Department of Primary Industries

NSW COMMERCIAL FISHERIES | BUSINESS ADJUSTMENT PROGRAM

Allocation of new quota shares - how were the numbers calculated?

October 2017

Purpose of this paper

This paper explains how the numbers of Mud Crab, Blue Swimmer Crab, Eel, Garfish and Spanner Crab quota shares allocated to each eligible shareholder were calculated.

Background

In May 2016, the NSW Government announced the NSW Commercial Fisheries Business Adjustment Program (BAP), including how shares would be linked to catch and fishing effort.

The introduction of catch quotas for some species required the creation and issue of a new class of *quota share* for these species. Quota shares provide an ongoing right to a share of the total annual catch quota.

The May 2016 announcement informed shareholders which existing share classes would entitle them to receive new quota shares, and how much quota (in kilograms per 125 shares in an eligible existing share class) they could expect once these new shares were issued.

These commitments meant that DPI needed to work out an 'allocation formula' for each species, to convert the number of shares held in each eligible existing share class into the number of new quota shares that would be issued.

Eligibility for new quota shares

To receive new species quota shares, a person must have been an 'eligible shareholder' on 30 September 2017. This means they must have been registered as holding eligible existing shares in a fishing business on this date:

New quota shares	Eligible existing shares
Estuary general – mud crab quota	Estuary general – mud crab trapping – Regions 1 – 7 Estuary general – meshing – Regions 1 – 7
Estuary general – blue swimmer crab quota	Estuary general – trapping – Regions 1 – 7 Estuary general – meshing – Regions 1 – 7 Estuary general – category one hauling – Regions 1 – 7
Estuary general – eel quota	Estuary general – eel trapping – Regions 1 – 7
Ocean hauling – eastern sea garfish quota	Ocean hauling – garfish net (hauling) – Regions 1 - 7
Ocean trap and line – spanner crab quota	Ocean trap and line – spanner crab north Ocean trap and line – spanner crab south

Objectives

In developing an allocation formula for each new species quota share class:

(a) The primary objective was to meet the May 2016 Government commitments about how much quota shareholders would receive for each 125 shares held in an eligible existing share class.

(b) It was also essential that new shares were allocated as whole numbers (rather than $\frac{1}{10}$ or $\frac{1}{2}$ of a share, for example).

Additional objectives were to:

(c) Ensure each new quota share would equate to a meaningful amount of quota (approximately 5 kg or more per share); and

(d) As far as possible, produce the same overall distribution of quota amongst eligible share classes as the Government committed to in May 2016[1].

Allocation formula for Eel and Garfish

For two species (Eel and Garfish), the allocation formula is simple. This is because for each of these species, there is only one eligible existing share type, and the Government commitment was for the same amount of quota per 125 eligible existing shares in every share class.

This means that for each eligible existing share held on 30 September 2017, one new species quota share will be issued:

eel quota shares =	(EG eel trapping R1 + EG eel trapping R2 + EG eel trapping R3 + EG eel trapping R4 + EG eel trapping R5 + EG eel trapping R6 + EG eel trapping R7) x 1
eastern sea garfish quota shares =	(OH garfish net (hauling) R1 + OH garfish net (hauling) R2 + OH garfish net (hauling) R3 + OH garfish net (hauling) R4 + OH garfish net (hauling) R5 + OH garfish net (hauling) R6 + OH garfish net (hauling) R7) x 1

> **Example:** On 30 Sep 2017, a fisher held **125** *estuary general – eel trapping (region 5)* shares and **125** *estuary general – eel trapping (region 6)* shares in Fishing Business 9990.
>
> A total of **250** new *estuary general – eel quota* shares will be issued to this business.

Allocation formula for Mud Crab, Blue Swimmer Crab and Spanner Crab

For the other three species (Mud Crab, Blue Swimmer Crab and Spanner Crab), the formula is more complicated. This is because there is more than one eligible existing share type, and the Government has committed to allocating differing amounts of quota per 125 shares in each share class.

Therefore the number of shares held in each eligible existing share class needs to be multiplied by a 'conversion factor' to work out how many new shares should be allocated.

This conversion factor cannot simply reflect the relative proportion of total catch promised to each share class in May 2016, because:

- The total number of shares in some share classes has changed since May 2016, but the overall proportion of catch allocated to each share class should remain the same (Objective d);

- Some fishing businesses hold shares in more than one eligible share class, and the number of shares issued needs to be rounded up to a whole number for each fishing business; these factors

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[1] For example, in May 2016 the government promised that each 125 EGMC1 shares would equate to 1689.4 kg of mud crab quota. Based on shareholdings at the time, shareholders in this class would have received 15.7% of the overall (statewide) mud crab quota. Thus as far as possible, the allocation formula should also result in current EGMC1 shareholders getting around 15.7% of the overall quota (taking into account other objectives, particularly the need for each share to equate to a meaningful amount of quota).

need to be taken into account when calculating the total number of shares that will be issued under the allocation formula (and consequently the amount of quota allocated to each share, objectives a and c). These factors can distort the relative share of catch quota that each share class receives (objective d)[2].

Using a complex mathematical model, DPI has calculated a 'conversion factor' for each eligible existing share class that achieves all of the stated objectives, i.e.:

- Each eligible fishing business owner will receive at least the amount of catch quota per 125 eligible existing shares as promised by the Government in May 2016 (Objective a);

- The number of new quota shares is rounded up to the nearest whole number for each fishing business owner (Objective b);

- Once annual catch quotas are allocated, then based on the ITCALs (interim Total Commercial Access Levels) published in May 2016, each share should receive approximately 5kg or more of catch quota (Objective c); and

- The relative proportion of total catch quota promised to each share class in May 2016 has been maintained (to within 0.2%).

The final allocation formula for each species is as follows:

mud crab quota shares =	(EG meshing R1 x 0.00721) + (EG meshing R2 x 0.00561) + (EG meshing R3 x 0.01478) + (EG meshing R4 x 0.03094) + (EG meshing R5 x 0.01274) + (EG meshing R6 x 0.03254) + (EG meshing R7 x 0.00983) + (EG mud crab trapping R1 x 1.22998) + (EG mud crab trapping R2 x 0.53556) + (EG mud crab trapping R3 x 1.04790) + (EG mud crab trapping R4 x 0.49057) + (EG mud crab trapping R5 x 0.20670) + (EG mud crab trapping R6 x 0.02104) + (EG mud crab trapping R7 x 0.05016)
blue swimmer crab quota shares =	(EG meshing R1 x 0.00593) + (EG meshing R2 x 0.01796) + (EG meshing R3 x 0.11114) + (EG meshing R4 x 0.23351) + (EG meshing R5 x 0.03192) + (EG meshing R6 x 0.76004) + (EG meshing R7 x 0.05116) + (EG trapping R1 x 0.01540) + (EG trapping R2 x 0.08163) + (EG trapping R3 x 1.12234) + (EG trapping R4 x 2.67642) + (EG trapping R5 x 0.06191) + (EG trapping R6 x 0.45147) + (EG trapping R7 x 0.05774) + (EG category one hauling R1 x 0) + (EG category one hauling R2 x 0.00112) + (EG category one hauling R3 x 0.00225) + (EG category one hauling R4 x 0.08773) + (EG category one hauling R5 x 0.01828) + (EG category one hauling R6 x 0.50664) + (EG category one hauling R7 x 0.00273)
spanner crab quota shares =	(OTL SC northern zone x 1) + (OTL SC southern zone x 0.15778)

Example: On 30 Sep 2017, a fisher held 125 *estuary general - mud crab trapping (region 5)* shares and 200 *estuary general – meshing (region 5)* shares in Fishing Business 9991. This business will be issued with 29 new mud crab quota shares and 7 new blue crab swimmer crab shares, determined as follows:

Mud crab quota shares	= 125 mud crab trapping (region 5) shares x 0.20670 = 25.8375
	= 200 meshing (region 5) shares x 0.01274 = 2.5480
	= 29 (rounded up to the nearest whole number)
Blue swimmer crab quota shares	= 200 meshing (region 5) shares x 0.03192 = 6.384
	= 7 (rounded up to the nearest whole number)

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[2] This is particularly apparent for Blue Swimmer Crab, where the large number of share classes (21) receiving new quota shares and the need for every eligible fishing business to receive at least one share creates a greater distortion impact from rounding.

More information

Catch Records 1800 994 850 or catch.records@dpi.nsw.gov.au