



# Neighbours of Fish Farming

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## **Salmon Farming Website Usability and Content Reporting Comparisons**

**An analysis of the relationships, information content and data content of the websites of the leading players in the Tasmanian salmon farming industry, by Glenn Sanders.**

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## Introduction

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This report identifies issues about the usability and content of the websites of the leading players in the Tasmanian salmon farming industry – the fish farming companies: [Tassal](#), [Huon Aquaculture](#), and [Petuna](#); and the regulators: the Tasmanian Department of Primary Industry, Parks, Water and Environment ([DPIPWE](#)) and the Environment Protection Authority ([EPA](#)). The following analysis relates to the collection, presentation and organisation of information and data so that it can be easily retrieved and compared across all sources.

The issues we have identified seriously hinder the ability of members of the public to access and download information and quantitative data about salmon farming in Tasmania. Correcting these issues will significantly improve industry and government transparency, and reinforce community trust.

This report was prepared in the last half of 2019. We intend to update it periodically as websites adapt to changes in regulation, management requirements, and technological changes. Information on some websites may be present in another form on another site – ***if we have missed anything, please [contact us](#) so that we can update our content.***

As at mid-November 2019, some industry websites appear on first examination to be quite good examples of modern website design (eg [Tassal](#), [Huon](#), [EPA](#)), however each of them separately has flaws in structure, content and indexing. Others (eg [DPIPWE](#), [Petuna](#)) are more seriously lacking. Taken together, there are inconsistencies in content, indexing and terminology which make it impossible to access data on specific aspects of the industry on a state or regional basis, or across time. The following table details many major and minor issues. The most significant ones are:

### Inconsistent terminology, scope and definitions

- The worst example is the region names used.<sup>1</sup> It is difficult, if not impossible, to reconcile the regional names used by the three companies, with the names of the Marine Farming Development Plans used by DPIPWE. Even the two government organisations, DPIPWE and EPA, use different terms.
- Another example is Dissolved Oxygen, where Tassal uses parts per million, and Huon uses percent saturation.<sup>2</sup> For antibiotic use, Tassal uses the proportion of all fish treated, whereas Huon specifies kilograms used, number of pens treated, and grams per tonne of total biomass.<sup>3</sup>
- Tassal, DPIPWE and EPA refer to the scientific term *Benthic* compliance or monitoring, whereas Huon uses the far more user-friendly term *Seabed Health*.<sup>4</sup>

### Not up to date

- The entire Petuna site uses the increasingly obsolete HTTP protocol, not the much more secure HTTPS protocol. The Tassal home page does use HTTPS, but their [sustainability Dashboard](#) still uses HTTP.<sup>5</sup> To increase Internet security, the software industry world-wide has been actively promoting the change to HTTPS since 1995.
- The Huon site has a page with information about [Our Hatcheries](#), hierarchically below its home page. However the home page contains no menus or links to the hatcheries page, you can only find it by searching. Either this is an oversight, or the hatcheries information is obsolete and the page should be removed from the active site.<sup>6</sup>
- The Petuna site displays images of four compliance certificates from external certification agencies. Three of the four certificates have expired.<sup>7</sup>

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<sup>1</sup> Row 4

<sup>2</sup> Row 18

<sup>3</sup> Row 5

<sup>4</sup> Row 7

<sup>5</sup> Row 2

<sup>6</sup> Row 3

<sup>7</sup> Row 6

## Poor access to quantitative, longitudinal and baseline data

Across all the sites there is very little longitudinal data, so it is frequently not possible to analyse changes across multiple years.

- Half or more of the data for antibiotic use, cleanups, bird and seal mortalities, dissolved oxygen, and temperature is for the current year only,<sup>8</sup> and inconsistencies in content impede analysis across sites.
- There is no information or data on pen stocking density, noise, or floating marine debris, and very little on land-based operations.<sup>9</sup>
- All three companies have documents which can be downloaded.<sup>10</sup> However, for all three companies, detailed examination of these downloads shows that they contain little quantitative data which is not already available on their websites.
- The DPIPWE site often just shows 'Yes/No' to compliance reporting.<sup>11</sup> There is no information on the number of fish involved, or any subsequent actions by the company or regulator.
- There are significant quantitative data and downloadable reports on the EPA website, including compliance breaches, but this is flawed by patchy consistency.<sup>12</sup>
- Where quantitative data is available on the Tassal and Huon Dashboards, the actual numbers can only be seen by hovering the mouse cursor over a data point on a graph.<sup>13</sup> There are no accessible data tables from which the graphs are generated.
- A serious issue is the lack of baseline (before and after) data, which handicaps any longitudinal analysis, and limits community trust in video or other evidence. The most obvious example is in Benthic Compliance,<sup>14</sup> where Tassal (King Island only) and Huon (four of ten listed sites) have video clips for 2018 only, but none showing the ocean floor *before* pens were installed. The EPA site has 2016 videos for four Macquarie Harbour sites within the World Heritage Area, and one baseline video from 2012. A few of the downloadable reports on the EPA site have baseline data.<sup>15</sup>

## Inadequate linking and indexing

Key to the usability of any website is linking and indexing, by standardized menu structures and wording, and by hyperlinks within the site and to related websites.<sup>16</sup>

- There are problems with all sites, with broken links indicating a lack of quality control, or related sites poorly linked (eg to generic home pages not specific pages) or not linked at all.
- All three companies link to external certification agencies, but these are of little use as the external sites contain very little or no accessible information.
- There is little consistency in wording: [Huon](#) starts with *Our approach – Sustainability Dashboard – Sustainability Dashboard* and you then have to browse between *Our Fish* and *Environment*. [Tassal](#) starts with *Sustainability – Sustainability Dashboard* and from there, most but not all items of interest are listed under *Our Planet*.
- DPIPWE is another example, not aided by a very dated site design. The [Salmon Farming Data Portal](#) refers in the introductory text, and in the text for each Plan, to several related organisations and to the three companies, but these are not linked. A sidebar provides links to other government and scientific organisations, but only to their top pages, and there are no links to the salmon companies. The [Marine Farming – Aquaculture – Reports and Publications](#) page does provide more specific links to the IMAS reports page, and the EPA regulation page.

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<sup>8</sup> Rows 5, 11, 15, 18, 37, 44

<sup>9</sup> Rows 3, 25, 33, 35

<sup>10</sup> Row 3

<sup>11</sup> Row 22, 27, 31, 37, 42

<sup>12</sup> Row 3

<sup>13</sup> Row 2

<sup>14</sup> Row 7

<sup>15</sup> Row 3

<sup>16</sup> Rows 3, 6

- In particular, there is much supporting information and quantitative data on the EPA site, but this is not linked to or from to each Plan on the DPIPWE site.

### **No single point of contact for finfish farming issues**

There is no single website page with information about consistent, simple ways for members of the public to request information or report emergencies, noise, or marine debris, and to receive feedback. The overall picture is very confusing:

- DPIPWE, on the [Marine Farming – Aquaculture – Reporting Marine Farming Debris](#) page, shows contact details including their marine debris hotline. The hotline number is also on the parent page, but not on the Salmon Farming Data Portal page, nor is it on the list of thirteen specific hotline numbers on their [Contact Us](#) page. They also provide details of the Debris Tracker smart phone app, and state that anything reported through the app, or via the hotline, is sent to the Marine Farming Branch (DPIPWE), MAST, and the salmon company closest to the debris for removal. There is no information about possible feedback. The page also has details and links to MAST and to DPIPWE's Whale hotline, which it states covers whales, dolphins and seals, although the Contact Us page list of hotlines refers only to whales and dolphins, but not seals.
- The EPA website has a [Report Pollution](#) page with contact details for generic incidents. A sidebar has a specific link leading to a [Noise Complaints](#) page where there is an entry for fish farms with the same details. Confusingly, their [Noise Complaints Contacts](#) page links back to the Noise Complaints page, but also provides different contact details for the department's Noise Specialist, with no indication of which to use.
- The [MAST video clip on marine farming](#) (7 mins) says towards the end to contact industry companies first (which appears to contradict the instructions on the DPIPWE site), or failing that, MAST, about any marine debris, but does not specify any contact details or the EPA hotline. The [MAST website](#) has no highlighted contact point for reporting any incidents or issues (not just marine debris), and no details about out of hours emergency contacts.
- [Tassal](#), [Huon Aquaculture](#) and [Petuna](#) have no specific contact details for emergency reports or problems, just generic contacts such as those for consumer feedback, customer service, retail and wholesale business, and general office contacts.

## **About the Author**

Before he retired in 2014 Glenn Sanders was one of Australia's leading experts in electronic document management, with postgraduate qualifications from the University of NSW and RMIT University. For many years he was a freelance consultant to large and small business, secondary and tertiary educational organisations, and Federal, State and Local Government, throughout Australia, and in Singapore and New Zealand. He specialized in helping people collect, organise, display, index, search for and dispose of documents, and in translating user needs into computer system specifications and interface design. He has been a professional member of the Library and Information Management Association, and of Records and Information Management Professionals Australasia. Glenn is currently secretary of NOFF.

| Row No. | Source                          |  |  | Tassal   | Huon  | Petuna   | DPIPWE   | EPA   |
|---------|---------------------------------|--|--|--|---|--|--|---|
| 2       | Comments                        |  |  | <p>* Site uses HTTPS but Dashboard uses HTTP not HTTPS so not secure.</p> <p>* Has Dashboard, some details elsewhere.</p> <p>* Quantitative data only available on Dashboard by hovering mouse pointer over specific data points on graphs.</p> <p>* No change notification function.</p>  | <p>* Has Dashboard, some details elsewhere.</p> <p>* Quantitative data only available on Dashboard by hovering mouse pointer over specific data points on graphs.</p> <p>* Email register for change notifications (not yet tested).</p> <p>* Link under 'Our Fish - Growth and Development' to the ASX doesn't work.</p> <p>* Links under 'Our approach - latest news' just circle back to 'Our approach'.</p>   | <p>* Site not secure - uses HTTP not HTTPS.</p> <p>* No dashboard, lots of words with some info scattered.</p> <p>* No change notification function.</p> | <p><b>Salmon Farming Data Portal page</b></p> <p>* no mention of related sites.</p> <p>* Introduction to specific Plans refer to IMAS, CSIRO and EPA but links only in sidebar and only to IMAS and EPA top pages, not directly to relevant pages. No link to CSIRO or MAST.</p> <p>* Very little quantitative data, most information is simple Y/N to show if a report has been submitted by a company.</p> <p>* No downloads.</p> <p>* No change notification function.</p> <p><b>Marine Farming - Aquaculture page</b></p> <p>* Links to IMAS publications page</p> <p>* Links to EPA Regulation page</p> |   |
| 3       | Data and documents downloadable |  |  | <p>* Detailed sustainability reports 2012-17 available, varying from 62-116 pages. * Extensive content and textual information, but very little quantitative data not already on website Dashboard, and locating and transcribing individual data point values is very laborious and time consuming.</p> <p>* Report for 2018 changed to 12 page Highlights, so longitudinal consistency not maintained.</p> | <p>* Some Macquarie Harbour documents from 2017, and Huon River feed levels from 2015, available under 'Our approach - Increasing transparency'.</p> <p>* Environmental reviews from 2018 for the Lonnvale (25 pages) and Mreadowbank (17 pages) hatcheries provide detailed information, but nothing available for the other five hatcheries.</p> <p>* The Hatcheries page is attached to the site home page but there are no links or menu items linking to it from there, it can only be found by searching.</p> | Can download 'Sustainable Living Book' but little data, just words.  |  | <p>* Water quality monitoring monthly reports showing Dissolved oxygen, Salinity, Temperature and Nutrients for Storm Bay (2018-to date), Oakhampton Bay (Aug 2017-Sept 2018), and Norfolk Bay (Aug 2018-Jan 2019)</p> <p>* Detailed analysis of water quality in the George River catchment, St Helms, 2005</p> <p>* Environmental Assessment Reports, in progress and completed, 2008 to date. Reports listed under applicant name, including Tasmanian Salmonid Growers Association, 146 Degrees East Pty Ltd etc, so you have to read the application details to see if it is related to salmon farming or finfish aquaculture etc.</p> <p>* D'Entrecasteaux Channel, Huon and Port Esperance: BEMP reports 2009-18; Benthic reports (see below); links to IMAS reports page</p> <p>* Okehampton Bay: baseline survey 2017, annual environmental reports 2017-19</p> <p>* Tasman Peninsula and Norfolk Bay: Norfolk - baseline survey 2018, noise survey 2018, final broadscale monitoring report 2019. Tasman Peninsula - Annual broadscale monitoring reports 2-17-19</p> |
| 4       | Region names used               |  |  | <p>* Eastern</p> <p>* Southern</p> <p>* Western</p> <p>* Channel</p> <p>* Okhampton</p>  | <p>* Huon River</p> <p>* Lower D'Entrecasteaux Channel</p> <p>* Macquarie Harbour</p> <p>* Storm Bay</p>  | <p>* Macquarie Harbour</p> <p>* Rowella</p> <p>* Long Reach (within text, no breakdown or data analysis)</p>   | <p>* D'Entrecasteaux Channel</p> <p>* Greater Oyster Bay and Mercury Passage</p> <p>* Huon River and Port Esperance</p> <p>* Macquarie Harbour</p> <p>* Storm Bay off Trumpeter Bay North Bruny Island</p> <p>* Tamar Estuary</p> <p>* Tasman Peninsula and Norfolk Bay</p>  | <p>* D'Entrecasteaux Channel, Huon and Port Esperance</p> <p>* Macquarie Harbour</p> <p>* Okehampton Bay</p> <p>* Tasman Peninsula and Norfolk Bay</p> <p>* Land-based finfish farms</p>  |
| 5       | Antibiotic use                  |  |  | 2016-2020 group totals only, proportion of fish treated / all fish   | 2015, 16, 17, group totals only, kg used and g/tonne of total biomass, no. of pens treated  | Says within text no treatments since 2014  |  |   |

| Row No. | Source                    |   |                           | Tassal  | Huon  | Petuna   | DPIPWE   | EPA  |
|---------|---------------------------|---|---------------------------|---|---|--|--|--|
| 6       | Approvals, certifications |   |                           | Refers to ASC, BAP but neither appears to display info on Tassal.<br>Refers to GSI, that site has annual Tassal data 2013-18 for escapes, mortality, antibiotic use, sea lice, wildlife (birds / mammals), food (marine components)                                   | Refers to ASC (no Huon details found there), Global GAP (no Huon details found, may require password login), and BRC (lists HA contact details)   | Refers to certificates from BAP (all 3 expired), ASC (expired), HACCP (1 expired, 1 current) |  |  |
| 7       | Benthic compliance        | Not required by Plan for Macquarie Harbour. Tassal says Benthic Compliance, Huon says Seabed Health. DPIPWE and EPA say Benthic Monitoring. | Current                   | % compliance, annual by region 2014 - 2019 (Oakhampton 2017 - 2019). No group totals  | Shows ten sites compliance Y/N, then by site: % compliance, fish age in days, % capacity by month over current 2 years, links to wildlife, temperature etc elsewhere on site                                    |  | Shows for latest quarter: company, lease number, no. of 35m points surveyed and no. compliant. Where not compliant, no other info, just Y/N. Plan reports vary for specific leases within a region (eg Petuna not in the Huon, Max permissible biomass, Nitrogen cap). | Macquarie Harbour: summary Benthic reports (number of leases complying/not complying)              |
| 8       |                           |   | Historic                  |   |   |  |  |  |
| 9       |                           |   | Baseline prior to farming |   |   |  |  |  |
| 10      |                           |   | Videos                    | Twelve 2018 videos for King Island only, no pre-farming baselines   | 2018 for 4 of 10 listed sites, no pre-farming baselines   |  |  | Macquarie Harbour: four sites within World Heritage Area: one baseline video 2012, three from 2016 |
| 11      | Birds                     | Alive and released  | Current 12 months         | Numbers with species by region, no group total  |   | Lists Rowella and Macquarie Harbour incidents for mammals and birds for August 2019 only.    |  |  |
| 12      |                           |   | Historic                  |   |   |  |  |  |
| 13      |                           | Accidental death  | Current 12 months         | Numbers with species by region, no group total  | Group year to date and current calendar year  |  |  |  |
| 14      |                           |   | Historic                  |   |   |  |  |  |
| 15      | Cleanups                  | DPIPWE calls this Marine Debris Cleanups (see also Marine Debris)   | Current                   | Current financial year, totals and by region, shows volume cu, m, hours, distance covered, total % Tassal rope, total % Tassal other, % other. Not stated if shoreline and/or floating. No info on % of total coastline in lease. No info on marine debris incidents. | Shows maps, cleanups by region, then specific cleanup. Date, Volume m3, m3 attributable. Not stated if shoreline and/or floating. No info on % of total coastline in lease. No info on marine debris incidents. |  | Shows for each Plan area the length of coastline surveyed, time taken, volume of material collected (m <sup>3</sup> ), % attributable to fish farming. Not stated if shoreline and/or floating. No info on % of total coastline in lease.                              |  |
| 16      |                           | Historical  |                           |   | Huon River 2015+, lower Channel 2019+, Storm Bay 2016+, Macquarie Harbour 2018.   |  |  |  |
| 17      |                           | Baseline pre farming  |                           |   |   |  |  |  |
| 18      | Dissolved oxygen          | At 5 metre depth  | Current                   | Ppm, monthly, current 12 months, several points per region, no regional or group averages   | % saturation, current 12 months, totals and by multiple points within regions. options for monthly, quarterly, biennial, annual (heading says Daily)  |  |  |  |
| 19      |                           |   | Historic                  |   |   |  |  |  |
| 20      |                           |   | Baseline                  |   |   |  |  |  |
| 21      | Employee numbers          |   |                           | Annual, 2013-19   |   |  |  |  |

| Row No. | Source   |  |                        | Tassal  | Huon  | Petuna  | DPIPWE   | EPA  |
|---------|--|--|------------------------|---|---|---|--|--|
| 22      | EUL (Estimated unexplained loss), % of estimated total fish counts |  |                        | Year classes 14, 15, 16, totals and by region, no historic. |   | Specifies only EUL for Rowella lease for 2016 within text.  | DPIPWE records if any fish escapes have been notified to DPIPWE, Y/N for each company. Most recent quarter, and historical 2017-19. If 'Y' no further details available.   |  |
| 23      | Feed composition   |  |                        | Words only, under 'our salmon'. Refers to ASC.              | Shows % vegetable, land animal, fish meal, annual 2013-18. No breakdowns. No other historical.        | Links to supplier websites, 1 of 4 of which works to display very generic infographic not specific to Petuna. |  |  |
| 24      | Growth & Development   | Mandatory stock exchange reports       |                        |   | 6 monthly, 2014 to date, fish biomass kilotonnes, harvest kilotonnes, revenue (revenue \$ and EBITDA) |   |  |  |
| 25      | Land-based production sites  | eg hatcheries                          |                        |   | See under Data and Documents Downloadable above - some information available via an orphan webpage    |   |  | Russell River Catchment Nutrient Study, October 2018 |
| 26      | Marine Debris  | (see also Cleanups)                    |                        |   |   |   | No info on marine debris incidents. Nothing on MAST website either. Says to report incidents to marine debris hotline phone or email, or use Tasmanian Salmonid Growers Association's Debris Tracker App on a smartphone. Links to MAST home page. |  |
| 27      | Marine farm inspections  | Current                                |                        |   |   |   | Shows for each company only whether inspections have occurred (Y/N), for latest quarter. Historic annual 2017-19.  |  |
| 28      |  | Infringements                          |                        |   |   |   | Shows for each company, number of infringement notices, for latest quarter, and historic 2017-19. No details of nature of infringement or any resulting actions. No details on MAST website.   |  |
| 29      | Marine farming equipment register                                  |  |                        |   |   |   | Shows Y/N for each company in each Plan, for registration with state-wide equipment register. No further details for either answer.  |  |
| 30      | Maximum permissible biomass  | Macquarie Harbour only                 |                        |   |   |   | Shows limits in tonnes per hectare for latest quarter, and historical for varying periods 2017-19  |  |
| 31      | Mortality within cage greater than 0.25% for 3 consecutive days    |  |                        |   |   |   | Shows if a company has reported any such mortality in their fish (Y/N), for latest quarter, and annually 2017-19. If Y, no further details available.  |  |
| 32      | Nitrogen cap   | Applies to Huon & Channel regions only | Data numbers undefined | Totals, Huon & Channel, 2017,18,19                          |   |   |  |  |

| Row No. | Source                                      |   |          | Tassal  | Huon   | Petuna  | DPIPWE  | EPA  |
|---------|---|---|----------|---|--|---|---|--|
| 33      | Noise                                       |   |          |   |  |   | Reporting noise: link to EPA page listing relevant government agencies  | Reporting noise: complaints contacts page lists EPA Noise Specialist email and phone, links also to EPA relevant government agencies page which lists EPA Incident Response Hotline phone nad email (different from Noise Specialist). |
| 34      | OHS   |   |          | TRIFR, LTIFR, MTIFR current 12 months   | LTIFR, ALTR, incidents annual 2015-19  |   |   |  |
| 35      | Pen stocking density                        |   |          |   |  |   |   |  |
| 36      | Product safety                              |   |          |   | Says last recall was 2011  |   |   |  |
| 37      | Seals                                       | Mortalities                                 | Current  | Current 12 months, numbers with species by region, no group total   | Group year to date and current calendar year   | Says, within text, zero cage breaches in past 3 years, no seal fatalities in past 16 years. Lists Rowella and Macquarie Harbour incidents for mammals and birds for August 2019 only. | Shows for each company whether a seal mortality event has been reported (Y/N), for latest quarter. If Y no further information available eg number of seals. Petuna shows 1 event 2019 not recorded on their website. |  |
| 38      |   |   | Historic |   |  |   | Annual 2017-19  |  |
| 39      |   | relocations                                 | Current  | Numbers by region for current quarter even though no longer allowed   |  |   |   |  |
| 40      |   |   | Historic |   |  |   |   |  |
| 41      | Senior managers local vs elsewhere          |   |          | % by region, not specified but current snapshot?  |  |   |   |  |
| 42      | Significant mortality event reported        |   |          |   |  |   | Shows if a company has reported any significant illness, mortality or disease in their fish (Y/N), for latest quarter, and historic annual 2017-19. If Y, no further details available.                               |  |
| 43      | Staff gender                                | M/F only                                    |          | F/T, P/T etc, directors, by department, training hours, numbers by state. Not specified but current snapshot? | 2018, 2019 only. M/F current snapshot, numbers by department (current quarter), average training hours per employee quarterly 2018-19  |   |   |  |
| 44      | Temperature °C at 5 metre depth             | Current                                     |          | Monthly, current 12 months, several points per region, no regional or group averages                          | Current 12 months, totals and by multiple points within regions. Options for monthly, quarterly, biennial, annual (heading says Daily) |   |   |  |
| 45      |   | Historic                                    |          |   |  |   |   |  |
| 46      |   | Baseline                                    |          |   |  |   |   |  |
| 47      | Total permissible dissolved nitrogen output | Channel, Huon River and Port Esperance only |          |   |  |   | Shows tonnes per annum for latest quarter, and historical as at the determination date  |  |