



# Monthly compliance noise monitoring report

**Glebe Island / White Bay**

Port Authority of New South Wales

June 2024



→ The Power of Commitment

**GHD Pty Ltd | ABN 39 008 488 373**

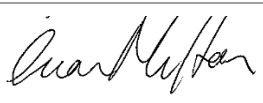
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# 1. Introduction

GHD Pty Ltd (GHD) has been engaged by Port Authority of New South Wales (Port Authority) to undertake compliance noise monitoring, as required by the *Port Noise Policy (Port Authority, 2020)*.

This report provides the details of the compliance noise monitoring for all vessels at berth during June 2024, as determined using the noise monitoring system. A detailed description of the permanent noise monitoring system including a map of monitoring locations is provided in the Noise Monitoring Plan, available on Port Authority's website.

# 2. Noise monitoring details and vessel schedule

Client	Company details	Noise monitor name	Noise monitor location	Noise monitor details / settings	Noise monitor serial numbers	Monthly calibration variance
Port Authority of New South Wales	GHD Pty Ltd  Member of the Association of Australasian Acoustical Consultants (AAAC)  Lead staff are Members of the Australian Acoustical Society (AAS)	L01	Grafton Street, Balmain	<b>Meter details</b> Norsonic Nor145 Sound Level Meter with Nor1297 Noise Compass  <b>Meter settings</b> A-weighted Fast time response 15 minute intervals	14529646	<b>Initial calibration level 90.7 dBA</b> Min. deviation = 0.0 dB Max. deviation = 0.1 dB
		L02	Maintenance Building on White Bay		14529643	<b>Initial calibration level 91.9 dBA</b> Min. deviation = 0.3 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		14529645	<b>Initial calibration level 92.5 dBA</b> Min. deviation = 0.1 dB Max. deviation = 0.2 dB
		L04	Onsite at Glebe Island		14529640	<b>Initial calibration level 93.9 dBA</b> Min. deviation = -0.1 dB Max. deviation = 0 dB
Vessel name	Arrival date and time	Departure date and time		Berth location	Applicable noise monitoring location/s	
<b>Bulk vessels</b>						
Investigator	May 31, 2024 / 09:49	June 7, 2024 / 19:09		WHT4	L01/L02	
Akuna	June 6, 2024 / 22:00	June 9, 2024 / 10:55		GLB8	L03	

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Akuna	June 19, 2024 / 14:16	June 22, 2024 / 02:35	GLB8	L03
Ken Voyager <sup>1</sup>	June 19, 2024 / 14:54	June 23, 2024 / 12:49	GLB7	L03
Pioneer <sup>2</sup>	June 24, 2024 / 04:24	June 28, 2024 / 04:56	GLB7	L03
Akuna	June 30, 2024 / 21:36	July 2, 2024 / 13:59	GLB8	L03
<b>Cruise vessels</b>				
Pacific Adventure	June 7, 2024 / 06:56	June 7, 2024 / 16:23	WBCT	L01
Pacific Adventure	June 10, 2024 / 06:49	June 10, 2024 / 16:18	WBCT	L01
Pacific Adventure	June 14, 2024 / 08:34	June 14, 2024 / 18:12	WBCT	L01
Pacific Adventure	June 27, 2024 / 06:45	June 27, 2024 / 16:21	WBCT	L01

Note: 1) On 22/06/2024 at 01:52, Ken Voyager moved from GLB7 to WHT4. Then, it went back to GLB7 on 22/06/2024 at 04:08.

Note: 2) The Pioneer visit between May 31 and June 3 was reported in the May 20204 monthly report.

## 3. Compliance summary

### 3.1 Bulk vessels

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)			Vessel Noise Trigger Levels, dBA			Compliance <sup>1</sup>	
			Day L <sub>Aeq</sub> (15 hr)	Night L <sub>Aeq</sub> (1 hr)	Night L <sub>Amax</sub>	Day <sup>2</sup> L <sub>Aeq</sub> (15 hr)	Night L <sub>Aeq</sub> (1 hr)	Night L <sub>Amax</sub>	Day	Night
Investigator	May 31 – June 7	L01/L02 <sup>4</sup>	58	55	65	60	55	65	Yes	Yes
Akuna	June 6 – June 9	L03	54	53	74 <sup>5</sup>	60	55	65	Yes	No <sup>5</sup>
Akuna	June 19 – June 22	L03	55	56 <sup>6</sup>	73 <sup>7</sup>	60	55	65	Yes	No
Ken Voyager	June 19 – June 23	L03	52	54	- <sup>8</sup>	60	55	65	Yes	Yes
Pioneer	June 24 – June 28	L03	50	51	67 <sup>9</sup>	60	55	65	Yes	No <sup>9</sup>
Akuna	June 30 – July 2	L03	55	48	62	60	55	65	Yes	Yes

Note: 1) If non-compliance is detected, a detailed investigation of the results will be undertaken and reported separately if required

Note: 2) Daytime period (7 am to 10 pm) – 15 hour logarithmic average

Note: 3) Night-time (10 pm to 7 am) – loudest 1 hour period

Note: 4) Results have been taken from both L01 and L02 throughout the period due to periods of extraneous noise.

Note: 5) There were 15 maximum noise level events between 10 pm and midnight on June 6 that were identified above the L<sub>Amax</sub> criteria of 65 dBA. IMS indicated this was coming from the general direction of the vessel, however may have been impacted by extraneous noise. Audio recording indicated it may be associated with construction activities rather than the vessel.

Note: 6) At 1:05 am on 22 June 2024, the noise level of the Akuna increased to 56 dBA and maintained this noise level until departure at 2:35 am. Noise was compliant for all other 1 hour night time period.

Note: 7) The maximum noise level occurred during departure on 22 June 2024, when the tugs were present near the berth, and only occurred once. All other maximum noise level events were below the criteria.

Note: 8) Night-time maximum noise levels for the Ken Voyager could not be obtained during this visit as data was manually processed and extraneous noise could not be removed.

Note: 9) This maximum level event only occurred once during the night-time hours on the June 25. Given it only occurred once and only a 2 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times.

## 3.2 Cruise vessels

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)		Vessel Noise Trigger Levels, dBA		Compliance <sup>1</sup>	
			Day <sup>2</sup> L <sub>Aeq</sub> (15 hr)	Night <sup>3</sup> L <sub>Aeq</sub> (9 hr)	Day <sup>2</sup> L <sub>Aeq</sub> (15 hr)	Night <sup>3</sup> L <sub>Aeq</sub> (9 hr)	Day <sup>4</sup>	Night
Pacific Adventure	June 7	L01	59 <sup>5</sup>	-	N/A	58	N/A	- <sup>6</sup>
Pacific Adventure	June 10	L01	57	-	N/A	58	N/A	- <sup>6</sup>
Pacific Adventure	June 14	L01	60 <sup>5</sup>	-	N/A	58	N/A	-
Pacific Adventure	June 27	L01	59	-	N/A	58	N/A	- <sup>6</sup>

Note: 1) If non-compliance is detected, a detailed investigation of the results will be undertaken and reported separately if required

Note: 2) Daytime period (7 am to 10 pm) – 15 hour logarithmic average

Note: 3) Night-time (10 pm to 7 am) – 9 hour logarithmic average

Note: 4) Port Authority provides attenuation to a defined area of residences where noise modelling indicates that current noise levels reach or exceed 55 dBA **at night** ('attenuation eligibility trigger'). Under the White Bay Cruise Terminal Noise Restriction Policy, cruise ship noise which causes further residences than those currently identified to exceed the attenuation eligibility trigger is considered to be Excessive Noise. Hence under the Noise Restriction Policy a day time trigger level does not apply. The area of residences currently offered attenuation (ie meeting the 'attenuation eligibility trigger') is based on a reference cruise vessel intrusive noise level of 58 dBA at the nearest residence, which sets the Vessel Noise Trigger Level for assessing compliance at night.

Excessive noise is defined as “any noise including but not limited to engine, generator or ventilation noise which causes further residences than those currently identified to exceed the attenuation eligibility trigger.”

Note: 5) Periods of weather affected data have been removed.

Note: 6) The Pacific Adventure only arrived within 15 minutes prior to 7 am, therefore a night-time noise level has not been provided.

## 4. Detailed results – bulk vessels

### 4.1 Investigator (WHT4) – May 31 – June 7, 2024

#### 4.1.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance							
May 31, 2024	Day	L01/L02 <sup>4</sup>	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	56	No	Yes	60	Yes							
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	52	No	Yes	55	Yes							
			L <sub>Amax</sub>	65	-	-	65	Yes							
June 1, 2024	Day	L01/L02	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	57	No	No	60	Yes							
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	-.5	-.5	-.5	55	-.5							
			L <sub>Amax</sub>	-.5	-.5	-.5	65	-.5							
June 2, 2024	Day	Communication with the noise system was down during this period, therefore no data was available.													
	Night														
June 3, 2024	Day														
	Night														
June 4, 2024	Day														
	Night														
June 5, 2024	Day														
	Night														
June 6, 2024	Day								L01/L02	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	58	No	No	60	Yes
	Night									L <sub>Aeq, 1 hour</sub> <sup>1</sup>	55	No	Yes	55	Yes
		L <sub>Amax</sub>	65	-	-	65	Yes								
June 7, 2024	Day	L01/L02	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	57	No	Yes	60	Yes							
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	-	-	-	55	-							
			L <sub>Amax</sub>	-	-	-	65	-							

#### Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) Results have been taken from both L01 and L02 throughout the period due to periods of extraneous noise and impacts from vessels at WBCT and GLB7. Note that some values vary from the online noise system as measured data has been filtered

5) The entire night period was impacted by rain, therefore no results have been determined



## 4.1.2 Additional information

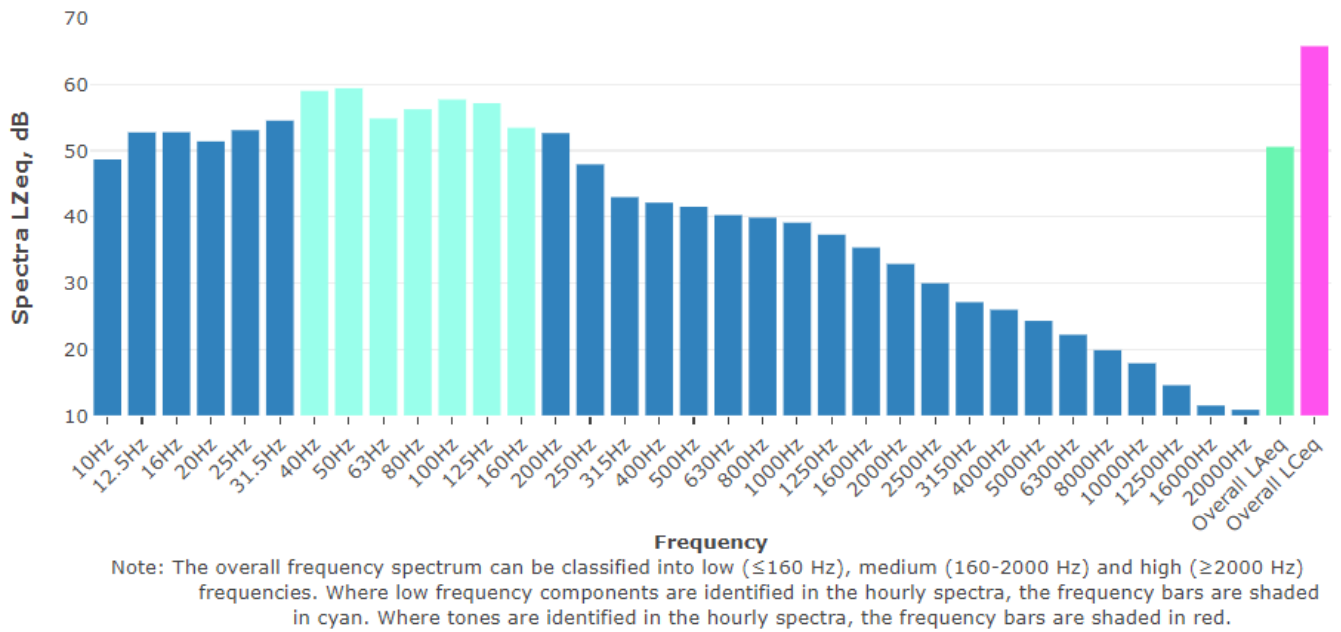


Figure 4.1 Typical vessel spectrum – noise level at L01

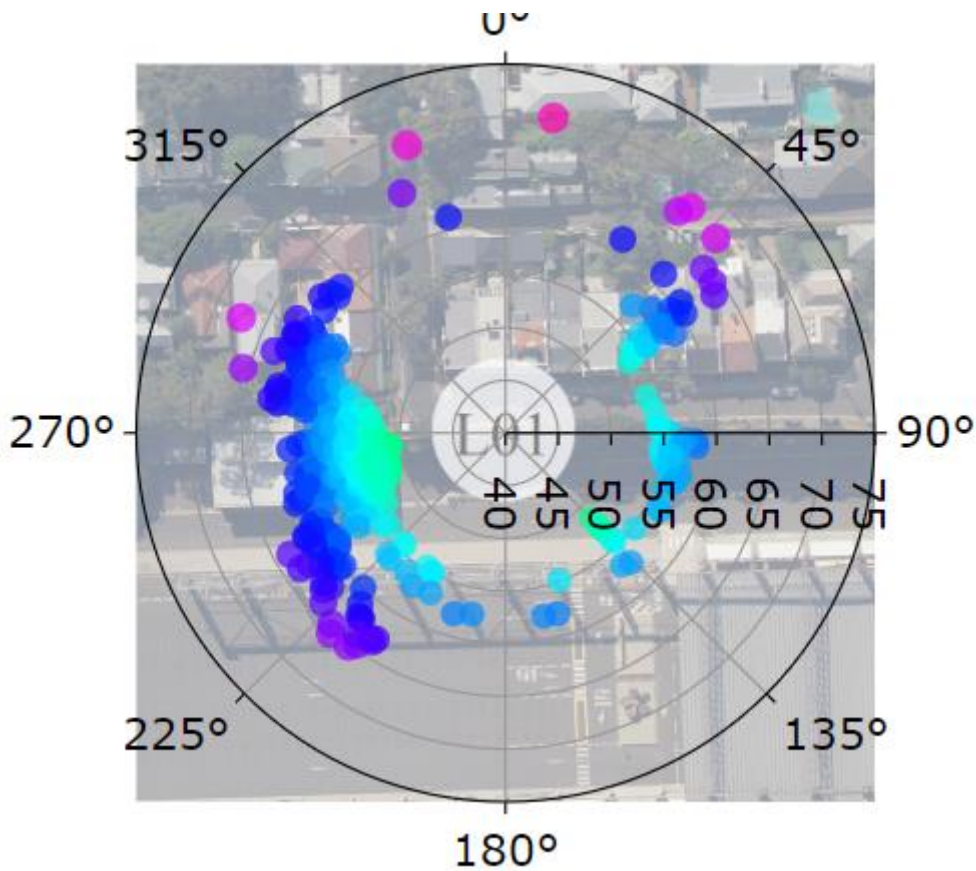


Figure 4.2 Typical vessel polar (directional) plot



## 4.2 Akuna (GLB8) – June 6 – June 9, 2024

### 4.2.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
June 6, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	-	-	-	60	-
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	53	Yes	Yes	55	Yes
			L <sub>Amax</sub>	74 <sup>4</sup>	-	-	65	No <sup>4</sup>
June 7, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	49	No	No	55	Yes
			L <sub>Amax</sub>	84 <sup>5</sup>	-	-	65	No <sup>4</sup>
June 8, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	51	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	47	No	Yes	55	Yes
			L <sub>Amax</sub>	65	-	-	65	Yes
June 9, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	-	-	-	55	-
			L <sub>Amax</sub>	-	-	-	65	-

#### Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

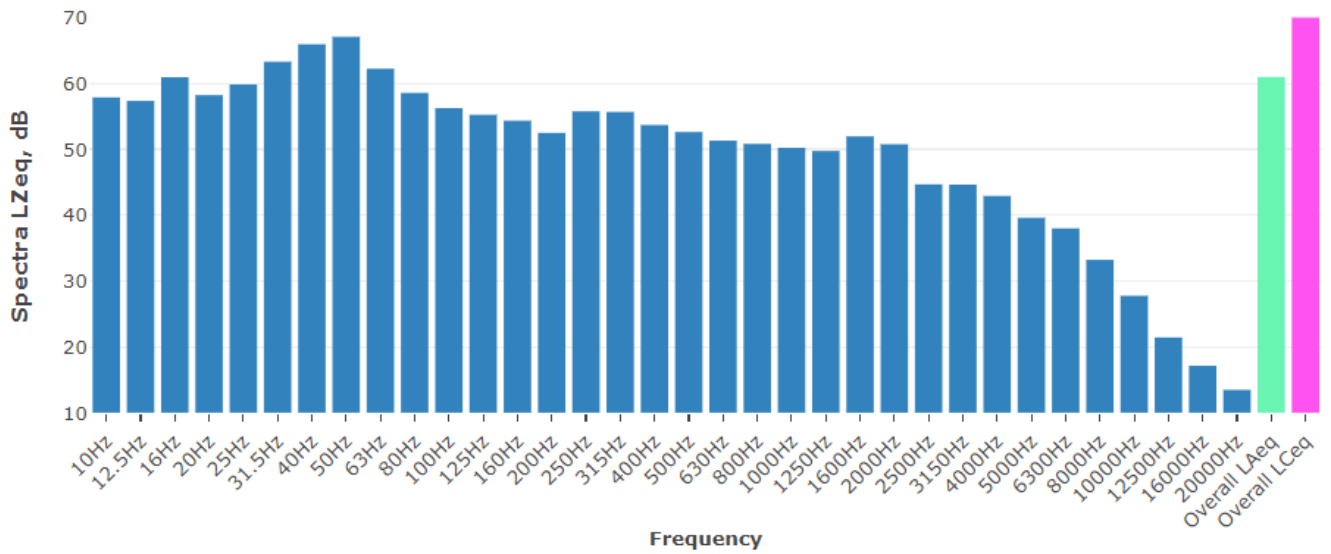
2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) There were 15 maximum noise level events between 10 pm and midnight on June 6 that were identified above the L<sub>Amax</sub> criteria of 65 dBA. IMS indicated this was coming from the general direction of the vessel, however may have been impacted by extraneous noise. Audio recording indicated it may be associated with construction activities rather than the vessel.

5) This maximum noise level event occurred at 3:25 am on June 8 (included in the data for June 7). No other events above the L<sub>Amax</sub> criteria of 65 dBA were identified. It wasn't possible to identify the source of the noise, however given the other activity during this period, it is unlikely that this was associated with the vessel.

## 4.2.2 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.3 Typical vessel spectrum – noise level at L03

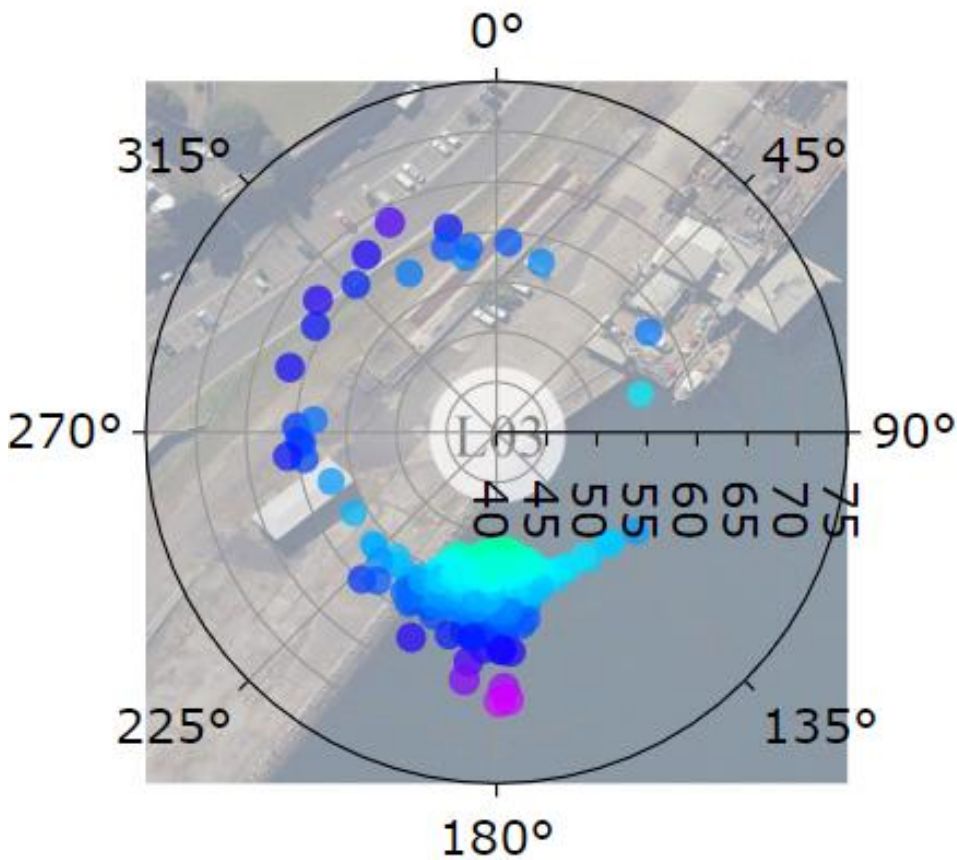


Figure 4.4 Typical vessel polar (directional) plot

## 4.3 Akuna (GLB8) – June 19 – June 22, 2024

### 4.3.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
June 19, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	55	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	53	No	Yes	55	Yes
			L <sub>Amax</sub>	65	-	-	65	Yes
June 20, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	55	No	No	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	53	No	No	55	Yes
			L <sub>Amax</sub>	70 <sup>4</sup>	-	-	65	No
June 21 <sup>5</sup> , 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	56 <sup>6</sup>	No	No	55	No
			L <sub>Amax</sub>	73 <sup>7</sup>	-	-	65	No

#### Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) This maximum noise level event occurred at 4:14 am on June 21 (included in the data for June 20). No other events above the L<sub>Amax</sub> criteria of 65 dBA were identified. It wasn't possible to identify the source of the noise, however given the other activity during this period, it is unlikely that this was associated with the vessel.

5) Note that the system classifies June 21 as the period from 7 am on June 21 to 7 am on June 22. The Akuna departed at 02:35 am on June 22, and has been incorporated in the data for June 21.

6) At 1:05 am on 22 June 2024, the noise level of the Akuna increased to 56 dBA and maintained this noise level until departure at 2:35 am.

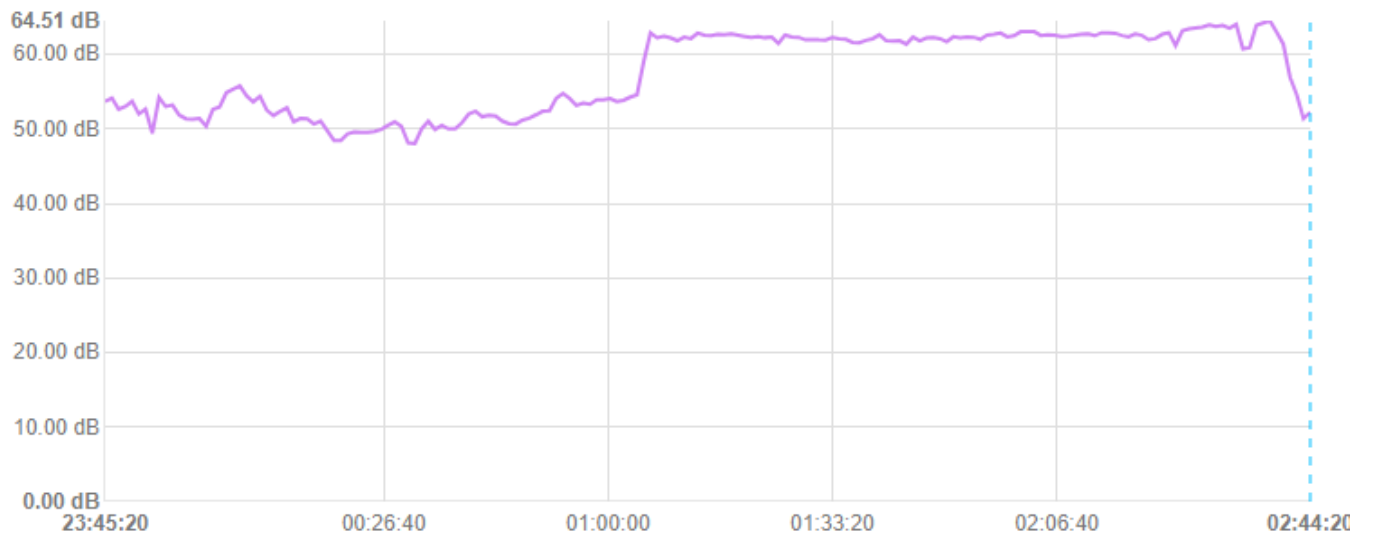
7) The maximum noise level on 22 June 2024 occurred during departure, when the tugs were present near the berth, and only occurred once. All other maximum noise level events were below the criteria.

### 4.3.2 Discussion regarding exceedance on 22 June

Between 1:05 am and 2:35 am on 22 June (which corresponds to 21 June in the table above), the system recorded a 1 dB exceedance of the night time criteria. This hour was significantly higher than all other values during this night time period, and also at least 8-10 dB higher than the preceding 3 hours.

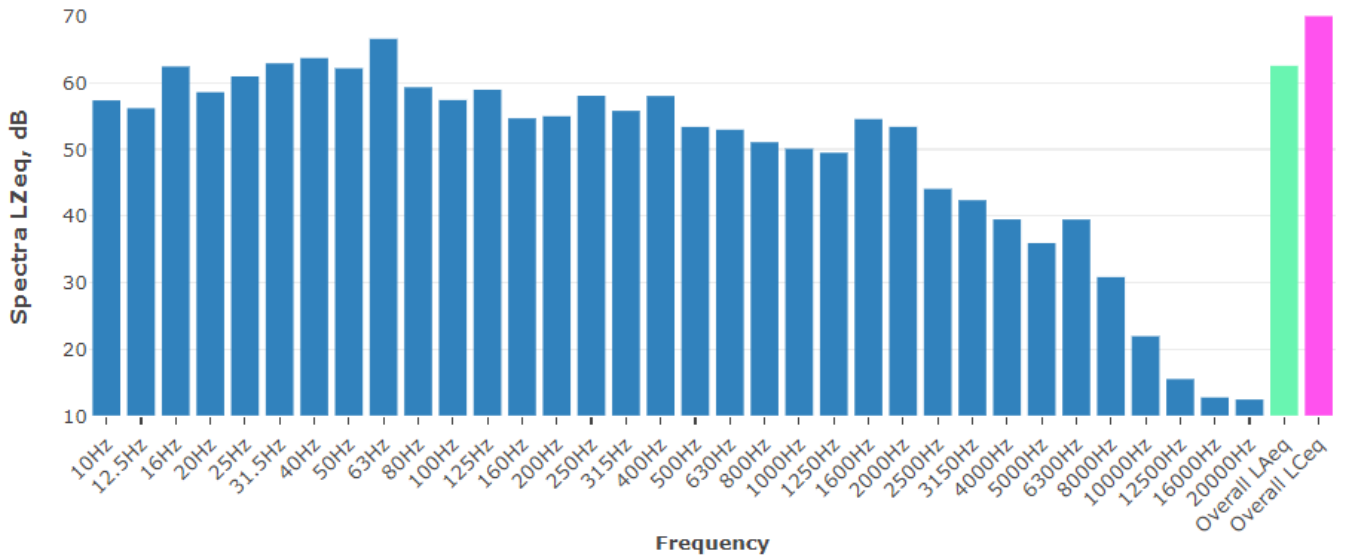
This period preceded the departure of the vessel. The directionality of the monitor indicated that the noise was coming predominantly from the direction of the vessel. The noise also reduced following the departure, further indicating that the increase in noise levels was due to the vessel.

Figure 4.5 below shows this period of increased noise levels. Note that this is raw data at the noise monitor location and has not been adjusted for the receiver location.



**Figure 4.5** Noise level at L03 between 23:45 and 2:45

### 4.3.3 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.6 Typical vessel spectrum – noise level at L03

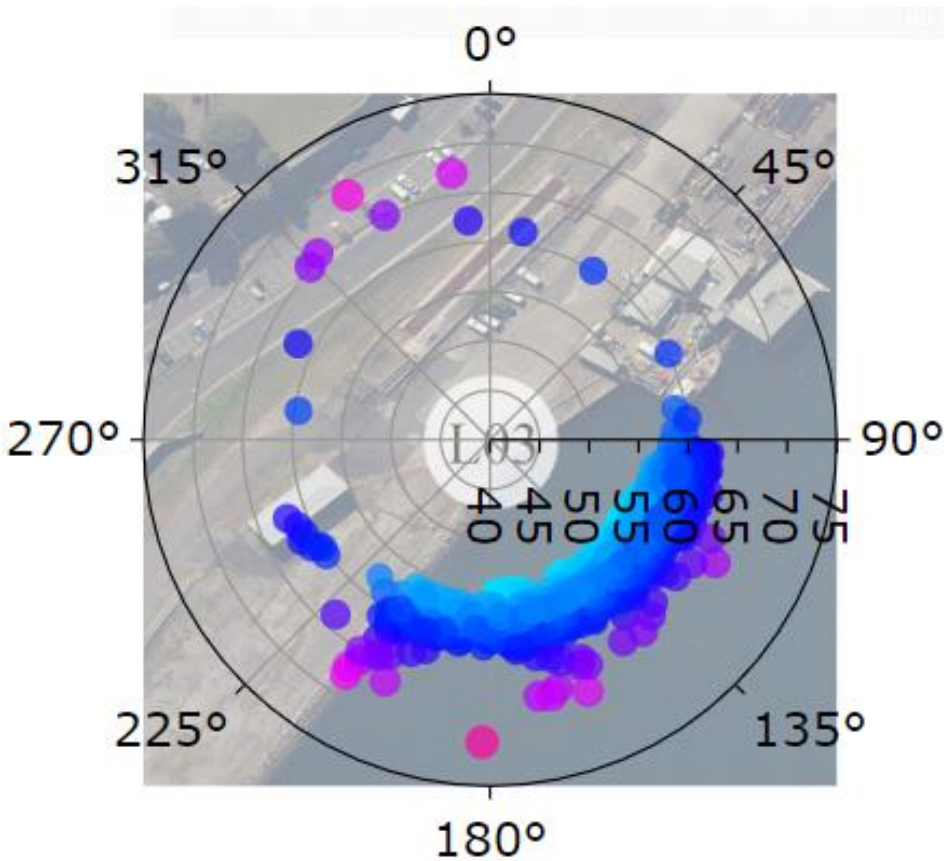


Figure 4.7 Typical vessel polar (directional) plot

## 4.4 Ken Voyager (GLB7) – June 19 – June 23, 2024

### 4.4.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
June 19, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	Ken Voyager (GLB7) and Akuna (GLB8) were both present at this time. Noise was attributed to the Akuna at this time. Given noise levels were compliant, no further analysis has been undertaken.				
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>					
			L <sub>Amax</sub>					
June 20, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	Results for the Ken Voyager are based on results following the departure of the Akuna.				
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>					
			L <sub>Amax</sub>					
June 21, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	54	No	Yes	55	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>					
			L <sub>Amax</sub>					
June 22, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	52	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	47	No	Yes	55	Yes
			L <sub>Amax</sub>	- <sup>4</sup>	-	-	65	- <sup>4</sup>
June 23, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	50	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	-	-	-	55	-
			L <sub>Amax</sub>	-	-	-	65	-
<p>Notes</p> <p>1) Daytime period (7 am to 10 pm) – 15 hours Night-time period (10 pm to 7 am) – worst case 1 hour</p> <p>2) Inclusive of any penalties for modifying factors</p> <p>3) LFN = Low Frequency Noise</p> <p>4) Night-time maximum noise levels could not be obtained during this visit as data was manually processed and extraneous noise could not be removed.</p>								

## 4.4.2 Additional information

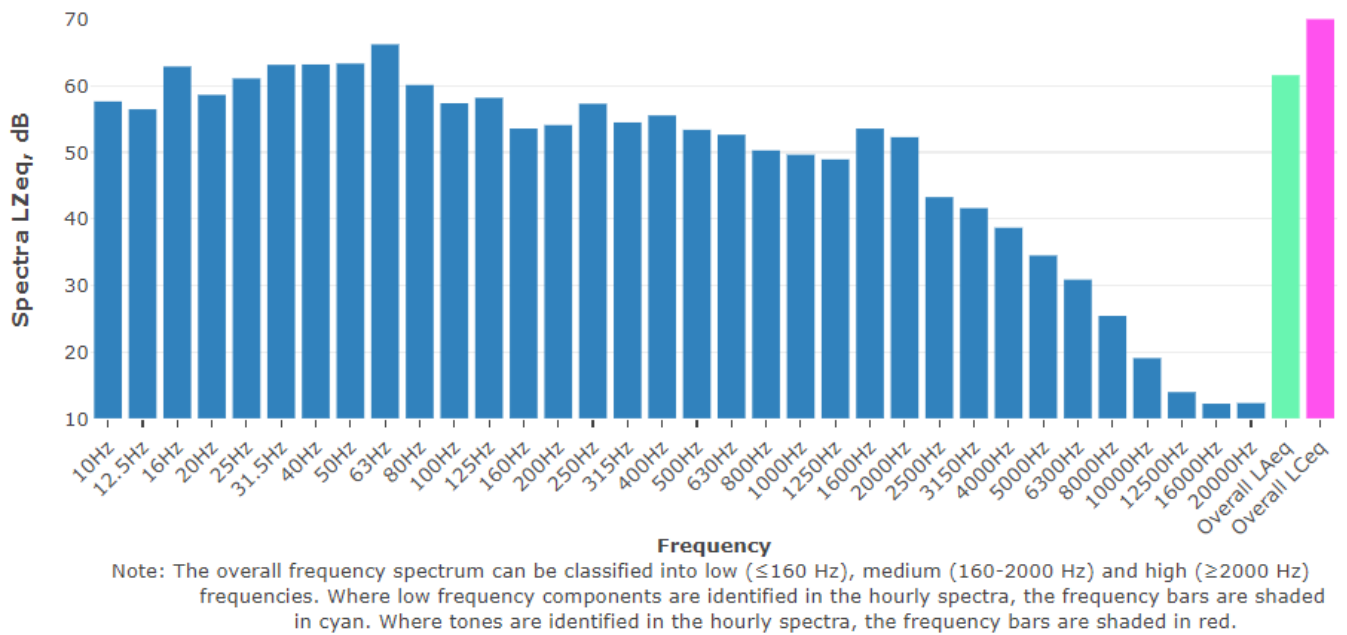


Figure 4.8 Typical vessel spectrum – noise level at L03

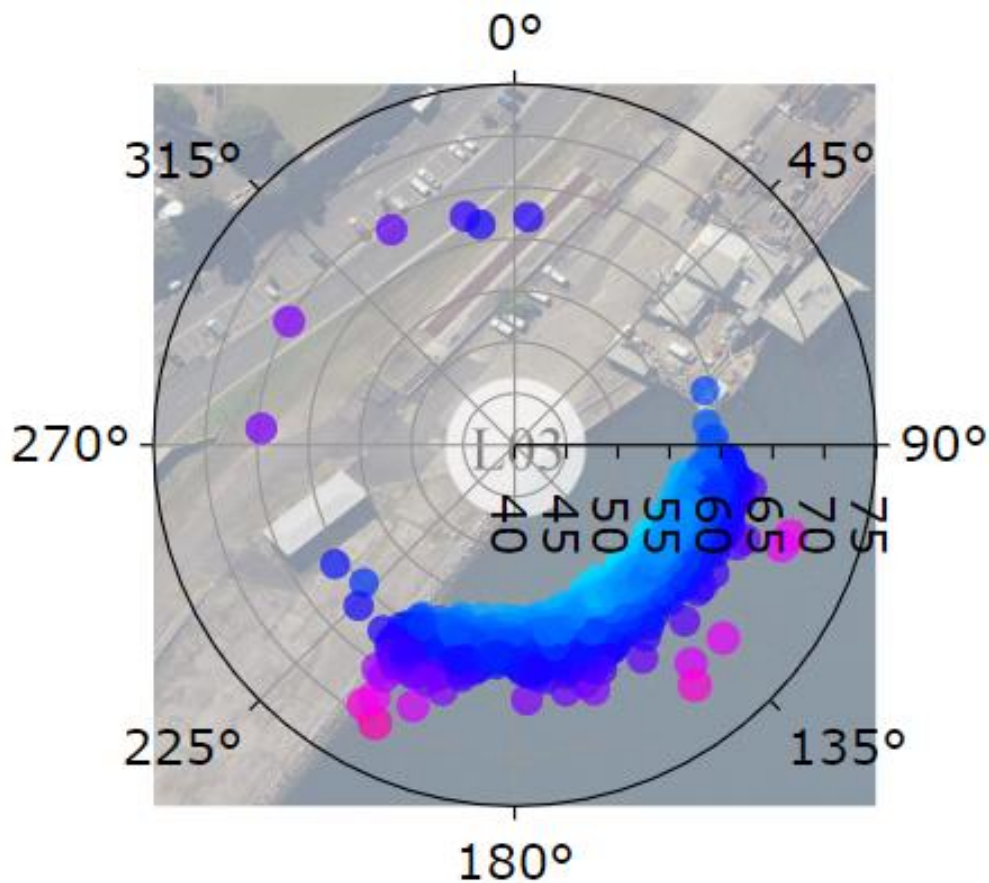


Figure 4.9 Typical vessel polar (directional) plot



## 4.5 Pioneer (GLB7) – June 24 – June 28, 2024

### 4.5.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
June 23, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	-	-	-	60	-
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	50	No	Yes	55	Yes
			L <sub>Amax</sub>	64	-	-	65	Yes
June 24, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	50	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	49	No	Yes	55	Yes
			L <sub>Amax</sub>	65	-	-	65	Yes
June 25, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	50	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	48	No	Yes	55	Yes
			L <sub>Amax</sub>	67 <sup>4</sup>	-	-	65	No
June 26, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	50	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	49	No	Yes	55	Yes
			L <sub>Amax</sub>	66 <sup>5</sup>	-	-	65	No
June 27 <sup>6</sup> , 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	50	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	51	No	Yes	55	Yes
			L <sub>Amax</sub>	63	-	-	65	Yes

#### Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

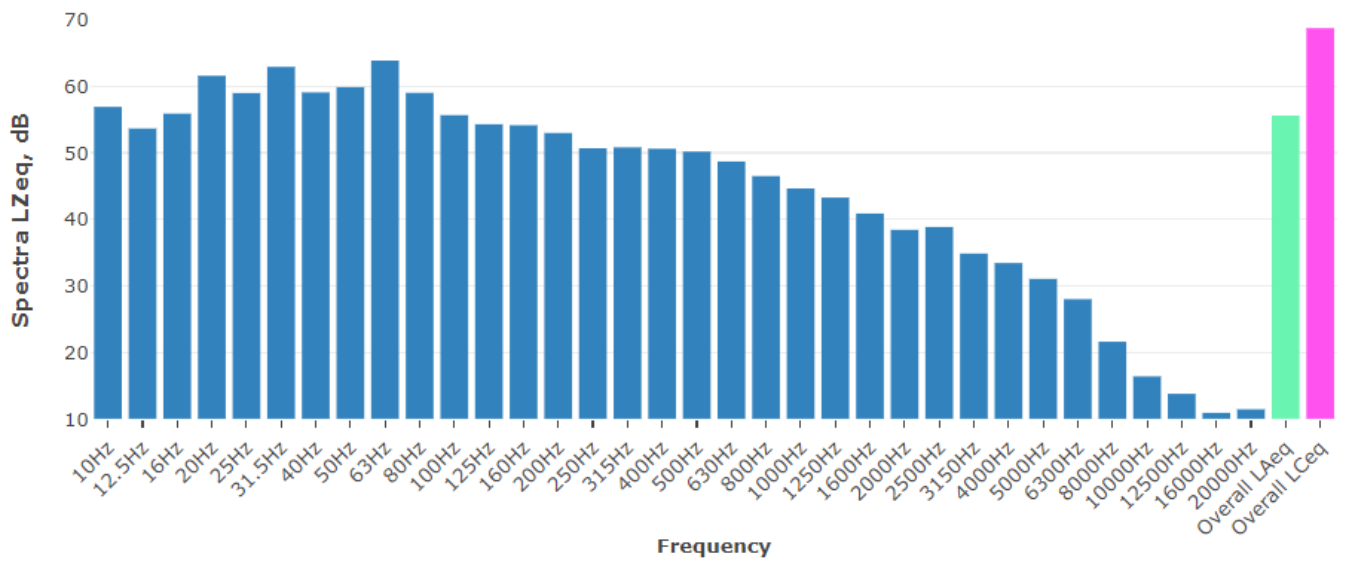
3) LFN = Low Frequency Noise

4) This maximum level event only occurred once during the night-time hours on the June 25. Given it only occurred once and only a 2 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times.

5) This maximum level event only occurred once during the night-time hours on the June 26. Given it only occurred once and only a 1 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times.

6) Note that the system classifies June as the period from 7 am on June 27 to 7 am on June 28. The Pioneer departed at 04:56 am on June 28, and has been incorporated in the data for June 27.

## 4.5.2 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.10 Typical vessel spectrum – noise level at L03

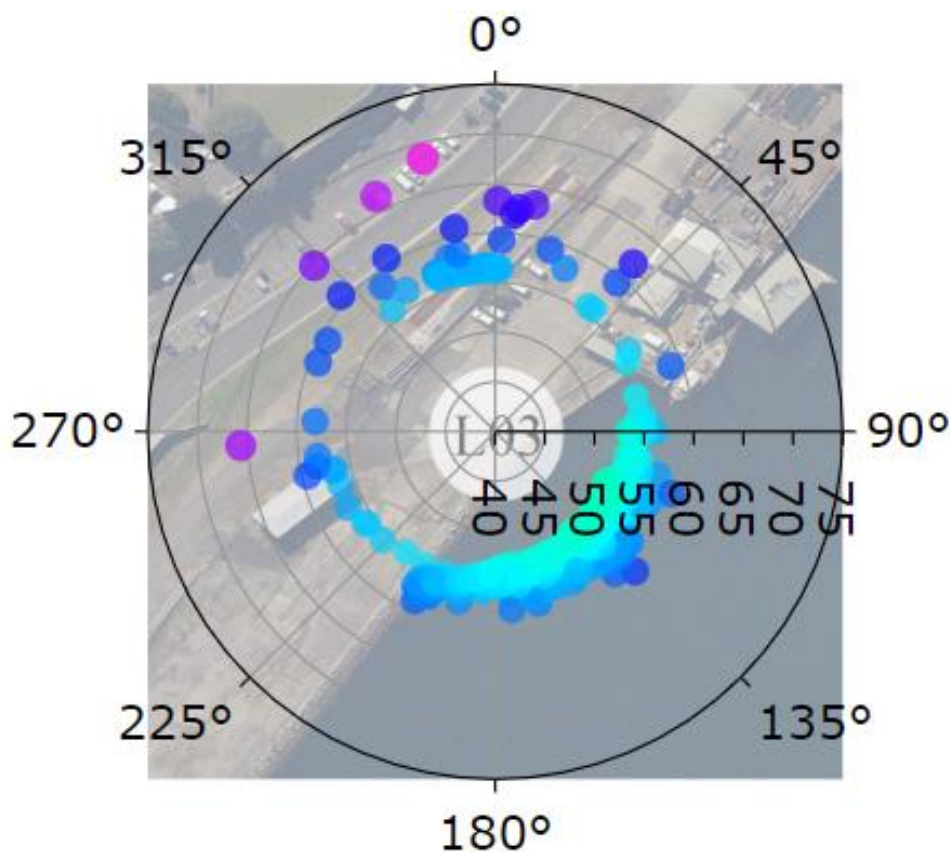


Figure 4.11 Typical vessel polar (directional) plot

## 4.6 Akuna (GLB8) – June 30 – July 2, 2024

### 4.6.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
June 30, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	-	-	-	60	-
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	48	No	No	55	Yes
			L <sub>Amax</sub>	62	-	-	65	Yes
July 1, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	55	No	No	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	-.4	-.4	-.4	55	-.4
			L <sub>Amax</sub>	-.4	-.4	-.4	65	-.4
July 2, 2024	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	55	No	No	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	-	-	-	55	-
			L <sub>Amax</sub>	-	-	-	65	-

Notes

- 1) Daytime period (7 am to 10 pm) – 15 hours  
Night-time period (10 pm to 7 am) – worst case 1 hour
- 2) Inclusive of any penalties for modifying factors
- 3) LFN = Low Frequency Noise
- 4) L03 was not operational during this period. Measurements at all other times demonstrate compliance with the Policy.

### 4.6.2 Additional information

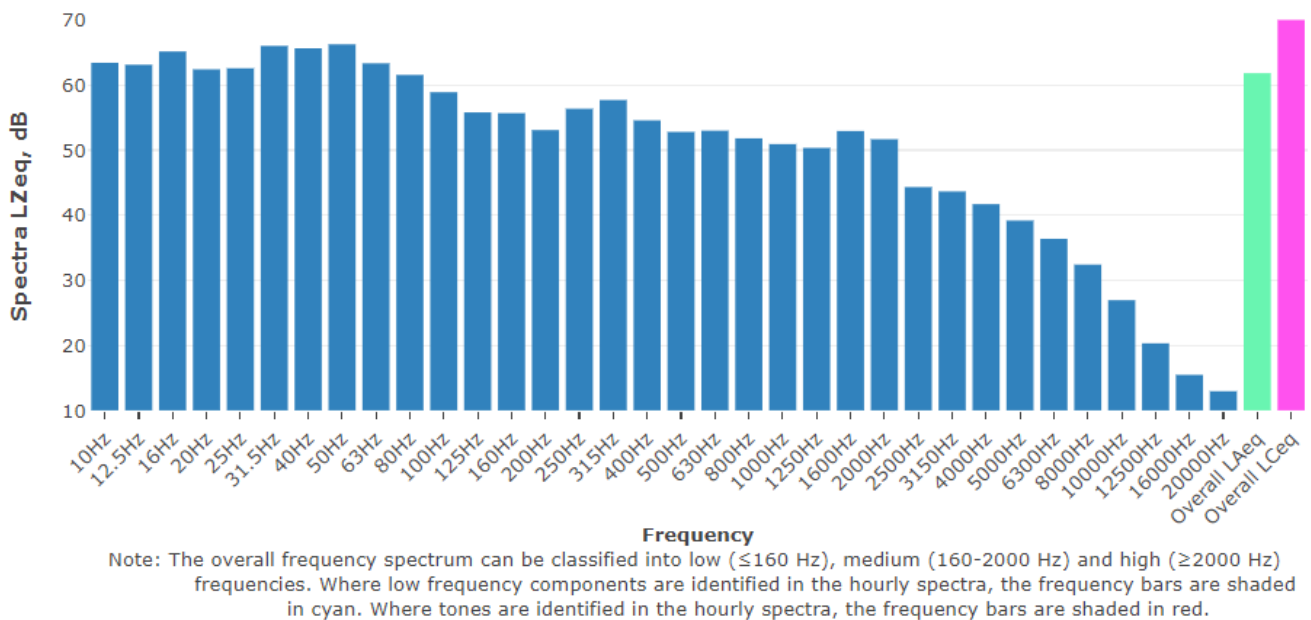


Figure 4.12 Typical vessel spectrum – noise level at L03

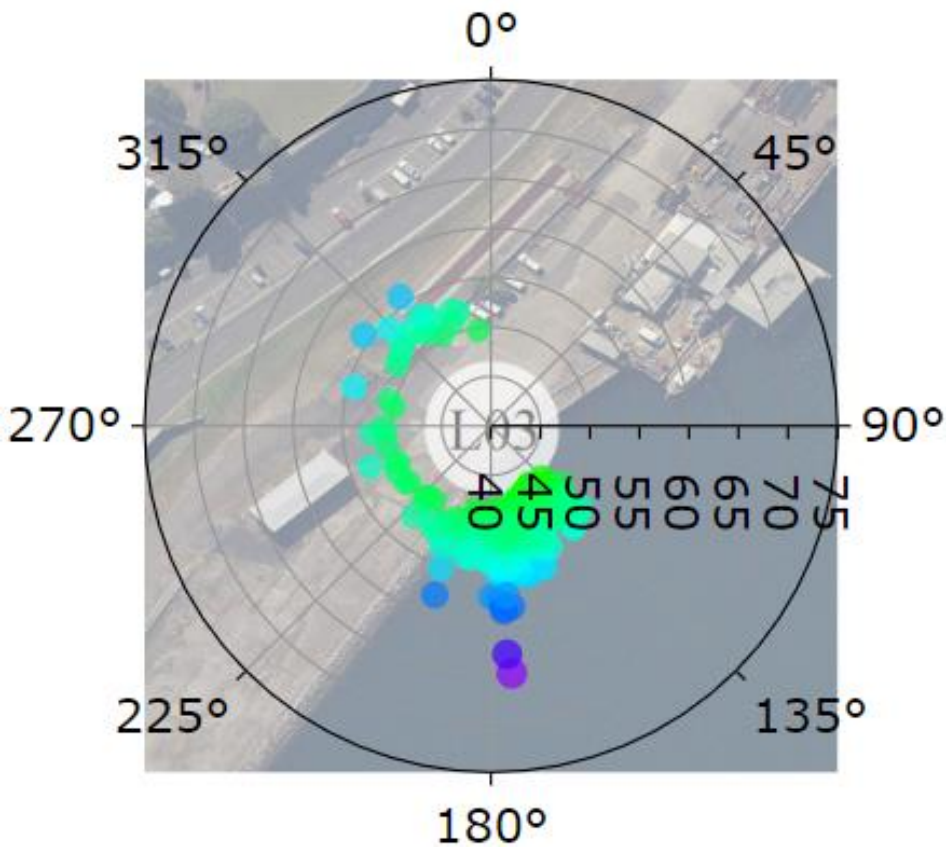


Figure 4.13 Typical vessel polar (directional) plot



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