
| 2000–01 | 0.45 | 0.47 | 0.45 | 0.061 |
| 2001–02 | 0.48 | 0.52 | 0.53 | 0.064 |
| 2002–03 | 0.57 | 0.62 | 0.65 | 0.077 |
| 2003–04 | 0.79 | 0.74 | 0.77 | 0.082 |
| 2004–05 | 1.02 | 1.16 | 1.12 | 0.098 |
| 2005–06 | 1.54 | 1.84 | 1.72 | 0.098 |
| 2006–07 | 1.32 | 1.67 | 1.62 | 0.088 |
| 2007–08 | 1.60 | 2.03 | 1.99 | 0.092 |
| 2008–09 | 0.87 | 0.79 | 0.80 | 0.107 |

Table 69: Proportion of the total deviance explained by each variable in the standardised CPUE model used to operate the 2008–09 CRA 7 management procedure decision rule.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Fishing year | 0.236 | | |
| Area | 0.051 | 0.282 | |
| Month | 0.006 | 0.245 | 0.290 |
| Additional deviance explained | 0.000 | 0.047 | 0.008 |

Table 70: Annual standardised CPUE analysis used to operate the 2008–09 CRA 8 management procedure decision rule. This analysis is based on a 1 October–30 September fishing year (see Section 3.18). [s.e.=standard error]

| Fishing year | Arithmetic | Unstandardised | Standardised | s.e. |
|--------------|------------|----------------|--------------|-------|
| 1979–80 | 1.84 | 2.03 | 1.99 | 0.021 |
| 1980–81 | 1.78 | 1.85 | 1.74 | 0.022 |
| 1981–82 | 1.60 | 1.61 | 1.55 | 0.023 |
| 1982–83 | 1.41 | 1.28 | 1.24 | 0.022 |
| 1983–84 | 1.32 | 1.24 | 1.17 | 0.021 |
| 1984–85 | 1.35 | 1.22 | 1.18 | 0.021 |
| 1985–86 | 1.17 | 1.09 | 1.07 | 0.022 |
| 1986–87 | 1.20 | 1.19 | 1.16 | 0.023 |
| 1987–88 | 1.14 | 1.13 | 1.06 | 0.025 |
| 1988–89 | 0.92 | 0.90 | 0.85 | 0.026 |
| 1989–90 | 0.87 | 0.87 | 0.79 | 0.025 |
| 1990–91 | 0.81 | 0.83 | 0.80 | 0.025 |
| 1991–92 | 0.80 | 0.78 | 0.76 | 0.024 |
| 1992–93 | 0.79 | 0.80 | 0.78 | 0.024 |
| 1993–94 | 0.90 | 0.89 | 0.90 | 0.027 |
| 1994–95 | 0.88 | 0.89 | 0.86 | 0.028 |
| 1995–96 | 0.85 | 0.82 | 0.81 | 0.029 |
| 1996–97 | 0.80 | 0.76 | 0.76 | 0.028 |
| 1997–98 | 0.76 | 0.72 | 0.70 | 0.029 |
| 1998–99 | 0.84 | 0.81 | 0.77 | 0.029 |
| 1999–00 | 0.96 | 0.85 | 0.82 | 0.034 |
| 2000–01 | 0.86 | 0.88 | 0.86 | 0.036 |
| 2001–02 | 1.05 | 1.06 | 1.06 | 0.041 |
| 2002–03 | 1.53 | 1.68 | 1.68 | 0.045 |
| 2003–04 | 1.55 | 1.62 | 1.72 | 0.048 |
| 2004–05 | 1.73 | 1.86 | 2.04 | 0.047 |
| 2005–06 | 2.19 | 2.40 | 2.80 | 0.049 |
| 2006–07 | 2.35 | 2.55 | 2.92 | 0.050 |
| 2007–08 | 3.21 | 3.26 | 3.69 | 0.045 |
| 2008–09 | 2.88 | 3.20 | 3.78 | 0.050 |

Table 71: Proportion of the total deviance explained by each variable in the standardised CPUE model used to operate the 2008–09 CRA 8 management procedure decision rule.

| Variable | Iteration | | |
|-------------------------------|-----------|-------|-------|
| | 1 | 2 | 3 |
| Fishing year | 0.148 | | |
| Month | 0.038 | 0.198 | |
| Area | 0.033 | 0.178 | 0.227 |
| Additional deviance explained | 0.000 | 0.051 | 0.028 |

New Zealand CRA Quota Management and Statistical Areas

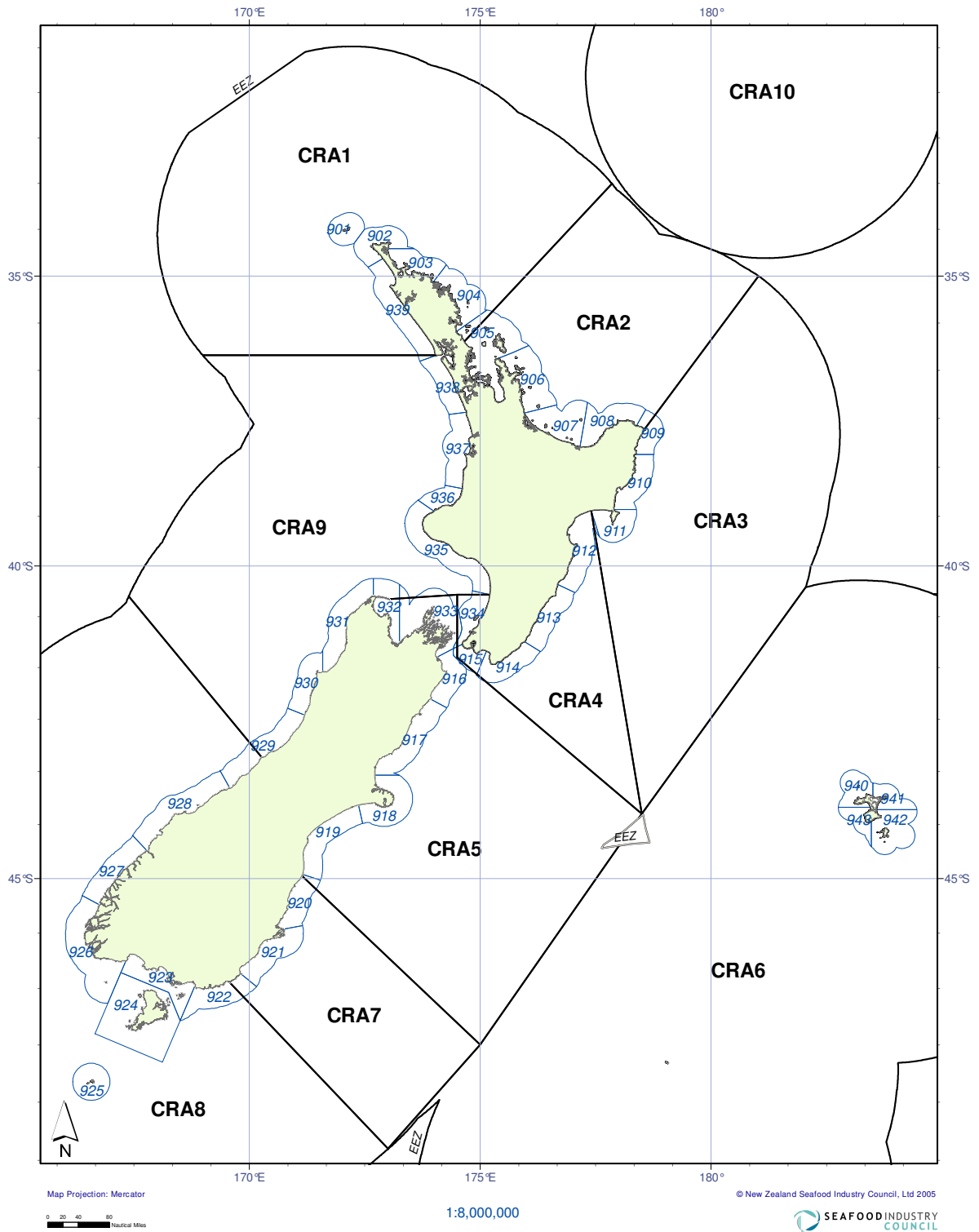


Figure 1: Map of rock lobster statistical areas and Quota Management Areas.

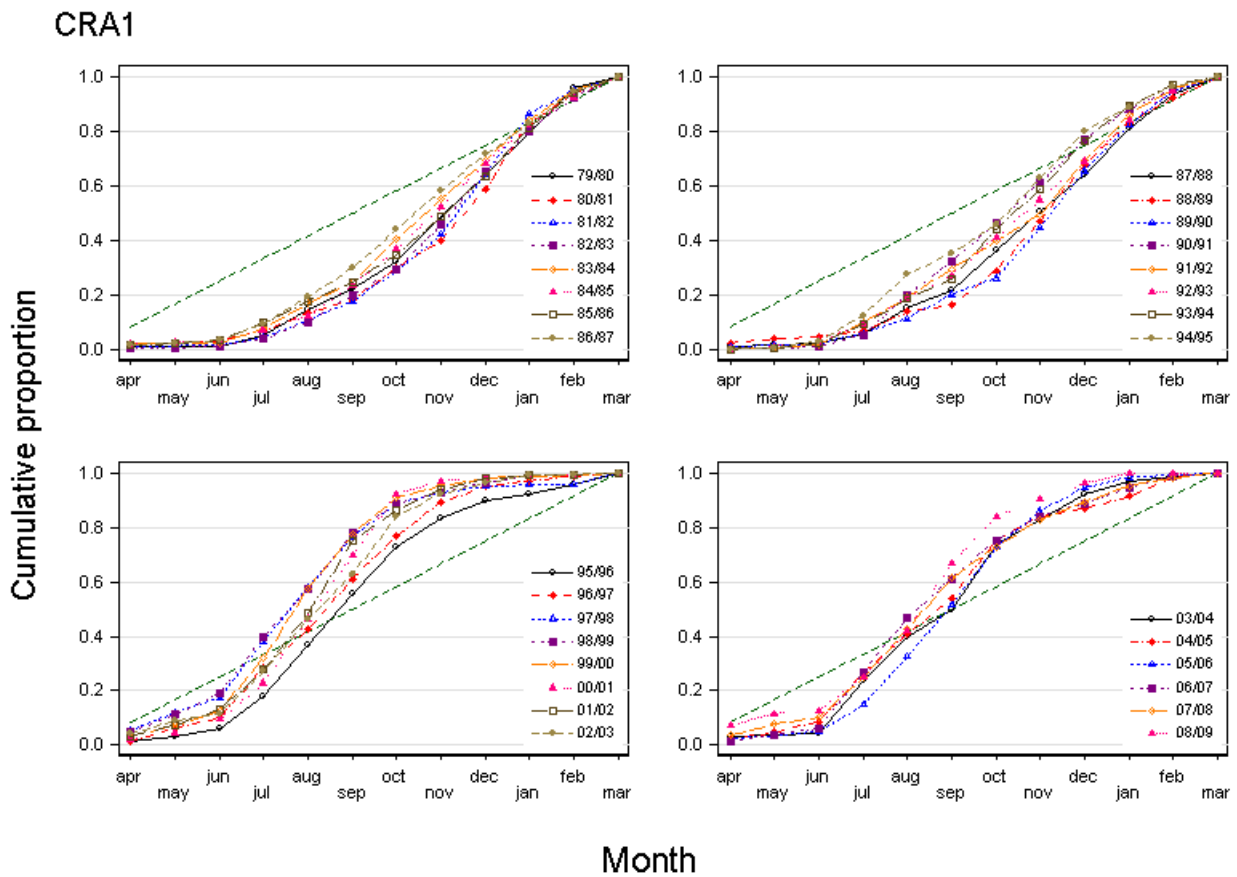


Figure 2: Cumulative catch percentages by fishing month for CRA 1, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

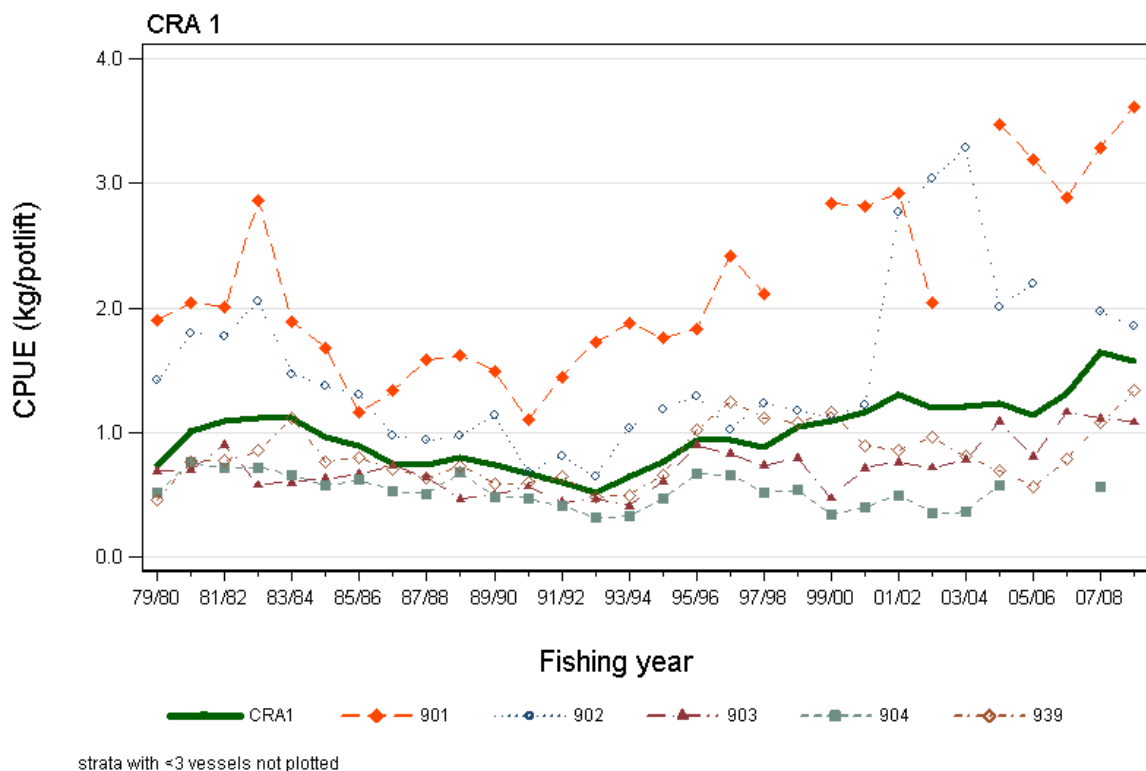


Figure 3: Arithmetic CPUE (total kg/total potlifts) for CRA 1 by fishing year and statistical area from 1979–80 to 2008–09.

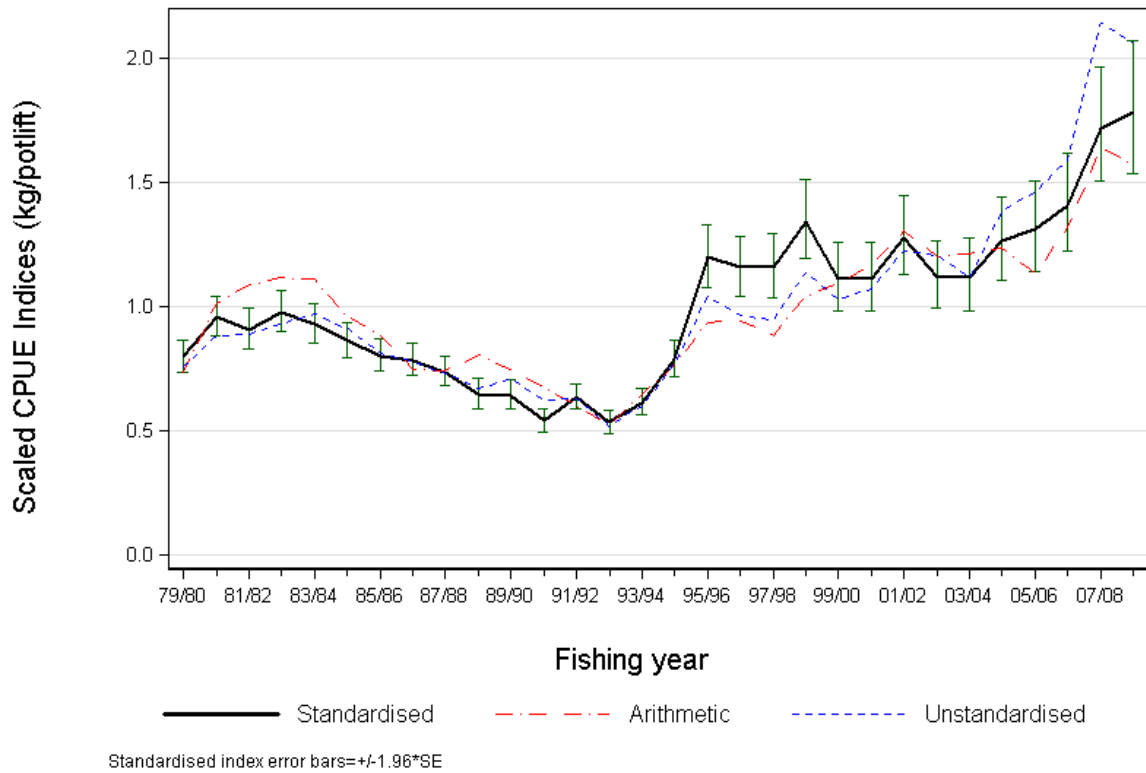


Figure 4: Annual CPUE indices for CRA 1: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 0.96 kg/potlift.

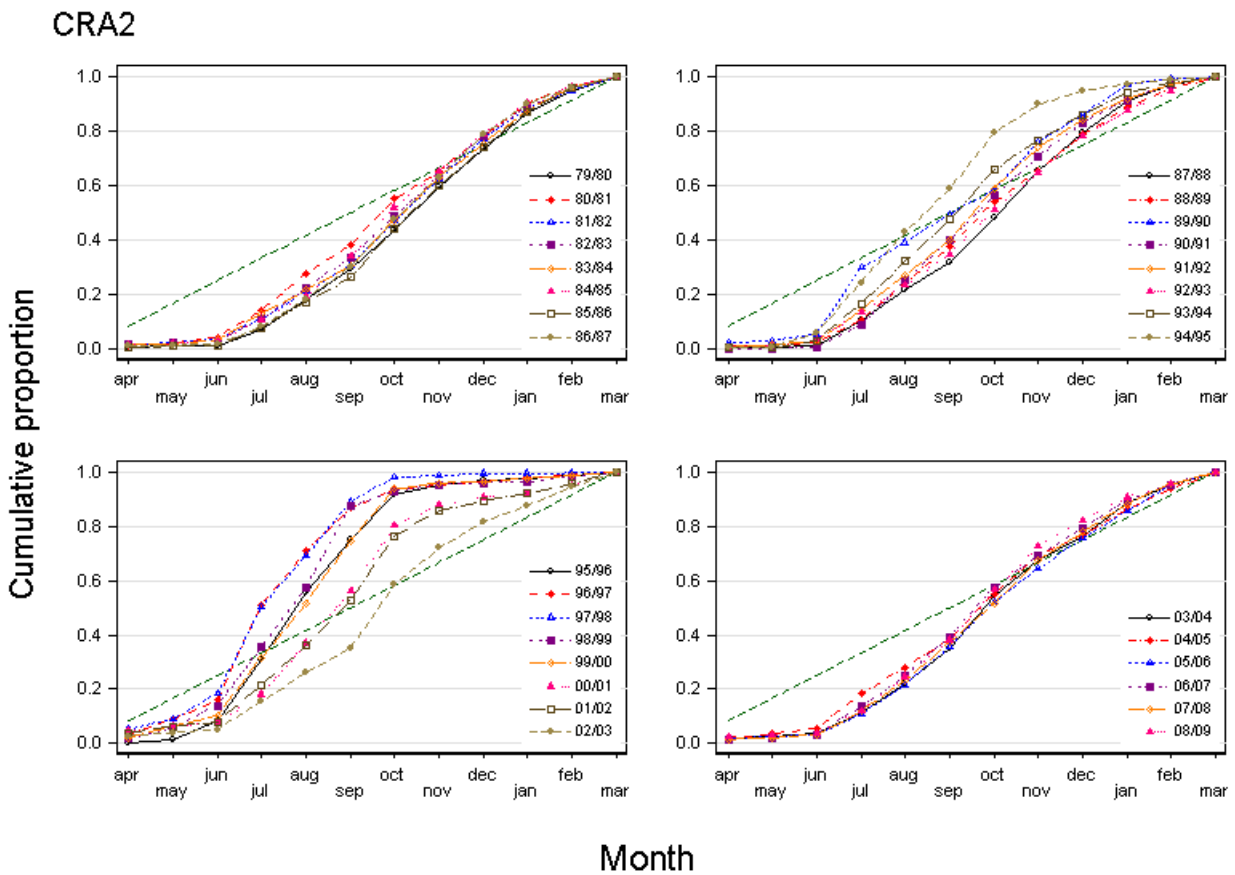


Figure 5: Cumulative catch percentages by fishing month for CRA 2, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

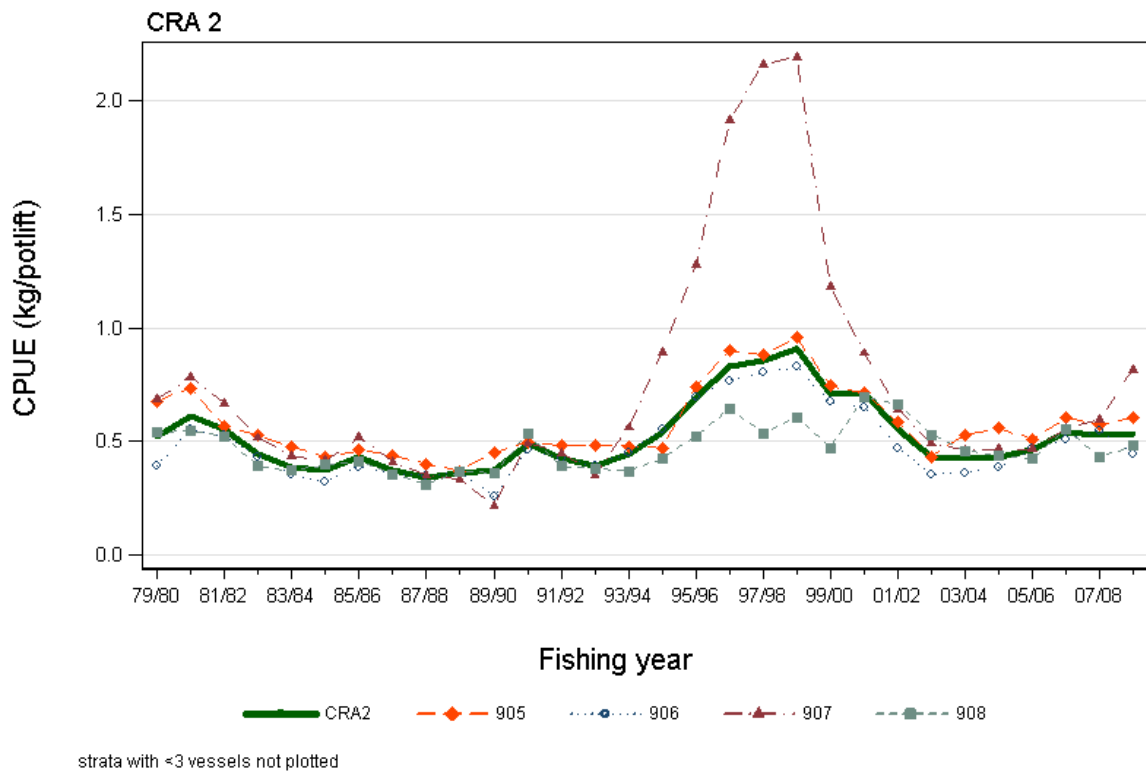


Figure 6: Arithmetic CPUE (total kg/total potlifts) for CRA 2 by fishing year and statistical area from 1979–80 to 2008–09.

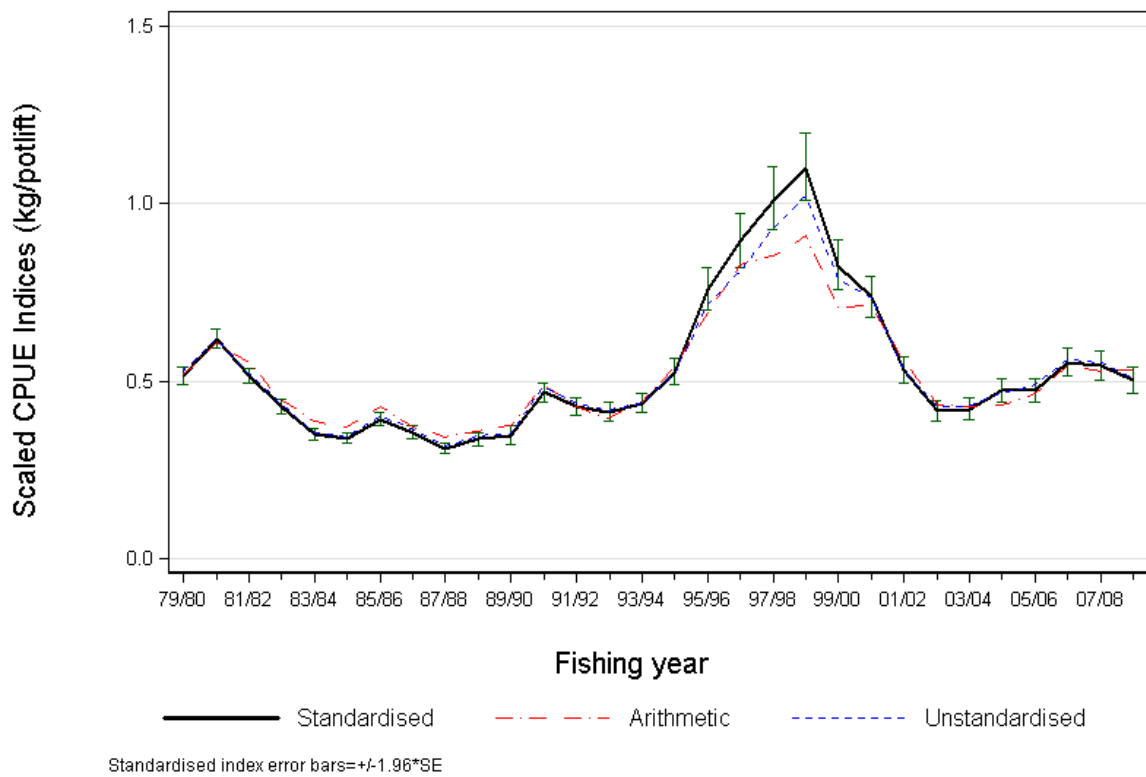


Figure 7: Annual CPUE indices for CRA 2: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 0.50 kg/potlift.

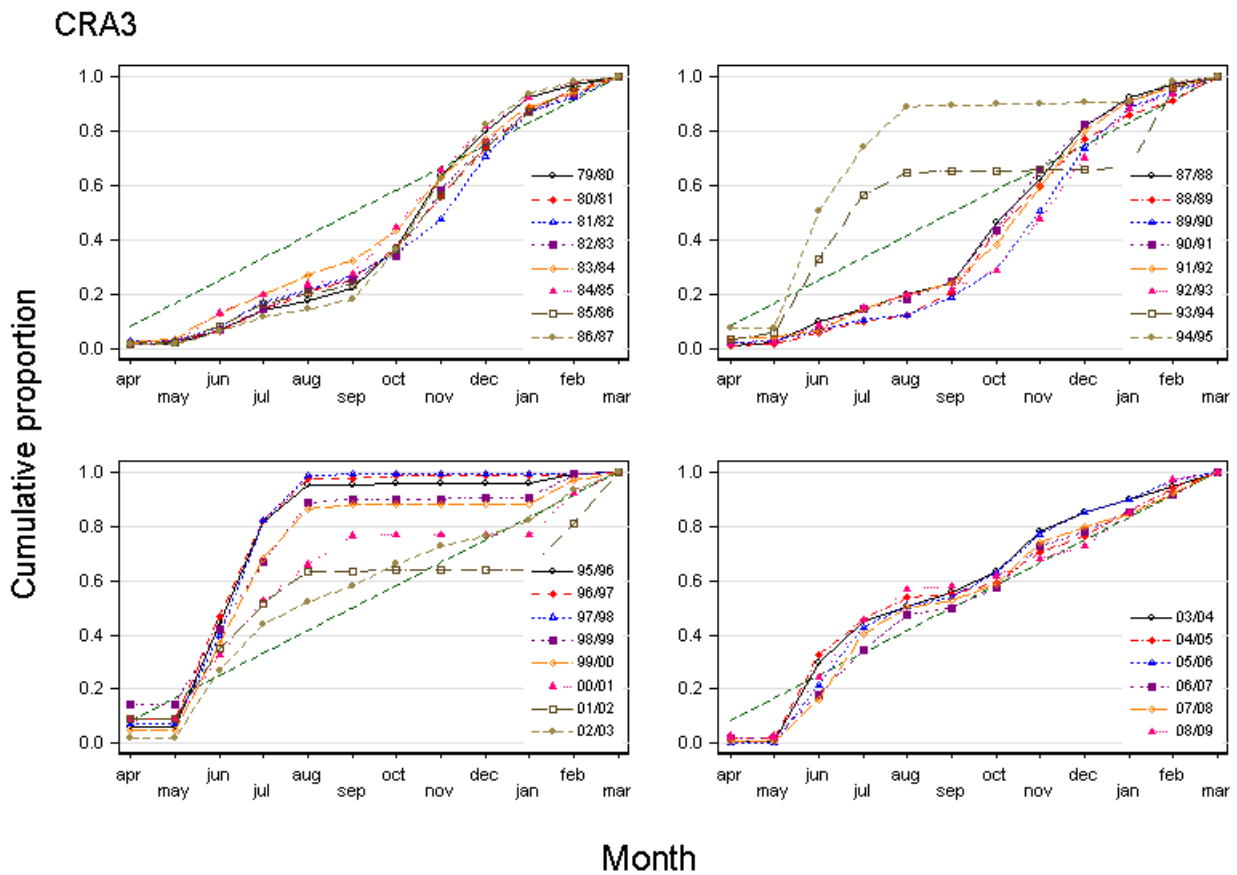
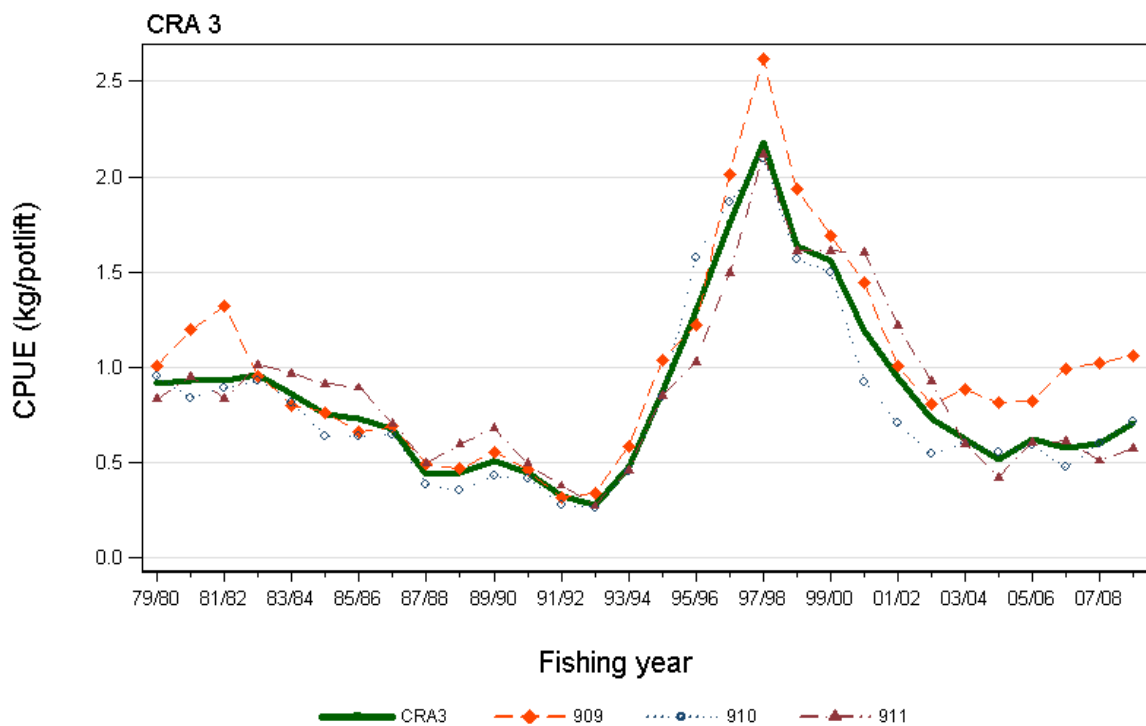


Figure 8: Cumulative catch percentages by fishing month for CRA 3, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.



strata with <3 vessels not plotted

Figure 9: Arithmetic CPUE (total kg/total potlifts) for CRA 3 by fishing year and statistical area from 1979–80 to 2008–09.

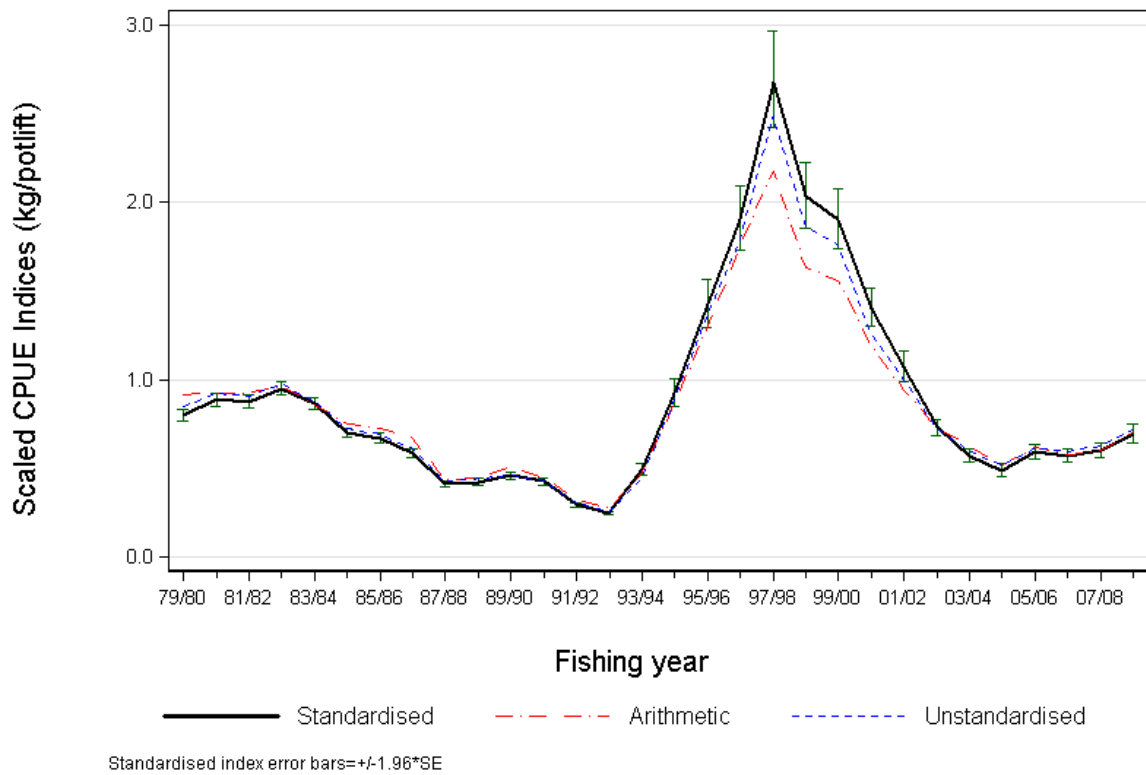


Figure 10: Annual CPUE indices for CRA 3: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 0.75 kg/potlift.

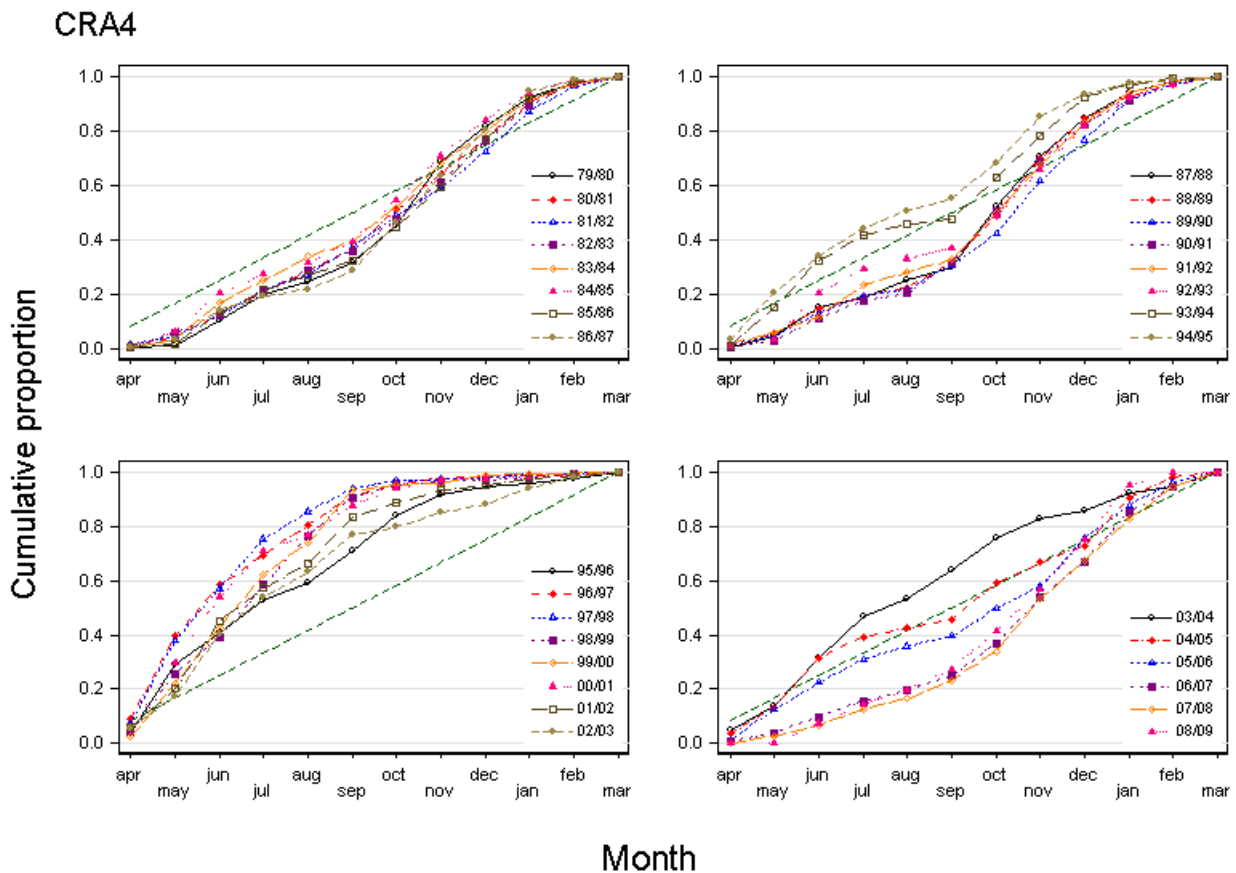


Figure 11: Cumulative catch percentages by fishing month for CRA 4, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

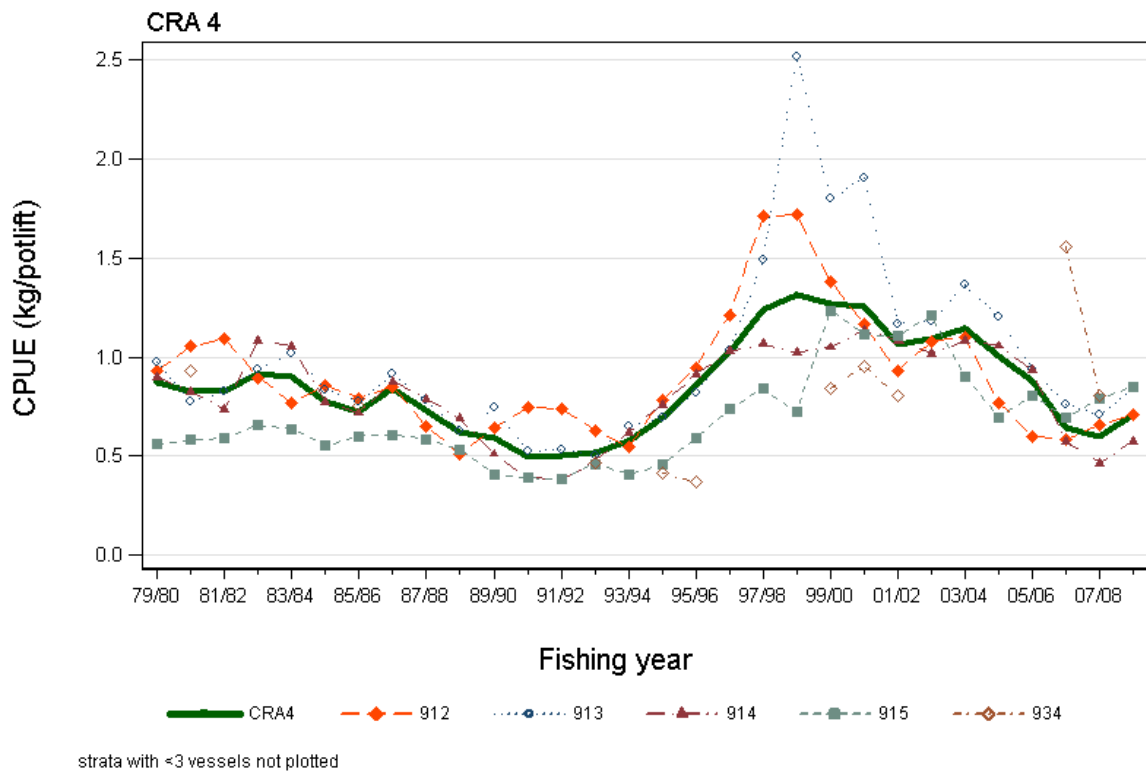


Figure 12: Arithmetic CPUE (total kg/total potlifts) for CRA 4 by fishing year and statistical area from 1979-80 to 2008-09.

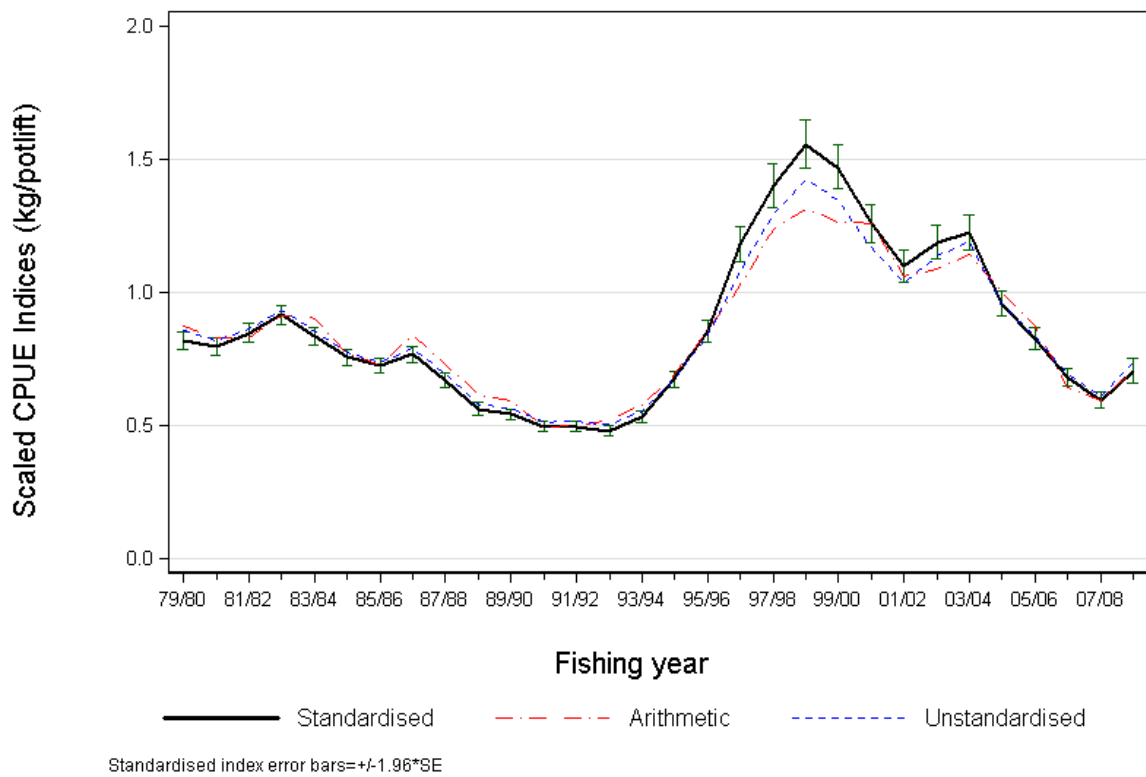


Figure 13: Annual CPUE indices for CRA 4: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) \pm 2 s.e. from 1979-80 to 2008-09. The geometric mean for each series = 0.82 kg/potlift.

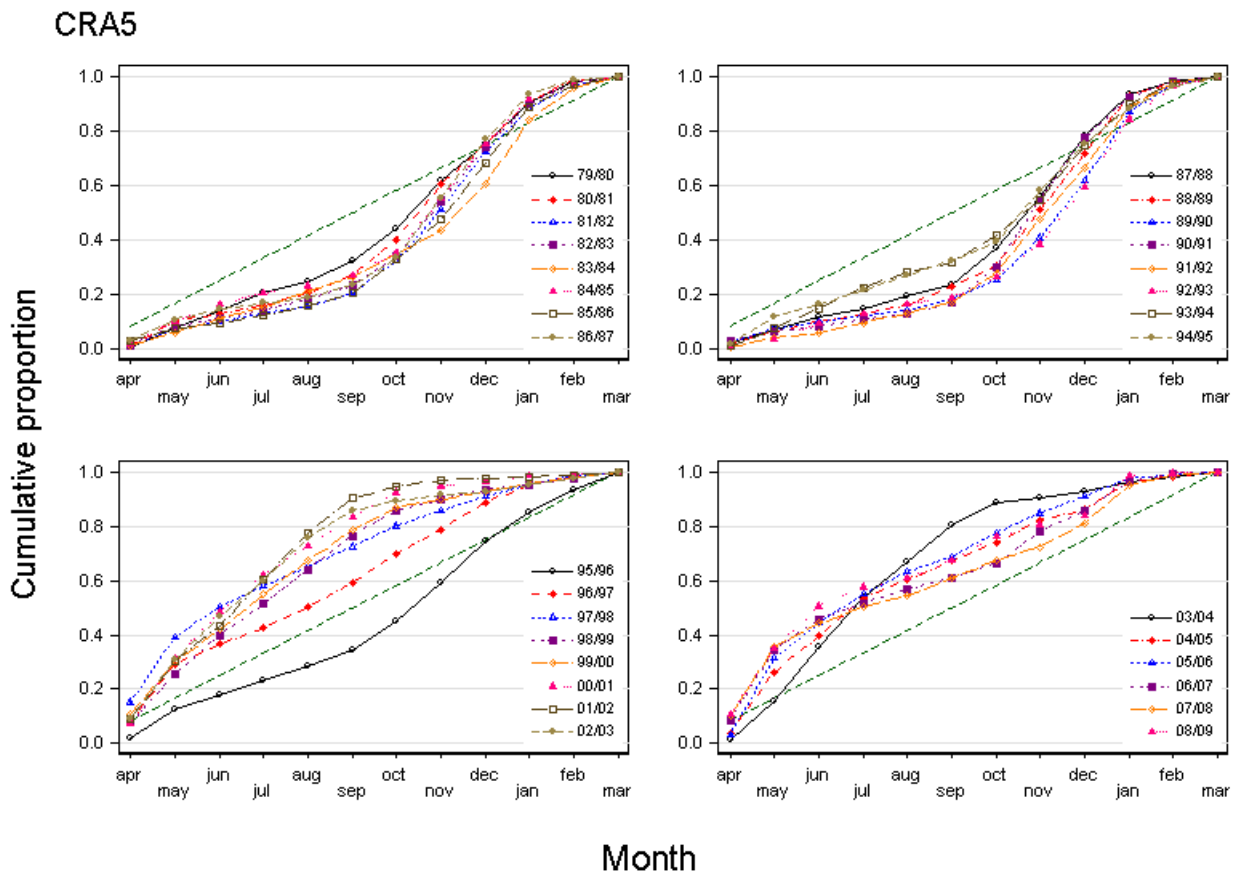


Figure 14: Cumulative catch percentages by fishing month for CRA 5, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

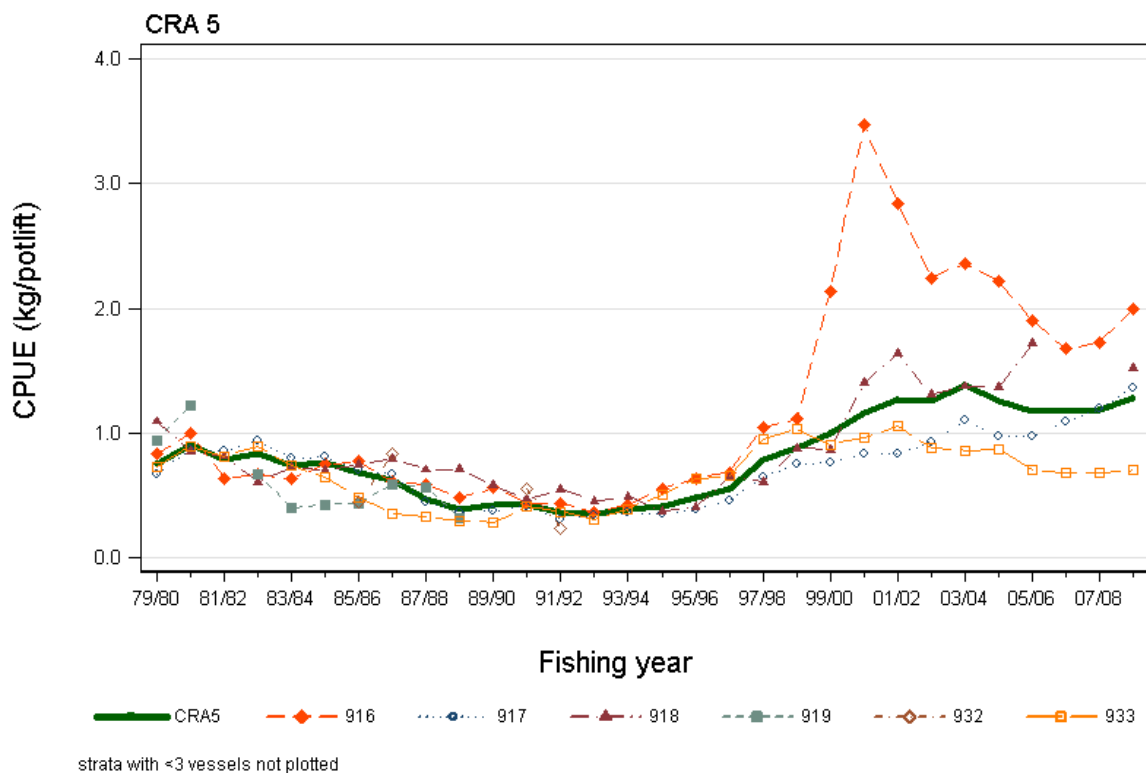


Figure 15: Arithmetic CPUE (total kg/total potlifts) for CRA 5 by fishing year and statistical area from 1979–80 to 2008–09.

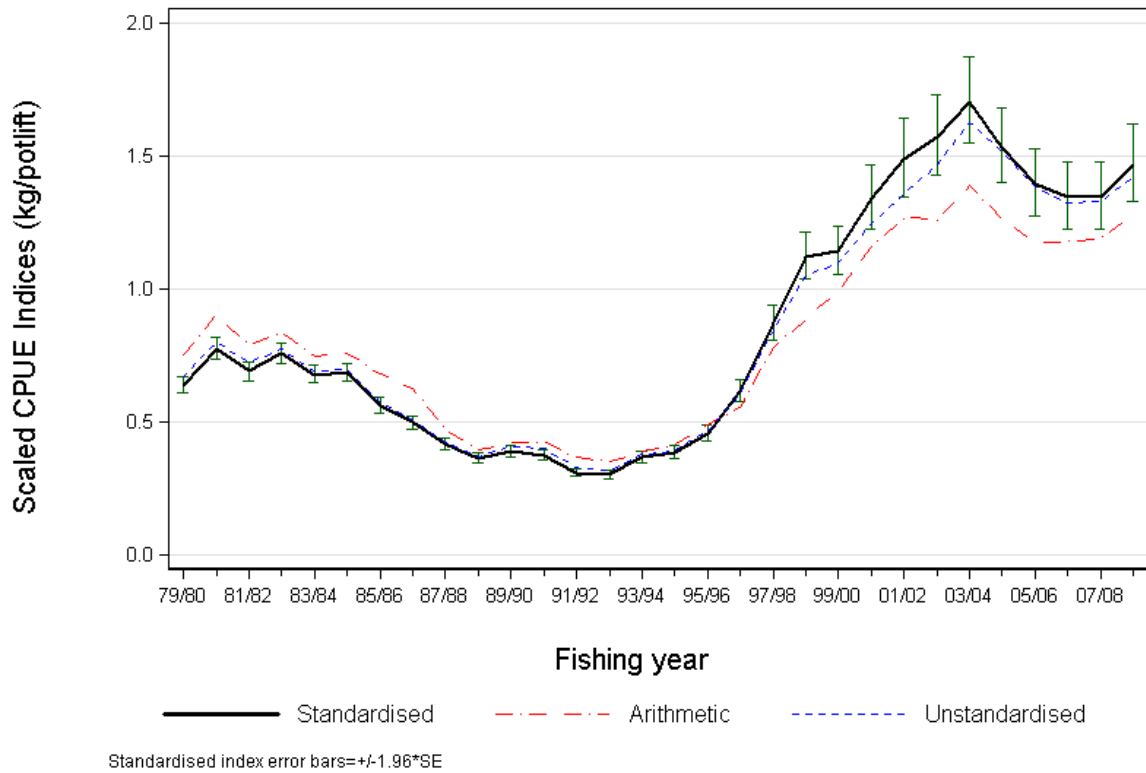


Figure 16: Annual CPUE indices for CRA 5: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 0.74 kg/potlift.

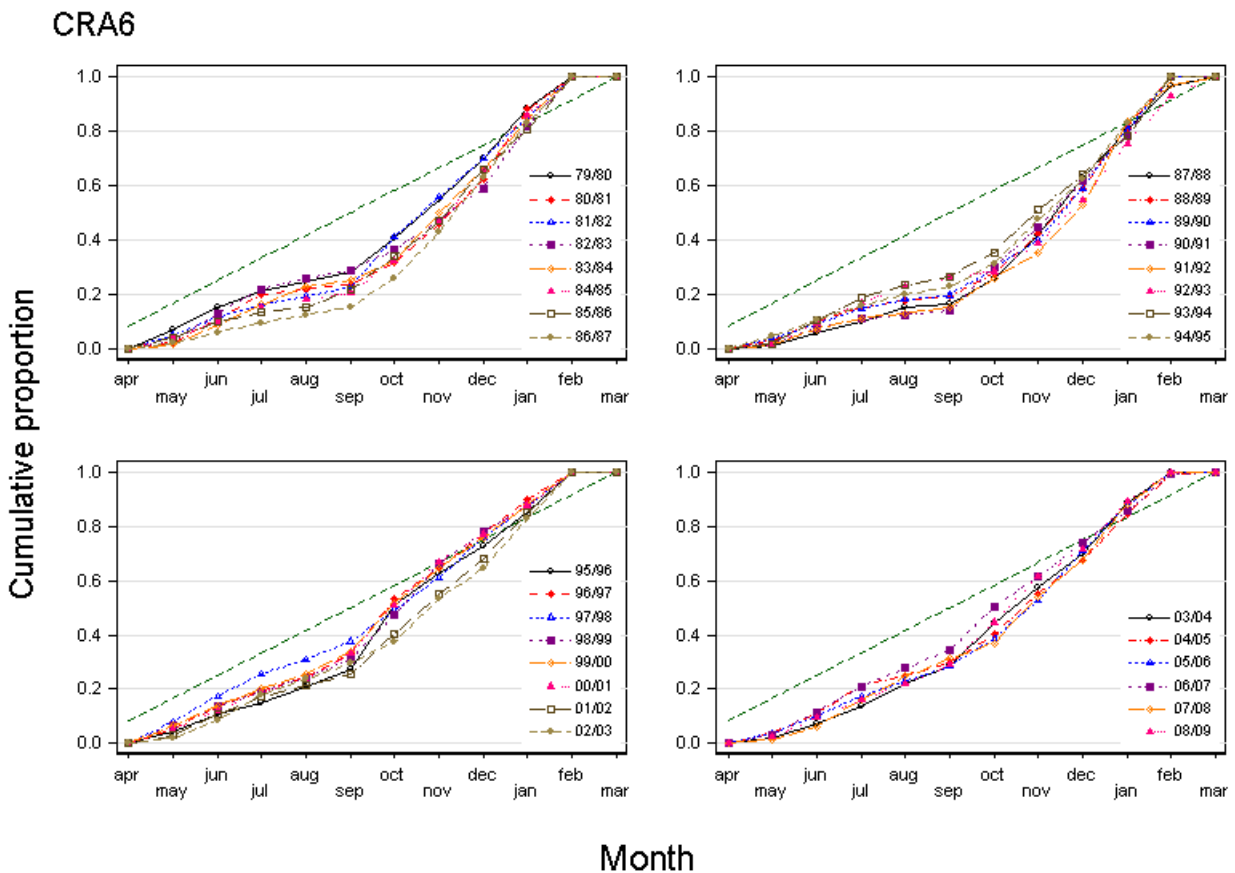


Figure 17: Cumulative catch percentages by fishing month for CRA 6, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

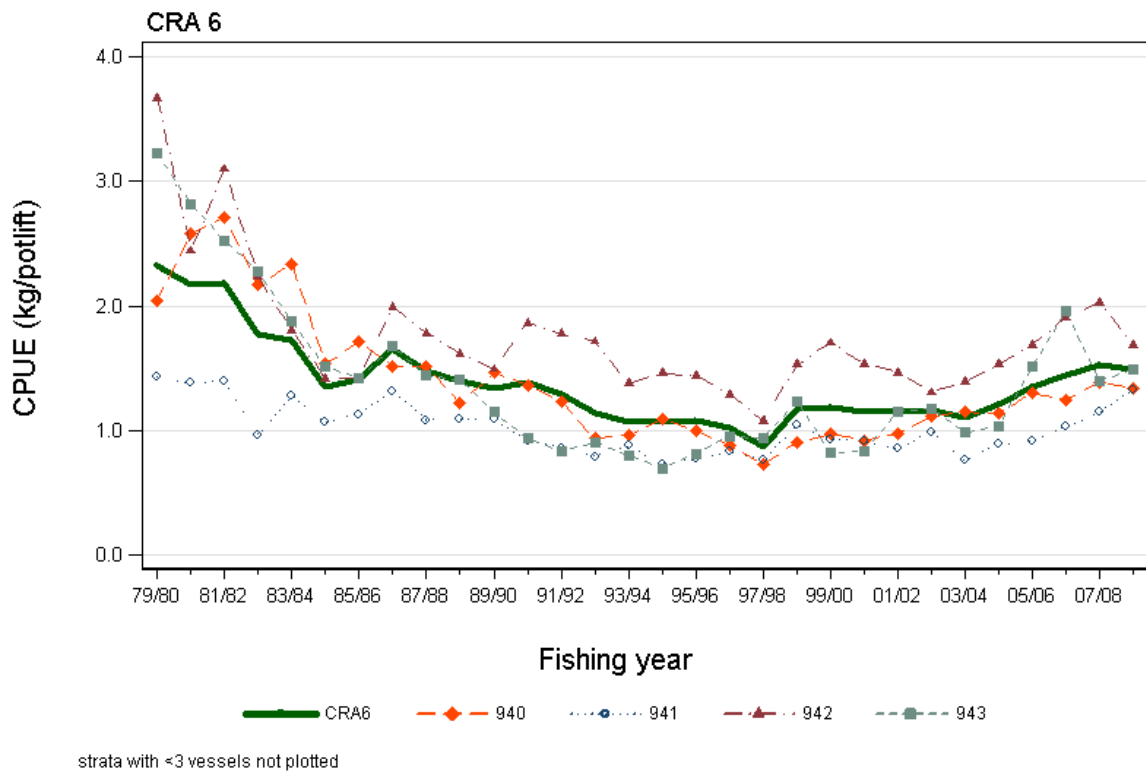


Figure 18: Arithmetic CPUE (total kg/total potlifts) for CRA 6 by fishing year and statistical area from 1979–80 to 2008–09.

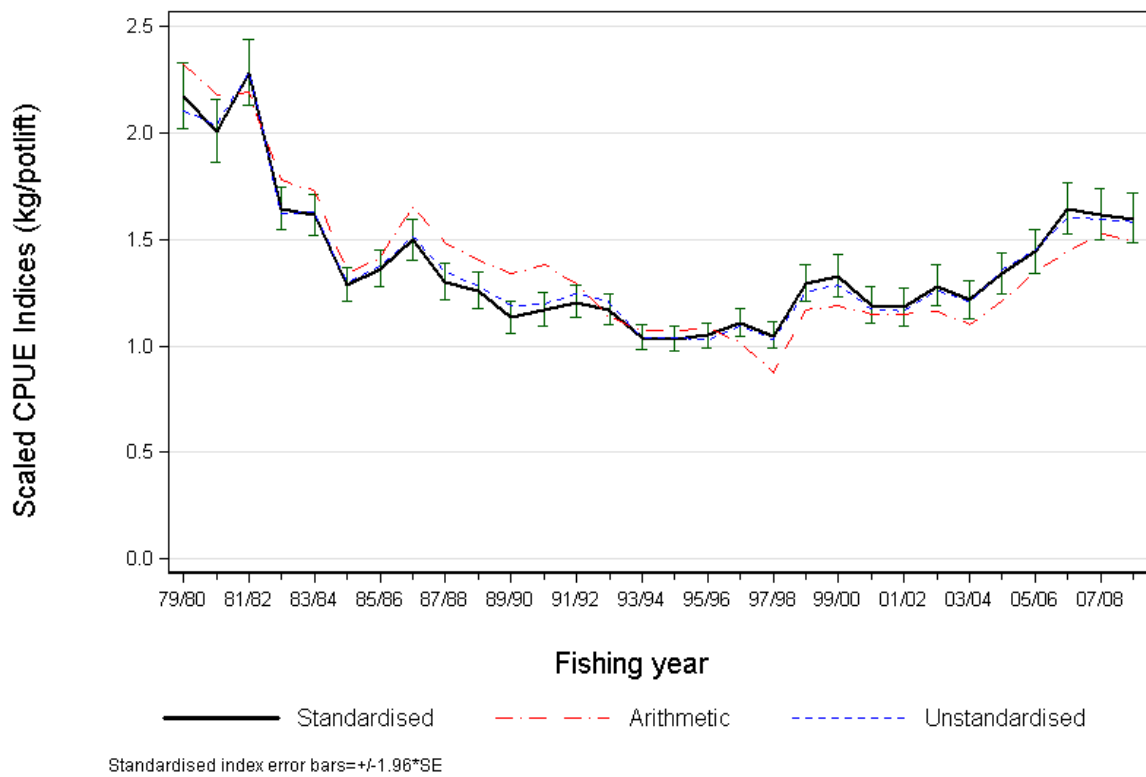


Figure 19: Annual CPUE indices for CRA 6: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) ± 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 1.35 kg/potlift.

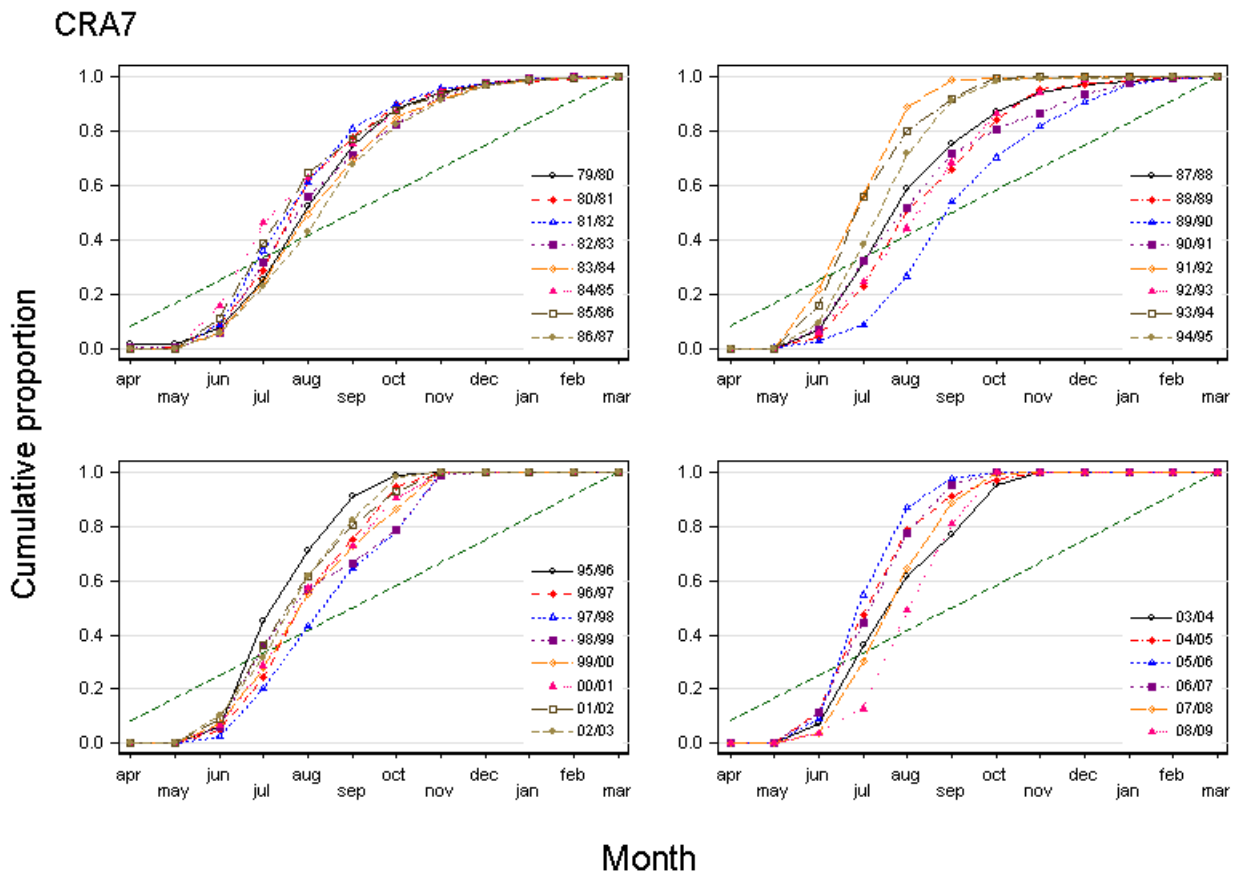
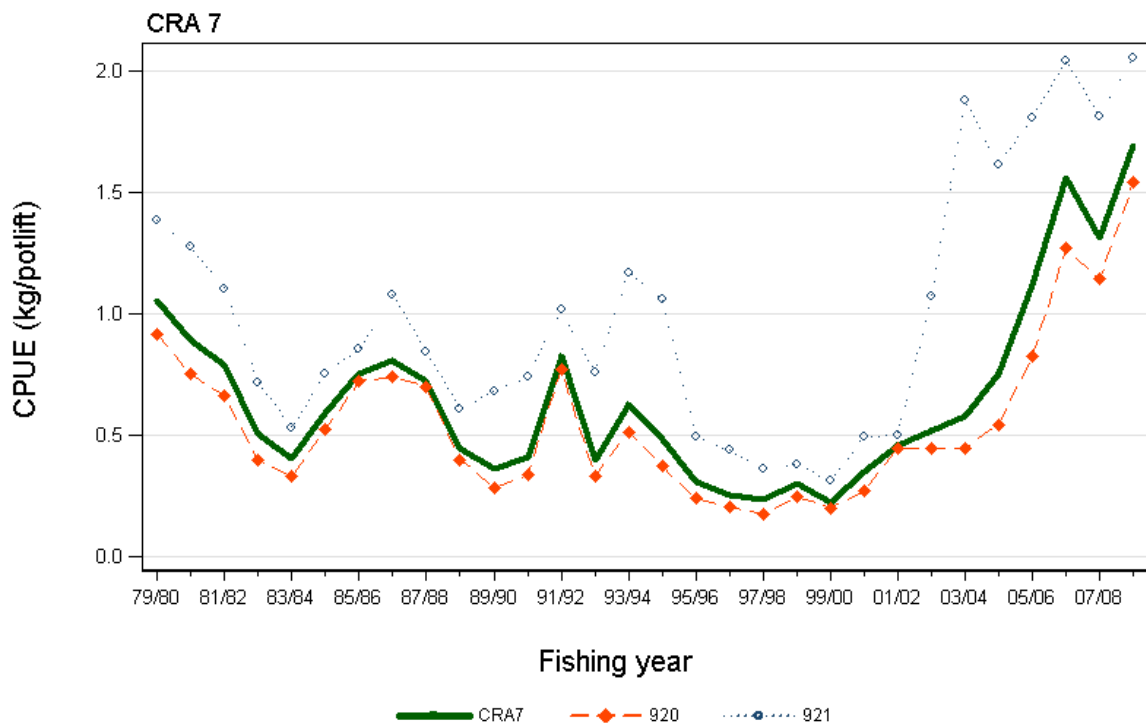


Figure 20: Cumulative catch percentages by fishing month for CRA 7, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.



strata with <3 vessels not plotted

Figure 21: Arithmetic CPUE (total kg/total potlifts) for CRA 7 by fishing year and statistical area from 1979–80 to 2008–09.

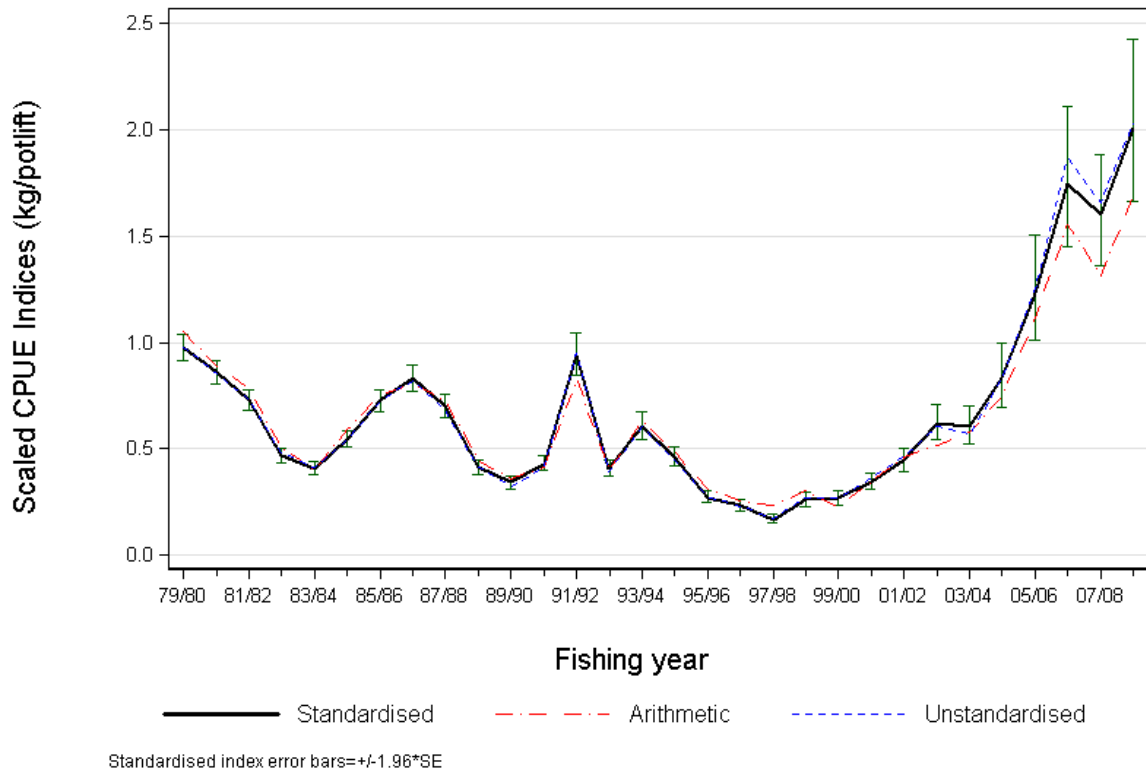


Figure 22: Annual CPUE indices for CRA 7: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) \pm 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 0.57 kg/potlift.

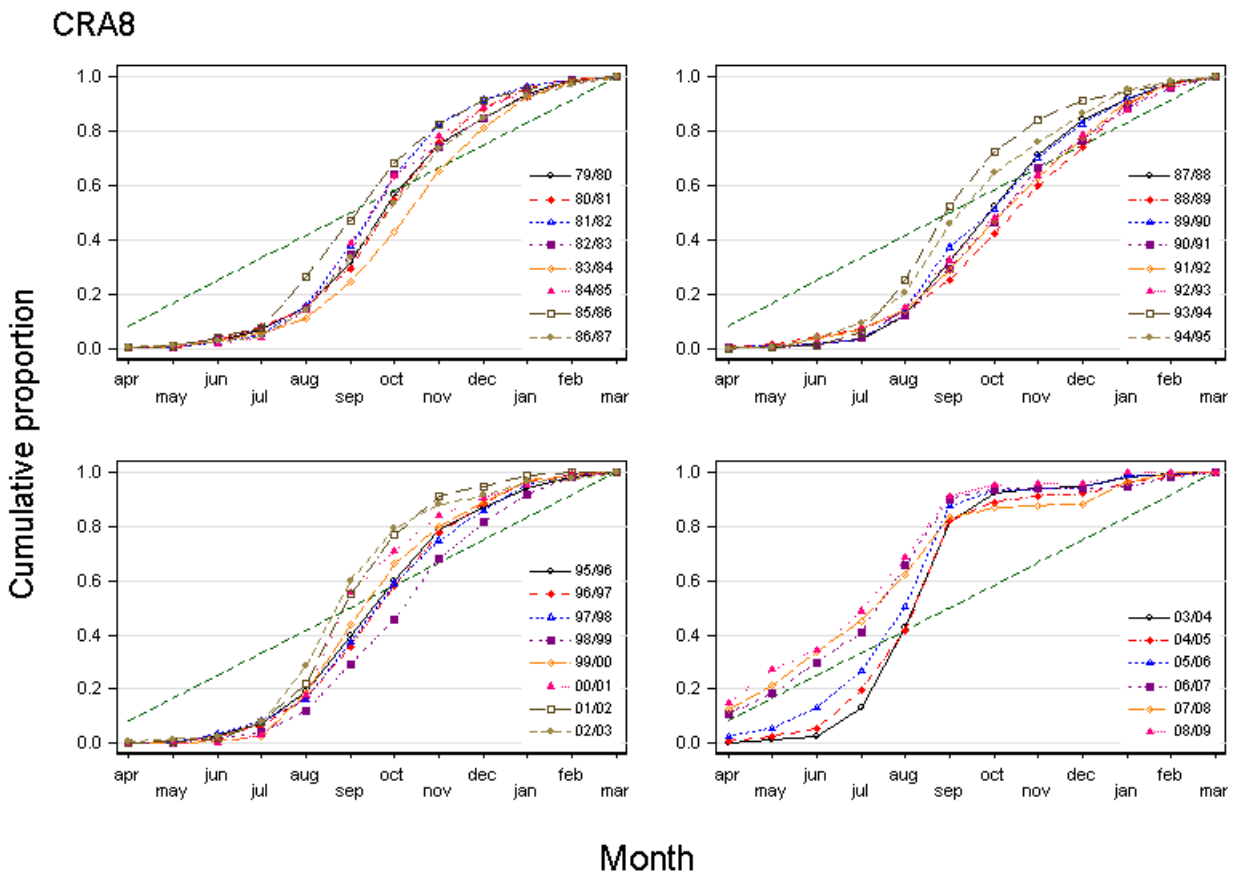


Figure 23: Cumulative catch percentages by fishing month for CRA 8, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.

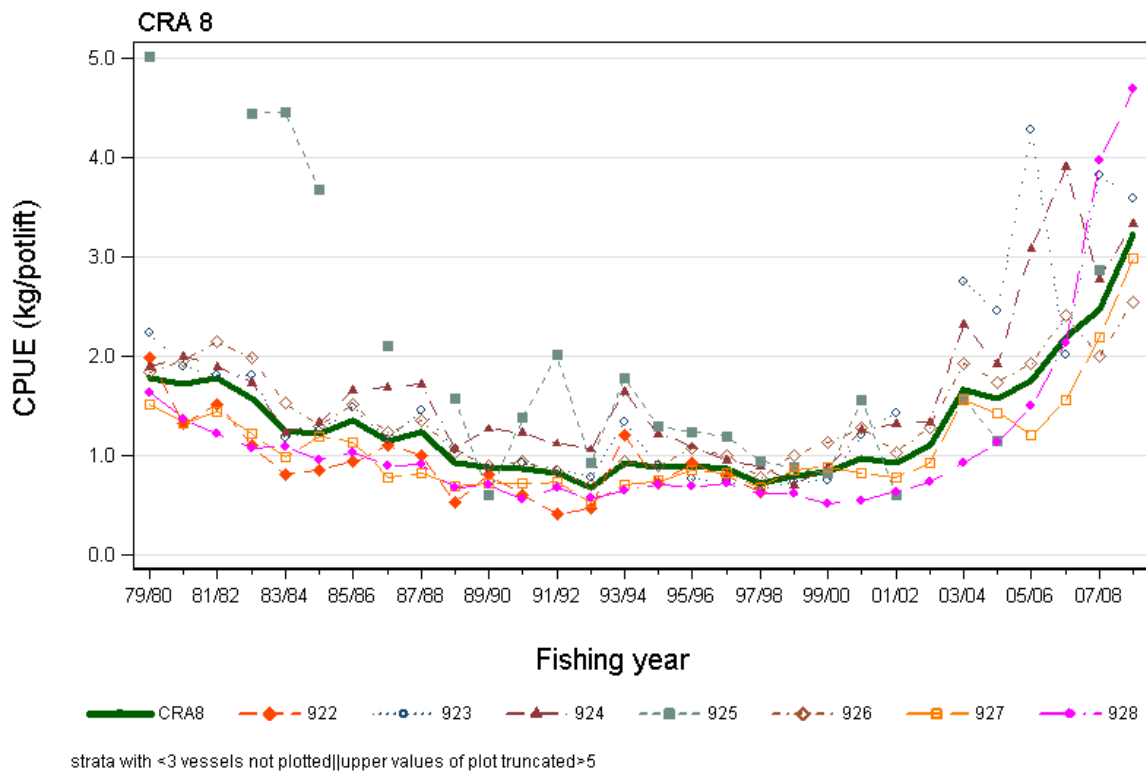


Figure 24: Arithmetic CPUE (total kg/total potlifts) for CRA 8 by fishing year and statistical area from 1979–80 to 2008–09.

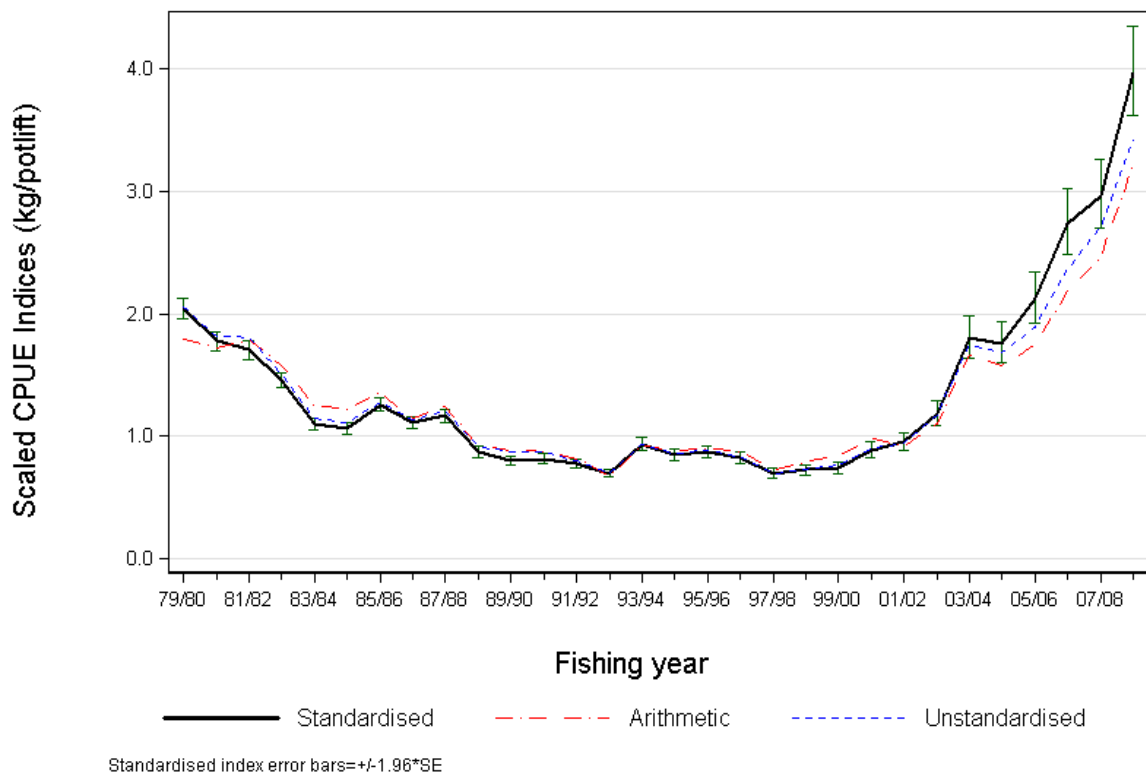


Figure 25: Annual CPUE indices for CRA 8: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) \pm 2 s.e. 1979–80 to 2008–09. The geometric mean for each series = 1.20 kg/potlift.

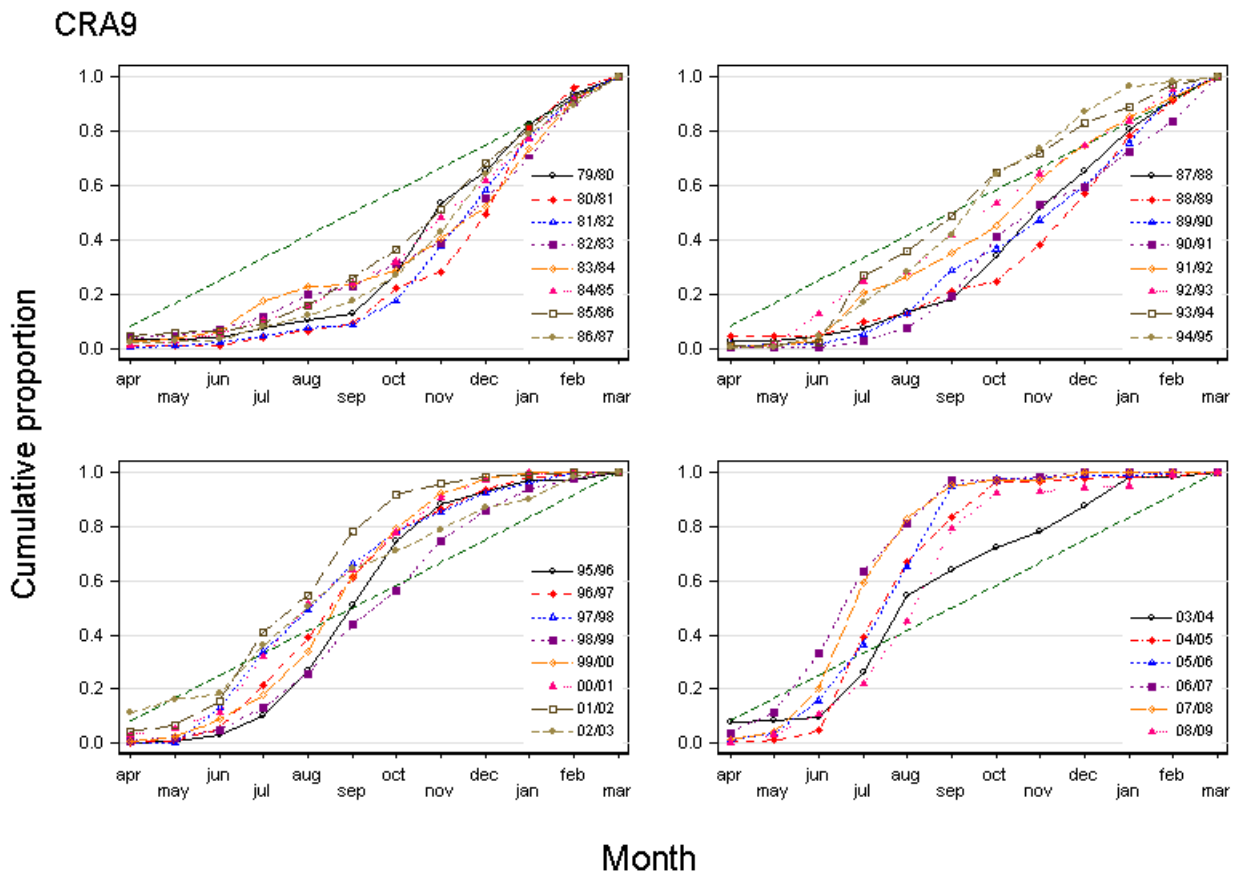
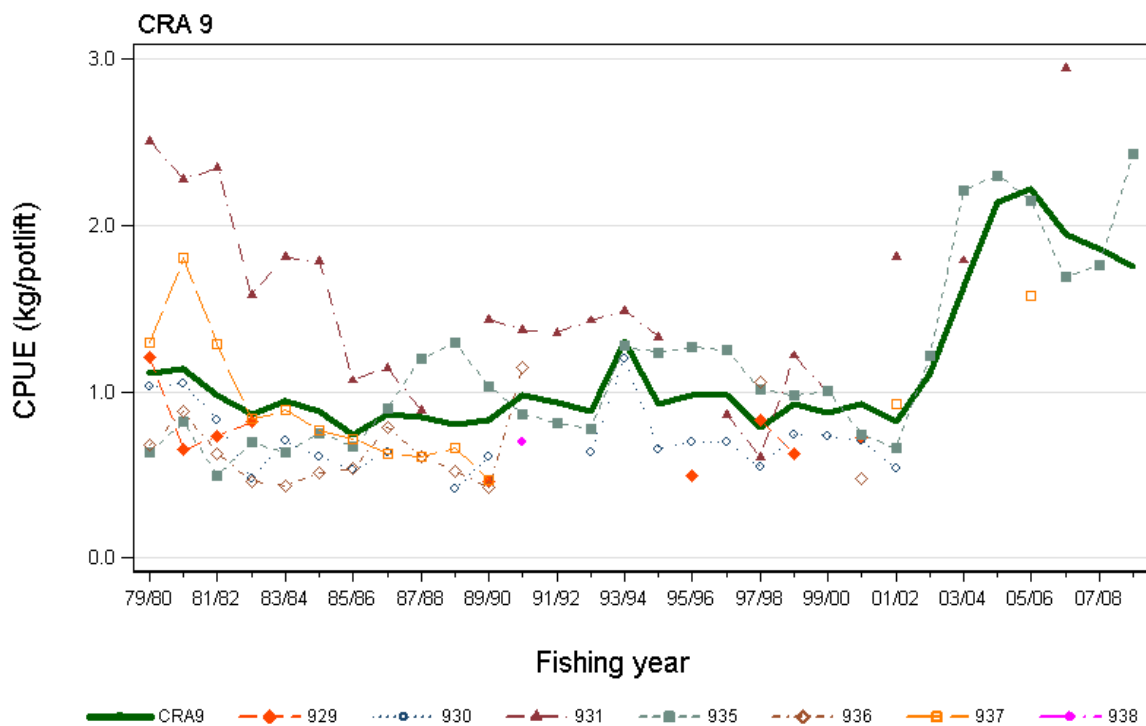


Figure 26: Cumulative catch percentages by fishing month for CRA 9, 1979–80 to 2008–09. Dotted line provides a reference equivalent to an equal distribution of catch across all months.



strata with <3 vessels not plotted|upper values of plot truncated>4.5

Figure 27: Arithmetic CPUE (total kg/total potlifts) for CRA 9 by fishing year and statistical area from 1979–80 to 2008–09.

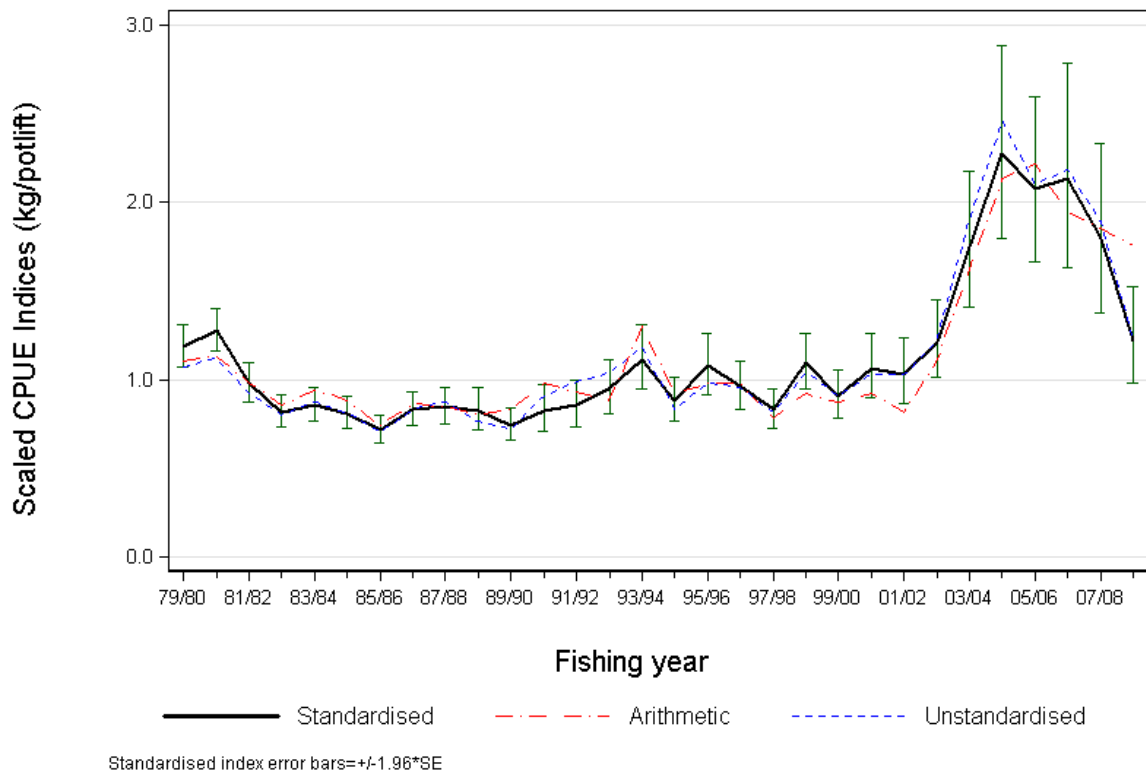


Figure 28: Annual CPUE indices for CRA 9: arithmetic (dashed line), unstandardised (dotted line), and standardised (bold line) \pm 2 s.e. from 1979–80 to 2008–09. The geometric mean for each series = 1.07 kg/potlift.

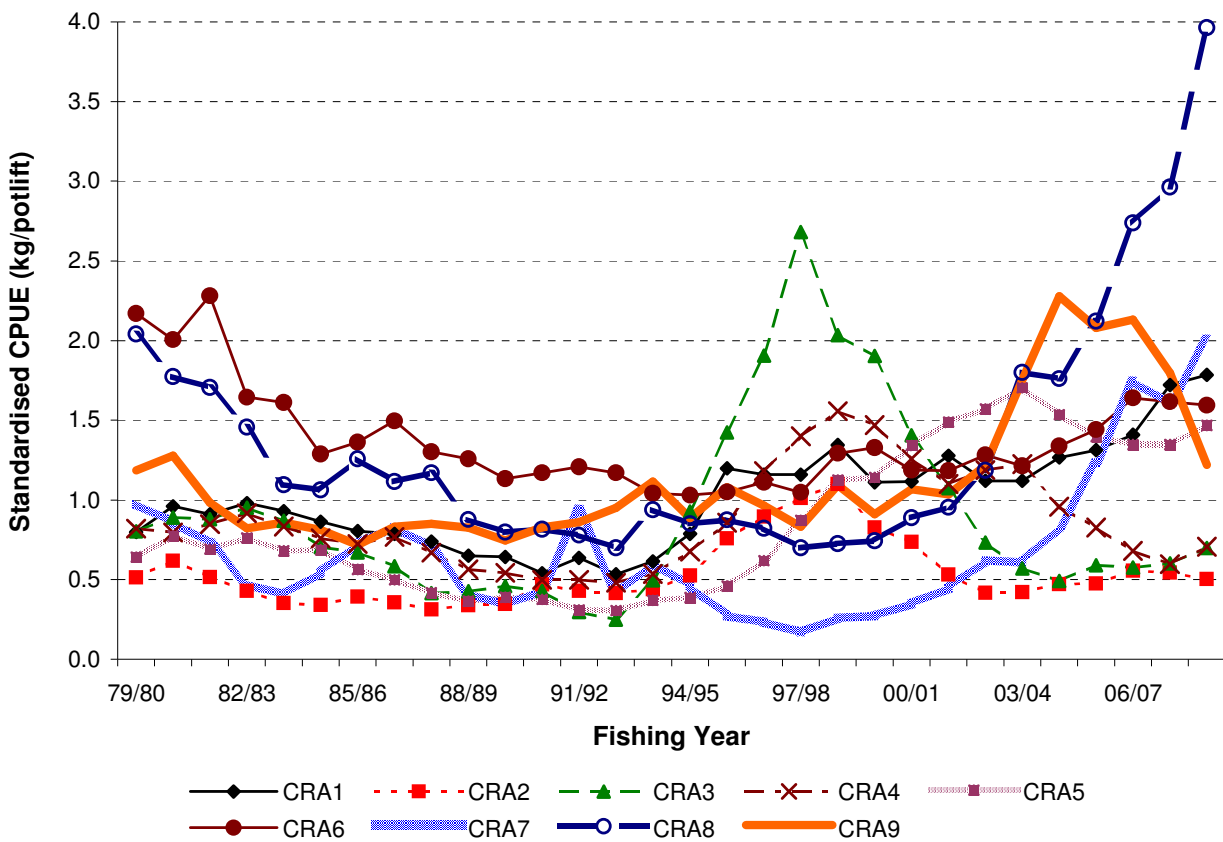


Figure 29: Comparison plot of standardised CPUE for all 9 CRA QMAs (Figure 1) from 1979–80 to 2008–09.

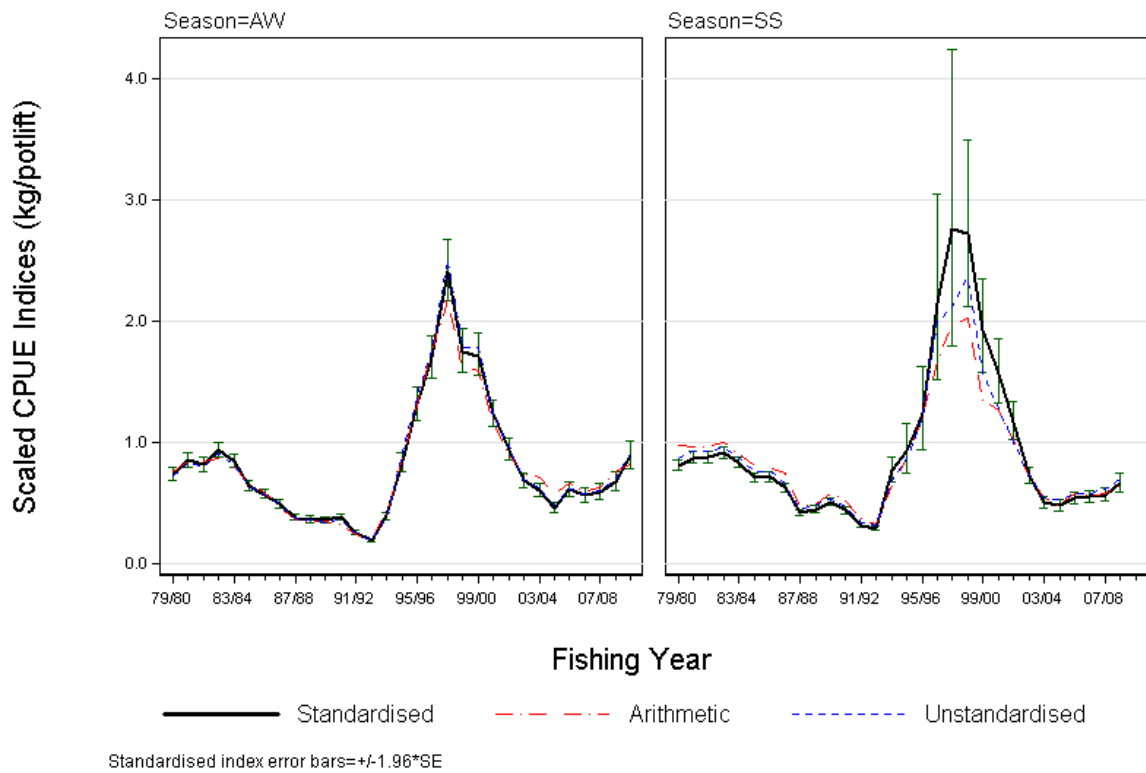


Figure 30: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by season and fishing year for CRA 3: 1979–80 to 2009–10 (final year for autumn/winter only). Vertical bars are 95% confidence intervals. The geometric mean for the autumn/winter series [left panel] = 0.69 kg/potlift and for the spring/summer [SS] series [right panel] = 0.78 kg/potlift.

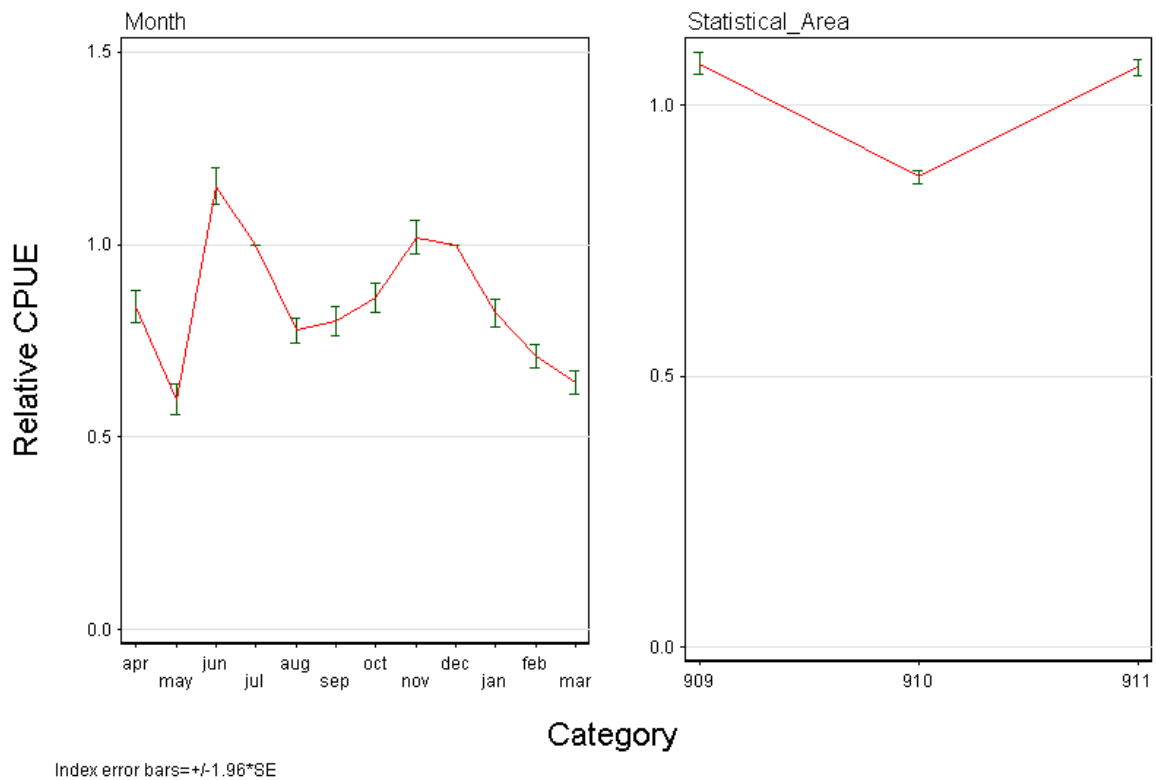


Figure 31: Coefficients for month and statistical area from the CRA 3 seasonal CPUE standardisation. The statistical area coefficients are in canonical form (Francis 1999). The coefficients for the reference months (July and December) equal 1.0 with s.e. of zero.

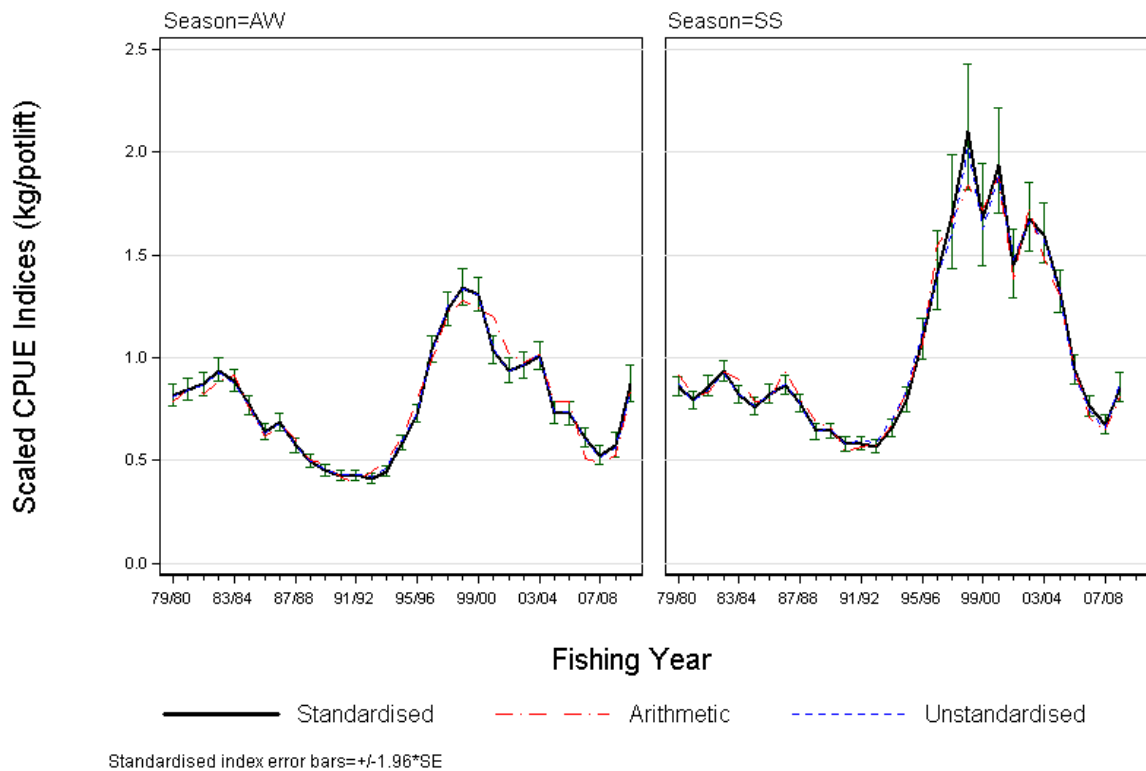


Figure 32: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by season and fishing year for CRA 4: 1979–80 to 2009–10 (final year for autumn/winter only). Vertical bars are 95% confidence intervals. The geometric mean for the autumn/winter series [left panel] = 0.73 kg/potlift and for the spring/summer [SS] series [right panel] = 0.96 kg/potlift.

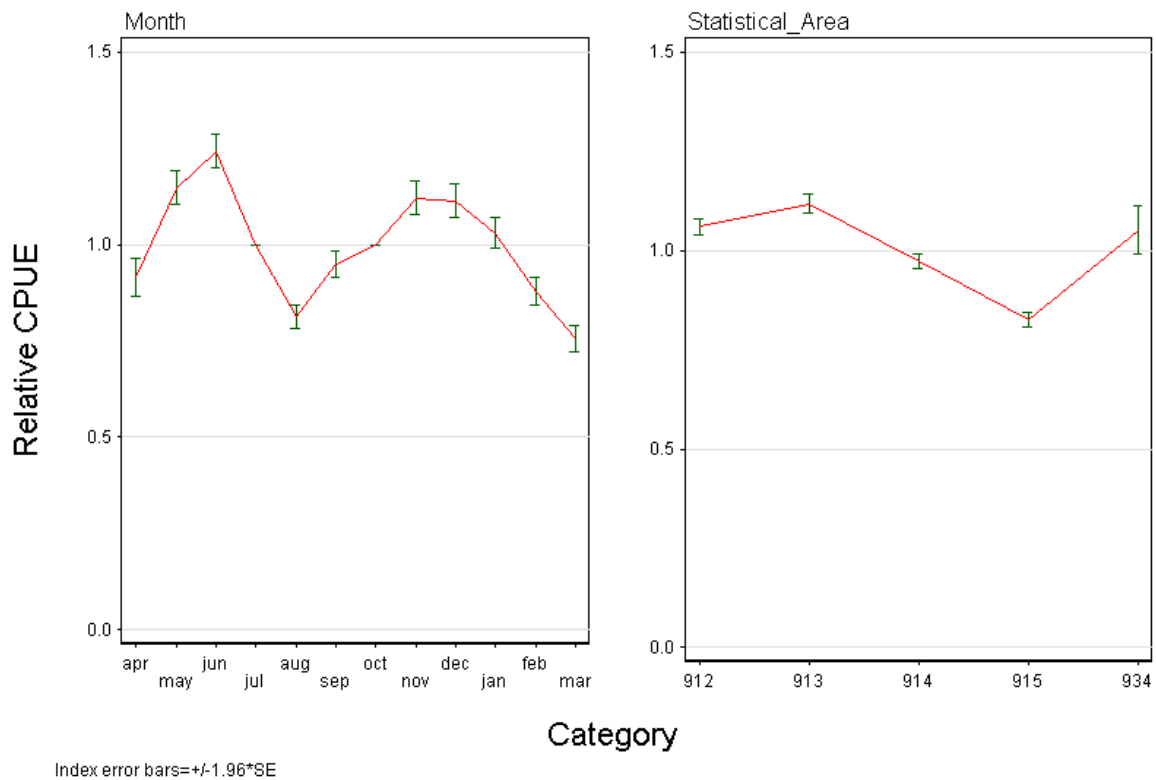


Figure 33: Coefficients for month and statistical area from the CRA 4 seasonal CPUE standardisation. The statistical area coefficients are in canonical form (Francis 1999). The coefficients for the reference months (July and October) equal 1.0 with s.e. of zero.

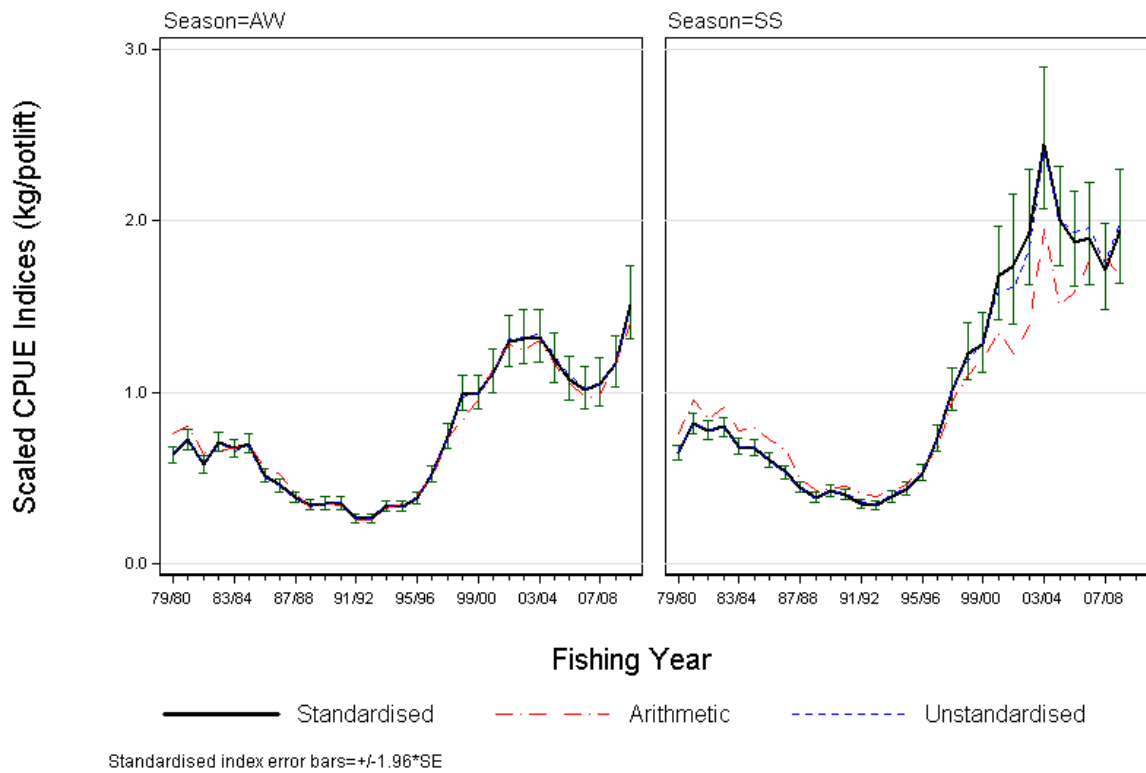


Figure 34: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by season and fishing year for CRA 5: 1979–80 to 2009–10 (final year for autumn/winter only). Vertical bars are 95% confidence intervals. The geometric mean for the autumn/winter series [left panel] = 0.66 kg/potlift and for the spring/summer [SS] series [right panel] = 0.84 kg/potlift.

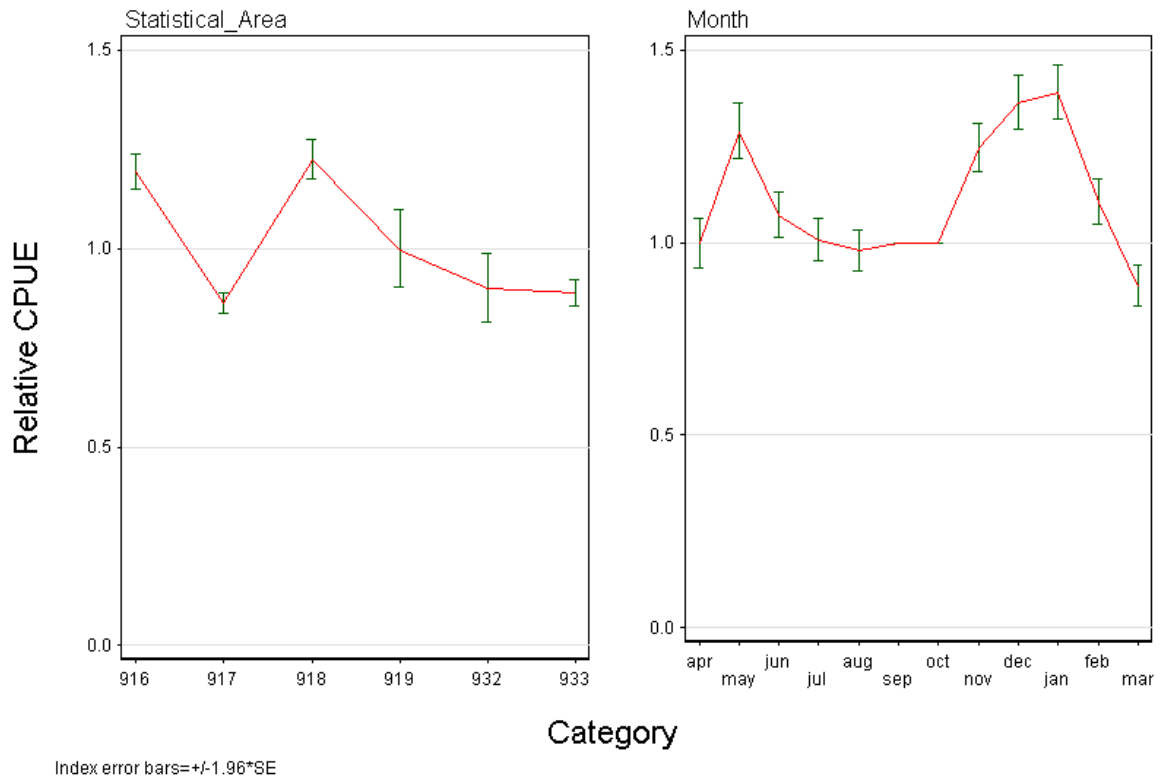


Figure 35: Coefficients for statistical area and month from the CRA 5 seasonal CPUE standardisation. The statistical area coefficients are in canonical form (Francis 1999). The coefficients for the reference months (September and October) equal 1.0 with s.e. of zero.

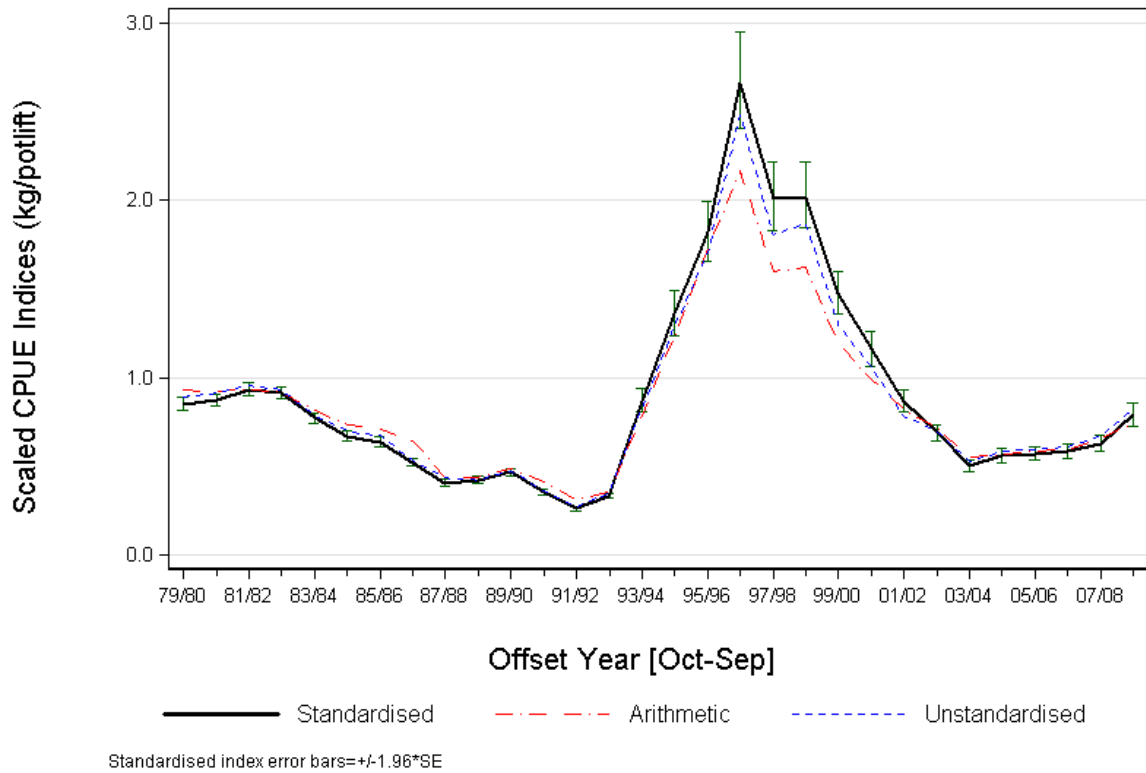


Figure 36: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by 1 October–30 September offset year for CRA 3 from 1979–80 to 2008–09. Vertical bars are 95% confidence intervals. The geometric mean for all three series = 0.77 kg/potlift.

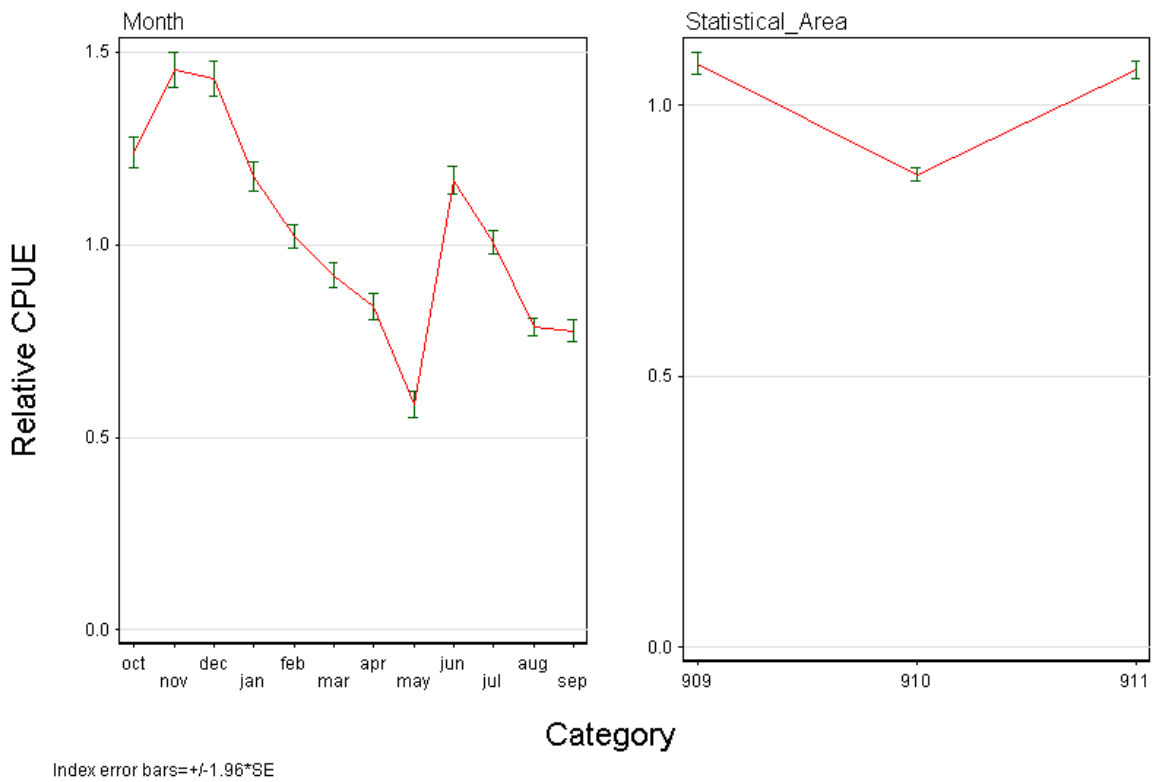


Figure 37: Coefficients for month and statistical area from the CRA 3 CPUE standardisation based on a 1 October–30 September offset year. Both sets of coefficients are in canonical form (Francis 1999).

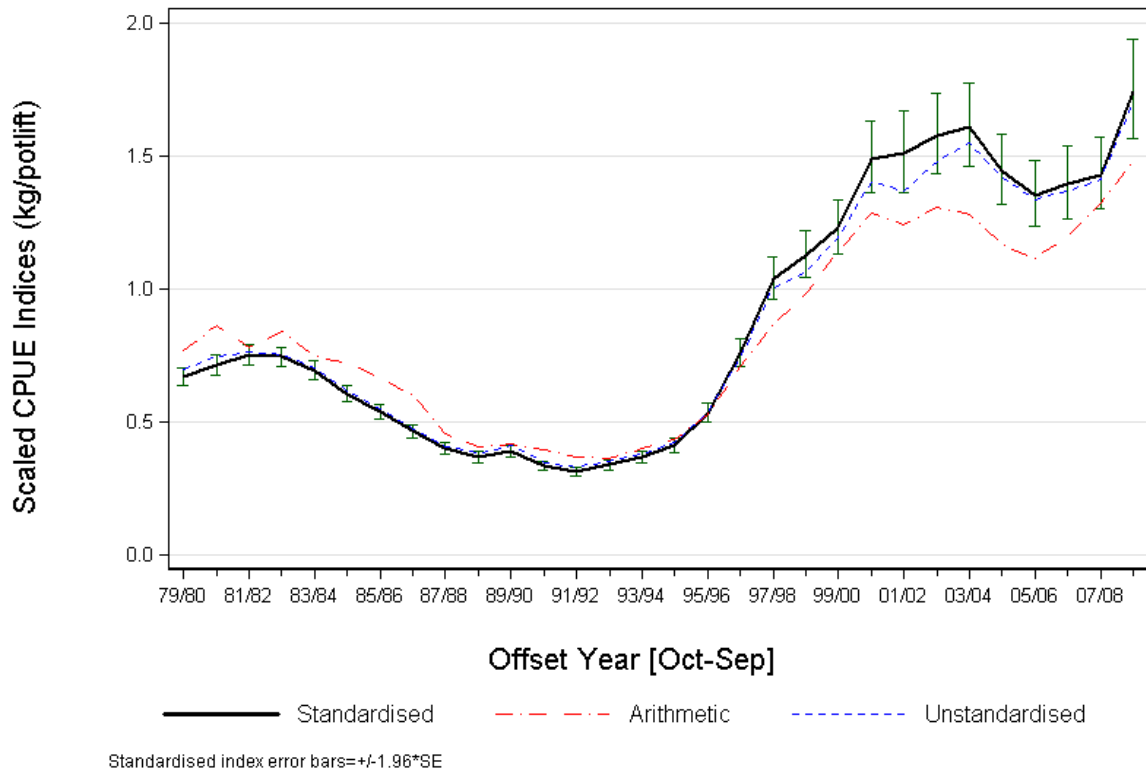


Figure 38: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by 1 October–30 September offset year for CRA 5 from 1979–80 to 2008–09. Vertical bars are 95% confidence intervals. The geometric mean for all three series = 0.75 kg/potlift.

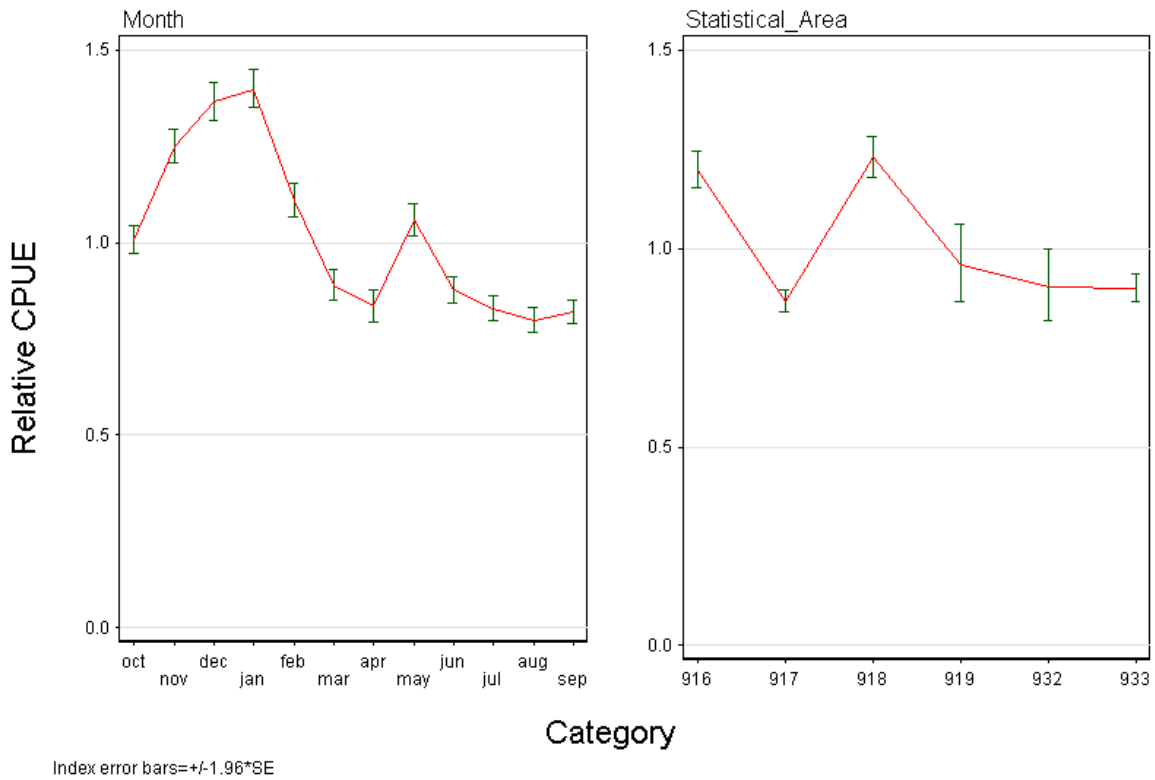


Figure 39: Coefficients for month and statistical area from the CRA 5 CPUE standardisation based on a 1 October–30 September offset year. Both sets of coefficients are in canonical form (Francis 1999).

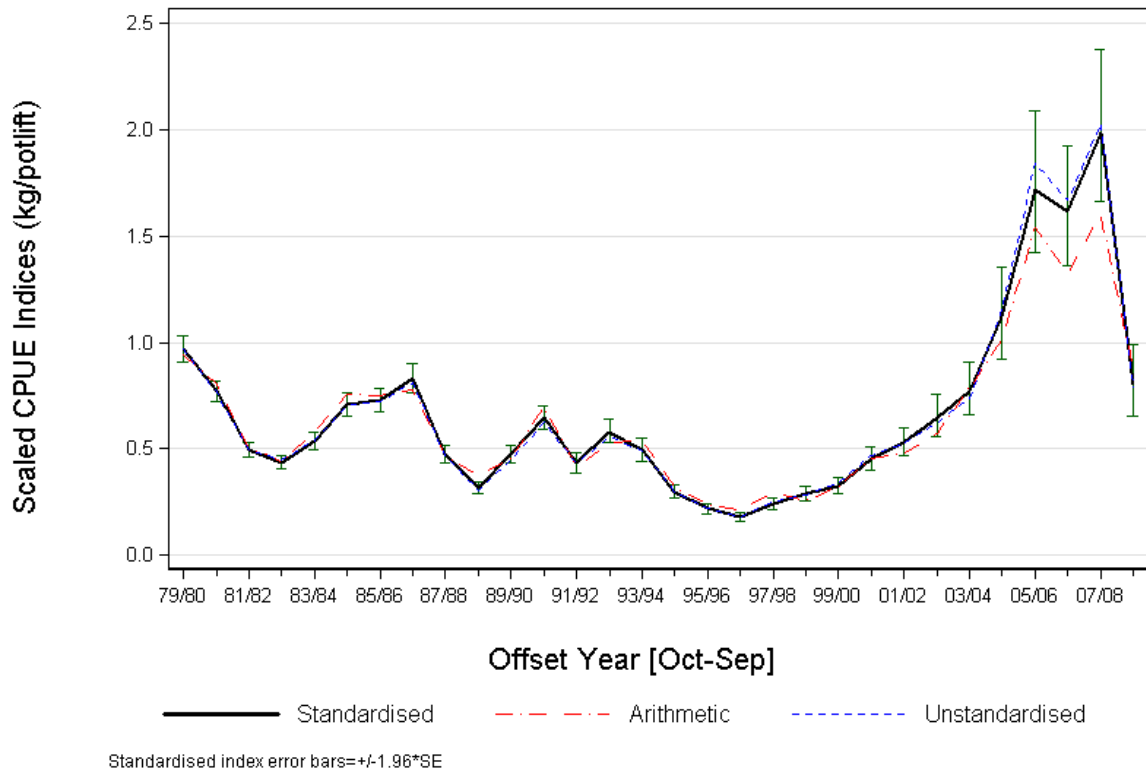


Figure 40: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by 1 October–30 September offset year for CRA 7 from 1979–80 to 2008–09. Vertical bars are 95% confidence intervals. The geometric mean for all series = 0.56 kg/potlift.

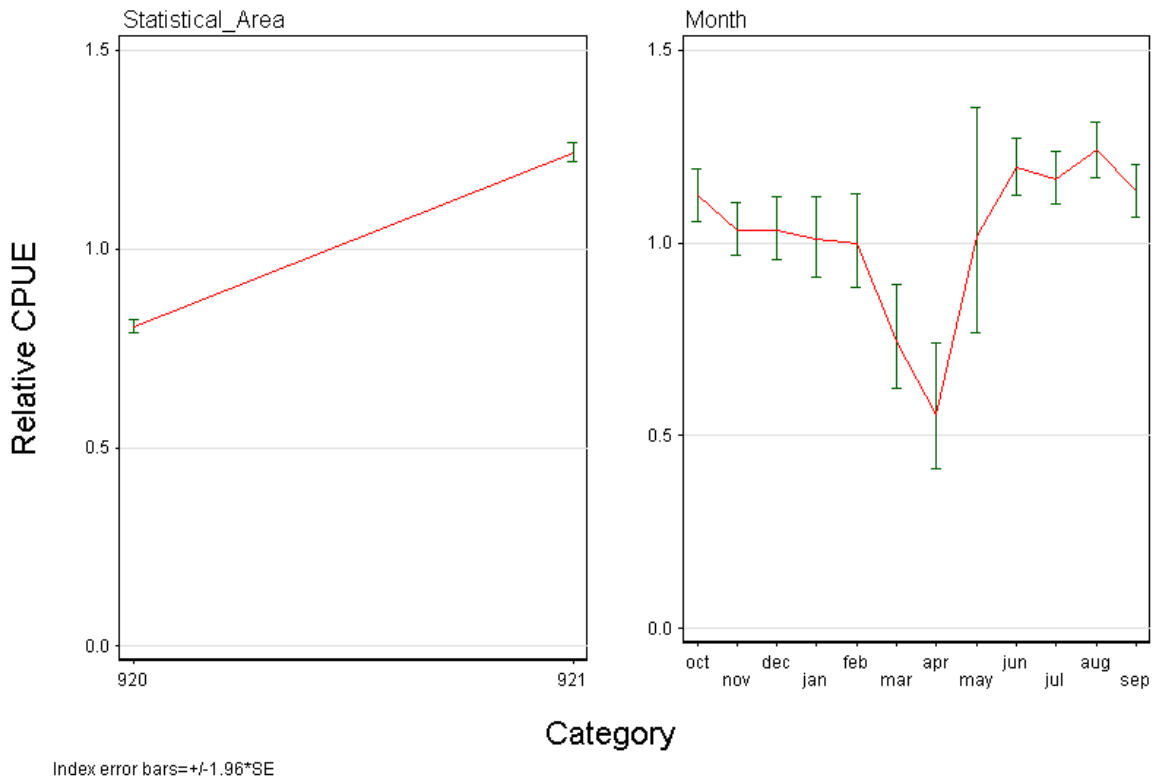


Figure 41: Coefficients for statistical area and month from the CRA 7 CPUE standardisation based on a 1 October–30 September offset year. Both sets of coefficients are in canonical form (Francis 1999).

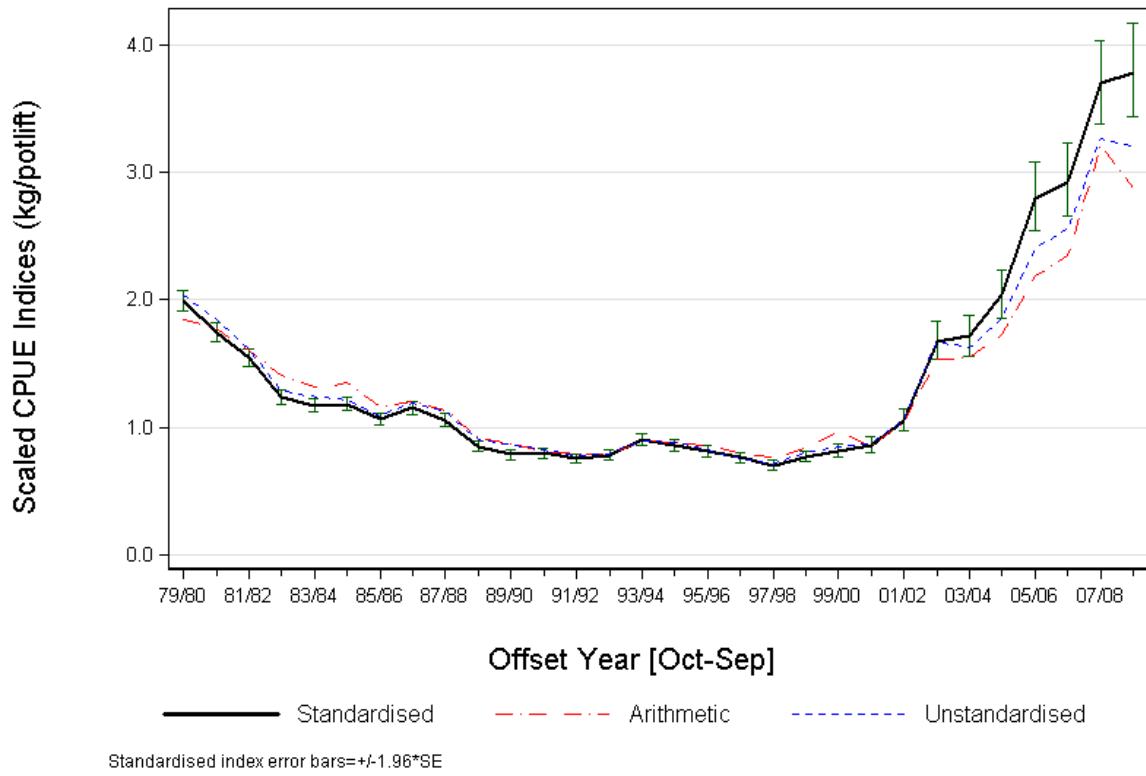


Figure 42: Standardised, unstandardised, and arithmetic CPUE indices (kg/potlift) by 1 October–30 September offset year for CRA 8 from 1979–80 to 2008–09. Vertical bars are 95% confidence intervals. The geometric mean for all three series = 1.23 kg/potlift.

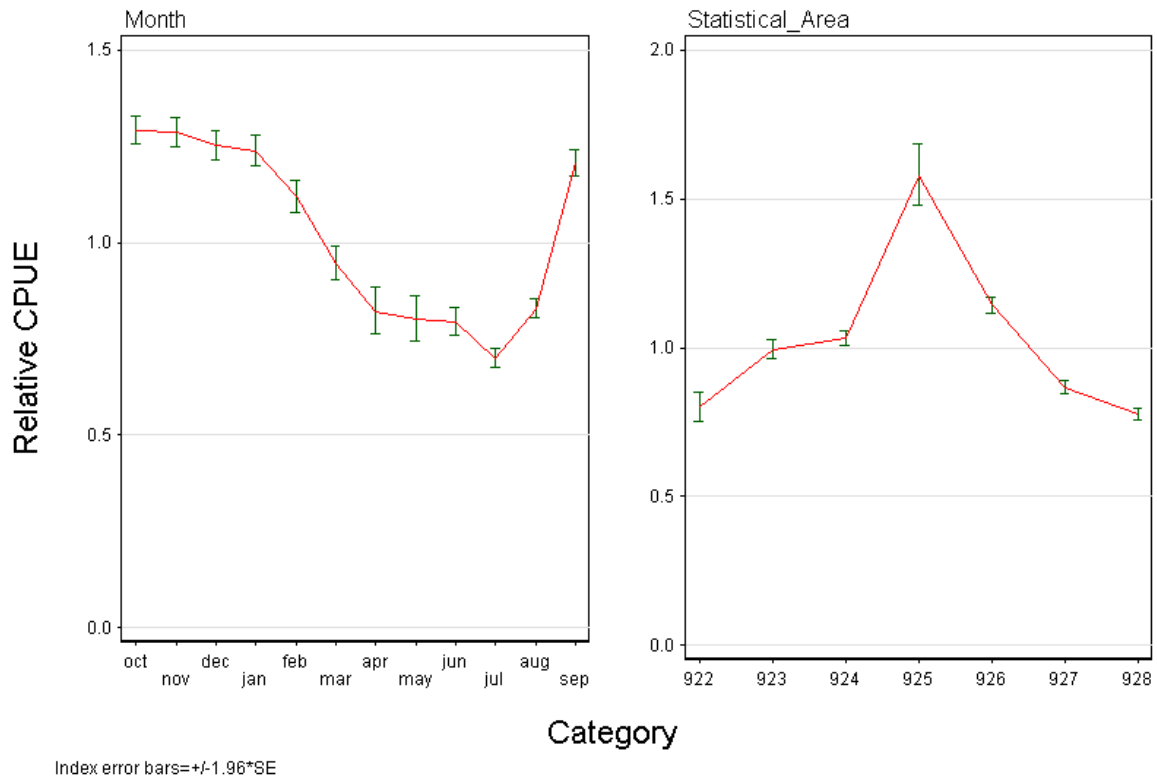


Figure 43: Coefficients for month and statistical area from the CRA 8 CPUE standardisation based on a 1 October–30 September offset year. Both sets of coefficients are in canonical form (Francis 1999).