

NSW commercial fisheries – Business Adjustment Program

## Calculation of new species and effort quota shares

September 2018

### 1. Purpose of this paper

This paper explains how the number of new species and prawn effort quota shares to be issued to eligible shareholders will be calculated.

The aim is to help shareholders understand the allocation criteria (including formulas) in the relevant Share Management Plans. However if there is any doubt, please refer directly to the appropriate regulation.

Disclaimer: The information contained in this paper is general in nature and should not be taken as professional advice. Before acting on any of this information, please consider its relevance to your personal situation and if appropriate, seek your own advice.

### 2. Background

In 2017, the NSW Government established an Independent Allocation Panel (IAP) to consult with industry and provide advice on how to allocate new quota shares for 17 species or species groups to shareholders in the following share classes:

- Estuary General – Hand Gathering
- Ocean Hauling – Purse Seine Net
- Ocean Trap and Line – Line Eastern Zone
- Ocean Trawl – Fish Northern Zone and Inshore and Offshore Prawn

as well as new prawn effort quota shares to shareholders in the Ocean Trawl fishery (inshore and offshore prawn).

In the case of the new species quota shares, an IAP was used because of the high level of distortion in these share classes (in other words, there is a mismatch between the catch recorded by each shareholder for each species and the number of existing 'access shares' they hold). If the new quota shares were allocated based purely on existing shareholdings, the most active fishing businesses would face a significant financial burden and inactive fishing businesses would receive a windfall gain.

In the case of the new prawn effort quota shares, the IAP was asked to provide advice on whether any weighting should be applied to existing shares or hull units, and whether hull units should be standardised.

The IAP gave its final recommendations to the Minister in June 2018. They were accepted by the Government in September 2018 after careful consideration of the benefits and impacts.

### 3. Eligibility for new quota shares

To receive new quota shares, a person must be an 'eligible shareholder' in relation to those shares. This means they must hold shares of a relevant class at 12 noon on 28 September 2018, as summarised in the following table:

New quota shares	Eligible shareholders
Estuary general—pipi quota shares Estuary general—beachworm quota shares Estuary general—cockle quota shares Estuary general—ghost nipper quota shares	Estuary general—hand gathering shares—Regions 1–7 <sup>1</sup>
Ocean hauling—Australian sardine quota shares Ocean hauling—blue mackerel quota shares Ocean hauling—yellowtail scad quota shares	Ocean hauling—purse seine net
Ocean trap and line—bass grouper quota shares Ocean trap and line—blue-eye trevalla quota shares Ocean trap and line—gemfish quota shares Ocean trap and line—hapuku quota shares Ocean trap and line—pink ling quota shares Ocean trap and line—bigeye ocean perch quota shares	Ocean trap and line—line fishing eastern zone
Ocean trawl—tiger flathead quota shares Ocean trawl—bluespotted flathead quota shares Ocean trawl—trawl whiting quota shares	Ocean trawl—inshore prawn Ocean trawl—offshore prawn Ocean trawl—fish northern zone
Ocean trawl—silver trevally quota shares Ocean trawl—gemfish quota shares	Ocean trawl—fish northern zone
Ocean trawl—prawn effort quota shares	Ocean trawl—inshore prawn Ocean trawl—offshore prawn

<sup>1</sup> However note that a shareholder is not eligible to receive pipi, cockle or ghost nipper quota shares if their endorsement authorises the taking of beachworm only.

## 4. Species quota shares

### (a) Proportion of share allocation based on “shares” versus “catch”

As recommended by the IAP, new quota shares will be allocated to eligible shareholders based on both the number of shares they hold (in relevant share classes) and their catch.

For **beachworm, cockle and ghost nipper**, the allocation will be based **5% on shares and 95% on catch**.

For **all other species**, the allocation will be based **20% on shares and 80% on catch**.

### (b) Determining “catch”

The catch of each species is important both for sharing quota shares amongst share classes (Step 1 below), and allocating shares to eligible shareholders within each share class (Step 2 below).

Catch is determined by the Secretary:

- **On the basis of records of fishing activities provided in accordance with the *Fisheries Management Act 1994*** (eg. in the correct format and within required timeframes).<sup>2</sup>
- **For the relevant “reporting period” recommended by the IAP.** For pipi this period is 1 July 2012 – 30 June 2017 (inclusive); for all other species it is 1 July 2009 – 30 June 2017 (inclusive).
- **For fishing businesses held by eligible shareholders on 28 September 2018.**

Note: Catch of a fishing business held by an eligible shareholder includes catch reported by previous owners of that business, and catch attributable to that business because the owner acquired shares of the same class under special arrangements for fishing business buyouts during the Adjustment Subsidy Program<sup>3</sup>.

It does not include catch reported by a fishing business (or for a share class) no longer owned by the eligible shareholder.

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<sup>2</sup> Earlier in 2018, DPI provided two opportunities for shareholders to review relevant records held by DPI, and to correct them if the shareholder could show that DPI had made a data entry error.

<sup>3</sup> In August 2016, the Government made a commitment that if (under the Fishing Business Buyouts phase of the Adjustment Subsidy Program) all shares in a share class held by a fishing business were transferred to an eligible shareholder as part of the surrender of the fishing business for cancellation, DPI would retain those fishing activity records for consideration by the IAP and (if appropriate) use in the subsequent allocation of new species shares.

When allocating shares to eligible shareholders (Step 2 below), each shareholder’s “worst catch year” (the lowest catch of the species for any financial year within the reporting period) will be excluded from the calculations. This means that for pipi the total catch will be based on each shareholder’s best 4 years of catch, while for all other species it will be based on the best 7 years of catch. This was recommended by the IAP, in response to issues raised during consultation, as a systematic way to address individual circumstances that may have resulted (for a period of time) in a shareholder not fishing (or catching) as much as they normally would have.

The “worst catch year” does not apply when sharing quota shares amongst share classes (Step 1 below).

### (c) Step 1: Sharing species quota shares amongst share classes

Where species quota shares are to be allocated to more than one share class<sup>4</sup>, they will be shared amongst these classes based on the proportion of total catch taken by eligible shareholders in each share class. This is to account for differences in catch (or reliance on the species) by each share class, as well as different numbers of eligible shares in each share class.

The formula for Step 1 is:

$$Q_r = C_r / C_{ar} \times Q_t$$

where:

- **Q<sub>r</sub>** is the total number of quota shares for a particular species to be allocated to the share class.
- **C<sub>r</sub>** is the total catch of the particular species by all eligible shareholders who hold shares of the share class for the reporting period.
- **C<sub>ar</sub>** is the total catch of the particular species by all eligible shareholders for the reporting period.
- **Q<sub>t</sub>** is the total number of quota shares to be issued for a particular species (before any rounding under Step 2).

*Note: In this step, “total catch” only includes catch by eligible shareholders – so any catch by shareholders who have since sold their shares or left the industry is disregarded. This is to make sure that all the available quota shares are allocated to current shareholders.*

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<sup>4</sup> Pipi, beachworm, cockle, ghost nipper (Estuary General – Hand Gathering regions 1-7) Tiger flathead, bluespotted flathead and trawl whiting (Ocean Trawl – inshore prawn, offshore prawn and fish northern zone)

**Step 1 hypothetical example:** 20,000 quota shares for **Species X** are to be allocated to Ocean trawl—inshore prawn, offshore prawn and fish northern zone shareholders.

During the criterion period (1 July 2009 – 30 June 2017), businesses held by current shareholders in these three classes reported a total catch of 781 tonnes (97t by inshore prawn, 132t by offshore prawn and 552t by fish northern zone).

Therefore the numbers of new quota shares to be allocated to each class are:

- Inshore prawn =  $97 / 781 \times 20,000 = \underline{2483.99}$  shares **(12.4% of total)**
- Offshore prawn =  $132 / 781 \times 20,000 = \underline{3380.28}$  shares **(16.9% of total)**
- Fish north =  $552 / 781 \times 20,000 = \underline{14,135.72}$  shares **(70.7% of total)**

Note: Although the number of shares for each class may be shown here as a fraction, in the next step the shares allocated to each shareholder will be rounded up to the nearest whole number. As a result, the final number of shares issued will differ from the original number (20,000) used in this calculation.

#### (d) Step 2: Allocating species quota shares to shareholders

Once the total number of shares to be allocated to a class is known, shares will be allocated to individual shareholders in that class based on both shareholdings and reported catch.

The formula for Step 2 is:

$$Q_i = [(P_s \times S_r/S_t) + (P_c \times C_i/C_a)] \times Q_r$$

where:

- **Q<sub>i</sub>** is the number of quota shares for a particular species to be allocated to the eligible shareholder.
- **P<sub>s</sub>** is the proportion of the allocation based on shareholdings (as recommended by the IAP)
- **S<sub>r</sub>** is the number of shares of the particular class held by the eligible shareholder.
- **S<sub>t</sub>** is the total number of shares of the particular class held by all eligible shareholders.
- **P<sub>c</sub>** is the proportion of the allocation based on catch (as recommended by the IAP)
- **C<sub>i</sub>** is the total catch of the particular species by the eligible shareholder for the reporting period (excluding the 'worst catch year').
- **C<sub>a</sub>** is the total catch of the particular species by all eligible shareholders holding the particular class of shares for the reporting period (excluding the 'worst catch year' of each).
- **Q<sub>r</sub>** is the total number of quota shares for the particular species and class of shares.

**Step 2 hypothetical example:** Following on from the previous example, 2483.99 quota shares for **Species X** are to be allocated to Ocean trawl—inshore prawn shareholders.

During the criterion period (1 July 2009 – 30 June 2017), Fishing Business 9999, which holds 63 inshore prawn shares (out of a total of 11,021), reported total catch of 8.5t (out of a total of 97t for this share class).

However excluding the 'worst catch year' for each shareholder, FB 9999 caught 8.2t (out of a total of 89t for this share class).

The IAP recommended that Species X shares be allocated based 20% on shareholdings and 80% on catch.

Therefore FB 9999 will receive:

$$= [(0.2 \times 63/11,021) + (0.8 \times 8.2/89)] \times 2483.99 \text{ shares}$$

$$= [0.00114 + 0.07371] \times 2483.99 \text{ shares}$$

$$= 0.07485 \times 2483.99 \text{ shares}$$

$$= 185.93 \rightarrow \text{rounded to } \mathbf{186 \text{ Species X quota shares}}$$

*Note: If FB 9999 holds any other relevant share classes, the allocation from each will be added together*

### (e) Determining the total number of species quota shares

Although the IAP made clear recommendations on how quota shares should be distributed *amongst* and *within* share classes, it did not address the *total number* of shares that should be allocated.

In order to determine how many shares to allocate to each share class (Step 1) and shareholder (Step 2), the Minister will need to estimate the total number of each type of quota share to be allocated. This will occur – after the 28 September 2018 “snapshot” date – based on two important (but conflicting) objectives:

- 1) Ensuring (where possible) that each quota share will equate to a 'meaningful' amount of quota (eg. 5kg rather than 5g) once Total Allowable Catch fishing determinations are made. For this objective, a smaller number of shares is better because each share will receive more quota.
- 2) Minimising the 'rounding error' caused by rounding up each individual's share allocation to the nearest whole number. For this objective, a larger number of shares is better because the allocation will be more “accurate” and the actual number of shares allocated will be closer to the estimated number.

The need to balance these two objectives is illustrated in the following example.

**Hypothetical example:** This follows on from the previous examples, and assumes the Total Allowable Catch for Species X has been set at 100 tonnes (100,000 kg) for the first year.

From the Step 1 example, you can see that inshore prawn shareholders are entitled to approximately 12.4% of Species X shares and quota, ie. 12,420 kg.

From the Step 2 example, you can see that based on his shareholdings and catch, FB 9999 should receive 7.485% of the Species X shares and quota allocated to inshore prawn shareholders, ie. approximately 929.6 kg.

The following table shows the effect of issuing different numbers of shares. More shares mean a lower rounding error – but less quota for each share.

<b>Estimated number of Species X shares</b>	2,000	20,000	200,000
<b>TAC</b>	100 t	100 t	100 t
<b>Actual number of shares allocated (after rounding up)</b>	2,122	20,461	201,132
<b>Quota per share</b>	47.1254 kg	4.8873 kg	0.4972 kg
<b>Rounding error (% extra shares allocated compared to estimated no)</b>	6.1%	2.3%	0.57%
<b>FB9999 - shares received</b>	19 (rounded up from 18.593)	186 (rounded up from 185.93)	1860 (rounded up from 1859.3)
<b>FB9999 - quota allocation</b>	895.4 kg	909.0 kg	924.8 kg

## 5. Prawn effort quota shares

### (a) Allocation of prawn effort quota shares

New prawn effort quota shares will be allocated to eligible shareholders in the Ocean Trawl – inshore prawn and offshore prawn share classes, based on the number of shares they hold and the standardised hull units of their boat.

*The formula for allocating prawn effort quota shares is:*

$$Q_i = (S_i + S_o) \times H_s$$

*where:*

- **Q<sub>i</sub>** is the number of prawn effort quota shares to be allocated to the eligible shareholder rounded up to the nearest whole share.
- **S<sub>i</sub>** is the number of inshore prawn shares held by the eligible shareholder.
- **S<sub>o</sub>** is the number of offshore prawn shares held by the eligible shareholder.
- **H<sub>s</sub>** is the standardised hull units attributable to the eligible shareholder (see below).

## (b) Standardised hull units

Hull units will be standardised to account for the fact that there isn't a direct relationship between the hull capacity of a boat and catch. In other words, a 60 hull unit boat does not necessarily catch twice as much as a 30 hull unit boat.

The formula for standardising hull units is:

$$H_s = 2.4052 \times H^{0.7617}$$

where:

- **$H_s$**  is the standardised hull units attributable to the eligible shareholder rounded up to the nearest whole number.
- **$H$**  is the hull units of the eligible shareholder's licensed fishing boat (see below).

Note: This is the same formula that is used in the QLD East Coast Trawl Fishery.

The hull units (H) of a licensed fishing boat are determined as follows:

Scenario	Hull units (H)
The eligible shareholder holds a fishing boat licence that is in force on 28 September 2018 and specifies maximum hull units	The maximum hull units specified on the boat licence
The eligible shareholder holds a fishing boat licence that is in force on 28 September 2018 but does not specify maximum hull units	Calculated in accordance with the formula in clause 145(5) of the Fisheries Management General Regulation 2010
The eligible shareholder holds a fishing boat licence but temporarily surrendered the hull units prior to 28 September 2018	The maximum hull units specified on the boat licence immediately prior to surrender
The eligible shareholder does not hold a fishing boat licence on 28 September 2018	$H = 1$
The eligible shareholder holds more than one fishing boat licence that is in force on 28 September 2018	The maximum hull units specified on the boat licence that the Secretary determines is to apply <sup>5</sup>

<sup>5</sup> If a shareholder has nominated a fishing boat licence to be used, the Secretary will take that nomination into account when determining which boat licence will apply.



**Hypothetical example:** FB 8888 holds 113 inshore prawn shares and 46 offshore prawn shares. The shareholder holds a fishing boat licence with maximum hull units of 83.

The standardised hull units ( $H_s$ ) are calculated as follows:

$$= 2.4052 \times (83)^{0.7617} = 69.6487 \rightarrow \text{rounded up to } \mathbf{70 \text{ standardised hull units}}$$

Therefore FB 8888 will receive:

$$= (113 + 46) \times 70 = \mathbf{11,130} \text{ new prawn effort quota shares}$$

## 6. Next steps

On 28 September 2018, DPI will take a “snapshot” of shareholdings in relevant share classes. This will be used to calculate the number of shares to be issued to each eligible shareholder. Eligible shareholders will not be able to transfer fishing businesses or shares during the period from 28 September until the new shares are issued.

It is expected that the Minister will issue the new quota shares in October, and the allocation will be published in the Government Gazette. The new quota shares will be uploaded in the Department’s administrative system (FishOnline). All eligible shareholders will be notified of their share allocation and their rights of appeal to the Share Appeal Panel.

**For any questions please contact the Commercial Fisheries Hotline on  
1300 726 488**

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