

5 February 2020

Submitted online: <https://haveyoursay.agriculture.gov.au/middle-east-sheep-exports>

Animals Australia submission on the *Draft Regulation Impact Statement on Live Sheep Exports to the Middle East*

Animals Australia welcomes the opportunity to provide input in response to the *Draft Regulation Impact Statement on Live Sheep Exports to the Middle East* (“**Draft RIS**”).

Recommendation

In summary, on animal welfare grounds, Animals Australia is opposed to Option 1, and rather than either Options 2 or 3 alone, recommends: a prohibition on all sheep shipments to or through the ME during the northern summer (May – October inclusive); a revised HSRA (the McCarthy model); and an increased space allowance for shipped sheep of allometric k -value 0.047.

We note that the adoption of (one or more of) the suggested policy options (outlined in the Draft RIS) is intended to ‘*manage the risk of heat stress in live sheep exports and achieve desirable welfare outcomes on voyages while supporting a sustainable live sheep export trade to, or through, the Middle East*’. We commend our alternate option (“NEW – 4” in table below) to achieve that outcome.

Introduction

The Department of Agriculture (“**Department**”) will be aware that Animals Australia has provided information relevant to heat stress and the risks to exported animals over many years, and also by way of considered **written submissions** during the past 18 months.

In particular, we note our recent submission in response to the *Policy Options Discussion Paper on Live Sheep Exports to the Middle East* (“**Options Paper Submission**”) in November 2019. Importantly, that submission forms **Appendix A** of this submission (rather than merely reiterating significant relevant elements in this submission). We request that this submission on the Draft RIS is read by the Department in conjunction with our Options Paper Submission (below). Where necessary and appropriate, some material may be repeated in this Draft RIS submission.

As this Draft RIS considers the economic and trade implications of the ‘Options’ presented by the Department, we advise that Animals Australia has commissioned studies by independent economists to analyse the likely financial and related effects of reducing or eliminating live sheep export during the Middle East summer months. The primary current study by *Pegasus Economics*¹ is provided as **Attachment 1** to this submission. Some direct quotations from that paper are included in this submission but we recommend the entire report to you.

A further analysis² by Professor Trevor Breusch (ANU) of an earlier report by Mecardo³ is relevant to some economic calculations quoted in the Draft RIS, and so is provided as **Attachment 2** to this

¹ ‘*Live Sheep Export Trade – Review of the Draft Regulatory Impact Statement*’, Dr Alistair Davey and Roger Fisher, Pegasus Economics, Canberra, February 2020.

² ‘*Live Sheep Export – A Review of the Mecardo Report*’, Professor Trevor Breusch, July 2019.

³ ‘*Live Sheep Export – Brief Report*’, Mecardo, Ballarat, 2018.

submission. Relevantly Breusch found the Mecardo analysis to be “superficial and unworthy as a guide to policy.”

Animal Welfare

As the Department is aware, heat stress is only one of the many risks to animal welfare in the live export trade, and **Animals Australia therefore opposes live export outright** and continues to advocate for a total ban on live animal exports. However, until such time as a ban is in place, we continue to engage in review processes which may mitigate some animal suffering. It is in this context only that the following input is provided.

The Animals Australia Options Paper Submission (November 2019) provided substantive information on heat stress in sheep, historic and current shipboard data (including Independent Observer reports), and scientific opinion and analysis relevant to the welfare of shipped sheep. As mentioned above – that submission is **Appendix 1** to this submission and we again rely on that material.

The following table therefore merely summarises the position of Animals Australia to each of the 3 RIS Options based on the likely **animal welfare outcomes** and provides our alternate recommendation (“NEW – 4”).

#	Department’s Regulatory Options for 2020 onwards	Animals Australia’s Position
1.	<p>Maintain the regulatory status quo (pre 2019).</p> <p>Live sheep exports to, or through the Middle East permitted for all months of the Northern Hemisphere summer.</p> <p>Conditions under the Middle East Order and in-force ASEL standards apply for voyages during the Northern Hemisphere summer months including pen space allowance according to the greater of allometric principles or a HSRA.</p> <p>Requirement for all voyages to conduct a HSRA using the existing HSRA model, HotStuff (version 4).</p> <p>As indicated in the Draft RIS - <i>The regulatory status quo does not prohibit any voyages and therefore under option 1, trade could occur for all months of the Northern Hemisphere summer.</i></p>	<p>Opposed to this Option</p> <p>Whilst acknowledging that shipments under the Middle East Order allometric requirements would require significant reductions in stocking densities during the ME summer (11 – 39% more space/sheep compared to ASEL 2.3), we have repeatedly provided scientific and veterinary health evidence that stocking density cannot ensure avoidance of heat stress.</p> <p>We welcome the Draft RIS acknowledgement of this fact; <i>The welfare benefits of additional space allowances under the Middle East Order are real but limited. If ambient temperatures are very hot, as they can be during June to September (inclusive) even one sheep on a deck could experience conditions that resulting in heat stress and poor welfare.</i> (page 20).</p> <p>Further, in practice heat stress (i.e. pant score 3) has been recorded by the AAVs and Independent Observers on shipments operating under the Middle East Order stocking densities. This is noted (page 30) of the Draft RIS for voyages in May, September and October of 2019.</p> <p>This Option would expose hundreds of thousands of animals to heat stress each year, an increased death rate and would be totally unacceptable to the Australian community and contrary to the interests of the industry.</p>
2.	<p>Implement a prohibition on live sheep exports from 1 June to 14 September with additional prohibited</p>	<p>Opposed to this option</p> <p>Whilst this is a significant improvement over Option 1, it fails to address the known risk of heat stress (and its</p>

	<p>periods for Qatar and Oman. Live sheep exports to, or through the Middle East prohibited from 1 June to 14 September for all ports with additional prohibited periods for Qatar and Oman:</p> <ul style="list-style-type: none"> • Qatar prohibited from 15 May to 22 September • Oman prohibited from 1 May to 14 September. <p>For voyages between 1 May and 31 October:</p> <ul style="list-style-type: none"> • base regulation of the Middle East Order and the in-force version of the ASEL • single discharge port for voyages arriving after 1 June and departing between 15 and 30 September • all sheep must have wool length less than 15mm and maximum body condition score not higher than 3.5 • all voyages monitored with automated environmental measurements and targeted behavioural observations and this monitoring reported to the department • no requirement for a HSRA. <p>Interim review following the 2020 Northern Hemisphere summer period by March 2021. Post implementation review by March 2022.</p>	<p>welfare impacts) for some sheep during May, and also in the period from 15 September through to the end of the ME summer at the end of October.</p> <p>A three to four month prohibition fails to adequately mitigate risk during these shoulder months.</p> <p>As the AVA indicated in its submission to the McCarthy Review (May 2018):</p> <p><i>Irrespective of stocking density, thermoregulatory physiology indicates that sheep on live export voyages to the Middle East during May to October will remain susceptible to heat stress and die due to the expected extreme climatic conditions during this time. Accordingly, voyages carrying live sheep to the Middle East during May to October cannot be recommended⁴.</i></p>
3.	<p>Implement a revised HSRA model consistent with recommendations of the HSRA Review.</p> <p>Manage the risk of heat stress using a revised HSRA model with risk settings based on heat stress thresholds embedded (but</p>	<p>Agreed in principle (see recommendation below)</p> <p>We support the revision and adoption of the HSRA in line with the McCarthy and HSRA reviews – i.e. adopt risk setting based on the avoidance of heat stress (rather than mortality). <u>We note however that the Draft RIS/Department advises that a revised HSRA model/Hotstuff will not be made available by the industry ‘owners’ until the end of 2021.</u> McCarthy stated in May 2018 that the revision could be done ‘promptly’, and the</p>

⁴ Australian Veterinary Association, *Review of Heat Stress and Stocking Density (Submission to the McCarthy Review)*, 4 May 2018. Available here: https://www.ava.com.au/siteassets/advocacy/ava-literature-review-live-sheep-export-may-2018_final_1.pdf.

	<p>not used) in HotStuff (version 4).</p> <p>Through destocking requirements of the revised model, this option effectively prohibits trade for the whole Northern Hemisphere summer period (May to October).</p> <p>Interim review following the 2020 Northern Hemisphere summer period by March 2021.</p> <p>Post implementation review by March 2022.</p>	<p>DRAFT RIS notes the Hotstuff model already includes all necessary data and that the '<i>revision is not anticipated to be complicated</i>' (page 28) nor financially <i>burdensome</i> (page 58)</p> <p>This delay is totally unacceptable and undermines the ability of the Regulator to adequately control the shipping conditions and thus welfare of exported Australian animals. The influence and intransigence of the live export industry, its virtual self-regulation over past decades, has led to the current low regard in which it is held by the Australian community.</p> <p>Failure to update the HSRA for the 2020 ME summer:</p> <ul style="list-style-type: none"> • Is inconsistent with the Department's stated support for the recommendations of the McCarthy report. The Department is now here ignoring the McCarthy recommended HSRA improvements (given its preference in the Draft RIS for Option 2). • Ignores the Technical Reference Panel recommendations and Government undertakings to move from mere mortality to heat stress/animal welfare as the critical measure in the HSRA. • Undermines the welfare of all animals exported across the equator as, from the implementation of ASEL V3 in 2020, an HSRA assessment will be required - but that will remain the inadequate Hotstuff V4 if not upgraded now.
<p>NEW – 4.</p>	<p>Animals Australia recommendation</p> <ul style="list-style-type: none"> • Implement a regulatory ban on all sheep shipments from Australia to and through the Middle east from May to October (inclusive), • Fast track and adopt a revised HSRA model with risk settings based on heat stress thresholds for all sheep shipments during other months of the year (from November 2020), and • Adopt the allometric stocking densities in the Middle East Order (2018) for all other sheep shipments (November-April). 	<p>Animals Australia's supported option</p> <p>A combination and extension of Options 2 and 3 is required.</p> <p>Whilst a revised HSRA model (recommended by McCarthy and the TRP) is required, exports during the northern summer period must continue to include a prohibition period for all the high-risk months (May-October) if significant heat stress and thus those welfare issues are to be avoided.</p> <p>In addition, sheep shipments at any time must provide sufficient space for animals during these long voyages. The current ASEL is inadequate in this regard <u>at any time</u>.</p> <p>To enable adequate movement, rest, and other basic physical and social requirements, the appropriate applicable allometric <i>k</i>-value is 0.047, unrelated to class, species or voyage length. This is the <i>k</i>-value that is required for all animals sharing a pen to be able to simultaneously rest in full recumbency, and to freely move through assembled others in order to reach food and water. The current <i>k</i>-value of 0.033, used in the Middle East Order, is also insufficient, as it only permits animals to 'time share' adequate lying space, or else be</p>

		forced to rest on their sternum. The Draft RIS notes the allometric measure of $k=0.033$ is the 'threshold below which there are consistent adverse effects on welfare outcomes in intensive housing'. This is hardly a ringing endorsement of onboard conditions and must be addressed.
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Economic or Trade Implications of the Options:

The following are key extracts from the *Pegasus Economics* February 2020 analysis of the economic impact of the Options. Of direct relevance, this report has been able to use data from Western Australia (WA) sheep farming, saleyard and meat processing sectors during the cessation of sheep shipments from WA during the 2018 and 2019 ME summer to provide indicative economic modelling. That report is **Attachment 1** to this submission and its full data sources, assumptions and calculations are included in the report. The authors are also available if any clarifications or further information is required.

Note: *these are partial extracts only and are provided here to provide an indication of key points that are addressed in the report – please refer to the report for context and full explanations.*

Economic Impacts Associated with the Live Sheep Export Trade

- It has been long contended the live sheep export trade underwrites farm gate prices for sheep in Western Australia.
- Since the effective curtailment of the live sheep export trade to the Middle East during the northern summer in 2018 and 2019, farm gate prices for WA sheep farmers have not crashed and the mutton sheep displaced from the live sheep export trade have found new export markets, predominately in China.
 - This contradicts assertions to the effect that the live sheep trade underwrites WA farm gate sheep prices or provides a price floor.
- At current export levels of 1 million live sheep exported per annum, the cessation of the live sheep export trade would thus translate into a loss of around \$4 million for WA sheep farmers from the loss of the price premium paid by live sheep exporters. This works out at around \$936 per WA sheep farmer on average.⁵
 - This represents a loss of less than 0.2 per cent of total cash receipts for specialist sheep farms and less than 0.1 per cent of total cash receipts for mixed enterprise sheep farms.⁶
- With the effective curtailment of the live sheep export trade to the Middle East during the northern summer in 2018 and 2019, there has been a sharp increase in the slaughter of mutton sheep in trend terms, while there has been no discernible change in the slaughtering of lamb associated with the curtailment.
- With the increase in the slaughter of mutton sheep, full time employment in the WA meat processing sector has recently reached record levels while total hours worked is only just below the record levels set during the winter of 2016 when the slaughter of lamb peaked.

⁵ Assumes 100 per cent of live sheep exports come from Western Australia and that there were 4,217 sheep farmers in Western Australia as per ABS (2019).

⁶ Based on total cash receipts for 2017-18 from ABARES (2019a).

- The average level of total employment in the WA meat processing sector increased by 2,300 jobs, from an average of 3,400 jobs in 2017 and 2018, to 5,700 jobs in 2019.⁷⁸
- In relation to one of the options available to WA sheep farmers in the event of the curtailment of the live sheep export industry, the Department of Agriculture (2019, p. 46) has noted:

Switching from live exports to lamb production is likely to have only minor impacts on employment in the sheep industry. On-farm employment could actually increase because the production of prime lambs requires more labour per sheep than producing sheep for live export.

- The capacity of live sheep exporters to pay a price premium at saleyard auctions is arguably directly linked to the provision of food subsidies provided by recipient countries that in turn artificially increases demand for Australian live sheep exports and enables them to pay above market rates to procure sheep.
- The sustainability of such subsidies over the medium to longer term is in grave doubt.

Considering the Options

- According to the Department of Agriculture (2019, p. 39), restricting live exports along the lines of option 2 would have two distinct market impacts:
 - A decline in world sheep meat prices due to an increase in sheep meat supply out of Australia.
 - A decline in domestic saleyard/direct sale prices due to an increase in the supply of sheep for slaughter into the domestic processing market and the removal of a source of competition for meat processors (that is live export) and therefore increased processing costs.
- The countries in which replacement sheep are procured for the live sheep export trade will have less sheep available for processing and export, in turn potentially creating new market opportunities in relation to processed sheep meat products. On this basis, we remain sceptical as to whether there will be any significant and identifiable decline in world sheep meat prices due to an increase in sheep meat supply out of Australia due to a temporary cessation in the live sheep export trade.
- While there is likely to be a relative decline in WA saleyard/direct sale prices compared to the eastern states in the event of the withdrawal of live sheep exporters from purchasing sheep, our modelling suggests the order of magnitude of any price decline is only likely to be a quarter up to a half of the maximum price decline suggested by the Department of Agriculture, and is in the range of between \$4.68 to \$7.37 per head of per head.
- The considerable structural change observed in the WA sheep flock over the last 30 years discussed above is testament to the fact that WA sheep farmers are not stagnant and can adjust their business mix and model in response to changing market conditions and circumstances. We also note that the potential adjustments by WA sheep farmers to a 16 week prohibition on live sheep exports to the Middle East change (with additional prohibited periods for Qatar and Oman) do not appear to be extensive compared to other structural

⁷ See ABS (2019b).

⁸ Noting also that the Draft RIS advises a benefit of Option 3 (6-month cessation) states: *Under the regulatory status quo, the Australian winter and early spring months are a low season for WA processors. A more stable supply of sheep over this period could provide a more stable environment to retain workers.* (page 56)

adjustments already undertaken by the industry. We thus concur that the price impacts from the temporary withdrawal of live sheep exporters will, in all likelihood, dissipate over time.

Recommendation & Conclusion:

In light of the above, we repeat our position that, on animal welfare grounds, Animals Australia is opposed to Option 1, and rather than either Options 2 or 3 alone, recommends: a prohibition on all sheep shipments to or through the ME during the northern summer (May – October inclusive); a revised HSRA (the McCarthy model); and an increased space allowance for shipped sheep of allometric k -value 0.047. We believe that this approach – and this approach only – would:

- Fulfill the overall policy option objective to ‘*manage the risk of heat stress in live sheep exports and achieve desirable welfare outcomes on voyages while supporting a sustainable live sheep export trade to, or through, the Middle East*’. We commend our alternate option (“NEW – 4” in table below) to achieve that outcome; and
- Align to community expectations, which ultimately influences the social licence of the live export industry. A loss of social license risks the viability of the live export industry, and in extreme cases a complete market collapse. We note that the Draft RIS (at page 18) refers to *Futureye research* carried out in 2018, which found that:

“Clear findings from surveys of the Australian public carried out by Futureye, show 95% of people view farm animal welfare to be a matter of concern, and 91% wanting more effective regulation or reform. Futureye also found that poor animal welfare standards on board live export ships ranks as the highest driver of community concern, particularly when accompanied by graphic pictures and widespread media attention. Futureye surveys found that over 80% of the public found live animal exports moderately to extremely concerning, and that 60% thought live animal exports should be banned.”

Further, we commend the findings of the *Pegasus Economics* February 2020 to the Department. The **critical relevance of the report’s findings is that it is underpinned by data from Western Australia (WA) sheep farming, saleyard and meat processing sectors during the cessation of sheep shipments from WA during the 2018 and 2019 ME summer to provide indicative economic modelling.** We implore the Department to consider this report as a whole – hence not singling out a specific conclusion or aspect of the report.

Please contact me if further clarification is required.

Yours sincerely,



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APPENDIX A

4 November 2019

Submitted online: <https://haveyoursay.agriculture.gov.au/middle-east-sheep-exports>

Animals Australia submission to the *Policy Options Discussion Paper on Live Sheep Exports to the Middle East*

Animals Australia welcomes the opportunity to provide input in response to the *Policy Options Discussion Paper on Live Sheep Exports to the Middle East* ("**Options Paper**").

The Department of Agriculture ("**Department**") will be aware that Animals Australia has provided information relevant to heat stress and the risks to exported animals over many years, and also by way of considered **written submissions** during the past 18 months. We request that this current submission ("**Submission**") is read by the Department in conjunction with our previous submissions relevant to the protection of animals from heat stress during sea transport from Australia. Namely:

1. The **McCarthy Review** (May 2018);
2. The **Australian Maritime Safety Authority regarding Shipboard Facilities (Marine Orders 43) Review** (May 2018);
3. The **Moss Review** into the **Regulatory Capability and Culture of the Department of Agriculture and Water Resources in the Regulation of Live Animal Exports** (July 2018);
4. The **DAWR Heat Stress Risk Assessment (HSRA) Issues Paper** (October 2018);
5. The various **ASEL Review** stages (September 2019 and November 2018);
6. The **Draft Report of the Technical Reference Panel on Heat Stress During Sea Transport from Australia** (February 2019);
7. The **Proposed Changes to Arrangements of the Export of Sheep to the Middle East during the 2019 Northern Hemisphere Summer** (March 2019); and
8. The **Proposed Options for the Export of Sheep to the Middle East During September and October 2019** (July 2019).

We commend the above previous submissions to you. Where necessary and appropriate, some material may be repeated in this Submission.

Copies of the above submissions can be provided if they are not immediately available to the Department.

Heat stress is only one of the many risks to animal welfare in this trade, and **Animals Australia therefore opposes live export outright**, and continues to advocate for a total ban on live animal exports. However, until such time as a ban is in place, we continue to engage in review processes which may mitigate some animal suffering. It is in this context only that the following input is provided.

We will now make submissions and recommendations regarding Animal's Australia's position on the four options proposed in the Options Paper.

A. The Options: Animals Australia's Position

Animals Australia's position is that:

- Option 2 is superior to option 1;
- Option 3 is superior to option 2 only insofar as it provides for animal welfare indicators in the HSRA – however it does not go far enough without the inclusion of a prohibition period; and
- Option 4 is unacceptable.

Each option in the Options Paper fails to prohibit sheep shipments for the entire (May – October) northern summer period, leaving exported sheep at high risk of experiencing unacceptable heat stress on permitted shipments. **The most appropriate policy option is a combination of option 2 and option 3, and with the inclusion of a 'shoulder month' prohibition extension – namely, May and October.** This policy option:

- Better supports and meets the higher animal welfare standards expected by the Australian community; and
- Better supports a sustainable live sheep export trade. This is because of the known animal welfare risks of operating during the heat stress risk period (May to October) as supported by available data and evidence (as explained in this Submission and previous submissions). Operating throughout the heat stress period will cause further disruptive consequences of losing the **social licence** to operate, which is contrary to the interests of the industry.

Therefore, the 2019 prohibition period should be retained with the inclusion of May and October, along with the adoption of the revised HSRA model.

The following table summarises the position of Animals Australia.

#	Department's Options for 2020 onwards	Animals Australia's Position
1.	Three-month prohibition - Conditions under the Middle East Order apply for the northern summer months and industry continue to use the existing HSRA model or agreed animal welfare indicators.	<p>Opposed</p> <p>A three-month prohibition under the Middle East Order fails to adequately mitigate risk during the shoulder months – May, September and October.</p> <p>Failure to update the HSRA is inconsistent with the Department's (even qualified) support for the recommendations of the McCarthy report. The Department is now here ignoring the various ways in which Dr McCarthy recommended that the HSRA model be improved and updated (which would be the effect of adopting option 3). Failure to update the HSRA also ignores the Technical Reference Panel ("TRP") recommendations and Government undertakings to move from mere mortality as an indicator to the HST model.</p>

		There are no further 'agreed' animal welfare indicators and the industry work on this will not be completed for several years.
2.	Apply the 2019 prohibition period - Conditions under the Middle East Order apply for the northern summer months. The department would remove the requirement for a HSRA on live sheep export voyages to, or through, the Middle East.	<p>Opposed</p> <p>Whilst the extension of the prohibited period to 22 September is an advance, it fails to cover the risks posed on shipments departing in May, late September and October.</p> <p>It is unacceptable to remove any requirement for a HSRA (existing or revised for HST).</p>
3.	Adopt a revised HSRA model with risk settings based on heat stress thresholds or agreed animal welfare indicators.	<p>Opposed</p> <p>Whilst a revised HSRA model (recommended by McCarthy and the TRP) is required, exports during the northern summer period must continue to include a prohibition period for the high-risk months.</p> <p>The revised HSRA would be necessary for Middle East summer 'shoulder months/periods' (if Options 1 or 2 are adopted) and/or for other southern Australian animal shipments that cross the equator at any time of the year (see Animals Australia's recommendation below).</p> <p>There are no further 'agreed' animal welfare indicators and the industry work on this will not be completed for several years.</p>
4.	No prohibition - live sheep exports to, or through the Middle East would be permitted 12 months of the year. Conditions under the Middle East Order apply for the northern summer months and industry continue to use the existing HSRA model.	<p>Opposed</p> <p>This would expose hundreds of thousands of animals to heat stress each year, an increased death rate and would be totally unacceptable to the Australian community and contrary to the interests of the industry.</p>
NEW	Animals Australia's recommended alternate option:	<p>No animals are exported from southern Australia to or through the Middle East during the northern summer (May – October) period.</p> <p>No animals are exported from southern Australia across the equator at any time of the year, unless an amended HSRA based on animal welfare HST (as recommended by the TRP) is used relevant to the voyage, and the Department's risk assessment has included assessment of the environment the animals will be imported into (Recommendation 7 of the TRP Report).</p>

B. Submissions in Support of Animals Australia's Position

Part A has clearly defined Animals Australia's position. The submissions made in this section will provide the data and evidence in support of Animals Australia's position. Rather than drilling into the issues associated with each option proposed in the Options Paper, it follows that the submissions in support of Animals Australia's position address (rule out) the options in the Options Paper based on limitations/deficiencies with these Options Paper options.

i. Animal Welfare and Heat Stress

It is irrefutable that heat stress causes dire welfare and life-threatening impacts on exported animals.

The heat and humidity combination on live sheep ships from Australia has been extensively studied and reported on, and includes: almost 40 years of annual mortality statistics; the regulator's investigation reports on high mortality air and sea shipments; onboard veterinarian reports; video evidence of routine conditions onboard the MV *Awassi Express* during 2017; the redacted reports of the shipboard 'Independent Observers' ("IO") during 2018; and the IO summaries of shipments to the Middle East during 2018 and 2019.

Animals Australia welcomed the prohibition on sheep exports to the Middle East in June, July, August and part of September 2019. Ceasing shipments during this period throughout 2019 saved Australian sheep from the suffering caused by the most severe heat and humidity (in addition to the usual and inevitable handling and shipping stresses of long-distance transport).

However, we have consistently argued, along with the RSPCA and the Australian Veterinary Association ("AVA"), that known and usual environmental/climatic conditions, and the added temperature and humidity (higher Wet Bulb Temperatures – "WBT") experienced on the ship's animal decks, must rule out all live animal exports from Australia during the entire northern summer, **being May to October inclusive**.

As the AVA indicated in its submission to the McCarthy Review (May 2018):

Irrespective of stocking density, thermoregulatory physiology indicates that sheep on live export voyages to the Middle East during May to October will remain susceptible to heat stress and die due to the expected extreme climatic conditions during this time. Accordingly, voyages carrying live sheep to the Middle East during May to October cannot be recommended⁹.

The following extract (from the published science) is representative of the research and information available to the Department which shows live animals should not be shipped from May to October each year:

Animals transported by ship can be exposed to hot and humid conditions. Voyage reports (e.g. MAMIC 2000a) indicated that animals travelling to the Middle East during the northern summer (May to October) experienced conditions over 30°C wet bulb, often for sustained periods of several days, with nil or little diurnal respite. The air entering the decks can be hot and humid, and it can become worse with the addition of heat from the animals, so that animals further from the entry points can be subject to extreme heat and humidity. The continued generation of heat by the animals, and radiation of heat from the ship's surfaces can maintain these conditions day and night, especially in equatorial waters where there is little cooling at night.¹⁰

⁹ Australian Veterinary Association, *Review of Heat Stress and Stocking Density (Submission to the McCarthy Review)*, 4 May 2018. Available here: https://www.ava.com.au/siteassets/advocacy/ava-literature-review-live-sheep-export-may-2018_final_1.pdf.

¹⁰ Anna Barnes et al, *Physiology of Heat Stress in Cattle and Sheep* (Meat and Livestock Australia & Livecorp), Project Number LIVE.0209 (2004).

Further and importantly, Animals Australia's submissions to the Department's consultations on the ***Proposed Changes to Arrangements of the Export of Sheep to the Middle East during the 2019 Northern Hemisphere Summer*** (March 2019), and – most recently – the ***Proposed Options for the Export of Sheep to the Middle East During September and October 2019*** (July 2019) provide detailed information and arguments also against exports during May, September and October each year. We will not repeat all that information here, except to clarify our position that the imposition of the requirements of the *Australian Meat and Livestock Industry Export of Sheep by Sea to the Middle East Order 2018* ("**Middle East Order**") may minimally mitigate some risk, but that those onboard manipulations (e.g. stocking density, automatic watering) cannot reduce the regional ambient heat and humidity sufficiently to avoid heat stress on ships during these months.

ii. Feedlots in the Middle East

The Technical Reference Panel in its Final Report (and previously) recommended (at Recommendation 7) that:

*Care for sheep welfare should extend beyond the voyage period. Therefore, it is recommended that the **environmental conditions that sheep may be exposed to at their destinations in the Middle East be considered in the risk assessment process.***

[emphasis added]

This recommended action to consider the effect on Australian animal in the Middle East during the Northern Summer is not mentioned in the Options Paper.

Animals Australia has first-hand experience and evidence of the suffering and distress of Australian sheep suffering in the heat and humidity of the summer period during the several weeks they spend in feedlots prior to slaughter. This is particularly concerning because it is evident that the period of feedlotting may well increase if exporters 'warehouse' sheep by shipping higher numbers prior to the prohibition period to cater for religious festivals.

In fact, it is evident that many sheep suffer and die due to heat stress (and other ailments) in Middle East feedlots soon after arrival. In the past, this has been as high or higher than those that have died on shipments.

The industry has current data relevant to this issue (see below), but it remains unpublished. This is therefore an aspect of the trade that is still to be independently examined.

Historic studies found some 3% of sheep died in the feedlots, and up to 4% were sent for emergency slaughter. This was reported to be when they were 'debilitated, diseased or injured'. This study charted deaths for two feedlots in the Middle East (in 1988) on all shipments/consignments for a year (12 shipments for one, and 21 for the other) – with over 700,000 sheep in the sample. While sheep were held for about a month after arrival in the Middle East, 49% of the deaths were in the first week.¹¹

More recent, industry research indicates that the welfare of animals in the Middle East during the northern hot months is of concern, as the following extracts show:

A specific study reported in 2008 that:

Ambient temperatures in the Middle East region during the summer months (> 42°C) are higher than those experienced in the regions from which Australian sheep are typically sourced. The religious festivals creating the greatest demand for sheep meat (Ramadān and Eid Al Fitr) currently coincide with the cooler months in Australia and the hotter months in the Middle East. The situation will become more intense over the next 5 years as the start of

¹¹ DW Scharp (1992) 'Performance of Australian wethers in Arabian Gulf Feedlots after transport by sea', 69(2), *Australian Veterinary Journal* 42.

*Ramadān (10 days earlier each year) moves into July and August, the hottest and most humid of the summer months.*¹²

In 2014:

*...Anecdotal evidence suggests high pen densities [in ME feedlots] in association with adverse summer conditions may contribute to spikes in mortality rates and contribute to feedlot sickness due to heat loads. However, this has not been scientifically evaluated, nor has the optimal amount of space required per animal under such conditions. Research related to pen air turnover on livestock transport vessels indicates more space will allow for more airflow, providing there is air movement (Stacey, 2014).*¹³

There has now been considerable research on the heat load issues for sheep in Middle East feedlots (and on ships prior) over the past 5 years. However, the full reports – funded by Meat & Livestock Australia (“MLA”) – have not been published due to confidentiality arrangements with feedlot operators and importers.¹⁴ Instead, these reports have been shared only with the live export industry.

The summaries (the only published indication) of this work are sufficient to indicate that considerable suffering and deaths are usual.

Finally, in their explanation of Recommendation 7, the TRP stated that:

It cannot be assumed that exported sheep will be subject to respite from high heat when unloaded at their destinations, and as such, the issue of heat load at destination ports must be considered in this process. There is no point in managing animals adequately on a ship to then unload and leave them in an environment which imposes greater heat challenges. Weather data for Middle Eastern destination markets shows that the hot and humid regions, particularly during their summer, will have some periods when the environment is extreme, and above the WBT welfare threshold for prolonged periods. Therefore, there are some regions to which sheep should not be sent unless it can be proven that the holding facilities are capable of providing adequately cool conditions. [Ref page 21]

It appears this TRP recommendation 7 has been ignored or overlooked in the Options presented in this Options paper. This element must be a formal element of any Department assessment of risk to exported sheep, and indeed also points to a failure of the ESCAS system that climatic and environmental factors are not an inherent and auditable requirement of that system.

iii. Prohibition Period Must include May to October AND Amended HSRA (as recommended by the TRP) based on Animal Welfare Must be Applied

As indicated already, the heat stress risk for the ‘shoulder’ months (May and October) is high and unacceptable. We have provided as **appendices** the following important information:

APPENDIX 1 provides graphical data showing sheep shipment mortality of 1% or more for the period 2013 – 2017. The graph shows that reportable mortality levels are a real risk across the heat stress period, which includes May, September and October. This graph is a blunt indicator of mortality and does not depict sheep suffering from heat stress as an animal welfare indicator.

APPENDIX 2 provides a summary of Independent Observer Reports with observations of elevated respiration and panting (heat stress) in sheep on voyages through the Persian Gulf/Red Sea from April 2018 to May 2019. The IO summaries show that elevated respiration and open-mouth panting

¹² Darryl Savage et al, *Post Discharge Induction Procedures for Sheep in the Middle East* (Meat and Livestock Australia), Project Code B.LIV.0127 (2008) 3.

¹³ S Dundon and D Mayer (2015), ‘Pen Parameters for Improving the Performance of Sheep Imported from Australia to Persian Gulf Feedlots’ 126, *Small Ruminant Research* 16, 17.

¹⁴ Personal communication on 21/2/2019 with Sharon Dundon, Manager, Livestock Export Research and Development, MLA, regarding Live Export Program (LEP) research reports - W.LIV.0379; W.LIV.3018 and W.LIV.3038.

are present in shipments across the entire year when shipments are crossing the equator. This animal welfare risk is heightened during the heat stress risk period, which includes May, September and October.

The data and evidence strongly support the requirement for a prohibition on live sheep shipments from May to October.

There has been considerable industry-funded research looking at the Middle East weather patterns when developing the HSRA from 2001. Relevantly, one such (often-quoted) report found¹⁵:

The heat and humidity levels rapidly build across all Middle East ports during the period from May through to June. First affected are the southernmost ports of Muscat and Fujairah where the sun rapidly climbs to almost overhead during May. The heat and humidity extend northwards with central Gulf ports from Dubai to Doha, Bahrain and Dhahran becoming consistently hot and humid from June onwards. Jeddah, on the Red Sea, also enters its' very hot season in June. The true peak of heat and humidity sets in for the northern most ports of Kuwait in the Gulf and Aqaba in the Red Sea (Gulf of Aqaba) towards the end of June into early July. The high heat and humidity levels continue through until the end of September, except for the southern Persian Gulf ports where the high humidity levels linger into October. October is a transition month with shorter spells of hot and humid weather becoming interspersed with cooler and drier conditions. In general, lower humidities tend to be experienced when there are stronger winds, particularly from the NNW (the "Shamal as it is known in the Persian Gulf) or when there are lighter offshore winds from the nearby desert. The latter are often associated with stronger winds, as the sea breeze will tend to overpower any lighter offshore breeze.

[emphasis added]

Most recently, a presentation to the Live Export Animal Welfare Advisory Group (LEAWAG 15/10/2019) by Darren Ray of the Bureau of Meteorology (BOM) showed ambient temperatures in relevant regions (covering typical voyages). These charted (ambient) temperatures show the maximum and minimum temperatures from May through to October, and with minimal diurnal variation (i.e. it remains hot and humid at night). See, in particular, the relevant charts for the Persian Gulf/Straits of Hormuz (slide 13), and Persian Gulf (slide 16). These slides each show the significant lift in those shoulder months of May, with the 'highest WBT' in mid-May reaching 28WBT (ambient), and even the 'average' temperature reaching 28WBT by the end of May in the Strait of Hormuz.

The BOM slides 22 and 23 (Strait of Hormuz and Persian Gulf respectively) indicate the period between the first and last day of the year when ambient temperatures on the sea in these areas exceeds 28WBT at 'all hours'; that is, no respite. For both key sea voyage areas, these high and persistent temperatures occur from the commencement of June until mid-September to early October. Days of the year where ambient 30WBT is exceeded for an hour or more are similar in the Persian Gulf but occur for a shorter period usually in the Strait of Hormuz (that is, from mid-June to early September).

Clearly, the month of May poses a high and unacceptable risk of heat stress – demonstrated through historic mortality records, published temperature graphs for the region and actual daily (11am) deck temperatures on voyages on the *Awassi Express* during 2017.

Note that during the May 2017 voyage of the *Awassi Express*, the deck temperature reached 28WBT on day 8 and remained at that level and above until the end of the 24-day voyage.

Further, it is important to note that past Department modelling of the impact of Middle East temperatures on stocking density changes was based on *ambient* weather data (usually taken on the bridge of ships) and is therefore **conservative**. This is because the temperatures on livestock

¹⁵ Maunsell Australia Pty Ltd, *Development of a Heat Stress Risk Management Model* (Meat and Livestock Australia), Project Code LIVE.116 (2003) <<http://www.livecorp.com.au/LC/files/c8/c864e951-d150-47e3-b5e3-ee9747d5eb4a.pdf>>.

decks (most enclosed) are 2 – 4 WBT higher (and can be up to 6 WBT higher) than outside the ship.¹⁶

As noted above, the recent BOM presentation to LEAWAG by Mr Ray similarly provided ambient voyage temperature (2 metres above the sea surface) and at land ports. The livestock deck temperatures will be significantly higher.

The Options Paper acknowledges that:

‘With this option, there remains some risk of a heat stress incident, particularly during the ‘shoulder’ periods of the prohibition. The science and evidence reviewed by the department does not support a shorter prohibition because ships departing in late May and June travel into much hotter weather and September remains very hot.

We interpret this as the Department advising that as a minimum a prohibition as imposed in 2019 (1 June to 22 September) should remain. We concur with this element, as a minimum, but of course believe it should be extended.

HSRA: Welfare vs Mortality

The ‘existing’ HSRA model is inadequate to predict or prevent significant and enduring suffering of animals from heat stress on shipments. As is known, the current HSRA 4.0 uses the risk of mortality as its primary criteria (a 2% risk of a 5% mortality on a shipment). It is unacceptable for the Options Paper to propose under any options that the HSRA would not be upgraded to mitigate the welfare risk of heat stress.

The McCarthy Report (May 2018, at page 16) recognised that mortality was a blunt instrument and instead recommended (Recommendation 4) that panting score 3 (open mouth panting, elevated respiration) – being the onset of heat stress – be used instead of mortality in the HSRA:

In keeping with a focus on welfare, this becomes the new tolerance limit within the industry HSRA model. The risk setting then becomes a 2% probability that 5% of the sheep will become heat stressed (heat stress score 3). This aligns with the allowable stocking fraction with the animal criterion backed away by 25% (from mortality limit toward the heat stress threshold). It is recommended that this risk setting be incorporated into the new version of the industry HSRA model (version 5) and that this be utilised on all voyages carrying sheep to the Middle East during of the forthcoming northern hemisphere summer.

As the Options paper states at page 8:

The Australian Government supported the McCarthy review recommendations for the development of effective measures to manage heat stress for sheep in the live export trade. In particular, the recommendation that there should be a move ‘from a risk assessment based on mortality to a risk assessment based on animal welfare’.

The [then] Agriculture Minister Littleproud stated:

In the past, the independent regulator has used the sheep deaths as the indicator of animal welfare. It will now move towards a model that focuses on animal welfare, rather than mortality - just because a sheep didn't die doesn't mean it was treated well.¹⁷

¹⁶ Some sources indicated increased deck temperatures (compared to the bridge) of up to 6 WBTs. For example: Tristan Jubb, Nigel Perkins and Tony Mellor, *Veterinary Handbook for Cattle, Sheep and Goats* (Meat and Livestock Australia and Live Export Corporation, 1.0 ed, 2018). See: <http://www.veterinaryhandbook.com.au/Diseases.aspx?id=46&diseasenameid=116&speciesid=2&syndromeid=>

¹⁷ See Minister Littleproud [Media Release](#) of 17 May 2019 ‘Release of McCarthy Review.

The Secretary of the Department, Daryl Quinlivan, has also acknowledged that '*mortality outcomes are not a sufficient measure of the performance of the trade and certainly not of the welfare of the animals involved*'.¹⁸

Similarly, the Final Report by the Heat Stress Risk Assessment Technical Reference Panel (May 2019, released in September 2019) agreed that mortality was a blunt measure of animal welfare and recommended (Recommendations 1, 2 and 4) that the HSRA be revised to use HST as the criteria:

It is apparent that, taken in isolation, mortality is an insufficient indicator of animal health and welfare, given that animals may suffer and have reduced welfare without actually dying, and that mortality levels may represent the 'tip of the iceberg' in terms of impacts on animal welfare. A change is needed in the approach to HSRA to predict the risk of the animal experiencing reduced welfare due to excessive heat load, rather than the likelihood of mortalities during the proposed voyage. [Page 6]

Minister Bridget McKenzie recently reiterated her support for animal welfare in the export industry in a letter to Animals Australia (dated 10 September 2019), stating that '*...the government remains strongly committed to ensuring high welfare standards*'.

Agreed Animal Welfare Indicators

The only available scientifically validated sheep welfare measure is using pant score and the work done previously to calibrate the WBT at which various classes of sheep lose their ability to thermo-regulate. These issues have been adequately explained in the reports commissioned by the Department over the past 18 months and will not be repeated here.

Agreed Animal Welfare Indicators do not currently exist and thus cannot be used. The MLA/Livecorp program to determine 'animal welfare indicators' in conjunction with Murdoch University (W.LIV.3.047) commenced in 2017. Livecorp CEO, Sam Brown, advised at Senate Estimates recently (22 October 2019) that the project will not be completed until 2021. It is unlikely to be peer-reviewed and published until sometime after that. To date, there have not even been milestone reports provided publicly.

Any suggestion of alternate animal welfare indicators to the pant score/heat stress threshold approach is rejected by Animals Australia at this time.

C. Concluding Remarks

The data, studies and evidence presented above (and in previous submissions) clearly indicate that:

1. The prohibition period for all shipments to the Middle East must extend from May through to October (inclusive).
2. No animals are to be exported from southern Australia across the equator at any time of the year unless an amended HSRA based on animal welfare HST is used relevant to the voyage.

These regulated measures will ensure that community standards regarding higher animal welfare are met, and that the industry does not continue to expose itself to social licence risks.

¹⁸ See, for example, Hansard Senate Estimates of 24/5/18 of the Senate Committee on Rural and Regional Affairs and Transport Legislation Committee, p 123. <http://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/379a774f-da23-45c2-8021-4d0c29a583cf/toc_pdf/Rural%20and%20Regional%20Affairs%20and%20Transport%20Legislation%20Committee_2018_05_24_613_1_Official.pdf;fileType=application%2Fpdf#search=%22committees/estimate/379a774f-da23-45c2-8021-4d0c29a583cf/0000%22>

Please contact me if further clarification is required.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Glenys Oogjes', with a stylized flourish at the end.

Glenys Oogjes
Chief Executive Officer

████████████████████
██████████

APPENDICES

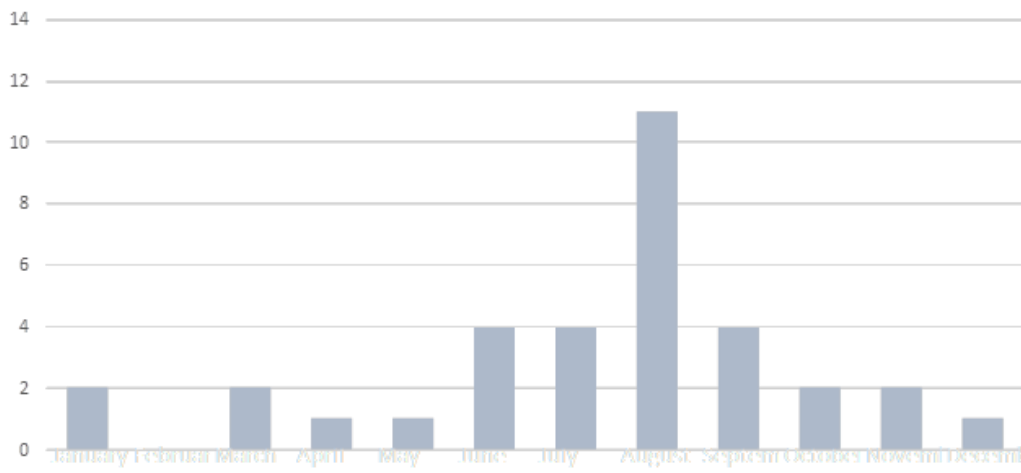
Animals Australia submission to the *Policy Options Discussion Paper on Live Sheep Exports to the Middle East*

APPENDIX 1: Graphical data showing sheep shipment mortality of 1% or more

The following graph illustrates the number of sheep shipments where mortality rates were 1% or more for the period 2013 – 2017. The graph shows that reportable mortality levels are a real risk across the heat stress period, which includes May, September and October.

This graph is a blunt indicator of mortality and does not depict sheep suffering from heat stress as an animal welfare indicator. **Appendix 2** provides a summary of Independent Observer Reports which provides welfare indicators showing open mouth panting in shipments.

NUMBER OF SHIPMENTS - SHEEP MORTALITY RATE OF 1% OR MORE



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2013-2017	2	0	2	1	1	4	4	11	4	2	2	1	34

APPENDIX 2: Independent Observer observations of elevated respiration and panting (heat stress) in sheep on voyages through the Persian Gulf/Red Sea from April 2018 – May 2019

The following extracts are from the summary IO reports from the Department of Agriculture & Water Resources website:

<http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/regulatory-framework/compliance-investigations/independent-observations-livestock-export-sea>

The below summaries from IO reports show that open-mouth panting is present in shipments across the entire year when shipments are crossing the equator. This animal welfare risk is heightened during the heat stress risk period, which includes May, September and October.

IO Report 1: MV Maysora to Turkey in April 2018

This voyage took 29 days.

There were 73,836 sheep on-board with 315 mortalities, giving a mortality rate of 0.43%.

“The IO described that temperature and humidity data indicated that the voyage from Fremantle to Tekirdag had three distinct stages. By Day 9, the sea rose to 27°C and the Bridge temperature rose from 19°C and 68% humidity, to 30°C and 71% humidity; Deck 8 (sheep) went from 22°C and 66% humidity, to 31°C and 79% humidity.”

“Between Day 9 and Day 20, conditions were harsher as the vessel moved toward the Equator (Day 13) and to the Gulf of Aden (Day 15). The sea temperatures reached 30°C on Day 12, and the Bridge temperature went from 30°C to 33°C between Day 12 to Day 19. Sheep water consumption increased from 3.0 to 3.5 litres/head/day between Day 9 and Day 20 of the voyage. During this stage more than 90% of sheep were observed to be slightly panting (closed mouth), and around 5-7% were observed to be panting more rapidly with occasional mouth opening. Only one per cent exhibited sustained open mouth panting.”

IO Report 2: MV Al Messilah to Kuwait in May 2018

This voyage took 19 days.

There were 65,334 sheep on-board with 222 mortalities, giving a mortality rate of 0.34%.

“There was only one dry and wet bulb thermometer per deck. Temperatures were recorded once daily by the crew between 10:00 and 11:00 am and the reports were forwarded to the bosun, the CO and the Master.”

“The ventilation system provided a downward directed air flow directly into the pens. Although there was an increase in respiration rates when travelling north of the equator, no animal was observed panting or demonstrating any signs of respiratory distress. There was adequate lighting of decks at all times.”

IO Report 3: MV Bader III to Israel in May 2018

This voyage took 30 days.

There were 62,668 sheep on-board with 169 mortalities, giving a mortality rate of 0.27%.

“Crew and animals encountered elevated temperatures and high humidity from the third day of the voyage out of Fremantle. There were no issues with the ventilation during the voyage. There was a specific equatorial plan for high temperature periods involving zig-zagging the vessel to increase air flow through the decks, the installation of fans for some pens and a program of washing down cattle and pens.”

“The stocking density of the vessel allowed each animal 17.5% more space than required by the ASEL. This allowed the stock sufficient room to always access food and water, to lay down when required and to have sufficient spacing even when the very hot days of 34°C Wet Bulb Temperature (WBT) were encountered.”

IO Report 4: MV Yangtze Fortune to Oman in May 2018

This voyage took 18 days.

There were 15,326 sheep onboard with 46 mortalities, giving a mortality rate of 0.30%.

“Temperatures and humidity increased daily once the vessel left Fremantle. Temperatures on decks ranged from 21 to 34 degrees, with an average temperature of 31 degrees Celsius; and humidity between 74 and 80 per cent, with an average of 78 per cent.

Temperatures were taken once a day just before the 10.00 am daily meeting. The IO requested the CO take some afternoon temperatures for comparison, which were provided and remained fairly consistent. The AAV and IO both took readings with hand held temperature devices in the pens. Most of the time, pen temperatures were about one degree less than the walk ways (where ship thermometers are placed) as ventilation is directed into the pens.

On day five, pant scores began changing and were observed to fluctuate depending on the time of day. The sheep which had a bit more wool were most likely to demonstrate this behaviour. Most sheep in the morning were fast panting with mouths closed, however in the afternoon one to two in every other pen were observed open mouth panting with elevated heads. The IO noted that as humidity increased the sheep became more affected by the heat.

Temperatures during discharge were high (36 degrees Celsius), however humidity was low and all sheep coped with these temperatures and very few animals were observed with increased pant scores throughout discharge.”

Day 12 Sheep in pen—individual panting



IO Report 7: MV Al Shuwaikh to Kuwait, Qatar & UAE in June 2018

This voyage took 30 days.

There were 69,117 sheep onboard with 609 mortalities, giving a mortality rate of 0.88%.

“For approximately eight days of the voyage, the IO observed sheep open mouth breathing and attempting to gain position around the ventilation vents on all open and closed decks. This was more notable on hot days with higher humidity. In these instances, death by smothering was an observed outcome and six to eleven of the observed mortalities around the ventilation vents could have been attributed to smothering. This situation appeared to be more apparent in pens with higher density.

Temperature and humidity readings were recorded every four hours during the day on each deck. Wet and dry bulb thermometers were well positioned along the aisles of each deck. The positioning gave an effective representation of the environmental conditions. The IO found that the closed holds had consistently higher temperatures and humidity than the open holds. The IO surmises that this may have been partly due to the oil fuel heaters being left on during the equator crossing. These oil fuel tanks were located against the walls of the closed holds. The oil fuel is heated in order for it to flow efficiently through the engines. When this concern was raised to the AAV, CO and Master, the heaters were immediately shut down and temperatures were significantly reduced within 48 hours.

Deck nine was observed to contain livestock with consistently elevated respiratory rates. This was likely related to the dark coloured steel roof surface absorbing radiated heat from above.

Day 20 Sheep in pen—open mouth breathing



IO Report 8: MV Maysora to Turkey in June 2018

This voyage took 22 days.

There were 68,039 sheep onboard with 155 mortalities, giving a mortality rate of 0.23%.

“The IO noted that only a certain percentage of sheep will be demonstrating certain panting scores within a pen at any given time.”

IO Report 10: MV Bahijah to Israel in June 2018

This voyage took 22 days.

There were 9,227 sheep onboard with 17 mortalities, giving a mortality rate of 0.18%.

“A degree of heat stress existed for the sheep on board the vessel from the equator until passage of the Suez Canal. There was a low level of discomfort and elevated respiratory rate of almost all sheep during this time. There was only one afternoon where this was observed to progress to open mouth panting and higher levels of heat stress existed across the ship.

The IO noted that a degree of heat stress occurred on part of the journey, and was unavoidable in the conditions. Cattle were under more heat stress in deteriorating pad conditions, and sheep were under more heat stress with increasing amounts of wool.”

IO Report 21: MV Maysora to Israel & Jordan in September 2018

This voyage took 24 days.

There were 21,337 sheep onboard with 28 mortalities, giving a mortality rate of 0.13%.

“The observer recorded video of sheep exhibiting mild panting and raised respiration rate on Day 16 correlating with the hottest conditions recorded during the voyage.”

IO Report 47: MV Al Messilah to Kuwait, Qatar & UAE in December 2018

This voyage took 22 days.

There were 65,602 sheep onboard with 130 mortalities, giving a mortality rate of 0.2%.

“The maximum temperatures were recorded on days 7, 8 and 9 and were around 32°C and 86% humidity.”

“As the temperature and humidity increased in the early part of the voyage, the respiratory rate increased for most animals however no open mouth panting was observed. From day 10 the respiratory character appeared normal.”

“As the wet bulb temperature increased during the early part of the voyage, the respiratory rate increased for most animals. Maximum panting score was assessed as between normal with elevated respiratory rates to mild panting on days 7, 8 and 9. The wet bulb temperature decreased from Day 10 and pant scores reverted to normal.”

IO Report 57: MV Al Shuwaikh to Kuwait, Qatar & UAE in December 2018 / January 2019

This voyage took 23 days.

There were 69,917 sheep onboard with 211 mortalities, giving a mortality rate of 0.3%.

“The highest temperature recorded on the decks was 32°C dry bulb with an 86% humidity.”

“The sheep in the enclosed lower decks experienced higher temperatures and humidity compared to the upper decks. Respiratory rates increased as the ship approached the equator and remained elevated in the lower decks for longer than the open decks. Some panting was observed. For the warmest part of the voyage the average heat stress score was between 1 and 2.”

IO Report 67: MV Al Messilah to Kuwait, Qatar & UAE in January 2019

This voyage took 20 days.

There were 64,548 sheep onboard with 140 mortalities, giving a mortality rate of 0.21%.

“A selection of pens were subject to detailed assessment for heat stress. Panting score 1 was evident after day 1 but the percentage of animals with pant score 1 dropped once the equator was crossed.

There was no significant evidence of sheep with heat stress score 3 (open mouth). No sheep showed any evidence of heat stress as a cause of death.”

IO Report 74: MV Al Shuwaikh to Kuwait, Qatar & UAE in February 2019

This voyage took 24 days.

There were 71,160 sheep onboard with 329 mortalities, giving a mortality rate of 0.46%.

“Weather conditions varied from 25°C at departure from Fremantle to 33°C with humidity at 86% and a wet bulb temperature of 31°C for approximately 4 days around the equator. Temperatures dropped to around 25°C when the vessel entered the Arabian Gulf.

During the warmest period of the journey respiratory rates were elevated but at no time were there any signs of open mouth breathing observed.”

IO Report 76: MV Brahman Express to Israel in February 2019

This voyage took 21 days.

There were 5,004 sheep onboard with 30 mortalities, giving a mortality rate of 0.6%.

“Temperature readings were taken daily from each deck at around 10:00am and 3:00pm. Temperatures were consistently measured at around 30 – 32°C and humidity of 80 - 86%. On entry into Eilat port, the temperature recorded was down to 25°C and 75% humidity.”

“From the first day of loading in Fremantle with an ambient temperature of 33°C, the sheep exhibited an increased respiratory rate. The increased rate remained throughout the voyage. Temperature and humidity increased on entry into the Red Sea and respiratory rates also increased. However, no sheep were observed with open mouth panting.”

IO Report 86: MV Al Messilah to Kuwait, Qatar & UAE in February 2019

This voyage took 21 days.

There were 66,165 sheep onboard with 209 mortalities, giving a mortality rate of 0.31%.

“The animals did not exhibit any significant signs of heat stress on the voyage. As the voyage neared the equator, where average temperatures were higher, some animals were observed with elevated respiratory rates and a few animals with longer wool were heat affected and seen to open mouth pant. As the vessel approached the Gulf of Oman, respiratory rates returned to normal.”

IO Report 98: MV Maysora to Israel & Jordan in March 2019

This voyage took 23 days.

There were 53,644 sheep onboard with 121 mortalities, giving a mortality rate of 0.23%.

“The observer noted that from day 5 – 14 of the voyage, almost all sheep (95-100%) were panting with their mouths closed. From day 16 to discharge, all sheep were displaying a normal resting respiratory pattern. No sheep were observed with sustained open mouth panting at any stage during the voyage.”

IO Report 105: MV Al Messilah to Kuwait, Qatar & UAE in April 2019

This voyage took 21 days.

There were 65,115 sheep onboard with 189 mortalities, giving a mortality rate of 0.29%.

“The vessel traversed the equator for around 6 days where temperatures rose to a maximum of 35°C dry bulb, with humidity at 86% and a wet bulb temperature of between 28-31°C. Once the vessel entered the Persian Gulf, temperatures decreased to 25-30°C dry bulb, with humidity levels reduced to around 65%. During the warmest period of the journey respiratory rates were at stage 2 with a handful of sheep being observed with open mouth breathing.

The pens located around the engine room on Decks 6, 7 and 8 were considered to be the main hotspots on the vessel. These pens were closely monitored during the warmest period of the voyage and no heat related mortalities were observed.”

IO Report 117: MV Al Messilah to Kuwait & Qatar in April and May 2019

This voyage took 21 days.

There were 66,995 sheep onboard with 152 mortalities, giving a mortality rate of 0.23%.

“The maximum wet and dry bulb temperatures were recorded around the equatorial regions (days eight and nine) on the lower decks. The maximum temperatures were 31°C wet bulb and 33°C dry bulb.”

“Increased respiratory rate was observed around the equatorial region and the average heat stress score was between one and two. Otherwise, no other sign of heat stress was observed throughout the voyage including signs of discomfort.”

IO Report 123: MV Al Messilah to Kuwait & UAE in May 2019

This voyage took 21 days.

There were 58,568 sheep onboard with 99 mortalities, giving a mortality rate of 0.16%.

“Temperatures for the voyage below decks reached a maximum of 34°C dry bulb, and wet bulb of 31.7°C. The average heat stress score was 2, with open mouth breathing observed in several sheep per deck during the hottest part of the voyage (heat stress score 3). No animals were observed with a heat stress score of 4 (open mouth, tongue out).”

Day 7 Sheep in pen — one sheep open mouth panting otherwise no issues



Day 10 Sheep in pen — one sheep open mouth panting otherwise no issues



IO Report 127: MV Maysora to Israel & Jordan in May/June 2019

This voyage took 29 days.

There were 48,610 sheep onboard with 118 mortalities, giving a mortality rate of 0.24%.

“In the enclosed decks temperature and humidity readings were less variable. During periods of increased humidity, open mouth panting was rarely observed (<1% of animals observed). The observer noted that whilst watching animals with open mouth breathing, most reverted to closed mouth breathing once the observer was seen by the flock.”

“The extreme conditions were observed from Day 24 until completion of discharge with temperatures reaching 37.2 degrees Celsius dry bulb, 25.8 degrees Celsius wet bulb and relative humidity around 40%. During this period, the heat stress score for sheep generally ranged from one to two. However for a period of between 5-10 hours each day during the afternoon and early evening, there were isolated examples (<1% of sheep) of heat stress scores rising to three on the open decks before then dropping again later in the night.”

“Open mouth panting was rarely (<1%) observed in either sheep or cattle even on the days with the highest wet bulb temperatures (32°C).”

IO Report 133: MV Ocean Drover to Kuwait & UAE in May 2019

This voyage took 18 days.

There were 56,915 sheep onboard with 65 mortalities, giving a mortality rate of 0.11%.

“The observations, combined with temperature and humidity records gathered by the observer at 31 pens indicated that from day 5 when the wet bulb temperatures reached 28°C there was a mild increase in heat stress scores (between 1 and 2) and it was common that 5 – 10% of sheep per pen would show a heat stress score of 3. This pattern maintained while the wet bulb temperature gradually increased to a daily max of 30 to 31°C on about day 10 when the vessel was passing Jebel Ali for the first time in the Persian Gulf.

The wet bulb temperatures dropped very quickly on days 11 and 12 towards arrival in Kuwait. Although the dry bulb temperatures on decks increased in the day or so before arriving in Kuwait (commonly 41°C), this was accompanied by a sharp reduction in relative humidity (commonly 14%) and wet bulb temperature (commonly 22°C). During this period of high dry bulb temperatures and low relative humidity the numbers of sheep showing a heat stress score of 3 was generally less than 5%.

After departing Kuwait and returning toward Jebel Ali, the humidity and wet bulb temperatures on decks increased rapidly from day 14 to day 15 (commonly a daily maximum around 31°C and 85%). The heat stress scores increased during this period of rapid wet bulb increase, particularly in the pens identified as potential hot spots on decks 7 and 9 where 30 – 50% of sheep per pen showed heat stress scores of 3 on day 15. However this increase in the heat stress scores was transient as the sheep adapted to the rapid increase in wet bulb temperatures. Adverse animal welfare outcomes were not observed at any of the potential hot spot locations during the voyage.”

[Appendix A ends]