Strengthening the front-line health protection and environmental management workforce in Tasmania

A workforce development strategic plan for Environmental Health Officers

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Glossary

EHO	**Environmental Health Officer**
PHS	**Public Health Services**
LGAT	**Local Government Association of Tasmania**
EPA	**Environmental Protection Agency**
UTAS	**University of Tasmania**
EMPCA	**Environmental Management and Pollution Control Act**

Background

The significance of environmental health as a cornerstone of public health is as relevant today as it has been at any time in the last century, accounting for 15 of the extra 20 years of life gained over this period[1].

This significance has been elevated with recent natural disasters (floods, bushfires) and the COVID-19 pandemic world-wide, that has exposed health system capacity gaps and forced a reconsideration of the folly of ignoring health protection as "old" public health.

Environmental Health Officers (EHOs) are the front-line workforce of the health protection and environmental management system, particularly at a local community level. This system (and its workforce) manage risks to public health associated with modifiable environmental risk factors such as air, water and soil pollution, chemical exposure, environmental degradation, climate change and radiation[2].

Despite being one of the most essential professions for protecting human health, the environmental health profession is under-recognised, overlooked and misunderstood[3]. This is particularly the case in Tasmania, a small State population with limited health system capacity and with a significant economic reliance on the tourist economy, which is particularly exposed to risk associated with environmental health and environmental management hazards.

In 2018, an intersectoral working group of stakeholders (see acknowledgements) across different jurisdictions/sectors in Tasmanian formed to develop a state-wide workforce development strategy for EHOs, in recognition of the capacity gaps in the health protection system created by an under-developed EHO workforce.

This report provides an executive summary of this groups work and a prioritisation of strategy recommendations derived from a process of co-designed research and strategy development for workforce development.

References

1. World Health Organisation. World Report on Ageing and Health. 2015, World Health Organisation: Geneva,Switzerland.
2. Whiley H, et al. Environmental Health in Australia: overlooked and underrated. *Journal of Public Health*, 2018.
3. Resnick B, et al. Protecting and promoting the nations health: the environmental publ;ic health workforce as a critical component. *J Public Health Manag Pract*, 2009. **15**: p. S4-S5.

Workforce challenges summary

The following synopsis summarises the key challenges for EHO workforce development in Tasmania based on a program of research conducted during 2019-2020 (see methods section). These challenges undermine the Tasmanian health protection and environmental management system and should form the focus of workforce development strategies to build capacity in this critical area.

Challenge	Description and impact on capacity
Limited workforce planning or monitoring	Limited accurate data about the workforce size, attributes, distribution and development needs.
A workforce with responsibility spanning many legislative instruments	EHOs have delegated responsibilities to enforce elements of a number (~10) of legislative instruments (summarised in Appendix D) spanning sectors, notably the Public Health Act, The Food Act and the Environmental Management and Pollution Control Act (EMPCA).
Role ambiguity and low profile (invisibility)	Invisibility of the EHO workforce in terms of utility and development needs amongst the public and decision makers. This contributes to difficulties recruiting students to a Tasmanian workforce preparation course, with down-stream impacts on retention and recruitment. A lack of clarity regarding responsibility under EMPCA.
No local workforce preparation#	A lack of a Tasmanian supply of EHO graduates contributes to workforce recruitment and retention problems. Indirectly undermines place-based environmental health research capacity in Tasmania.
Limited local academic capacity in environmental health	Limited capacity for development and implementation of an integrated workforce development system in Tasmania (training + CPD + mentoring + research etc).
Small workforce relative to health protection and environmental management needs	The work of EHOs in Tasmania is largely determined by legislative enforcement/regulation of at least 10 legal instruments (Acts etc). Stakeholders and practitioners report "responsibility creep" without commensurate additional resource allocation. There is an estimated deficit of at least 40 full-time equivalent EHOs in Tasmania relative to servicing existing environmental health risk items and regulatory responsibilities. As a result, EHO practice is prioritised to reactive investigation and enforcement of legislated responsibilities, rather than more sustainable upstream prevention practices. Suboptimal health protection and environmental management services and elevated public health risk is the result.
Unequal distribution of EHO workforce	Unequal access to EHO services and increased exposure to environmental health risks in regional and remote communities.
Outdated and loosely enforced credentialing	Evidence of pockets of under-qualified workforce and non-compliance with Director of Public Health credentialing requirements under relevant Acts. Credentialing requirements are out-dated and loosely enforced/monitored.
Relatively low remuneration	Tasmanian EHOs have some of the lowest salaries in the country and salary levels are not aligned with other accredited health professionals. Contributes to difficulties recruiting students and staff to EHO training and careers, retaining EHOs in Tasmania.
Limited career progression pathways	Contributes to difficulties retaining EHOs in Tasmania. Workforce wastage associated with EHO's changing careers.

Limited accessible and affordable continuing professional development options	Undermines currency of EHO competencies, job satisfaction and staff retention.
Inefficient workforce utilisation and coordination	Many of the challenges outlined reflect inefficient utilisation and coordination of the existing EHO workforce. This is attributed to the disconnect between drivers of EHO workload (State-level legislation) and inequitable distribution and inefficiency associated with Local Council level employment and management of the majority of the EHO workforce across 29 local governments.

 # UTAS discontinued its under-graduate EHO course offering in 2017/2018.

Strategy recommendations

The following list of strategy recommendations are categorised as being aligned to key components of an integrated workforce development system, including workforce management, workforce planning and monitoring, marketing, workforce preparation, workforce recruitment and retention and continuing professional development. This list includes suggestions about key stakeholder leadership responsibilities, additional investment required and priority. Strategies rated as High Priority on the basis of likely impact on capacity gains and need.

	Recommendations	Gains	Key leadership responsibility	High Priority	Additional Investment required
Workforce Management					
1	**To explore models and mechanisms for state-wide EHO workforce management and coordination that optimises the distribution and mobilisation of the EHO workforce and retains the front-line health protection and environmental management role of EHO's in local government. This might include consideration of:** • **A consolidation of the Tasmanian EHO workforce (currently employed by Local Councils + the Environmental Health team in Public Health Services) to create a state-wide Environmental Health Service, servicing Local Councils based on need and equity, but managed at a State-wide level, and/or** • **Creating and recruiting to a Local Government EHO Workforce Coordinator role that has state-wide EHO workforce development and coordination as a primary function.**	**Coordination Efficiency Surge Capacity Retention**	**State Government, PHS, LGAT, EPA**	✓	**Minimal[A]**
Workforce Planning and Monitoring					
2	**Develop a workforce monitoring system that includes regular and systematic collation of data about workforce size, attributes, distribution, career satisfaction, workforce turnover intentions and CPD needs.**	**Evidence base**	**EHA, PHS, EPA, LGAT, UTAS**		**$15,000 -3 yearly survey**
3	**To strategically invest in EHO workforce growth over the next 5 years to achieve a FTE workforce of 85 FTE (an additional 25 FTE) by 2025. This investment in growth to be prioritised to:** • **enhancing coverage to rural and remote communities (+5 FTE)** • **increasing upstream and proactive health protection EHO practices (+10 FTE),** • **increasing risk based environmental management (+5 FTE), and** • **enhancing state-wide surge capacity[B], shared-service and cross jurisdictional service coordination (+ 5 FTE).**	**Plugging gaps Equity Surge capacity Career paths**	**State Government**	✓	**~$4 Million ongoing from 2025**

4	**To develop core function standards for the EHO workforce based on best-practice and comprehensive scope of practice. This should include the feasibility and appropriateness of existing Acts that contribute to responsibilities and workloads of EHOs (in particular EMPCA, Public Health and Food Acts)**	**Role clarity Role feasibility**	**EHA, PHS, EPA, LGAT, UTAS**		
Marketing		**Gains**	**Key leadership responsibility**	**High Priority**	**Additional Investment required**
5	**Develop, implement and evaluate a marketing strategy to promote the role and career opportunities for Environmental Health Officers.**	**Role awareness Student demand**	**EHA, UTAS**	✓	**Minimal**
Workforce preparation					
6	**UTAS to recruit and support a critical mass of environmental health academic staff to lead the development of an integrated learning system (including workforce preparation, continuing professional development and in supporting research).**	**Academic capacity**	**UTAS**	✓	**Minimal[C]**
7	**Develop a Tasmanian network of EHO "Pracademics"[D] that engages and supports Tasmanian EHO's in teaching, supervision and research activities using an appropriately resourced and supported collaborative model.**	**Academic capacity**	**UTAS, EHA**		**Minimal[C]**
8	**Develop, implement and evaluate a sustainable and high quality EHO workforce preparation course for Tasmania.**	**Local graduate supply**	**UTAS**	✓	**Minimal[C]**
9	**Develop a student recruitment strategy for workforce preparation and careers as EHOs.**	**Sustainable course enrolments**	**UTAS, EHA, LGAT**	✓	Minimal
10	**Develop, implement and evaluate a sustainable, place-based and mutually beneficial (student and placement site organisation) professional placement program embedded in the UTAS course. This placement program should be prioritised to Tasmanian students.**	**Work integrated learning**	**UTAS, LGAT, PHS**	✓	**Minimal[C]**

	Workforce recruitment and retention	Gains	Key leadership responsibility	High Priority	Additional Investment
11	**To renew the certification to practice system legislatively mandated by the Director of Public Health to be based on individuals completing EHA accredited courses and/or evidence of attaining, retaining and applying *EnHealth competencies* in practice. This renewal should include some accountability mechanism, such as regular audits, to ensure continuing professional development and compliance by employers.**	Clarity regarding employability requirements.	PHS, EPA	✓	Minimal
12	**12: To develop EHO position descriptions and duty statements that emphasis comprehensive and proactive health protection and environmental management core functions of EHOs, for state-wide use by employers. This standardises recruitment qualifications aligned to PHS and EPA expectations and provides a mandate for EHOs to extend practices.**	Consistent and core function aligned staff recruitment	PHS, LGAT, EHA, UTAS, EPA		Minimal
13	**To develop guidelines for supervision, role delineation, scope of practice and staff supports for employment of technical staff employed to support environmental health services.**	Role delineation clarity	PHS, LGAT, EHA, UTAS, EPA		Minimal
14	**To align EHO remuneration and conditions with those available to Allied Health professionals in the Tasmanian Department of Health (or similar comparable award).**	Appropriate award alignment Recruitment and retention.	State Government		~$1 million recurring largely offset by reduced turnover costs
15	**Key employers of the EHO workforce in Tasmania develop a Graduate Entry Program (GEP) to provide a supported pathway to training and work experience in Tasmanian workplaces.**	Career pathways access for young Tasmanians	PHS, EPA, LGAT		~$20,000 per GEP place per year, largely offset by reduced staff recruitment costs

Continuing Professional Development		Gains	Key leadership responsibility	Priority	Additional Investment
16	**Develop an annual continuing professional development program in partnership with stakeholders specific to the needs of the Tasmanian EHO workforce, work priorities and emerging competency development needs.**	**Competency currency Professional networking**	**EHA, UTAS**		**Minimal- Cost recovery**
17	**A leadership development program be developed for the Tasmanian EHO workforce with a specific focus on early career EHOs.**	**Workforce leadership Transition capacity Career satisfaction Less staff turnover**	**UTAS, EHA**	✓	**Minimal- Cost recovery**
18	**Maintain and strengthen the existing professional network and its activities supported by the EHA (Tas)**	**Professional networking**	**EHA**		**Minimal- Cost recovery**

[A] A State-wide workforce management and co-ordination structure (or coordinator role), that coordinates and brokers services to Local Councils, mapped to need and equity, is likely to result in better use of existing resources and facilitate state-wide environmental health workforce surge capacity.

[B] *Surge capacity* refers to the ability of a workforce to effectively respond and mobilise in the short-term to address a major challenge, in a sustained way, without significantly compromising business as usual.

[C] Cost recovery based on post-graduate fee and CSP revenues for Graduate Diploma of Environmental Health.

[D] Pracademic = conjoint appointments between UTAS and employers to facilitate mixed function roles including workforce preparation and core practitioner functions.

Method

The strategic recommendations outlined in this report have been informed by evidence and process summarised in Figure 1 and Table 1.

Table 1: Methods summary

Method	Description
Project scoping	The Collaborative Working Group (see acknowledgements) met over numerous meetings to agree on the scope and methods mix for the project and served as a sounding board for the research team throughout the project.
Literature Review	A review of the grey literature (institutional, non-peer reviewed) relating to environmental health workforce development was undertaken using google searches. This sourced a number of state level environmental health workforce surveys and strategic plans. A non-exhaustive review of the international published literature was undertaken. Both searches informed the development of the stakeholder consultation interviews and the workforce survey study designs.
Key stakeholder consultation	Semi-structured consultative interviews were conducted amongst a purposive sample of workforce development stakeholders including Local Council General Managers, Agency Directors and Environmental Health Managers/Leaders. A total of 21 interviews (24 stakeholders) were conducted during November-December 2019 and June 2020 (post COVID-19 onset), interviews were audio-taped, transcribed verbatim and qualitatively analysed using thematic analysis.
State-wide workforce survey	An on-line survey of the Environmental Health Officers (EHOs) in Tasmania was conducted during Nov-Dec 2019. Professional network contact lists (provided by EHA) and snow-ball sampling was used to invite EHOs via email to voluntarily participate in the on-line survey. This survey recruited 55 individual EHOs from across Tasmania, 45 of whom were employed in Local Council roles, representing a response rate of between 60% (head count) and 77% (FTE) based on workforce size estimates provided by Public Health Services (50.7 FTE, 75 headcount at July 2019). Data from the survey included workforce size, demography, distribution, attributes, recruitment and retention issues, continuing professional development needs and felt needs regarding workforce development strategies.
Minimum standards workload modelling	A self-administered survey of all (n=29) Local government areas (Councils) was conducted during Nov-Dec 2019 requesting commonly reported data episodes, activities or items known to contribute to environmental health risk and local council EHO workloads. Reponses where received from 25 Councils (RR: 86% ; non-responses from: Flinders Island, Central Coast, Southern Midlands, Derwent Valley). Data collection items (n=33) included 9 specific to food business, 7 specific to the environment and 17 specific items relating to public health. Estimates of workload multipliers (number of hours of EHO required to service each workload item) were developed based on experienced EHO practitioner work-time estimates. These data sources were used to model EHO workloads and FTE workforce requirements to minimally service existing environmental health risk items across Tasmania.
Data triangulation	Triangulation of data used comparison and interpretation of data from different methods (*method triangulation*) and by different researchers/collaborators (*researcher triangulation*). A preliminary summary of the data was presented and discussed by the collaborative working group to help make sense of and contextualise the data.
Strategy Synthesis	Strategy recommendations were drafted by the Project Lead and distributed for review and feedback by the Collaborative Working Group before finalising.

Ethics approval for key stakeholder consultations and survey data collections was obtained from UTAS Social Science Ethics Committee.

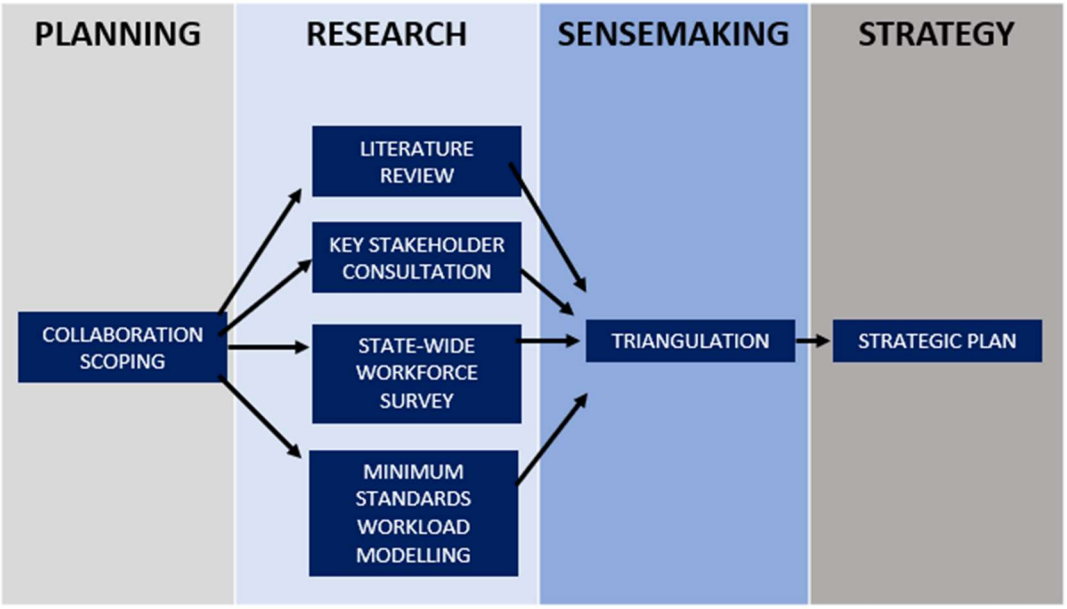

Figure 1: Schematic of the workforce development strategic planning process

Strategy Priorities: Situational assessment and rationale

Strategy priority 1: State-Wide Workforce Coordination and management

Strategy Recommendation	**To explore models and mechanisms for state-wide EHO workforce management and coordination that optimises the distribution and mobilisation of the EHO workforce and retains the front-line health protection and environmental management role of EHO's in local government. This might include consideration of:** • **A consolidation of the Tasmanian EHO workforce (currently employed by Local Councils + the Environmental Health team in Public Health Services) to create a state-wide Environmental Health Service, servicing Local Councils based on need and equity, but managed at a State-wide level, and/or** • **Creating and recruiting to a Local Government EHO Workforce Coordinator role that has state-wide EHO workforce development and coordination as a primary function.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion	• Regional and rural populations in Tasmania are exposed to higher public health risks associated with unequal and insufficient EHO service delivery [A,B,C,D]. • Provision of health protection services in rural and remote communities has higher workload overheads like travel to sites, inefficiencies in administration and reporting [C]. These overheads impact on the amount and efficiency of EHO service provision and significantly contribute to the inequities in population service coverage [B]. • Some employers in local government have developed shared-service models that share the cost of providing fractional EHO services [A,C]. • The EHO workforce in Tasmania has limited surge capacity in the event of a major environmental health incident [A,B,C,D], exacerbated by a lack of state-wide workforce co-ordination. • Many of the EHO workforce development challenges in Tasmania are attributable to, or exacerbated by, inefficiencies with the current distribution and management of the EHO workforce across 29 Local Councils. • The disruption of COVID-19 has demonstrated the need for localised workforce surge capacity, state-wide coordination and introduced fiscal pressures that require more efficient use of existing workforce. It has also reignited debate about the inefficiency and sustainability of local government structures. This recommendation goes further than shared service models to centralise workforce management at a State level.
Strategy Rationale	Given the relatively small size of Tasmania and its population, the large number of employers (29 Councils), and the responsibilities of state government level agencies such as PHS and EPA, there is a need for greater state-wide planning and coordination of the EHO workforce. This will be particularly important with the implementation of other Strategy Priorities. An important benefit of state-wide consolidation under a proposed Tasmanian Environmental Health Service will be enhanced surge capacity. Surge capacity refers to the ability of a workforce to effectively respond and mobilise in the short-term to address a major challenge, without significantly compromising business as usual. This ability is usually determined by the adequacy of the size, attributes and distribution of the workforce (workforce planning) and how the workforce is organised and coordinated (workforce management). Creating and recruiting to a Local Government EHO Workforce Coordinator role that has state-wide EHO workforce development and coordination at local government level is a less wholesale structural change approach that may achieve some of the efficiencies required.
Responsibility	PHS, LGAT, EPA, State Government

Strategy Priority 2: Workforce Planning and Monitoring

Strategy Recommendation	**Develop a workforce monitoring system that includes regular and systematic collation of data about workforce size, attributes, distribution, career satisfaction, workforce turnover intentions and CPD needs.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• As at the end of 2019 there was no routinely monitored, comprehensive or accurate record of the size, attributes, continuing professional development or support needs of the EHO workforce in Tasmania [C,D]. • Responsibilities are contested between sectors/jurisdictions, with PHS having state-wide coordination and legislative oversight responsibilities (including credentialing by the Director of Public Health), with the majority of employment managed by Local Government Councils [C,E]. • Estimates of the size of the EHO workforce employed in local government jurisdictions based on annual reporting to Public Health Services indicated that as at end June 2019 there were 50.7 FTE Environmental Health Officers (75 individuals) employed across the 29 Tasmanian Councils. This figure differs from workforce data from EHA (Tas) (August 2019) there where ~47.5 FTE EHO employed in local councils across Tasmania involving 58 individuals (headcount) [E]. • The system of EHO credentialing (designation) by the Director of Public Health does not appear to be linked to any system of employment compliance monitoring by local councils or workforce profiling [C,D]. • Whilst the large majority of EHOs in Tasmania are employed in local government jurisdictions [A] there is a significant proportion (>10%) employed in state government agencies (PHS) and an unknown (but relatively small) number in the private sector working as consultants [A,C]. There are ~45 regulatory officers employed in the EPA but it is unclear if any are qualified EHO[C]s and/or if they perform the work required to service the requirements of EMPCA attributable to EHOs in local council.. • There is little evidence to suggest that the current EHO workforce in Tasmania is large enough, adequately distributed and coordinated to minimise public health risks and provide an optimal health protection workforce [A,B,C,D]. Evidence suggests that there are significant gaps in EHO workforce size (~40 FTE short), contributing to suboptimal health protection and environmental management services, inequity in service coverage depending on location (particularly in rural communities). This also results in a prioritisation of reactive service delivery based on notifications and complaints over proactive health protection services based on monitoring, community education and systems [C,D]. • The *Tasmanian Environmental Health Workforce Working Group (TEHWWG)* (representing key stakeholders) is ideally situated to develop an aspirational workforce profile for EHOs in Tasmania.
Strategy Rationale	Workforce planning seeks to ensure communities have the right people, in the right place, with the right capabilities at the right time. It includes considerations of workforce size, distribution, functions and organisation. With evidence to suggest the Tasmanian EHO workforce is under-sized and sub-optimally organised and distributed, there is a need to develop stakeholder consensus about the optimal (aspirational) workforce profile and distribution in order to provide a basis for strategic workforce growth and reorganisation.
Responsibility	All stakeholders, including PHS, EPA, EHA, UTAS, LGAT.

Strategy Priority 3: Strategic Investment in Workforce Growth

Strategy Recommendation

To strategically invest in EHO workforce growth over the next 5 years to achieve a FTE workforce of 85 FTE (an additional 25 FTE) by 2025. This investment in growth to be prioritised to:

- **enhancing coverage to rural and remote communities (+5 FTE)**
- **increasing upstream and proactive health protection EHO practices (+10 FTE),**
- **increasing risk based environmental management (+5 FTE), and**
- **enhancing state-wide surge capacity, shared-service and cross jurisdictional service coordination (+ 5 FTE).**

Situational Assessment

A=Workforce Survey
B=Workload Modelling
C=Stakeholder Consultation
D= Academic Opinion
E= Literature

- The Tasmanian EHO workforce is relatively small (~60 FTE)[A], inequitably distributed [A,B] and marginal in terms of core function workload coverage[B]. This contributes to elevated risk exposure in some Tasmanian communities because of inadequate health protection and environmental management service coverage [B,C].
- The risk associated with inadequate health protection and environmental management services to economic, social and health outcomes in a State like Tasmania, is likely to be significant [D,E].
- EHO: Population staffing ratios of 1 EHO:10,000 population have been cited[C] as a benchmark for estimating required workforce size in local government (FTE). A formal reference for this benchmark has been difficult to find, attributed to the World Health Organisation and/or guidance from the Director of Public Health (unverified). It is unclear how this standard was developed and it assumes that all populations have similar EHO service needs [D,E]. Based on this benchmark for workforce size, the EHO workforce in local government practice is > 5 FTE below recommended (n~50 FTE at present).
- The 1 FTE EHO:10,000 population benchmark has been suggested to adequately reflect delivery of minimal standards determined by legislative responsibilities [C,E] but significantly under-estimates FTE requirements for a comprehensive and proactive health protection and environmental management service by EHOs [E].
- The EHO workforce's current effort and activity is largely reactionary (complaints, notifications etc) and prioritised to delivering against numerous legislative responsibilities (>10 acts or codes across public health, food and environment jurisdictions) [C,E]. The lack of time to be proactive and work on 'upstream' prevention and/or monitoring activities is a source of frustration and job dissatisfaction amongst the EHO workforce consulted [C].
- Estimates of workforce size need based on analysis of sources of EHO workload demonstrates that there is a significant degree of variation between communities in Tasmania, in terms of workload, workforce and work type. This contributes to inequitable health protection and environmental management service coverage [A,B,C,D].
- The current workforce has limited surge capacity in the event of a major environmental health incident, partly because of small workforce size and distribution[A,B,C,D]. The small workforce and strong professional networks provide some ability to mobilise collaborative and shared effort when required[C].
- Most of the state workforce are employed in single council employer models in relatively small multi-disciplinary teams[A,C]. Cross council collaboration is evident but limited by existing workloads[C].
- A number of small regional councils have developed shared service EHO service models when budget limitations have precluded in-house employment of single council dedicated EHO's[C].
- Use of consultancy EHO service models is limited to a few smaller councils/employers [A]. Consultant EHO service models are not a preferred model amongst employers because of the high relative cost and limited community/institutional value compared to that which comes with inhouse EHOs [C].

Strategy Rationale

This strategic recommendation and growth target (85 FTE by 2025) is presented as an aspirational starting point for developing a consensus workforce profile suggested in Strategic Priority 2. The additional recurrent investment by 2025 would be in the vicinity of ~$4 million per year, or ~$8 per Tasmanian per year. This additional investment would help address

	existing service coverage inequities, accommodate population growth over the period, enhance environmental health workforce surge capacity (and preparedness) and enable a more preventative upstream approach to environmental health and environmental management practice and risk mitigation. The return on investment in terms of protecting health, social and economic outcomes is likely to be significant and is consistent with the intent of the Premiers 2019 Health and Wellbeing *Tasmania Statement*[E].
Responsibility	State Government

Strategy priority 4: Core functions: Role delineation, re-orientation and practice extension

Strategy Recommendation	**To develop core function standards for the EHO workforce based on best-practice and comprehensive scope of practice. This should include the feasibility and appropriateness of existing Acts that contribute to responsibilities and workloads of EHOs (in particular EMPCA, Public Health and Food Acts)**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• The current scope of practice of EHOs in Tasmania is dominated by reactive investigation and enforcement roles relating to servicing a number of legal instruments (Acts) [A,B,C, D]. • Under-resourcing and the need to prioritise work to investigative and enforcement functions limits practice on proactive (upstream) prevention, monitoring, education, and community engagement practices [A,B,C]. This limits the capacity of the EHO workforce to deliver optimal health protection services [D]. • Stakeholders report incremental responsibility creep with new legislation unmatched by staffing growth[C]. This is evidenced by the ~ 40 FTE workforce deficit identified in minimum standards workload modelling[B]. • This resource restricted limitation on scope of practice is a significant determinant of workforce career dissatisfaction and turnover, particularly amongst younger EHOs [A,C].
Strategy Rationale	Explicit codification of workforce core functions and extended scope of practice in staff recruitment instruments such as position descriptions is a common strategic approach in workforce development internationally. This will also assist with raising the profile of EHO work and careers (see Strategic Priority 5). Doing so provides an organisational mandate for the workforce to extend and focus practice.
Responsibility	EHA, PHS, LGAT, EPA, UTAS

Strategy Priority 5: Building the profile of Environmental Health Officers

Strategy Recommendation	**1: Develop, implement and evaluate a marketing strategy to promote the role and career opportunities for Environmental Health Officers.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• The title Environmental Health Officer (EHO) is considered by some as out-dated, ambiguous and under-represents the professional nature of the role[C]. • The roles and responsibilities of EHO's are generally poorly understood by the general community, despite a recognition by employers and other stakeholders that EHO's are the front-line workforce of the health protection system[C]. • The status and attractiveness of EHO careers is relatively low, with stereotypical perceptions of EHO's as enforcing "inspectors" of food outlets, sewage, polluted water and garbage[C]. This compromises interest in careers as an EHO and makes student recruitment to EHO qualification pathways more challenging[D]. • EHOs report the reality of EHO work as being diverse, technical, requiring advanced people skills and engagement with community[A,C]. This image of EHO work (and careers) needs to be promoted to challenge outdated or inaccurate stereotypes[D]. • Many of the downstream challenges with the EHO workforce (student recruitment, remuneration, retention) are influenced by this lack of profile and awareness[D].
Strategy Rationale	A marketing strategy is needed to promote the marketable attributes of EHO work and careers to potential students, the broader public and employers. Key marketing messages should focus on: • the critical role EHOs play as the front-line of the health protection system [IMPACT] • the diversity of the work in local communities [VARIETY] • the mix of technical, scientific, people and professional competencies required in practice [COMPETENCY] • the interdisciplinary nature of health protection work [TEAMWORK] • The mix of office and outdoor work environments that require interaction with the built and natural environment [OUTDOORS]. It is in the interests of the local profession (EHA) and the educational institution (UTAS) to co-invest in, develop, implement and evaluate a rolling marketing strategy that raises the profile and student interest in training and careers in environmental health practice. Raising the profile is a pre-requisite for student recruitment which primes the workforce life-cycle, producing a pipe-line of graduates for employment.
Responsibility	EHA, UTAS

Strategy Priority 6 and 7: Building academic capacity in Environmental Health

Strategy Recommendation	**6: UTAS to recruit and support a critical mass of environmental health academic staff to lead the development of an integrated learning system (including workforce preparation, continuing professional development and in supporting research).** **7: Develop a Tasmanian network of EHO "Pracademics"[D] that engages and supports Tasmanian EHO's in teaching, supervision and research activities using an appropriately resourced and supported collaborative model.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• As the end of 2019, UTAS had limited academic capacity in environmental health and EHO education, which will need to be developed to sustain and contribute to workforce development initiatives across this strategy [D]. • UTAS has responded since November 2019 by recruiting an academic program lead for Environmental Health to join the Public Health Program in the Tasmanian School of Medicine [D]. • PhD qualified EHO academics with education and EHA Accreditation experience are difficult to recruit to Australian universities. In part because of a small recruitment pool. A strategy that builds academic capacity amongst the Officer workforce in Tasmania is required [D,E]. • The development of a strong academic: professional: employer partnership model that builds academic capacity is needed to sustain a postgraduate workforce preparation program in Tasmania. This is particularly so in resource poor environments such as Tasmania and when building from a low base of academic capacity [D]. • There is interest amongst EHOs consulted to be actively involved in academic practice, both in terms of active teaching, professional supervision and research in practice [C]. This interest is tempered by recognition that additional work needs to be resourced and additional professional development will be needed [C,D,E]. • EHO's have a rich disciplinary background in science, investigation and inquiry and are well placed to contribute to practice-based research. Strategies and partnerships that build research competencies, research self- efficacy and opportunities in practice are likely to significantly enhance workforce development outcomes (retention, career satisfaction, pathways, CPD etc) [D,E]. • The existing *Tasmanian Environmental Health Workforce Working Group (TEHWWG),* which includes representation from UTAS, EPA, PHS, EHA and LGAT, presents as a strong partnership group, from which academic capacity building partnership strategies can be developed [D].
Strategy Rationale	Academic capacity refers to the ability of the local community to achieve academic objectives such as quality workforce preparation, student placement supervision, practice-based research and evidence-based continuing professional development. A primary determinant of academic capacity is suitably qualified and competent disciplinary leaders employed within the academic sector to lead curriculum development, implementation and evaluation, to teach and mentor students and support EHO's participate in practice-based research. A secondary determinant of academic capacity is the extent to which academics and Officers engage in mutually beneficial collaborative activities that advance academic objectives.
Responsibility	Whilst the primary responsibility for investment in academic capacity building rests with UTAS, a co-investment model that draws on contributions from partners (cash, in-kind) to build academic capacity across the university and partnering institutions is recommended. UTAS has appointed an EHO Academic to lead the Graduate Diploma program and a further investment in the development and implementation of the Work Integrated Learning (WIL) placement program is needed. UTAS to develop academic staff profile to service the EH program through new recruitment, existing staff re-deployment and staff development.

A range of co-investment and academic capacity building strategies should be pursued by stakeholders including:

- Conjoint appointments with local council EHOs to build council-based placement capacity and recognise academic contributions of EHOs in these roles (title, academic privileges).
- Enhance access of existing EHO access to UTAS study and CPD (fee reductions, bespoke CPD based on professional needs etc).

This is a model previously applied in other UTAS/Health partnerships including earlier iterations of EHO workforce preparation (e.g. funding contributions from PHS).

Strategy Priority 8: Recruiting students to EHO workforce preparation

Strategy Recommendation	**Develop a student recruitment strategy for workforce preparation and careers as EHOs.**

Situational Assessment
 	
A=Workforce Survey
B=Workload Modelling
C=Stakeholder Consultation
D= Academic Opinion
E= Literature
	• Historical demand for the previously discontinued local UTAS undergraduate offering training EHOs was low and unsustainable. This low demand was attributed to:
	  • the low profile and status of EHO careers amongst school leavers,
	  • inadequate marketing and academic resourcing by UTAS and,
	  • the course location in Launceston [C,D].
	• Many Australian universities are moving to post-graduate EHO workforce preparation courses, in part to capture a large potential market of under-employed science, health-science and other graduates [D,E]. UTAS produces a significant graduate cohort from these courses each year, providing a local pipeline for recruiting to a Graduate Diploma pathway. Recruiting graduates to a career-focused, short, reasonable cost qualification with good employability outcomes will be easier than the undergraduate option [D].
	• An annual student cohort size of ~15 FTE students is required as a minimum to sustain the course over the long term. This cohort size will cover university costs but not contribute significantly to university overheads [D]. A University commitment recognising the need to contribute by way of Tasmanian workforce graduate supply, is needed [C,D]. This is consistent with the UTAS commitment to being a place-based university and a University for Tasmania (UTAS Strategic Plan 2019-2024) [E].
	• Cost is increasingly becoming a barrier to student participation in post-graduate study, particularly if employability is uncertain on graduation [C,D,E].
	• The relatively small workforce size [A], the current minimalist approach to investing in workforce capacity by employers [B,C,D] and low workforce turnover [A] means that Tasmanian-based employment for UTAS graduates will be limited without significant additional investment in workforce growth. Course viability and sustainability will require an approach that trains graduates for EHO careers in Tasmania and exports some of its graduates back to mainland employment [D].
	• The low public profile and awareness of the critical role EHOs as the front-line workforce of the health protection system is an impediment to student recruitment [D].

Strategy Rationale	In a competitive and challenging student recruitment environment in the context of EHO courses, a distinctive value-proposition needs to be developed to attract local and interstate graduates to the UTAS Graduate Diploma.
	
	This value-proposition might include:
	  • A relatively affordable course (fees limited by Commonwealth supported place [CSP] allocation by UTAS and competitive with mainland offerings),
	  • A strong place and practice-based educational approach focusing on competencies and employability,
	  • Strong professional engagement in teaching and learning,
	  • An excellent student experience (academic mentoring, student amenity etc),
	  • EHA Accreditation of the course.

Responsibility	Whilst student recruitment is a key business of UTAS in this context (websites, marketing etc), the support of EHA Tas and the local profession in recruiting students will be instrumental. UTAS's allocation of 15-20 Commonwealth Supported Places (CSP) each year to the Graduate Diploma of Environmental Health, significantly reduces the student fee impediment to enrolment.

Strategy Priority 9: A workforce preparation course for Tasmania

Strategy Recommendation	**Develop, implement and evaluate a sustainable and high quality EHO workforce preparation course for Tasmania.**

Situational Assessment
 	
A=Workforce Survey
B=Workload Modelling
C=Stakeholder Consultation
D= Academic Opinion
E= Literature
	• UTAS has approved (Academic Senate, Nov 2019) a new Graduate Diploma of Environmental Health in response to the need for a Tasmanian course, with plans to commence student intakes in July 2020 and pursue EHA course accreditation. These plans where deferred to Semester 1 2021 due to COVID-19 disruption.
	• There is good support amongst stakeholders [C] consulted for a post-graduate diploma option as a logical re-positioning of Tasmanian workforce preparation by UTAS. This support is tempered by:
	  ○ Some reservations amongst employers in local councils about the inflationary effect that a higher qualification might have on salary expectations of graduates/employees,
	  ○ A broadly held expectation that UTAS sustain appropriate support for the course for an adequate timeframe for it to establish, and in strong partnership with stakeholders[C].
	• The professional education literature [E] suggests that quality postgraduate education for public health careers (such as EHOs) requires curriculum alignment to specific competencies, a focus on practice-based education, active engagement in the profession during training and a strong emphasis towards student-directed and experiential learning.
	• There is a recognition of the need for developing distinct professional culture and identity for environmental health students within the broader discipline of public health [C]. This professional culture and identity is important for student and workforce retention [D].
	• Quality of workforce preparation is contingent on professional/industry engagement in the course life-cycle (design, implementation and evaluation) [D,E]. There is a strong expressed interest from stakeholders to be engaged in the UTAS course [C].

Strategy Rationale	Nesting the new Graduate Diploma offering in the established Master of Public Health (MPH) Program at UTAS provides a strong disciplinary home for EHO training and broader workforce development, including further career pathway opportunities. The Public Health Program is located organisationally in the Tasmanian School of Medicine based in Hobart. The curriculum architecture for the Graduate Diploma uses a number of existing post-graduate units in the MPH and new units, all mapped against the EnHealth competency framework that informs course accreditation by EHA. This integration with the MPH affords credit transferability for ongoing education in the MPH. An External Advisory Committee is being formally established to facilitate professional, employer and student engagement across the course lifecycle. The work-integrated learning professional placement program (PPP) is a critical component of EHO training, competency development and course accreditation. As such it deserves specific strategic attention [See Strategy Priority 10]
Responsibility	UTAS, EHA, LGAT

Strategy 10: A state-wide coordinated and sustainable Professional Placement Program (PPP)

Strategy Recommendation	**Develop, implement and evaluate a sustainable, place-based and mutually beneficial (student and placement site organisation) professional placement program embedded in the UTAS course. This placement program should be prioritised to Tasmanian students.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• There is broad recognition of the importance of practice-based competency development (Work Integrated Learning [WIL]), which is deeply engrained in the culture of EHO training and a legacy from the VET/TAFE training era [C]. • Public Health Services has previously co-invested in (0.25 FTE) in the UTAS EHO Professional Placement Program, but this has been suspended since UTAS discontinued the undergraduate course [C,E]. • There is strong employer support for students in their workplaces (usually Local Government) with a familiarity with the logistical challenges of supporting student placements. There appears scope to expand the settings for student placement (e.g. EPA) [C]. • Tasmanian EHO's consulted expressed a fear of "workload dumping" by the University, which adds work pressures with student supervision, without adequate support and resourcing. This fear reflects past experience with the earlier iteration of the UTAS undergraduate course, which had an inadequately resourced professional placement program [C]. • There is a recognition of the pros and cons of student supervision amongst Officers and strong expectations about the support UTAS and other providers need to provide to limit workload burden and incentivise/recognise Officer contributions [A,C,D]. • There is an expectation that the University develop and sustain support strategies that facilitate a feasible, valuable and sustainable student placement program as a feature of the new UTAS Course [C]. • With the phased withdrawal of local EHO workforce preparation by UTAS since 2017, a number of mainland universities have been sending EHO students to Tasmanian placement sites [C]. • The capacity of Tasmanian workplaces and EHOs to supervise EHO students on professional placements is limited, requiring placement scheduling, planning, support and prioritisation [C,D]. • To encourage sustained investment by UTAS in developing a professional placement/WIL program with partners and academic capacity amongst the EHO workforce, a reasonable assurance that UTAS students will be prioritised for support and placed in WIL will be important [D]. • There is an emerging trend in health professional education towards simulation as a strategy to address caps on placement capacity. Simulation is considered an important pre-cursor and adjunct to WIL, not a replacement [D,E].
Strategy Rationale	UTAS to develop in partnership with stakeholders an adequately resourced placement program that invests in building and sustaining EHO engagement in student supervision, professional placement and competency assessment. This will require investment in: • EHO workforce capacity • EHO upskilling/training in supervision and assessment practices • University recognition of the contribution that EHO's and their employers (placement sites) make to the viability and quality of the UTAS course. The principle underpinning preferencing Tasmanians for Tasmanian workforce preparation opportunities such as WIL placements is consistent with the rationale of training Tasmanians for Tasmanian jobs to enhance recruitment and retention. This does not necessarily mean limiting placement sites in Tasmanian to UTAS students, but to EHO students from Tasmania (regardless of university).
Responsibility	Co-investment by stakeholders (e.g. PHS, LGAT, EPA) will be critical. This investment might include annual budget contributions or in-kind support.

- UTAS – minimum of 0.5 FTE salary contribution to support establishment of practice-based EHO Educator roles, as conjoints with existing EHO employed in Local Councils.
- PHS- 0.25 FTE contribution (as per previous arrangements)
- EPA- 0.25 FTE contribution.
- LGAT- 0.25 FTE contribution to assist coordination across local councils.

Strategy priority 11: Credentialing- clarifying competence for practice as an EHO.

Strategy Recommendation	**To renew the certification to practice system legislatively mandated by the Director of Public Health to be based on individuals completing EHA accredited courses and/or evidence of attaining, retaining and applying *EnHealth competencies* in practice. This renewal should include some accountability mechanism, such as regular audits, to ensure continuing professional development and compliance by employers.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• Under current legislated arrangements the Director of Public Health (Public Health Services) officially credentials or designates individuals who meet certain criteria (qualifications, experience etc) as employable as EHOs in Tasmania [C,E]. • This system (typical in Australian states under various Legislative Acts) empowers the Director of Public Health to approve certain professionals to administer and enforce aspects of the legislation[E]. It is however unusual relative to other health professional employment decisions that are based on applicants having qualifications from accredited universities/institutions and/or experience assessed against position descriptions [D]. • This system appears to be loosely enforced or monitored, with General Managers in local councils assuming responsibility for recruitment [C]. • There is currently no similar arrangement for the employment or credentialing of regulatory officers within the EPA[C]. • There is a noticeable tension between members of the profession who are concerned that recognition of individuals who have not completed specific qualifications as EHOs are being employed to perform EHO functions, and some employers who see defined qualification standards as limiting their recruitment options [C]. • Some regional employers have recruited lesser paid, less specifically qualified staff to perform environmental health technical roles as a pragmatic response to resource limitations, and difficulties in recruiting conventionally qualified EHOs [C]. • There is broad recognition amongst Officers and stakeholders in the Public Health Service that the guidance provided by the Director of Public Health regarding acceptable recruitment standards (qualifications, courses etc) needs updating. • The current system is a point of entry quality check but has no requirement for continuous quality assurance/competence to practice [D]. • Greater integration of employment credentialing and professional responsibilities for continuing professional development is arguably a better system to assures ongoing workforce competency and quality.
Strategy Rationale	Competence to practice should be the defining principle underpinning recruitment of the EHO workforce. A reliance on recruitment of under-qualified staff for the EHO role without appropriate professional supervision risks compromising public health safety and undermines the health protection system. Professional self-regulation is an established quality assurance mechanism in non-registered health professions in Australia. This system requires training organisations/university's to undergo professional body accreditation to demonstrate compliance with profession specific workforce preparation standards. How universities assure graduate attainment of explicit competency standards is a central focus of accreditation processes. This system of quality assurance ensures graduates meet minimum standards of professional competency. It is recognised that not all existing university courses training EHOs in Australia are accredited by the EHA, so some scope for alternative assessment of competency based on evidence of alternative pathways of training or practice experience is recommended. Explicit statement of EHA course accreditation expectations in Tasmanian recruitment will help strengthen the self-regulatory system and make monitoring of credentialing compliance more efficient and transparent.
Responsibility	EHA, Public Health Services, UTAS

Strategy priority 12 and 13: Position descriptions for EHOs and Technical staff supervision guidelines

Strategy Recommendation	**12: To develop EHO position descriptions and duty statements that emphasis comprehensive and proactive health protection and environmental management core functions of EHOs, for state-wide use by employers. This standardises recruitment qualifications aligned to PHS and EPA expectations and provides a mandate for EHOs to extend practices.** **13: To develop guidelines for supervision, role delineation, scope of practice and staff supports for employment of technical staff employed to perform environmental health services.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• Resource restricted limitations on scope of practice amongst the Tasmanian workforce is a significant determinant of workforce career dissatisfaction and turnover, particularly amongst younger EHOs [A,C]. • There is evidence of pragmatic recruitment by Council's for less specifically qualified staff to perform some EHO roles with minimal EHO supervision or oversight [A,C], and with loose application of the credentialing expectations of the DPH [A,C]. This lack of professional oversight compromises the integrity of health protection services provided to rate-payers [D]. • A small number of employers have recruited and supported EHO cadets, supported with EHO oversight and supervision [A,C].
Strategy Rationale	The development and adoption of standardised position descriptions aligned with core function statements and the employment expectations of the Director of Public Health will assist recruitment of EHOs by local councils and help ensure compliance with credentialing (see Strategy Priority 11). It is recognised that in certain circumstances employers may elect to employ staff other than those who meet EHO credentialing criteria to work in environmental health services as technicians. Guidelines for supervision and professional oversight of environmental health technicians provide a quality assurance mechanism and raise expectations about employers responsibilities with respect to ensuring suitably qualified environmental health service provision.
Responsibility	EHA(Tas), PHS, LGAT, EPA

Strategy priority 14: Recognition, remuneration and alignment with the health professions

Strategy Recommendation	**To align EHO remuneration and conditions with those available to Allied Health professionals in the Tasmanian Department of Health (or similar comparable award).**

Situational Assessment
 	
A=Workforce Survey
B=Workload Modelling
C=Stakeholder Consultation
D= Academic Opinion
E= Literature
	• EHOs in Tasmania do not appear to be recruited and remunerated against a specific industrial award that recognises EHOs as health professionals.
	• Lower relative remuneration rates and lower remuneration ceilings (compared to similar career stage planning professionals in local government and other health professionals) is :
	  ○ a significant disincentive for entry to EHO careers (student recruitment) [C,D]
	  ○ a major determinant of staff turnover (loss) and career dissatisfaction amongst EHOs [A,C].
	• There is considerable variability in EHO remuneration rates offered by different employers (particularly in local councils) [A,C].
	• Regional and rural council employers note the difficulty recruiting and retaining EHOs because of higher remuneration offered by larger city-based councils [C].
	• EHOs report remuneration rates being ~$10,000 p.a. less than that required to retain them in EHO careers [A].
	• Realignment of remuneration would best coincide with State-wide workforce consolidation in Strategy 1.

Strategy Rationale	Recognising and remunerating EHOs as health professionals using a state-wide and consistent remuneration schedule, with annual increments and higher rates for management and leadership levels (such as the Allied Health Professionals Public Sector Wages Agreement) would help alleviate the current workforce development impediments associated with inadequate recognition, remuneration and career progression. Having a consistent remuneration schedule would assist recruitment and retention of EHOs to rural and regional councils. Aligning EHO remuneration with the Allied Health Professional Award would result in a higher salary and wages cost for employers (~$10,000 p.a) but this cost would be partly offset by less staff turnover costs. The state-wide impact in terms of additional wage costs amongst the existing EHO workforce would be in the order of ~$500,000 per annum (~50 FTE x $10,000). This additional cost should be a state government investment rather than a local council cost.
Responsibility	EHA, LGAT, PHS

Strategy priority 15: Graduate Entry Program pathways

Strategy Recommendation	**Key employers of the EHO workforce in Tasmania develop a Graduate Entry Program (GEP) to provide a supported pathway to training and work experience in Tasmanian workplaces.**
Situational Assessment C=Stakeholder Consultation	• Providing supported pathways for Tasmanian graduates to develop careers in the Tasmanian community is an important strategic investment evident in some Tasmanian sectors (e.g. EPA's Graduate Program, EHO cadets in some Councils) [C]. • In GEPs, graduates of relevant undergraduate degrees (science, health science, environmental science etc) are employed at entry-point salary levels to work in the employer agency on relevant work and supported 20-30% of the work week to participate part-time in relevant post-graduate study[C].
Strategy Rationale	GEP opportunities tailored to the EHO workforce is likely to be a significant incentive for Tasmanian graduates and this incentive will increase interest in training as an EHO at UTAS. In addition to the work performed by GEP participants in their roles, the return on investment to employers is place-based recruitment and retention of home-grown professionals. This model is successfully used in the EPA and serves as a model of GEP development in other employer agencies.
Responsibility	PHS, EHA, LGAT

Strategy priority 16: A Tasmanian Continuing Professional Development Program for EHOs

Strategy Recommendation	**Develop an annual continuing professional development program in partnership with stakeholders specific to the needs of the Tasmanian EHO workforce, work priorities and emerging competency development needs.**
Situational Assessment A=Workforce Survey B=Workload Modelling C=Stakeholder Consultation D= Academic Opinion E= Literature	• EHOs report good support from employers in local council to participate in CPD, with annual budget allocations to assist CPD participation [C]. • Employers confirm a commitment to investing in EHO continuing professional development, constrained by budget limitations and value propositions relating to available CPD [C]. • Employers indicate a daily CPD cost of $300-$400 as a tolerable price-point, but weigh up other associated costs such as time away from work and travel and accommodation costs [C]. • EHOs value CPD that is conducted in work time, at no personal cost to the EHO, flexible, recognised and interactive [A]. • EHOs who completed the workforce survey reported strongest interest in CPD topics related to getting started in business/consultancy, Health Law and evaluation and research skills [A]. • There is an appreciation amongst stakeholders of the value of face-to-face networking opportunities associated with CPD event attendance, but this is often weighed against costs. The regular EHA organised Symposium held centrally at Campbelltown is valued by EHOs and employers [C] . • On-line CPD is considered a pragmatic solution for low cost EHO participation, particularly amongst those in rural and remote locations [A,C]. • CPD that is pragmatic and focused on developing competencies required to perform core functions or in areas of emerging need (e.g. on site waste water management systems) is considered a priority [C]. • Stakeholders consulted support the potential role of UTAS as a provider and facilitator of place-based CPD for the EHO workforce, particularly given UTAS's capacity to deliver on-line and short-course education but contingent on cost, relevance and quality [C,].
Strategy Rationale	Continuing professional development (or ongoing education and training post entry-to-practice) is an important part of the workforce development lifecycle and the assurance of workforce competency. This strategy suggests that the development of an annual program of CPD tailored to the expressed needs of the EHO workforce, will assist the development of an integrated learning system by UTAS in partnership with local stakeholders. A system that connects workforce preparation with ongoing professional development once Officers are in practice. This program of CPD development should be informed by regular EHO needs assessment.
Responsibility	UTAS, EHA(Tas)

Strategy priority 17: Leadership development

Strategy Recommendation	**A leadership development program to be developed for the Tasmanian EHO workforce with a specific focus on early career EHOs.**
Situational Assessment A=Workforce Survey D= Academic Opinion E= Literature	• The Tasmanian EHO workforce is characterised as being in demographic transition, with an ageing workforce of male EHOs and an increasingly female cohort of young EHOs joining the workforce over the past 10 years [A]. • Leadership development is recognised as a critical component of workforce development strategy. This is particularly so in professions with ageing workforce leadership structures and changing demographics such as the EHO workforce [D,E].
Strategy Rationale	Leadership within the EHO profession in Tasmania will be required to facilitate and implement many of the strategies outlined in this plan, some of which will challenge existing modes of practice. Whilst arguably a component of CPD strategy, a specific leadership development program that involves leadership coaching/mentoring by local exemplars, work-integrated learning and networking with other EHOs in the program (and future alumni), should meet an emerging need.
Responsibility	EHA (Tas), UTAS

Strategy priority 18: Maintain and build professional networks

Strategy Recommendation	**Maintain and strengthen the existing professional network and its activities supported by the EHA.**
Situational Assessment A=Workforce Survey C=Stakeholder Consultation D= Academic Opinion	• The EHO workforce in Tasmania is relatively small, in parts regional distributed and professionally isolated [A]. • The local branch of the professional body (EHA-Tas) serves an important and valued role as a facilitator of professional networking and continuing professional development [C]. • Whilst not all practicing EHOs in Tasmania are members of the EHA, the large majority of the workforce are engaged and benefit from being part of this professional network [C,D].
Strategy Rationale	Professional organisations by default (and by definition) are usually self- sustaining and self-directed organisations that have important member support, quality assurance and advocacy roles. Recognising and leveraging the interest, insights, resources and influence of the professional body in the Tasmanian context is important (as illustrated throughout this strategy).
Responsibility	EHA (Tas)

APPENDIX 1:
ENUMERATING AND PROFILING THE TASMANIAN ENVIRONMENTAL HEALTH OFFICER WORKFORCE

ABSTRACT

Objectives To enumerate and profile the Tasmanian Environmental Health Officer (EHO) workforce, assess core functions(work) and assess current barriers and enablers of EHO workforce capacity.

Methods A self-administered on-line survey was conducted amongst a sample of Tasmanian Environmental Health Officers in Nov-Dec 2019. Purposive and snowball sampling used existing professional network contact lists in order to maximise workforce engagement in the absence of a reliable sample frame. The survey instrument explored questions relating to the worker (demographics, qualifications), workforce organisation (distribution, workplace factors, reporting), work (core functions) and questions relating to workforce development (needs, priorities, training).

Results This survey recruited 55 individual EHOs from across Tasmania, 45 of whom were employed in Local Council roles, representing a response rate of between 60% (head count) and 77% (FTE), based on workforce size estimates provided by Public Health Services (50.7 FTE, 75 headcount at July 2019). It is difficult to estimate the response rate for the whole Tasmanian workforce because there is no reliable estimate available of the total sample frame (and therefore workforce size) for EHOs in Tasmania. Anecdotal estimates from within the profession suggest that there are few (<5) EHOs working in consultancy roles as EHOs (private sector) and there may be EHOs who no longer practice or consider themselves active members of the EHO workforce. Best estimates suggest that the size of the active (designated) EHO workforce in Tasmania as at the end of 2019 was ~60 FTE (1 FTE EHO: 9000 Tasmanians). The average EHO in Tasmania from this sample is female (58%), Bachelor level qualified in environmental health, over 55 years (if male) and less than 40 years (if female), working in a permanent position (87%) in local councils (82%), and working close to full-time (mean 0.85 FTE). The mean years of practice experience in this sample was >13 years, significantly more amongst males. Most EHOs work in a team of other EHOs or Planning staff, report to another EHO and interact most often with other EHOs or Planning professionals. Almost half of this sample reported remuneration less than $80,000 p.a. Over two-thirds of this sample reported current remuneration to be between $5,000-$40,000 (mode $10,000) below remuneration needed to retain EHOs in the workforce for the next 5 years. Less than half of this sample (~43%) reported planning to stay in current roles beyond 2 years. Attributes of the workplace (people, flexibility, autonomy) were the main incentives relating to workforce stability. Reported work functions tended to focus on environmental management and food domains of EHO practice with less frequent work in the public health domain. The greatest reported demand for CPD was in topics relating to private practice/consultancy (future career intentions), health law and leadership. Responses suggest CPD needs to be at no cost to the EHO, flexibly delivered, recognised and interactive.

So what? This survey data provides workforce size and attribute data to inform workforce development strategy prioritisation for Tasmania.

Introduction

Environmental Health Officers (EHOs) are the front-line workforce of the health protection and environmental management system, that part of the public health system that manages risks to public health associated with modifiable environmental risk factors such as air, water and soil pollution, chemical exposure, environmental degradation, climate change and radiation [1-3]. The significance of environmental health on human health status is as relevant today as it has been in the last century, accounting for 15 of the extra 20 years of life gained over this period [4]. This significance has been elevated with the recent COVID-19 pandemic world-wide, that has exposed health system capacity gaps and forced a reconsideration of the folly of ignoring health protection as old public health. Despite being one of the most essential professions for protecting human health, the environmental health profession is under-recognised, overlooked and misunderstood [5]. This is particularly the case in Tasmania, a small population with a significant economic reliance on the tourist economy, which is particularly exposed to risk associated with environmental health and environmental management hazards. The EHO workforce in Tasmania shares many of the attributes and challenges noted in similar workforces in other Australian states and overseas, which contribute to challenges for workforce development and workforce capacity. EHO workforce capacity should be of concern to anyone with an interest in preventing disruption and degradation of population health, the environment, the economy and our collective quality of life.

These workforce attributes and related workforce development challenges have been evident for more than 20 years in Australia [3].

- EHOs are the invisible public health workforce[1], unseen by the broader public if they are doing their job effectively.
- The demographic profile of the EHO workforce has shifted over the past 20 years from middle aged men to now being majority female and either young or nearing retirement[2, 3, 6, 7].
- EHOs work is largely determined by regulatory and enforcement obligations associated with various legal instruments of government (Acts etc). In Tasmania the EHO workforce is the primary regulatory workforce for more than 10 different regulations/Acts, including 3 major Acts that focus on Public Health, Food and Environmental Management and Protection.
- The EHO workforce does not have the capacity to enforce regulatory enforcement workloads. There has been a national shortage of EHOs for the past 20 years nation-wide[3], experienced more acutely in rural and remote communities.
- Local government employers have tended to categorise environmental health as a purely regulatory function, limiting the capacity building role of EHOs in local communities[1].
- EHOs are often the sole qualified public health professional in local government jursidictions[1]
- Local Councils report difficulties recruiting and retaining EHOs, with remuneration levels and classifications inconsistent and inferior to other health and environmental management professions
- There is declining demand/intake for EHO courses, in part due to low awareness of the nature and importance of EHO roles in the health protection and environmental management system.
- A lack of systems-based EHO workforce development strategy across all levels of government, contributing to the limited capacity of the health protection and environmental management system across jursidictions.

The need for a State-wide EHO workforce development strategy for Tasmania escalated in 2018 when the University of Tasmania discontinued its under-graduate EHO workforce preparation program. This triggered an intersectoral collaboration to explore EHO workforce development more broadly than simply being a workforce preparation issue. The need for data about the EHO workforce as a pre-requisite for evidence-based workforce development strategy has been illustrated by the

implementation and reporting of a number of EHO workforce surveys conducted over the past two decades in South Australia [7], Victoria [6, 8] and Queensland [2].

This study sought to explore EHO workforce 'epidemiology' (size, attributes, distribution and determinants of capacity of the workforce) to inform a strategic and targeted response to EHO workforce development in Tasmania.

Methods

Sampling

A mix of purposive and snowball sampling was used in the absence of an existing data-set regarding the size and distribution of the Tasmanian EHO workforce. Recruiting was via email invitations to participate in the on-line survey, distributed to Tasmanian members of the Environmental Health Association Tasmania (EHA), with information about the project. EHA members were encouraged to forward the invitation to colleagues in Tasmania not members of EHA.

Survey development and administration

An on-line survey was co-designed for web-based administration using LimeSurvey by a Statewide stakeholder group composed of senior representatives of major employer and jurisdictional organisations (*Environmental Health Workforce Working Group- see acknowledgements*). This instrument included 33 items collecting data relating to the worker (demographics, location, qualifications, practice experience), the nature of practice (service model, core functions, perceptions of service adequacy) and a range of factors relating to workforce development (remuneration, retention, continuing professional development needs, strategy priorities) and questions specifically exploring attitudes regarding workforce preparation.

Data management

The survey was left open for a 6 week period (Nov-December 2019) and closed once the rate of new submissions stalled (no new submissions in a week as monitored in LimeSurvey). Once closed, data was exported from LimeSurvey into SPSS for analysis.

Analysis

Responses to survey questions have been descriptively analysed, with limited analysis of statistical differences in responses by gender for a limited number of survey items.

Results

Response rate

There is currently limited accurate data that enumerates the existing EHO workforce in Tasmania. Public Health Services routine data collection from Local Councils indicated that as at 30th June 2019 there were 50.7 FTE Environmental Health Officers (EHOs), consisting of 75 individuals employed across the 29 Tasmanian Councils. This figure included 2.4 FTE cadet/trainee EHOs. This workforce survey (Nov-Dec 2019) was completed by 55 individual EHOs, 45 who reported being employed in local councils. This represents a response rate from local council EHOs of 60% (based on headcount using PHS estimates). There was a cumulative FTE of ~39 FTE (mean 0.86 FTE) amongst respondents employed in local councils, representing a 77% response rate (based on PHS FTE estimates). A response rate of 60+ % suggests reasonable sample capture for the EHO workforce based in local council employment.

Age and gender distribution

The EHO workforce in this sample is 58% female, with male EHO's most likely to be 55 year or older and females most likely to be 39 years or less. This proportion of the workforce being female is higher in Tasmania compared to interstate samples conducted previously (refs SA,Vic,QLD) but reflects a trend over the past 20 years in Australia of a feminisation of the EHO workforce associated with increasing professionalisation of the workforce (ref). The age/gender distribution illustrated in Figure 1 suggests an ageing male workforce being replaced over time by an increasingly female workforce.

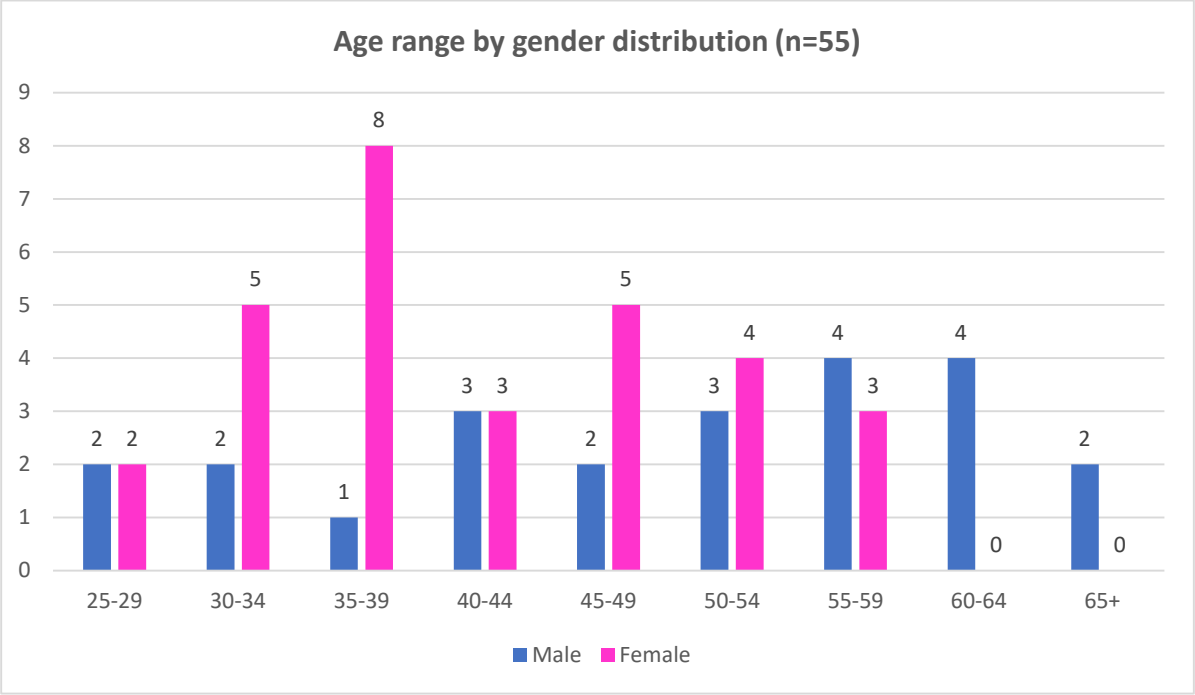

Figure 1: Age and gender distribution, Tasmanian EHO workforce (count).

Employment Status

Almost 9 out of every 10 (87%) EHOs employed in this sample were in permanent positions, with male EHOs being more likely to be in non-permanent roles (Figure 2). EHO's in less secure roles (casual or temporary) were more likely to be 60 yrs+.

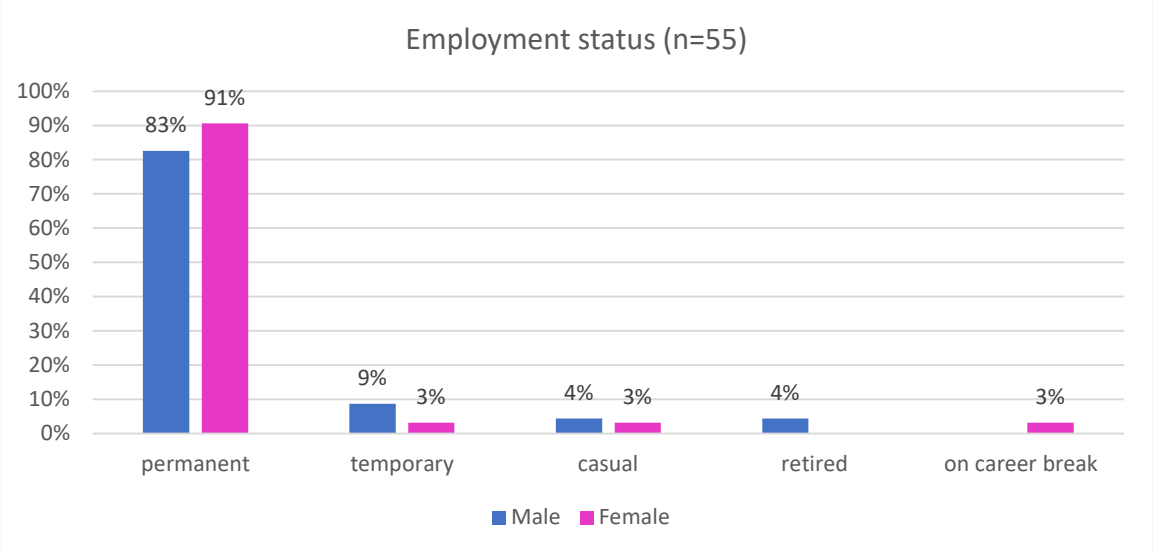

Figure 2: Employment status, by gender

The mean FTE employment fraction (0.85 FTE) did not differ significantly be gender (Independent samples t-test, p=0.91). Sixty-seven percent (37/55) respondents reported to being employed full-time, with females more likely than males to be employed part-time (Chi-square=0.79, p=0.37). This proportion full-time is similar to previous Victorian studies (~60% full-time) (refs).

Years in practice

The mean full-time equivalent years of environmental health practice experience in this sample was 13.7 (+/-10) years, with male EHO's having significantly more (5+ yrs on average) practice experience than female EHOs (Table 1). This difference in part attributable to changing demographics of the workforce (more young females) and career disruptions associated with family care. This sample reported almost 80% of the workforce having greater than 5 years work experience, which was considerably higher than that reported in South Australian and Queensland workforce surveys (63-66%).

Table 1: Mean full-time equivalent years of environmental health practice experience, by gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
How many years have you worked as an Environmental Health Officer	**Male**	23	16.97	12.48	2.6
	Female	31	11.27	7.24	1.3

Independent samples t-test t=2.113, p=0.039

Figure 3 illustrates the gender differences in practice experience by age category.

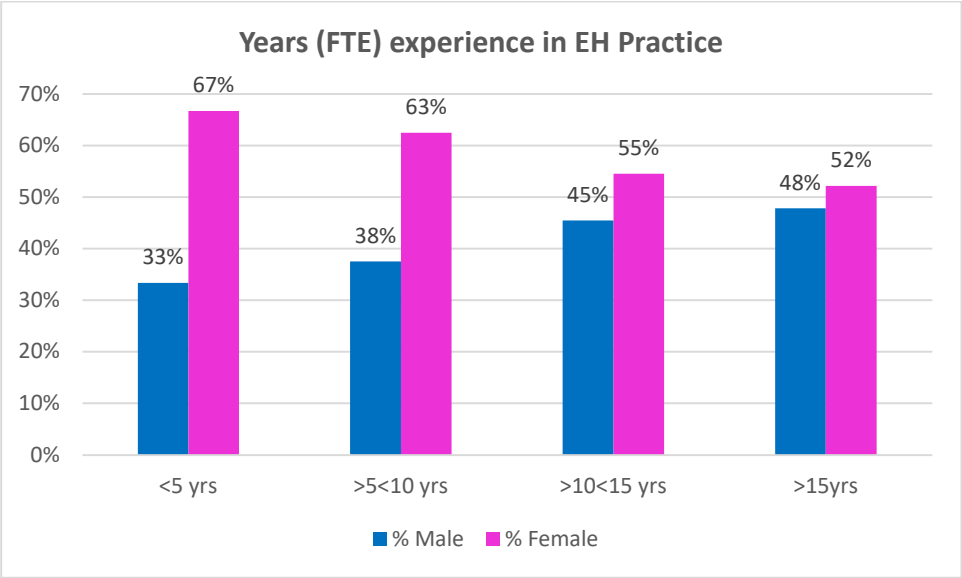

Figure 3: Years practice experience by gender (%)

Leadership positions

There was ~30% (17/55) of the workforce reporting role titles reflecting leadership/management roles in this sample. Male EHOs were over-represented in leadership positions (Senior EHOs, Managers etc), with almost 60% of leadership positions occupied by male EHOs (males 42% of workforce). This may reflect the additional years in practice and age profile amongst male EHOs in this sample.

Jurisdiction of employment

Tasmanian EHOs are predominantly employed in Local Council jurisdictions. There were 8 EHOs in this sample that reported working in State Government (14.5%), with the large majority (>80%, n=45) working in local councils. This reflects the distribution of the EHO workforce in other Australian States (refs).

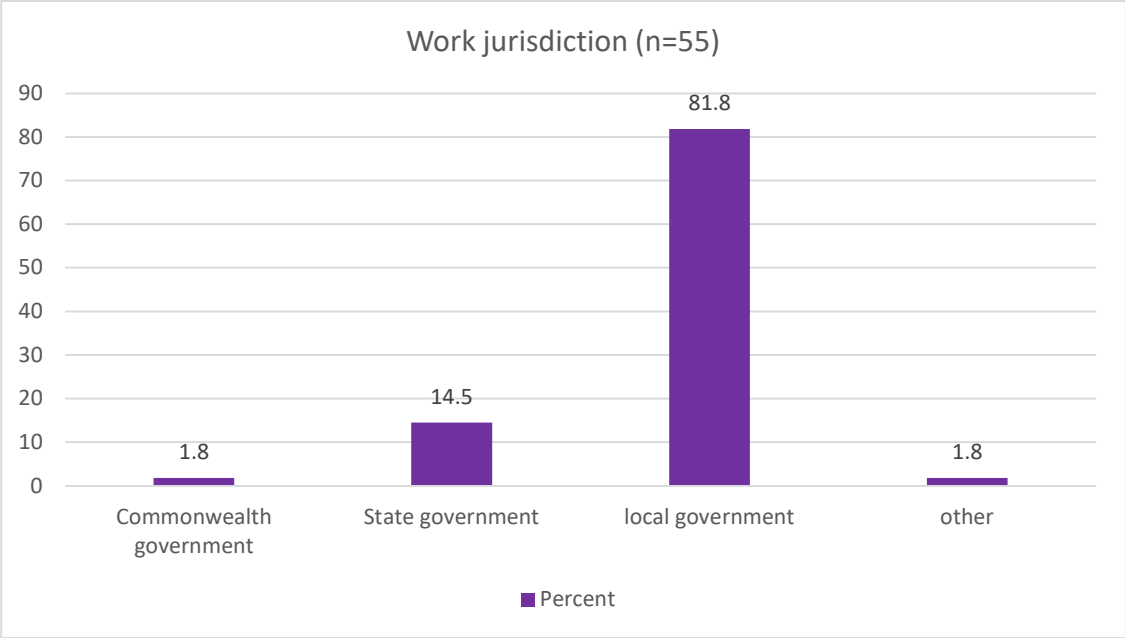

Figure 4: Jurisdiction of employment

Reporting arrangements

Over 60% of all EHO's in this sample had line management reporting arrangements to another EHO (either a senior EHO or an EHO in a broader management role). EHO's reporting to a non-EHO line manager usually reported to more generic managers such as managers of Regulatory Services, Planning or Council General Managers.

Title nomenclature

Environmental Health Officer (EHO) was the most common title nomenclature used by this EHO workforce sample (73%; 40/55). Other titles included Food Safety Management Officer, Environmental Systems Auditor, Public Health Advisor, Food Safety Officer or Technical Officer.

Workplace staff profile

Figure 5 presents workplace team profile descriptions from EHO respondents (n=55). Most reported to be working in a team including other EHOs with the largest proportion working in a multi-disciplinary team including other public health and/or planning staff.

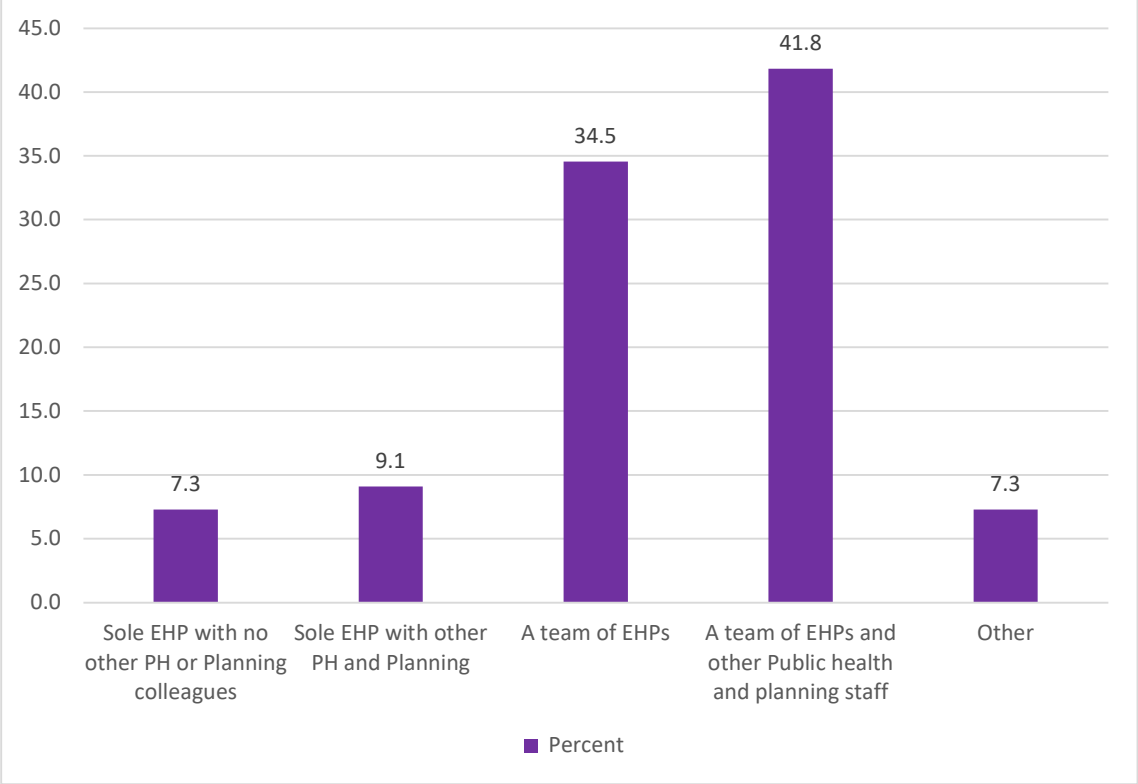

Figure 5: Team profile- composition of work-based colleagues

Workplace staff interactions

EHOs report most regular work-based interactions with other EHOs, Planning and Public Health staff (Table 2). This reflects the workplace team composition common in local councils. Results suggests very limited interactions with academics and limited workplace exposure to technicians and cadets.

Table 2: Frequency of interaction with other workers, by category (n=54)

	n	Daily	Weekly	Monthly	6mths	Rarely if ever
Local Government Councillors	54	1	6	9	17	21
Mayors	54	0	6	7	15	26
Town planners	54	22	19	3	2	8
Other Environmental Health Officers	54	40	6	3	5	0
Environmental Health Cadets	54	6	1	3	16	28
Environmental Health Technician	54	0	0	6	5	35
Local Council Health and Wellbeing Staff	54	1	12	5	15	21
Environment Protection Agency staff	54	0	3	25	20	6
Public Health Services staff	54	4	4	35	9	2
Academics	54	2	2	5	17	28

Remuneration

Figure 6 presents the distribution of annual remuneration amongst survey participants who answered this question (45/55). 6 respondents indicated that they preferred not to answer this question. Only 1 respondent reported earning more than $160,000, with almost half (49%) earning less than $80,000 pa. Whilst not statistically significant (chi-square, p=0.79), female EHOs were more likely to be earning below $100,000 pa than males. This difference can not be explained by differences in worked hours or employment fraction.

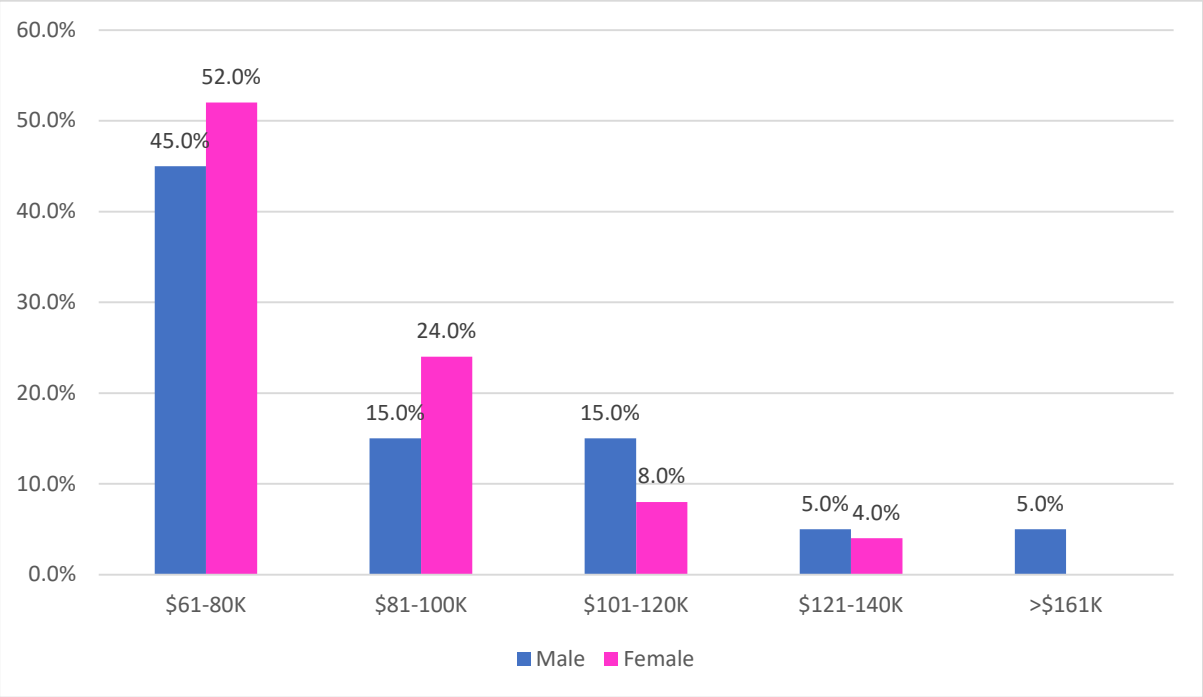

Figure 6: Remuneration distribution, by gender

Paid versus unpaid work hours

The average weekly hours in paid worked reported by this sample was 32.16 +/- 11.7 hrs. There was no significant differences by gender (independent samples t-test, p=0.12).

Over half of this sample (53%) who responded to a question on estimated weekly unpaid work (51/55), reported to be doing no unpaid work. The mean estimate of hours per week performed unpaid (i.e. above FTE hours but not remunerated) was 1.8 hrs per week across the whole sample but 3.7 hrs per week amongst EHOs (n=24, 47%) who indicated doing unpaid hours. Across the whole sample there was a total of 89 hrs per week (equivalent to ~2.3 FTE) of unpaid overtime performed.

Workforce stability

Almost two-thirds (64%) of the sample reported to plan to stay in EHO roles in the foreseeable future or at least the next two years, with no apparent differences in intentions by gender. This suggests greater workforce stability than reported in South Australia a decade ago (ref SA 2010). Just under 10% (9.1%, n=5) reporting they planned to change jobs in the next 12 months.

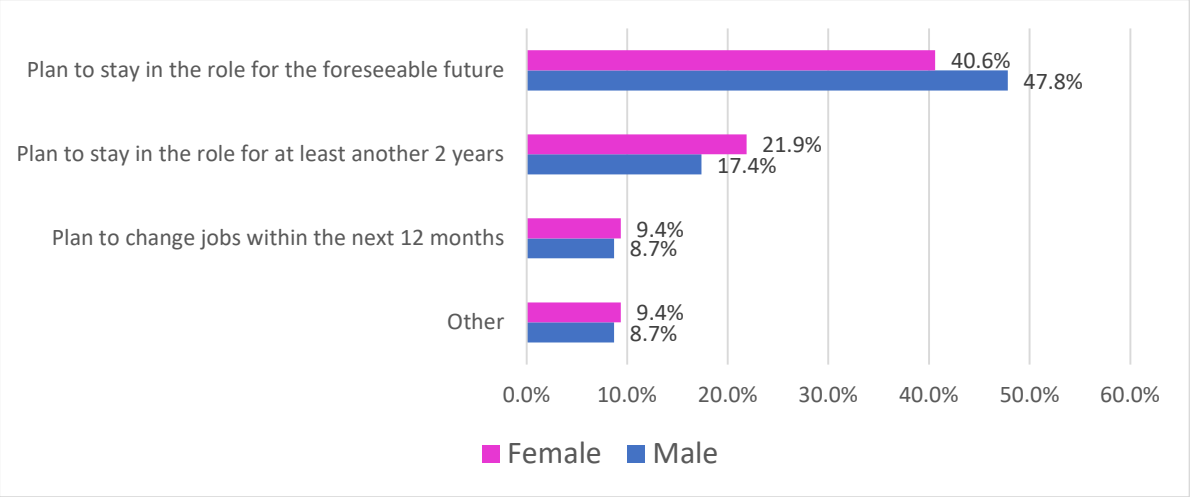

Figure 7: Workforce turnover intentions, by gender (n=45)

Extra remuneration required for retention

Over two thirds (67%) of the sample responded to a question asking how much extra annual remuneration would be required to retain EHO's in the workforce for at least the next 5 years. The most common response was $10,000 p.a. additional to current remuneration, with a range of $5,000-$40,000 p.a.

Incentives and disincentives for workforce retention

Table 3 presents the response distribution for questions that asked EHOs in this sample to rate workforce retention items on a 10 point disincentive/incentive scale. Items that reflect workplace culture (people I work with, autonomy in role, managers support, flexible work arrangements) were reported as the main retention incentives. Disincentives for retention related to excessive workload, stress, career progression opportunities (lack of) and lack of recognition.

Table 3: Incentives and disincentives for workforce retention

	n	Major Disincentive	Neither	Major Incentive	Balance
Pay rate	16	2	10	4	2
Manager's support	14	2	4	8	6
The people I work with	15	1	2	12	11
Autonomy in my work role	10	1	3	6	5
Flexibility in work arrangements	11	1	3	7	6
Opportunities to do research	21	3	18		-3
Opportunities to apply leadership	14	2	10	2	0
Opportunities to expand my scope of practice	11	4	6	1	-3
Opportunities to work in interdisciplinary teams	14	3	9	2	-1
Recognition of my role	13	5	5	3	-2
Training opportunities	11	2	5	4	2
Stress in the job	19	7	10	2	-5
Career progression opportunities	17	6	9	2	-4
Recognition of EHO role	12	5	5	2	-3
My work environment	17	2	8	7	5
My workload	17	5	8	4	-1

Core work functions

Tables 4-6 present responses to questions exploring frequency of work against a list of EHO functions.

Based on the proportion of respondents reporting weekly or more frequent activity it appears that the average weekly workload in this workforce will involve a combination of:

- Development Approvals/Building Approval Assessments
- Pollution complaints
- On-site Waste Water Management Systems
- Food business inspections
- New food business registrations
- River water quality management
- Temporary food business applications
- Policies and Procedures
- Planning and reporting.

The functions tended to focus on the environmental management and food areas of environmental health practice.

It is noticeable that public health functions in this list are reported to be infrequent components of this workforce's core function activity, with 50% of items listed being rare work activities by >50% of respondents

Table 4: Frequency of work in areas of environmental health practice: Emergency Management and Environment (n=49)

n=49	% weekly or daily	Daily	Weekly	Monthly	Less than monthly	Rarely / If ever
Emergency management						
Emergency planning and preparedness	4	2%	2%	20%	39%	37%
Emergency response and recovery	4	2%	2%	14%	33%	49%
Municipal Public Health Planning	10	2%	8%	14%	35%	41%
Environment						
Biosecurity	6	2%	4%	4%	20%	**69%**
Contaminated sites assessment and management	10	6%	4%	14%	47%	29%
Petrol Stations	0	0%	0%	2%	49%	49%
Developmental Approval/Building Approval assessments	**72**	41%	31%	4%	12%	12%
Pollution complaints (including air, noise, light, unkept property, vibration, pests)	**68**	33%	35%	14%	10%	8%
Vector Control	6	2%	4%	8%	31%	**55%**
Dump Management	6	0%	6%	8%	22%	**61%**
Litter management	6	0%	6%	18%	31%	45%
On-site Waste Water Management Systems	**53**	33%	20%	14%	18%	14%
Sewer /Pump Station Overflows	4	0%	4%	16%	41%	39%
Effluent management (dairy)	0	0%	0%	6%	2%	**71%**
River water quality management	43	14%	29%	27%	8%	22%

Table 5: Frequency of work in areas of environmental health practice: Food, Administration and Education (n=49)

n=49	% weekly or daily	Daily	Weekly	Monthly	Less than monthly	Rarely / If ever
Food						
New food business registrations	43	14%	29%	27%	8%	22%
Food Business Inspections	**55**	31%	24%	12%	10%	22%
Food Business Enforcement (Improvement Notices, Prohibition Orders etc)	12	6%	6%	27%	33%	29%
Food and food business complaints	22	4%	18%	27%	24%	27%
Food poisoning complaints and management	8	2%	6%	35%	22%	35%
Temporary Food Business Applications	37	8%	29%	29%	6%	29%
Form 49/50 Assessments	16	6%	10%	14%	41%	29%
Public/ community food safety training and education	2	0%	2%	10%	41%	47%
Admin						
Budgeting, fees, invoices and purchases	26	12%	14%	18%	12%	43%
Human Resource Management	22	12%	10%	6%	12%	**59%**
Planning and reporting	34	12%	22%	18%	16%	31%
Policy and Procedures	36	20%	16%	12%	27%	24%
Legal matters (notices, legal actions, court proceedings)	16	6%	10%	16%	16%	**51%**
Education						
Education/training others	22	8%	14%	14%	27%	37%
Student EHO supervision	6	4%	2%	12%	20%	**73%**
Personal continuing education	14	10%	4%	20%	33%	33%
Research	20	8%	12%	14%	14%	**51%**

Table 6: Frequency of work in areas of environmental health practice: Public Health (n=49)

n=49	% weekly or daily	Daily	Weekly	Monthly	Less than monthly	Rarely / If ever
Public Health						
Animal Management	10	4%	6%	2%	22%	**65%**
Clandestine drug lab investigation and response	0	0%	0%	0%	8%	**92%**
Dangerous Goods	0	0%	0%	2%	18%	**80%**
Drugs/Poisons	0	0%	0%	0%	22%	**78%**
Drinking water contamination (public supply) investigation and response	2	0%	2%	4%	39%	**55%**
Drinking water quality management	0	0%	0%	12%	39%	49%
Immunisation	10	0%	10%	24%	31%	35%
Notifiable disease investigations	4	2%	2%	22%	51%	22%
Private burial applications and exhumations	2	0%	2%	4%	35%	**59%**
Private water supplier carriers	4	0%	4%	8%	43%	45%
Public Events and Markets	2	2%	2%	31%	45%	20%
Public Risk Activities (tattooing, ear and body piercing, acupuncture)	8	6%	2%	24%	37%	31%
Regulated Systems assessments and inspections	4	4%	0%	10%	41%	45%
Public Swimming pools/ Spas and Recreational water	16	4%	12%	27%	27%	31%
Sharps Disposal	8	0%	8%	24%	22%	45%
Smoke-free areas	10	2%	8%	6%	24%	**59%**
Health Promotion	10	6%	4%	2%	33%	**55%**
Health Education (community)	12	4%	8%	6%	27%	**55%**

Highest Qualification in Environmental Health

Figure 8 indicates a distinct gender difference in level of environmental health qualification in this workforce sample, with females more likely to have completed bachelor degree level qualifications or higher, than males. This reflects the age (see Figure 9) and years of practice differences between genders in this workforce and the shift from VET/Vocational to University workforce preparation.

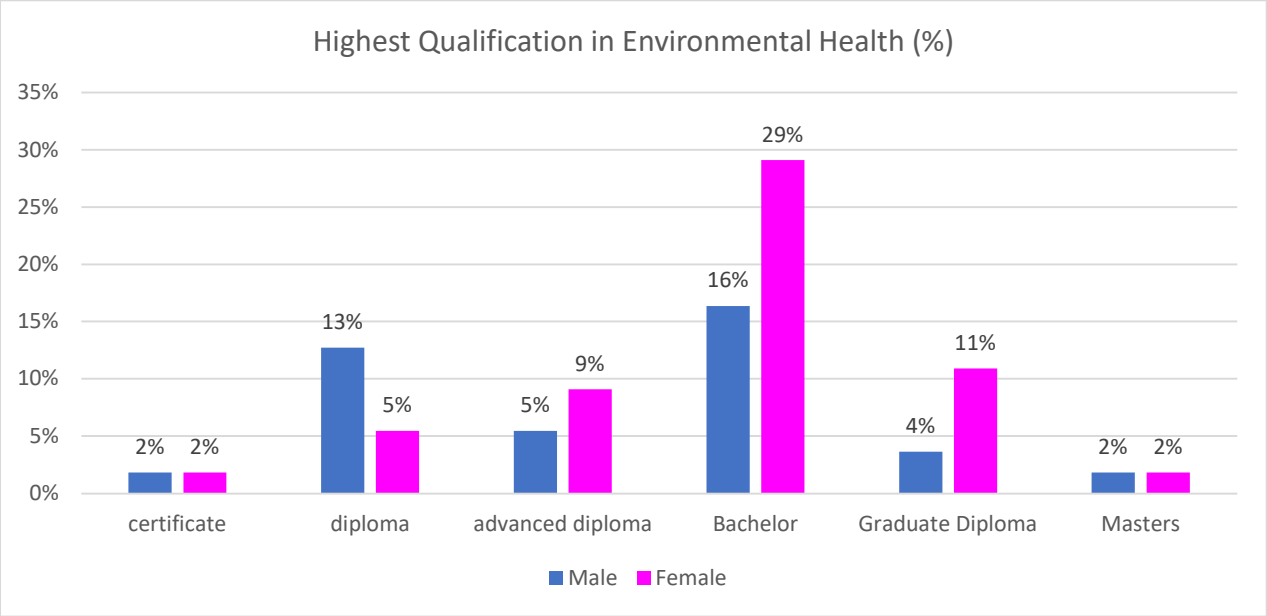

Figure 8: Highest qualification in Environmental Health, by gender

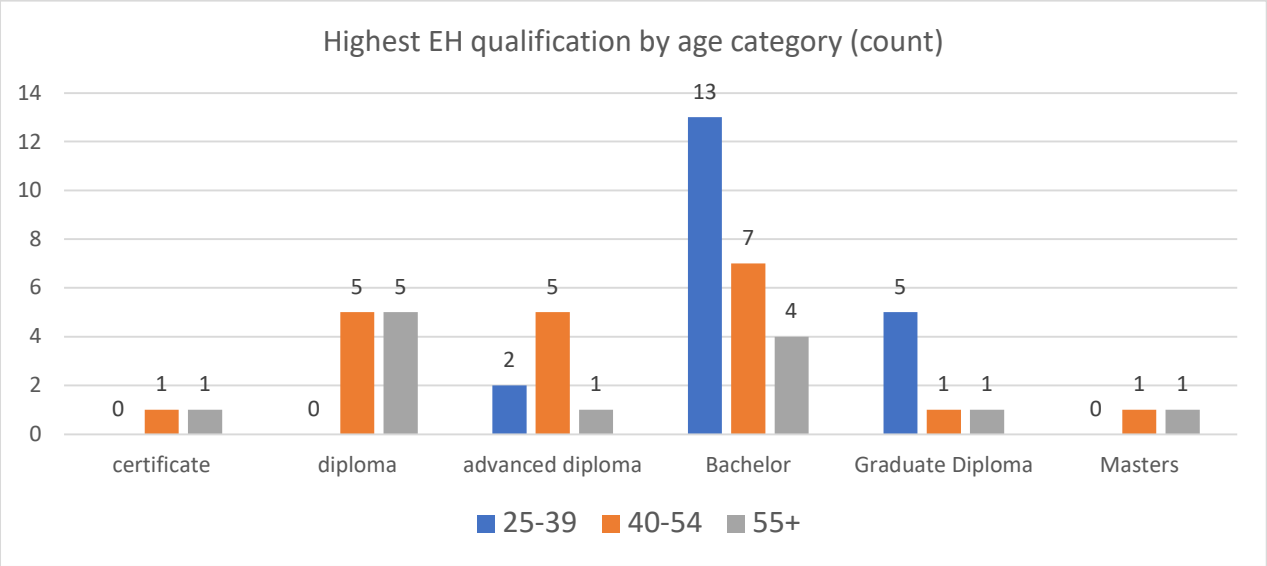

Figure 9: Highest qualification in Environmental Health, by age category

Highest other qualification (post EH)

Figure 10 presents the distribution of other qualifications completed by a high proportion (70%) of this EHO workforce sample. Male EHO's were more likely to have completed other studies (74%) than females (65%) which is probably attributable to stage of career and/or years of practice differences. Of note is the relatively low number who have progressed to post graduate studies.

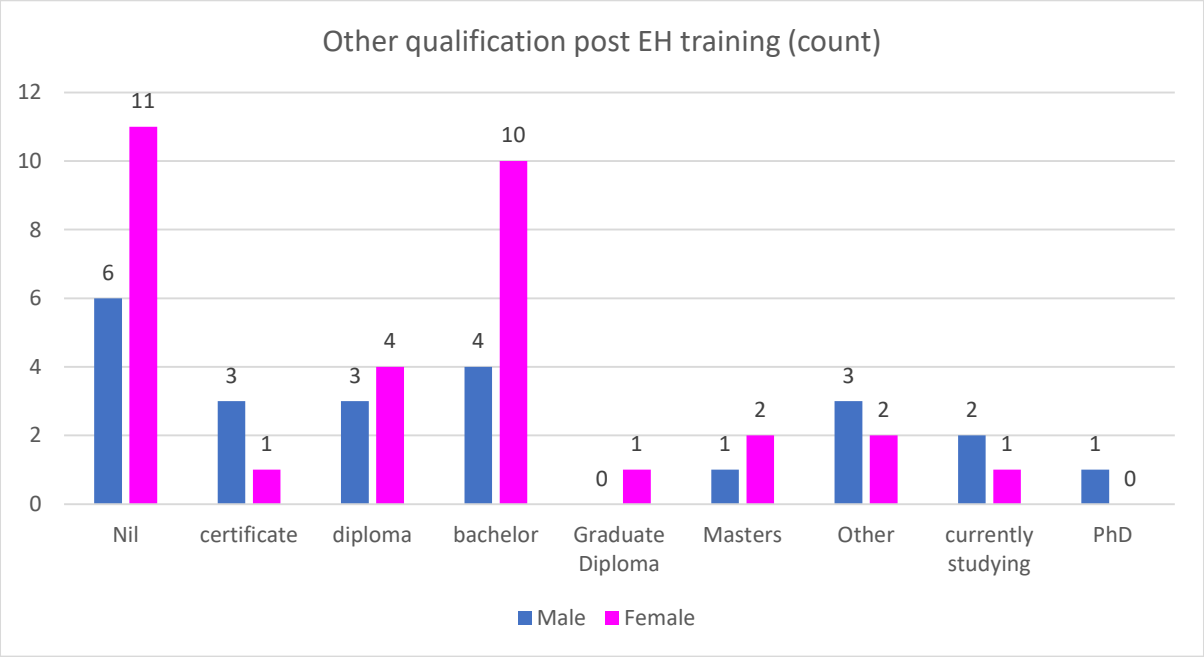

Figure 10: Number of existing workforce with other qualifications (additional to Environmental Health)

Mentoring

There is at least a third of the EHO workforce actively engaged in mentoring other EHOs (Figure 11) and a group of EHO's who would like to become mentors.

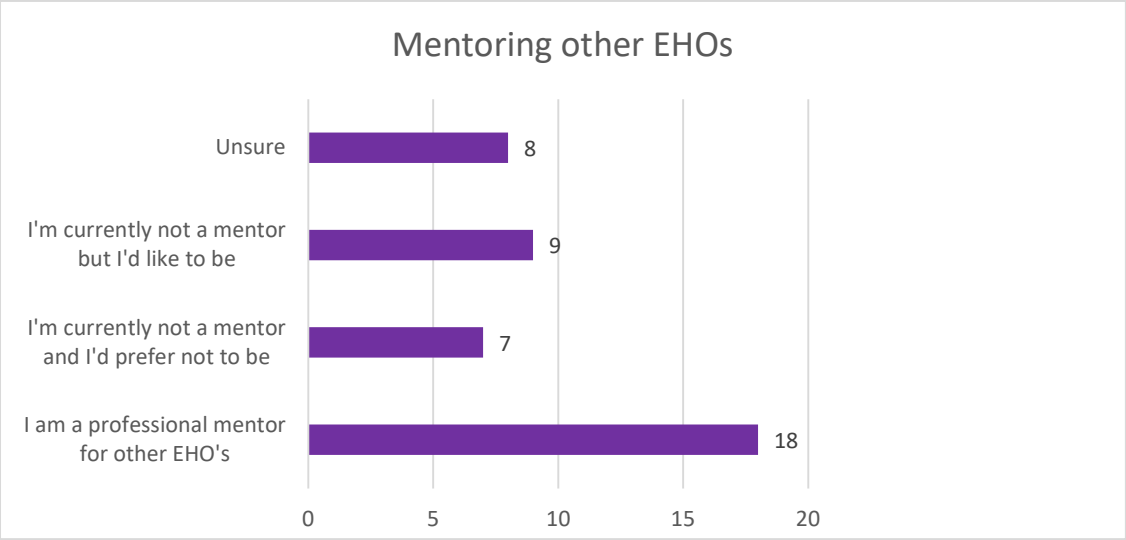

Figure 11 Current mentoring involvement amongst EHO workforce (n=42)

Areas of continuing professional development need

A limited number of the workforce (n~20; ~36%) participating in this survey completed questions relating to continuing professional development (CPD), so caution needs to be exercised in interpreting the representativeness of this data across the workforce. It does however provide some insights about interests and desirable attributes of CPD.

Table 7 presents response distributions for interest ratings on a 0-10 point scale (0=no interest, 10= Great interest) for a battery of CPD topics.

The largest number of respondents expressed mid-great interest in getting started in private practice and business skills for consultancy. Leadership skills and Health Law rated the highest average interest score amongst topics tested.

Table 7: Interest ratings for CPD topics

	n	no interest	mid interest	great interest
Getting started in private practice (consultancy)	29	6	17	6
Business skills for consultancy	24	6	12	6
Leadership skills	17	0	8	9
Health Economics	17	3	11	3
Health Policy	17	2	11	4
Media Advocacy Skills	19	3	12	4
Health Law	18	1	7	10
Planning prevention programs	14	1	9	4
Health Service Evaluation	20	2	14	4
Building Community Capacity for Prevention	18	3	10	5
Writing submissions to access resources	21	5	13	3
Systems Thinking	18	1	13	4
Supervising Environmental Health Students in Practice	20	4	14	2
Mentoring junior colleagues	17	4	11	2
Getting started in research	22	6	12	4
Grant writing workshops	21	6	14	1

Desirable attributes of CPD

Figure 12 presents response distributions (counts) for different CPD attributes based on a 0-10 importance rating scale. The strongest support was for CPD that was conducted in work time, at no personal cost to the EHO, flexible, recognised and interactive.

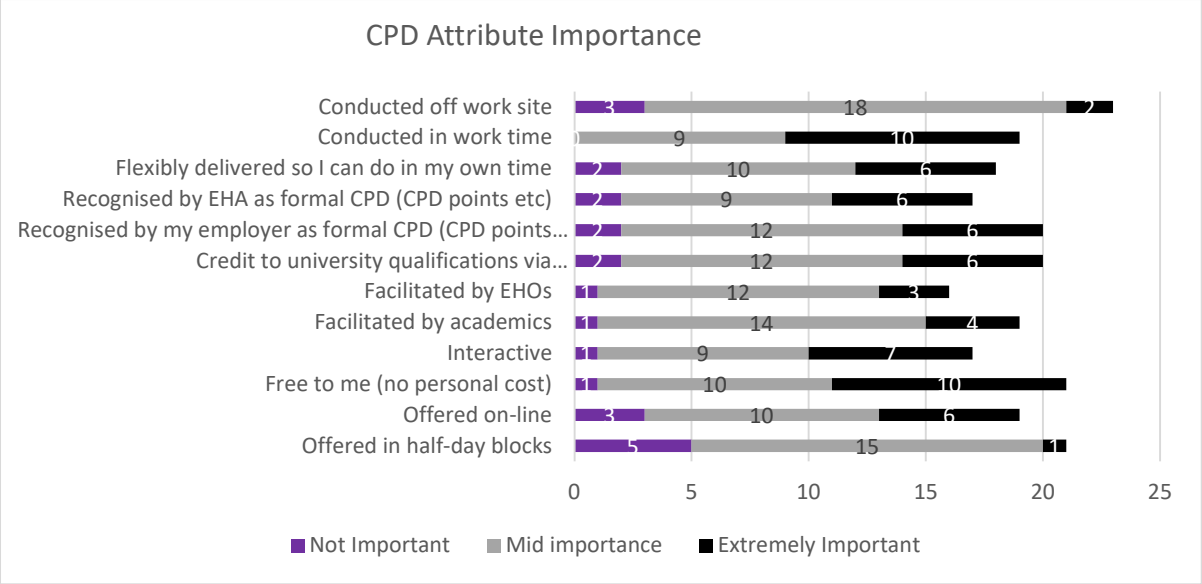

Figure 12: CPD Attribute Importance

Workforce development priorities

Figure 13 presents response distributions(counts) for priority ratings for a range of workforce development strategies. The was strongest support amongst respondents for a statewide CPD program, consistent remuneration with other health professionals and amongst EHOs.

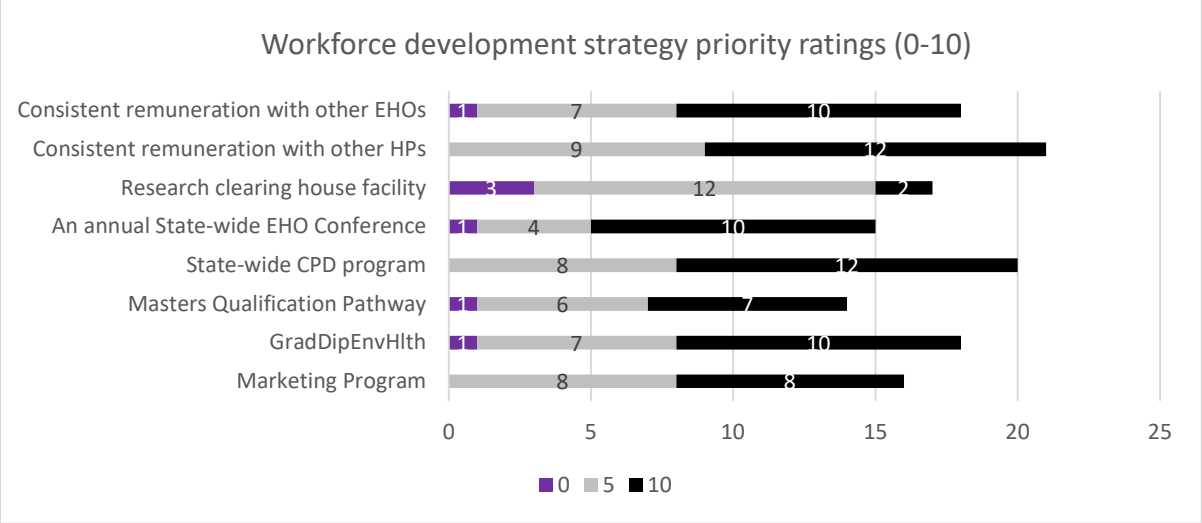

Figure 13: Workforce development strategy priorities

Training Environmental Health Officers

To test attitudes amongst EHOs relating to EHO training (workforce preparation), respondents were asked to rate on a 5 point likert scale their level of agreement with a range of training related statements (Table 14). Data suggests that there is strong support and recognition of the role that Tasmanian EHO's play in developing the Tasmanian EHO workforce, that training EHO's in Tasmania is critical for EHO workforce recruitment and retention in Tasmania and that EHO's rate themselves as having the competencies required to effectively mentor student EHO's. There was little support for having more than 1 student on placement at any given time.

Table 14: EHO level of agreement with EHO training statements

Statement	n	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	%Agree+
Training EHO's in Tasmania is critical for the recruitment and retention of the EHO workforce in Tasmania	42	0	2	4	15	21	86%
I personally have an interest in mentoring student EHO's in my practice as part of a student placement program	42	4	1	16	18	3	50%
Having a student under my supervision in my practice will enhance my own job satisfaction	42	4	3	14	19	2	50%
Having a student under my supervision in my practice will increase my stress levels	42	4	6	19	12	1	31%
I believe I have the competencies required to effectively mentor and teach student EHO's on placement	42	3	4	6	25	4	69%
Having a student under my supervision in my practice will enhance the profile of environmental health services	42	3	4	14	18	3	50%
Having 2 students on placement at any time will be more manageable than a single student	42	8	22	10	2	0	5%
Having students on placement for significant blocks of time (2 weeks or more) will be more useful than shorter placements (a few days)	42	3	9	8	16	6	52%
Practicing Tasmanian EHO's have an important role to play in developing the Tasmanian EHO workforce	42	0	0	4	21	17	90%

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APPENDIX 2:
ENVIRONMENTAL HEALTH OFFICER WORKFORCE DEVELOPMENT CHALLENGES AND STRATEGY PRIORITIES IN TASMANIA: A STAKEHOLDER CONSULTATION

ABSTRACT

Objectives This study sought to explore the insights, attitudes and expectations of key workforce development stakeholders such as employers, senior environmental health officers (EHOs), leaders within relevant Agencies and the Profession about the EHO core functions (the work), workforce development challenges/needs and strategy priorities.

Methods This study utilized semi-structured qualitative interviews conducted in person, by telephone and by video-call (zoom). Interviews were conducted in two phases targeting different stakeholder categories, including operational stakeholders involved in the day-to-day management and delivery of environmental health services (Phase 1: November-December 2019) and policy stakeholders, key informants involved in institutional and state-level environmental health related policy (Phase 2: June-July 2020). Operational stakeholders where purposively sampled from a selection of Tasmanian Local Councils from City, Regional and Small Council category types sampled from the 29 local Councils across Tasmania. Stakeholders were invited to participate in interviews via email using publicly accessible contact lists of staff employed in Tasmanian Local Councils (General Managers, Directors, Senior EHOs). Policy stakeholders in institutions at a Statewide level, such as the Environmental Protection Agency (EPA), Public Health Services (PHS), Local Government Association Tasmania (LGAT) and the Tasmanian Branch of the Environmental Health Association (EHA) were invited to participate in consultation interviews structured around specific workforce development lines of inquiry. Interviews were audio-recorded, transcribed verbatim and thematically analysed.

Results Twenty one (21) interviews (15 phase 1, 6 phase 2) involving 24 stakeholders (3 interviews with 2 stakeholders) were conducted distributed across 14 face-to-face interviews, 5 video-call and 2 telephone interviews. Stakeholders consulted included 11 operational managers at local council level, 7 practitioners (EHOs) and 6 state wide policy officials. Representation was from 7 local councils including Launceston City Council, Hobart City Council, Dorset, Sorell, Huon, Meander Valley, West Coast and Burnie. Phase 2 policy stakeholders represented the EPA, LGAT, EHA and Public Health Services. Thematic analysis identified a number of themes and subthemes and a considerable degree of thematic tension (differences in opinion and emphasis) amongst different stakeholders. These included the invisibility of EHOs, evolving and expanding work responsibilities not matched with investments in workforce growth, problems with capacity to enforce legislative responsibilities (particularly EMPCA) and a fundamental lack of workforce capacity associated with inadequate EHO numbers. There was a recognition amongst phase 2 consultations and in the context of resourcing constraints and disruption imposed by the COVID-19 pandemic, that many of the workforce challenges identified relating to workforce monitoring, recruitment, retention, continuing professional development and surge capacity could be addressed by structural reorganisation of the existing workforce.

Introduction

Leadership, support and insight amongst employers, professional leaders, educators and other decision makers (hereafter referred to as key stakeholders) are critical determinants of workforce development progress relating to public health. Key stakeholders are important cogs in the machine of a systems-approach required to build public health capacity [1] and can act as facilitators and barriers to workforce development. They are also primary sources of intelligence relating to workforce development needs, strategy options and the feasibility of strategies in the localised context. In addition to developing understanding, stakeholder consultation in the context of exploring workforce development needs, options, priorities and feasibility, also serves to actively engage key decision makers in the thought leadership required to progress and advocate for workforce development initiatives and to take some ownership of the strategies.
This study sought to explore the insights, attitudes and expectations of key workforce development stakeholders such as employers, senior environmental health officers (EHOs), leaders within relevant Agencies and the Profession about the EHO core functions (the work), workforce development challenges/needs and strategy priorities.

Methods

This study utilized semi-structured qualitative interviews conducted in person, by telephone and by video-call (zoom).

Interviews were conducted in two phases targeting different stakeholder categories, including:

- operational stakeholders involved in the day-to-day management and delivery of environmental health services (Phase 1: November-December 2019) and
- policy stakeholders, key informants involved in institutional and state-level environmental health related policy (Phase 2: June-July 2020).

The first phase consultation occurred before COVID-19 disruption and phase 2 consultation after the initial few months of the pandemic. Operational stakeholders where purposively sampled from a selection of Tasmanian Local Councils from City, Regional and Small Council category types sampled from the 29 local Councils across Tasmania. Stakeholders were invited to participate in interviews via email using publicly accessible contact lists of staff employed in Tasmanian Local Councils (General Managers, Directors, Senior EHOs). Policy stakeholders in institutions at a Statewide level, such as the Environmental Protection Agency (EPA), Public Health Services (PHS), Local Government Association Tasmania (LGAT) and the Tasmanian Branch of the Environmental Health Association (EHA) were invited to participate in consultation interviews. The initial email provided information about the study (including ethics approval and process) and explored interview method preference (face-to-face, phone, Zoom). The phase 1 and 2 semi-structured interview protocol was based on an inquiry logic mapped in Table 1. Probing questions were used to explore issues raised in the consultation.

Interviews were audio-recorded and transcribed verbatim. Transcripts where complemented with field notes taken by the interviewers in real-time and both data sources cross-checked in analysis. Verbatim transcripts where thematically analysed using a six-step recursive process that included data familiarization, generating initial codes, searching for themes, reviewing themes, defining and naming themes and report drafting[2]. An additional step of researcher triangulation was added to this process, involving two researchers independently coding and thematically analysing transcripts and then sharing, comparing and developing agreement about themes and the contextual relevance to workforce development.

Table 1: Stakeholder consultation questions foci (Inquiry logic)-questions asked in each phase

Foci	Question	Phase
Core functions	What do you see as the core (essential) EH services for your Council?	1
Workforce model	How does your local government area organise their EH services currently?	1
Recruitment and Retention	Can you tell me about your Council's past experiences with recruitment and retention ?	1
WFD Strategies	From your perspective, what kind of strategies are needed to support the EHOs deliver required services (in this Council?	1
Surge capacity	How well prepared would you say your council (EH workforce) is to respond to a major environmental health incident?	1
CPD	Does your organisation provide CPD to build workforce capacity? What sort, how accessed?	1
Training students	Do you see a role for EHOs employed in your council in the training of EHO students	1
Workforce development challenges	What are the major workforce development challenges for the EHO workforce?	2
Strategic priority	What are the strategic priorities for EHO workforce development?	2
COVID-19 impact	How will COVID-19 impact on EHO workforce development?	2

Results

Twenty one (21) interviews (15 phase 1, 6 phase 2) involving 24 stakeholders (3 interviews with 2 stakeholders) were conducted distributed across 14 face-to-face interviews, 5 video-call and 2 telephone interviews. Stakeholders consulted included 11 operational managers at local council level, 7 practitioners (EHOs) and 6 state wide policy officials. Representation was from 7 local councils including Launceston City Council, Hobart City Council, Dorset, Sorell, Huon, Meander Valley, West Coast and Burnie. Phase 2 policy stakeholders represented the Environmental Protection Agency, Local Government Association of Tasmania, Environmental Health Australia and Public Health Services.

Table 2 summarises the key themes and sub-themes from the analysis of interview transcripts, including emphasis provided by key stakeholders in the phase 2 consultation. Themes that involved tensions amongst responses (i.e. differences of opinion and/or heightened emphasis) are highlighted in Table 2.

Table 2. Thematic analysis summary *(Tensions **)*

Theme	Sub-theme	Phase 2
Phase 1 consultation		
Invisibility	Low recognition of the role, utility and importance of EHO work/workforce. **	✓
Work is evolving	Regulatory enforcement as primary function	
	Workloads dictated by legislative responsibilities exceeds workforce capacity**	✓
	"Responsibility creep"- evolving and expanding responsibilities not matched by workforce growth.**	
	Reactivity versus proactivity in terms of work emphasis, under-utilisation in upstream prevention.**	
	EHO's as "meat in the sandwich"- wedged between regulatory and political pressures at a local level.**	✓
The problem with EMPCA	Inadequacy of EMPCA as an enforceable Act given ambiguity ('best endeavours') and limited workforce capacity.**	
	Tension re environmental management functions in environmental health officer workloads**	✓
Recruitment	Historical difficulties recruiting EHOs masked by recent workforce stability**	
Retention	"Poaching" EHOs by city-based employers reflects retention challenges: more money, career pathways and amenity.**	
Local workforce	Strong preference for in-house and locally based EHOs at odds with inefficiencies with a thinly spread workforce.**	
CPD	Strong employer support for investing in staff CPD vs cost impediments relating to travel/accommodation.**	
	Support for profession and agency delivered CPD, relevant and integrated with work	
	Need for leadership and workforce transition planning	✓
Students	Managers support, practitioners cautious.**	
Phase 2 consultation		
Challenges	Size matters**	
	Profile, awareness, invisibility	
	Workforce funding models constrain growth	
	Unequal distribution and service	

	Disconnect between jurisidictions	
	Surge capacity is overstated	
Priorities	Building academic capacity and local workforce preparation	
	Promoting EHO role awareness	
	Core functions review-particularly in terms of EMPCA	
	State-wide workforce coordination-new model	
COVID-19 impacts	Capacity to respond limited (low surge)	
	EHOs ideally placed in local communities to be first responders given training and location**	
	Too early to tell	

Tension = when differences in responses from different stakeholder category relate to the same theme and/or there is incongruence between sub-themes .

Invisibility

Practitioners (phase 1) and Phase 2 stakeholders identified the lack of EHO role awareness amongst the general public and policy makers, and that this was a barrier to a range of workforce development issues, including pay-scales, recruiting students to EHO training and careers and retention. This "invisibility" was a source of frustration amongst EHO's and concern amongst Phase 2 stakeholders.

Core functions (the Work)

There was widespread recognition of the **regulatory enforcement** responsibilities of EHOs in Local Councils, largely relating to responsibilities under ten or more regulatory instruments dominated by the Food Act 2003 (https://www.legislation.tas.gov.au/view/html/inforce/current/act-2003-008), Public Health Act 1997(https://www.legislation.tas.gov.au/view/html/inforce/current/act-1997-086) and the Environmental Management and Pollution Control Act 1994 (EMPCA) (https://www.legislation.tas.gov.au/view/html/inforce/current/act-1994-044) issued by the State Government.

This regulatory function was recognised as an important but **reactive** responsibility with EHO workloads, often driven by complaints processes rather than proactive preventive actions (such as surveillance, education, early intervention). General Managers interviewed had a good understanding of these regulatory responsibilities and generally understood the under-utilised potential role of EHOs being more proactive in their work. This **reactive-proactive imbalance** was a source of frustration amongst younger practitioners interviewed, even contributing to risks with retention within the EHO workforce (job dissatisfaction).

Stakeholders identified the difficulties/tensions of being responsible for local regulatory enforcement (as mandated by State Acts) but having to manage the local politics of elected members, lobbying by developers and significant resource constraints. These difficulties described EHO's as being "meat in the sandwich" or working in an environment of "conflicted interests".

Stakeholders recognised the evolving and expanding responsibilities of EHOs and the limited capacity to service these.

EMPCA

There was considerable commentary and thematic tension from key stakeholders relating to servicing EMPCA, in terms of ambiguity regarding enforcement ("best endeavours"), the capacity of the EHO workforce to service the Act at a local level and the lack of actual regulatory enforcement performed relevant to EMPCA in Local Council jurisdictions.

Surge capacity

Managers in Local Councils generally reported adequate surge capacity amongst their EHO workers/workforce to respond to local environmental health and/or environmental management incidents, mostly via prioritising work and "teaming up". Practitioners involved in day-to-day workload management however where less confident about surge capacity and phase 2 stakeholders expressed major doubts about surge capacity.

Workforce stability

Difficulties recruiting EHO's was a common reported theme in the context of historical workforce challenges, however this was somewhat at odds with the reported stability of the workforce over the past 5-10 years.

It was broadly accepted that having a local supply of EHO graduates in Tasmania (and participating in EHO training placements) in Local Councils had assisted recruitment in the past.

Employer stakeholders recognised the difficulties of recruiting and retaining EHOs as largely attributed to remuneration (comparatively low), a desire amongst employees to be city-based and a lack of career progression opportunities. They prioritised retention strategies to developing positive workplace culture ('local council a great place to work'), supporting continuing professional development and emphasising the positive attributes of local lifestyle. Some described the difficulty retaining EHO's when city-based employers could offer more remuneration, career progression and the attributes of Hobart or Launceston living.

Remuneration

The relatively low renumeration and lack of remuneration progression was highlighted as both an anomaly and an inequity issue that had a potentially large impact on EHO workforce development (including recruitment, retention, attracting students to EHO careers, workforce attrition). The relatively low renumeration was consider anomalous given the importance of the EHO as the front-line (and often solo) health protection and environmental management professionals in local government, and the economic and social damage that could occur if this work was not performed. Issues of inequity extended to comparisons between remuneration for similarly qualified professionals such as Planners in Local Councils and Allied Health Professionals in the Tasmanian Health Service. Local Council employers were constrained in terms of remuneration packaging by the rate-payer base, restricted local council budgets and issues of scale.

Workforce management inefficiencies vs local community engagement

Most stakeholders (and employers in particular) recognised the inefficiency of distributing a small workforce over 29 different Councils, and most recognised the political sensitivities of Council amalgamations. There was widespread support of the logic of shared service models amenable to addressing some of the workforce management inefficiencies currently experienced. This was tempered by a strong theme in responses that emphasised the importance of EHOs being imbedded in local communities and local council organisations as they are often the only public-health qualified

professional employed at a local level. Phase 2 consultations (mid COVID disruption and with the prospect of major resourcing challenges anticipated) strongly supported he need and rationale for structural reorganisation of the state-wide workforce that achieved efficiencies of coordination and workforce organisation but retained the local service delivery and EHO's embedded in local communities.

Inequity

Differences in EHO workforce availability and services across Tasmanian Councils was considered to be an equity issue amongst many stakeholders. Tensions existed about the inequity of service delivery for communities in rural and regional councils, with inferior EHO access/environmental health services because of location, council size and budget. This was particularly a concern in the context of more remote and regional Councils with high workload generating items like on-site waste-water systems and level 1 Activities under EMPCA that remain largely under-serviced, by a thinly dispersed and under-resourced EHO workforce.

Size matters

Although not a directed question amongst phase 1 stakeholders consulted (i.e. are there enough EHOs employed in Tasmania?), the disconnect been the size and capacity of the EHO workforce and the responsibilities and work required was a commonly raised issue. Some suggested that over the past few decades, there had been increasing responsibility accumulation under new and revised legislative instruments set by State governments without concomitant increases in workforce capacity investments to manage the work (described by one stakeholder as "responsibility creep").

This combination of responsibility creep and reactive practice meant very little opportunity to perform functions that proactively minimised risk (upstream prevention) before becoming incidents requiring management (downstream).

Phase 2 consultation stakeholders had little doubt about the disconnect between existing workforce size and capacity and the expected workload.

Priorities

Phase 2 consultations relating to Workforce development priorities tended to focus on a suite of strategies including:

- Enhancing the profile of EHO's and their work
- Reviewing, prioritising, rationalising responsibilities under various Acts
- Addressing remuneration and industrial classification
- Building workforce preparation and academic capacity in Tasmania
- More efficient workload management and
- support for structural reorganisation of the workforce to be a shared service state-wide model servicing local councils.

Impact of COVID-19 on EHO work

Phase 2 consultations explored the likely impact of COVID-19 disruptions on EHO work. At the time of consultation July 2020, EHOs had been mobilised in the pandemic response to work with local businesses to develop COVID-safe plans. There was some concern that COVID-19 would add further to "responsibility creep" for the EHO workforce without additional funding. The COVID disruption

galvanised the understanding amongst stakeholders about issues of poor surge capacity, inadequate staffing and inefficiencies with the current workforce organisation and management to the point that significant workforce restructuring (State-wide shared service model) was now considered an important priority.

References

1. Kennedy, V. and F. Moore, *A systems approach to public health workforce development.* J Public Health Management Practice, 2001. **7**(4): p. 17-22.
2. Braun, V. and V. Clarke, *Using thematic analysis in psychology.* Qual Res Psychol., 2006. **3**(2): p. 77-101.

APPENDIX 3:
WORKLOAD MODELLING FOR THE ENVIRONMENTAL HEALTH OFFICER WORKFORCE IN TASMANIA

ABSTRACT

Objectives This study sought to model EHO workloads based on an audit of serviceable items informed by obligations under various legal instruments in local councils throughout Tasmania. Serviceable items defined as developments, facilities, infrastructure, premises and activities that require under legislation EHO oversight and monitoring to mitigate health and environmental management risk.

Methods Workload modelling was conducted based on a state-wide audit of serviceable items (workload generators) as determined by legal instruments such as the Food, Public Health and Environmental Management and Pollution Control Acts. Calculations included assumptions relating to practice-based estimates of EHO time required to service items, workload overheads (i.e. non-EHO work) and available hours for work each year (after holidays and leave provisions).

Results Data was collated from 25/29 Councils across Tasmania representing 92.5 % population coverage. Workload calculations based on this modelling suggest that at least 82 FTE EHOs are required in local councils to minimally service environmental health risk items under the various Acts. This suggests the existing actual workforce size is at least 35 FTE below requirement for service coverage. This does not include additional workload associated with non-regulatory and/or health promotion work by EHOs and/or work required to service unreported work related to EMPCA items (which appear to be under-serviced because of vagueness of the Act (best endeavours). It indicates that this workforce does not have the capacity to service existing risks, let alone surge to address new or novel health protection challenges.

So what? It is unlikely that the EHO workforce has the capacity to adequately service existing health protection risks in Tasmania without a significant investment in workforce growth. More efficient organisation of workforce management and coordination may increase EHO servicing productivity but not to a level that covers the outstanding existing gaps (~35+ FTE) in workforce size.

Introduction

Workforce development planning is often informed by estimates of workforce size, the attributes of the workforce/worker and exploration of the barriers and enablers to workforce capacity[1-10]. Equally important is consideration about the actual work that needs to be performed, to inform assessment of workforce capacity, gaps and workforce development priorities.

EHO's work is largely determined by enforcement of legislative/regulations under numerous Acts, including responding to complaints, inspections and surveillance[7, 11]. It therefore makes sense to assess the work required to comply with enforcement and regulatory obligations as a starting point for workforce capacity assessment.

This study sought to model actual EHO workloads based on an audit of serviceable items (workload generators) informed by obligations under various legal instruments in local councils throughout Tasmania. Serviceable items defined as developments, facilities, infrastructure and premises that require under legislation EHO oversight/monitoring to mitigate health and environment risk.

Methods

A self-administered survey of all (n=29) Local government areas (Councils) was conducted during November/December 2019 requesting commonly reported data episodes, activities or items known to contribute to environmental health risk and local council EHP workloads. Reponses where received from 25 Councils (RR: 86% ; non-responses from: Flinders Island, Central Coast, Southern Midlands, Derwent Valley).

Data collection items (n=34) included 9 specific to food business (Food Act), 7 specific to the environment (Environmental Management and Pollution Control Act EMPCA) and 17 specific items relating to public health (Public Health Act) [See Tables 1,4,7].

Estimates of workload multipliers (number of hours of EHP required to service each workload item) we developed based on experienced practitioner consensus estimates by two experienced EHO practitioners.

Annualised EHP workload calculations were performed by multiplying the number of items by the annual workload multiplier (hours) to calculate the estimated number of hours of EHP time required to provide a minimum standard of EHP service. Total hours was converted to FTE EHP positions by dividing hours by 37.5 hrs (weeks) X 44 weeks (accounting for annual, sick and public holiday leave).

To factor for administrative and workplace overheads (i.e. time spent doing non EHO service work) associated with EHO work in Local Councils and overhead multiplier of 0.8 was used for Councils with EHO teams > 2 FTE and 0.6 for Councils with <2 FTE. This assumes that EHOs working in larger teams have less overheads (admin and management time) and can spend 80% of their time doing EHO services, verses 60% for EHOs working in small or sole practitioner roles.

These estimates provide an estimate of the minimum EHO workload required to manage environmental health risks. They do not accurately represent the workload required for optimal risk reduction and health protection.

Results

Food related workload

Table 1 describes workload generating items and workload multipliers based on practice-based estimates.

Table 1: Food related workload contributors: Time estimate multipliers per item

Item code	Description	Workload multiplier estimates	Annual multiplier
P1	Food premises that process or serve ready to eat potentially hazardous food to vulnerable people/groups.	2 visits per year, 20%@1.5hrs,70%@3hrs,10% @6hrs :**mean @ 3 hrs**	6 hrs
P2	P2: Food businesses that handle any unpackaged, potentially hazardous foods.	1 visit/yr @ 2hrs	2 hrs
P3	P3: Food premises that handle low risk foods.	0.6 visits/yr@1 hr	0.6 hrs
P3 & P4	Community Groups and Premises selling low risk pre-packaged foods including milk & packaged frozen ice cream that have to notify Council.	@0.5 hrs/per year	0.5 hrs
NCFB	Non-compliant food businesses requiring intervention (EHO estimate)	2 hrs/case	2 hrs/case
Other FB	Not P1-P4	1hr/case	1 hr/case
Food Poisoning	Food poisoning complaints : A single family/point of source outbreak (chemical or bacterial).	2.5hrs/case	2.5hrs/case
Food complaints	Food Complaint: foreign body in food or premises / food handling complaint.	2.5hrs/case	2.5hrs/case
Temp FBA	Temporary food business applications	1 hr/case	1 hr/case
Form 49/Form 50 assessments	Request for food inspection	1.5 hr/case 7.25 hrs/ major event	

Note: Time estimates do not include time associated with prosecution actions which were estimated to account for at least 150 hrs per persecution over a 6 month period.

Food business non-compliance

Each Local Council was asked to estimate the proportion of food businesses that were assessed as non-compliant in their jurisdiction. Responses ranged from 0-80% non compliance (mean 20%). [refer Table 2].

Table 2 presents 2018/2019 year data for food related workload generator items.

Table 2: Food related workload generator items (2018/2019 year)

Council	P1	P2	P3	P3/P4	OFB	%NC	FPC	Food Complaint	Temp FBA	Form 49/50
Clarence	126	159	59	103		10	2	10	267	20
Huon valley	26	66	111	197		30	2	8	33	8
Sorell	40	40	35	14		40		4	30	3
Dorset	41	55	5	21		10	1	2	27	1
Launceston	332	261	69	28		10	9	60	431	32
Meander Valley	60	111	32	69		20	3	7	113	6
Devonport	20	214	21	12		40	2	6	148	13
Central Highland	1	24	34		9	0		2	4	2
Glamorgan Spring	37	78	2	15		20	1	0	10	10
Tasman	17	25	3	8		20	0	2	10	4
West Coast	14	55	2	2		0	0	2	10	0
Northern Midland	15	89	16	4		10	1	7	60	4
BreakODay	21	62	4	9		10	0	1	30	5
King Island	20	15	5	5		80	0	0	17	1
Circular Head	49	51	6	15		10	0	2	40	2
Brighton	25	48	3	4		10	5	5	47	3
Kingsborough	87	86	12	12		10	3	5	264	11
Latrobe	42	59	26	2		30	0	4	29	6
Glenorchy	129	205	44	74		20	10	27	253	14
Kentish	13	59	6	36		10	1	1	3	0
Georgetown	4	34	28	5		20	0	0	13	0
West Tamar	65	74	6	14		10	1	3	15	15
Waratah Wynyard	8	62	34			70	1	1	48	2
Hobart	264	486	95	79	363	20	17	83	389	93
Burnie	74	64	8	5		10	1	10	150	3
TOTAL	1530	2482	666	733	372		60	252	2441	258

Non-responses from: Flinders Island, Central Coast, Southern Midlands, Derwent Valley (~7.5% Tasmanian Population)
n.b. some councils DON'T visit markets as they are weekends and councils don't allow over time or weekend work.
FPC= Food poisoning complaint; OFB=Other Food Business, %NC=% non-compliant food business

Table 3 presents EHO workload hours after applying multipliers to each workload generator item count.

After correcting for non-response councils (representing 7.5% of the Tasmanian population) the estimated EFT requirement for servicing of Food related risk items was 30.6 FTE.

Table 3: Food related work hours/time (2018/2019 year)- hours

Council	P1	P2	P3	P3/P4	Other FB	NCFB	Food poisoning	Food Complaint	TempFB	Form49/50	Food hrs	FTE
Clarence	756	318	35.4	51.5		82.2	5	25	267	30	1570.1	**1.31**
Huon valley	312	132	66.6	98.5		102	5	20	33	12	781.1	**0.87**
Sorell	480	80	21	7		160	0	10	30	4.5	792.5	**0.88**
Dorset	492	110	3	10.5		43.8	2.5	5	27	1.5	695.3	**0.77**
Launceston	3984	522	41.4	14		317.8	22.5	150	431	48	5530.7	**4.61**
Meander Valley	720	222	19.2	34.5		140.4	7.5	17.5	113	9	1283.1	**1.43**
Devonport	240	428	12.6	6		235.2	5	15	148	19.5	1109.3	**1.23**
Central Highland	12	48	20.4	0	9	0	0	5	4	3	101.4	**0.11**
Glamorgan Spring	444	156	1.2	7.5		90.4	2.5	0	10	15	726.6	**0.81**
Tasman	204	50	1.8	4		37.2	0	5	10	6	318	**0.35**
West Coast	168	110	1.2	1		0	0	5	10	0	295.2	**0.33**
Northern Midland	180	178	9.6	2		29.8	2.5	17.5	60	6	485.4	**0.54**
BreakODay	252	124	2.4	4.5		29.2	0	2.5	30	7.5	452.1	**0.50**
King Island	240	30	3	2.5		152	0	0	17	1.5	446	**0.50**
Circular Head	588	102	3.6	7.5		49.4	0	5	40	3	798.5	**0.89**
Brighton	300	96	1.8	2		29.6	12.5	12.5	47	4.5	505.9	**0.56**
Kingsborough	1044	172	7.2	6		86.8	7.5	12.5	264	16.5	1616.5	**1.35**
Latrobe	504	118	15.6	1		136.2	0	10	29	9	822.8	**0.91**
Glenorchy	1548	410	26.4	37		288.4	25	67.5	253	21	2676.3	**2.23**
Kentish	156	118	3.6	18		22.2	2.5	2.5	3	0	325.8	**0.36**
Georgetown	48	68	16.8	2.5		20	0	0	13	0	168.3	**0.19**
West Tamar	780	148	3.6	7		66.8	2.5	7.5	15	22.5	1052.9	**0.88**
Waratah Wynyard	96	124	20.4	0		131.6	2.5	2.5	48	3	428	**0.48**
Hobart	3168	972	57	39.5	363	616.8	42.5	207.5	389	139.5	5994.8	**5.00**

Burnie	888	128	4.8	2.5		72	2.5	25	150	4.5	1277.3	**1.42**
Total hours per item	17604	4964	399.6	366.5	372	2939.8	150	630	2441	387	30253.9	**28.49**
											Corrected*	**30.6**

Non-responses from 4 Councils: Flinders Island, Central Coast, Southern Midlands, Derwent Valley (~7.5% Tasmanian population)
n.b. some councils DON'T visit markets as they are weekends and councils don't allow over time or weekend work (PH riskj)
*** Corrected to account for non-response Councils (7.5% population)**

Environmental management and pollution control

Table 4 describes workload generating items and workload multipliers based on practice-based estimates for environmental management related workload contributors.

Table 4: Environment- related workload contributors: Time estimate multipliers per item

Item code	Description (2018-2019 Financial Year)	Workload multiplier estimates	Annual multiplier
DA	Development Approvals	80%@0.5 hr, 20% @4hrs (for cases needing referral etc)	Average 1.2 hrs per case
BA	Building Approvals	80%@0.5 hr, 20% @4hrs (for cases needing referral etc)	Average 4 hrs per case
OSWWS	On Site Waste Water Management System assessment	4 hrs per case includes desktop assessment + site visit + administration.	Average1.2 hrs per case
EnvComp	Environmental complaints (including noise, litter, smoke, sewer overflows etc)	Site visit and administration	Average 2 hrs per case
Items not included in workload calculations			
CSA	Contaminated site assessments	No cost recovery Best endeavour under EMPAC- not included in calc	??
L1 Act	Level 1 activities	No cost recovery Best endeavour under EMPAC- not included in calc	??
OSWWSM	On Site Waste Water System monitoring	No cost recovery Best endeavour under EMPAC- not included in calc	??

Table 5 presents 2018/2019 year data for environment related workload generator items.

Note that workload estimates for Contaminated sites, Level 1 Activities and On Site Waste Water System Monitoring (OSWWSM) has not been possible, in part because of inadequate data recording and limited or no service provision in these areas.

Table 5: Environment-related workload generator items (2018/2019 year)

Council	DA	BA	OSWWS	EnvComp	Contsite	L1Act	OSWWSM
Clarence	1200	960	480	438	20	?	6000
Huon valley	578	152	528	226	1	?	?
Sorell	547	396	480	190	3	33	4794
Dorset	235	167	64	30	1	?	?
Launceston	228	0	144	558	0	?	36
Meander Valley	164	7	224	154	0	195	3640
Devonport	223	157	88	192	4	?	1210
Central Highland	4	2	72	34	0	4	250
Glamorgan Spring	178	109	120	40	1	?	500
Tasman	180	144	180	20	0	?	3000
West Coast	5	0	0	0	0	4	3
Northern Midland	272	254	116	76	0	?	4285
King Island	0	0	24	4	0	14	200
Circular Head	128	0	152	50	0	1000	900
Brighton	289	305	100	200	2	?	2000
Kingsborough	730	0	592	390	4	139	5000
Latrobe	238	272	140	150	0	?	?
Glenorchy	83	350	40	520	28	?	?
Kentish	97	112	176	0	0	?	?
Georgetown	1	0	92	240	0	30	?
West Tamar	437	0	172	342	0	?	5500
Waratah Wynyard	236	70	36	90	0	15	2281
Hobart	468	0	48	396	0	225	560
Burnie	0	0	80	92	0	?	?
TOTAL	6522	3458	4148	4432		1569	40159
						Mean 166	Mean 2362
					Not included in workload calc		

Note: % Councils: BreakODay, Flinders Island, Central Coast, Southern Midlands and Derwent Valley did not provide data.

?= unknown, no records kept, too many to count

Table 6 presents EHO workload hours after applying multipliers to each workload generator item count for environment-related work items.

Table 6: Environment-related work hours/time (2018/2019 year)- hours

Council	DA	BA	OSWWS	EnvComp	Total Hours	EFT calc
Clarence	1200	960	480	438	3078	2.33
Huon valley	578	152	528	226	1485	1.50
Sorell	547	396	480	190	1613	1.63
Dorset	235	167	64	30	496	0.50
Launceston	228	0	144	558	930	0.70
Meander Valley	164	7	224	154	550	0.56
Devonport	223	157	88	192	660	0.67
Central Highland	4	2	72	34	112	0.11
Glamorgan Spring	178	109	120	40	447	0.45
Tasman	180	144	180	20	524	0.53
West Coast	5	0	0	0	5	0.00
Northern Midland	272	254	116	76	719	0.73
King Island	0	0	24	4	28	0.03
Circular Head	0	0	152	50	330	0.33
Brighton	128	0	100	200	894	0.90
Kingsborough	289	305	592	390	1712	1.30
Latrobe	730	0	140	150	800	0.81
Glenorchy	238	272	40	520	993	0.75
Kentish	83	350	176	0	385	0.39
Georgetown	97	112	92	240	333	0.34
West Tamar	1	0	172	342	951	0.72
Waratah Wynyard	437	0	36	90	432	0.44
Hobart	236	70	48	396	912	0.69
Burnie	468	960	80	92	172	0.17
TOTAL	6522	34580	4148	4432	18560	16.58
					Corrected	18

Note: BreakODay, Flinders Island, Central Coast, Southern Midlands and Derwent Valley did not provide data.
?= unknown, no records kept, too many to count

After correcting for non-response councils (representing 8.5% of the Tasmanian population) the estimated EFT requirement for servicing of Environment-related risk items was 18 FTE.

This is the EFT requirement required to service BA, DA, OSWWS and EnvComp only, and is therefore a significant under-estimate of required workload.

Workloads attributable to servicing Contaminated Sites, Level 1 Activities and OSWWS Monitoring have not been included and are likely to be large given the number reported across 24 Councils.

To illustrate this point: Annual monitoring of OSWWS (assuming 1 hr per year of EHO time) would equate with and additional ~30 FTE of EHO workload.

Public Health

Table 7 describes workload generating items and workload multipliers based on practice-based estimates for Public Health-related workload contributors.

Table 7: Public health -related workload contributors: Time estimate multipliers per item

Item code	Description	Average Time estimate
PHRA-P	Public Health Risk Activity - premise	2 hrs
PHRA-O	Public Health Risk Activity - operator	2 hrs
RegSys	Regulated Systems	2 hrs
PrivWat	Private Water Suppliers	2 hrs
PubPool	Public Pools / Spas	24 hrs per year per pool
RecWat	Recreational Water Sampling sites	0.5 hrs site visit and travel, 16 /yr, 1 hr admin
Markets	Markets	8 hrs monthly
POAA	Place of Assembly applications	10 hrs
NDI	Notifiable Disease investigations	2.5 hrs
PHC	Public health complaints (housing/mould/hoarding/vermin, clandestine lab investigations etc)	3 hrs
PEDMALL	Pedestrian mall (smoke-free)	1 hr per day x 220 days/yr
BUSMALL	Bus mall (smoke-free)	1 hr per day x 220 days/yr
CDA	Council declared areas (smoke-free)	1 hr per day x 220 days/yr
SCHOOL	Registered high schools	10 hrs/school/year
STUDENT	Number of School students in Schools	1 hr/student
IMMCLIN	Community based immunisation clinics	4 hrs/clinic
OMMCLIN-O	Other immunisation clinics	4 hrs/clinic

Table 8 presents 2018/2019 year data for Public Health- related workload generator items.

Table 9 presents EHO workload hours after applying multipliers to each workload generator item count for Public Health-related work items.

Table 8 Public Health workload contributors items

Council	PHRA-P	PHRA-O	RegSys	PrivWat	PubPool	RecWat	Markets	POAA	NDI	PHC	PEDM	BUSM	CDA	SCHOOL	STUD	IMM	IMM-O
Clarence	5	16	4	10	9	7	5	6	20	52	0	1	0	8	607	26	2
Huon valley	5	5	0	19	2	2	4	11	2	2	0	0	0	3	150	2	0
Sorell	2	2	1	11	1	7	2	2	12	15	0	0	0	1	100	0	0
Dorset	1	1	1	1	5	1	0	5	1	4	0	0	0	2	100	0	0
Launceston	22	44	5	5	3	4	4	24	34	49	3	1	6	15	1151	76	0
Meander Valley	2	4	3	26	8	4	4	10	11	15	0	0	0	2	300	0	0
Devonport	15	22	3	2	7	4	3	6	5	10	0	0	2	3	700	0	0
Central Highland	0	0	0	13	1	7	0	0	2	2	0	0	2	1	6	0	0
Glamorgan Spring	0	0	1	0	13	7	1	1	2	5	0	0	0	1	20	0	0
Tasman	0	0	0	10	1	5	2	0	0	0	0	0	0	1	30	0	0
West Coast	0	0	0	0	3	1	5	0	0	0	0	0	12	2	2	0	0
Northern Midland	2	3	2	1	3	3	6	7	3	3	0	0	0	2	87	1	0
BrealODay	2	2	0	0	6	6	2	3	1	3	0	0	0	2	80	3	3
King Island	1	1	0	15	2	4	2	0	0	0	0	0	0	1	0	0	0
Circular Head	0	0	4	8	3	4	1	1	2	3	0	0	10	2	150	0	0
Brighton	1	2	1	0	1	1	1	2	4	100	0	0	0	1	150	0	12
Kingsborough	5	6	1	5	5	20	6	0	20	7	0	11	1	7	1169	12	3
Latrobe	1	3	5	6	8	7	3	5	1	2	0	0	0	2	172	0	0
Glenorchy	8	25	22	0	11	7	1	6	13	84	0	1	0	8	1100	14	0
Kentish	1	1	1	44	2	3	0	4	1	3	0	0	0	1	76	1	0
Georgetown	0	0	3	2	1	6	12	0	0	2	0	0	4	2	128	0	0
West Tamar	3	3	0	0	7	9	4	0	8	13	0	0	0	3	660	0	1
Waratah Wynyard	3	7	9	6	3	6	2	2	4	15	0	0	1	3	0	0	0
Hobart	23	28	10	0	38	5	2	32	26	125	6	2	6	9	1600	13	1
Burnie	6	9	3	2	6	5	2	5	16	10	0	1	0	4	414	0	1
TOTAL	108	184	79	186	149	135	74	132	188	52	9	17	44	86	8952	148	23

Table 9 : Public Health-related work hours/time (2018/2019 year)- hours

Council	PHRA-P	PHRA-O	RegSys	PrivWat	PubPool	RecWat	Markets	POAA	NDI	PHC	PEDM	BUSM	CDA	SCHOOL	STUD	IMM	IMM-O	Hours	FTE Calc
Clarence	5	16	8	20	216	57	480	60	50	156	0	220	0	80	607	104	8	2108	1.60
Huon valley	5	5	0	38	48	17	384	110	5	6	0	0	0	30	150	8	0	816	0.82
Sorell	2	2	2	22	24	57	192	20	30	45	0	0	0	10	100	0	0	510	0.52
Dorset	1	1	2	2	120	9	0	50	2.5	12	0	0	0	20	100	0	0	321.5	0.32
Launceston	22	44	10	10	72	33	384	240	85	147	660	220	1320	150	1151	304	0	4918	3.73
Meander Valley	2	4	6	52	192	33	384	100	27.5	45	0	0	0	20	300	0	0	1171.5	1.18
Devonport	15	22	6	4	168	33	288	60	12.5	30	0	0	440	30	700	0	0	1845.5	1.86
Central Highland	0	0	0	26	24	57	0	0	5	6	0	0	440	10	6	0	0	574	0.58
Glamorgan Spring	0	0	2	0	312	57	96	10	5	15	0	0	0	10	20	0	0	527	0.53
Tasman	0	0	0	20	24	41	192	0	0	0	0	0	0	10	30	0	0	317	0.32
West Coast	0	0	0	0	72	9	480	0	0	0	0	0	2640	20	2	0	0	3223	3.26
Northern Midland	2	3	4	2	72	25	576	70	7.5	9	0	0	0	20	87	4	0	886.5	0.90
BrealODay	2	2	0	0	144	49	192	30	2.5	9	0	0	0	20	80	12	12	558.5	0.56
King Island	1	1	0	30	48	33	192	0	0	0	0	0	0	10	0	0	0	317	0.32
Circular Head	0	0	8	16	72	33	96	10	5	9	0	0	2200	20	150	0	0	2619	2.65
Brighton	1	2	2	0	24	9	96	20	10	300	0	0	0	10	150	0	48	675	0.68
Kingsborough	5	6	2	10	120	161	576	0	50	21	0	2420	220	70	1169	48	12	4901	3.71
Latrobe	1	3	10	12	192	57	288	50	2.5	6	0	0	0	20	172	0	0	817.5	0.83
Glenorchy	8	25	44	0	264	57	96	60	32.5	252	0	220	0	80	1100	56	0	2327.5	1.76
Kentish	1	1	2	88	48	25	0	40	2.5	9	0	0	0	10	76	4	0	308.5	0.31
Georgetown	0	0	6	4	24	49	1152	0	0	6	0	0	880	20	128	0	0	2269	2.29
West Tamar	3	3	0	0	168	73	384	0	20	39	0	0	0	30	660	0	4	1390	1.05

Waratah Wynyard	3	7	18	12	72	49	192	20	10	45	0	0	220	30	0	0	0	688	0.69
Hobart	23	28	20	0	912	41	192	320	65	375	1320	440	1320	90	1600	52	4	6853	5.19
Burnie	6	9	6	4	144	41	192	50	40	30	0	220	0	40	414	0	4	1215	1.23
TOTAL	108	184	158	372	3576	1105	7104	1320	470	1572	1980	3740	9680	860	8952	592	92	42157	36.90
																		Corrected	39.7

After correcting for non-response councils (representing 7.5% of the Tasmanian population) the estimated EFT requirement for servicing of Public Health-related risk items was 39.7 FTE.

Table 10 summarises EHO workload by area of practice and compares calculated EFT to population and existing EFT.

Table 10 Workforce/Workload calculations (based on August 2019 population and FTE estimates)

Council	Population	Pop/1 FTE	Food	Environment	Public Health	Total FTE Calc	Current FTE	FTE Gap	% workload capacity
Clarence	56945	11389	1.31	2.33	1.6	5.24	5	0.24	95%
Huon valley	17219	8610	0.87	1.5	0.82	3.19	2	1.19	63%
Sorell	15218	15218	0.88	1.63	0.52	3.03	1	2.03	33%
Dorset	6652	33260	0.77	0.5	0.32	1.59	0.2	1.39	13%
Launceston	67449	10490	4.61	0.7	3.73	9.04	6.43	2.61	71%
Meander Valley	19713	9857	1.43	0.56	1.18	3.17	2	1.17	63%
Devonport	25414	14119	1.23	0.67	1.86	3.76	1.8	1.96	48%
Central Highland	2144	10720	0.11	0.11	0.58	0.8	0.2	0.6	25%
Glamorgan Spring	4528	22640	0.81	0.45	0.53	1.79	0.2	1.59	11%
Tasman	2404	12020	0.35	0.53	0.32	1.2	0.2	1	17%
West Coast	4167	?	0.33	0	3.26	3.59	0	3.59	0%
Northern Midland	13300	33250	0.54	0.73	0.9	2.17	0.4	1.77	18%
BreakODay*	6232	31160	0.5	Not provided	0.56	1.06	0.2	0.86	19%
King Island	1601	20013	0.5	0.03	0.32	0.85	0.08	0.77	9%
Circular Head	8066	13443	0.89	0.33	2.65	3.87	0.6	3.27	16%
Brighton	17294	14412	0.56	0.9	0.68	2.14	1.2	0.94	56%
Kingsborough	37774	10493	1.35	1.3	3.71	6.36	3.6	2.76	57%
Latrobe	11329	11329	0.91	0.81	0.83	2.55	1	1.55	39%
Glenorchy	47636	11909	2.23	0.75	1.76	4.74	4	0.74	84%
Kentish	6324	6324	0.36	0.39	0.31	1.06	1	0.06	94%
Georgetown	6931	?	0.19	0.34	2.29	2.82	0	2.82	0%
West Tamar	23769	8489	0.88	0.72	1.05	2.65	2.8	-0.15	106%
Waratah Wynyard	13800	17250	0.48	0.44	0.69	1.61	0.8	0.81	50%
Hobart	53684	7456	5	0.69	5.19	10.88	7.2	3.68	66%
Burnie	19348	9674	1.42	0.17	1.23	2.82	2	0.82	71%
Flinders Island	987	2468				0.15	0.40	-0.25	261%
Central Coast	21904	10952				3.40	2.00	1.40	59%
Southern Midlands	6118	15295				0.95	0.40	0.55	42%

Derwent Valley	10290	12863				1.60	0.80	0.80	50%
Tasmania	528240		28.51	16.58	36.89	81.98	47.51	**39.77204**	58%

These estimates suggest that the existing EHO workforce employed in Local Councils represent ~60% of the required workforce in terms of effective full-time equivalent (EFTS) or ~ 40 FTE below requirement, to service existing food, environment and public health related items and obligations under the various Acts and regulations that direct EHO work. This gap in workforce capacity is likely to be a significant under-estimate given the lack of data available to estimate and include EHO workloads relating to environment-related workload items such as Level 1 Activities, OSWWS Monitoring and Contaminated sites.

Implications for workforce development

- The EHO workforce employed in Local Councils in Tasmania is significantly under-sized relative to practice-based estimates of work required to minimally service existing items serviceable under various Acts and regulations. This suggests that much of the required work of EHOs is not being performed, increasing risk to public health and environmental management.
- The capacity of the EHO workforce in Local Councils to service obligations under the Environmental Management and Pollution Control Act (EMPCA) appears to be limited and activity in areas of Level 1 Activities, OSWWS Monitoring and Contaminated sites is poorly understood/recorded.
- This gap in workforce capacity can be addressed by a combination of:
    - Additional investment in workforce EFT.
    - Reducing workload overheads (time required for administration, travel etc) allowing EHOs to be more productive re service delivery. This is likely to only achieve marginal improvements to workforce capacity.
    - Rationalising workload distribution so that work that can be distributed to non-EHOs (technicians etc). This strategy assumes that there are other staff available with spare time and expertise to take on these tasks.

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APPENDIX 4: STATUATORY ROLES AND AUTHORISATIONS: ENVIRONMENTAL HEALTH OFFICERS IN TASMANIA

Summary of Statutory Roles

PUBLIC HEALTH

(*Public Health Act 1997, Burial and Cremation Act 2002, Emergency Management Act 2006, Local Government Act 1993, Health and Environmental Services By-Law 2008*)

Immunisation program (schools and clinics)	Public health risk activities (tattoo / ear piercing)
Smoke-free public places	Regulated systems (cooling towers/warm water systems)
Unhealthy premises (hoarding / mould)	Burials and exhumations
Recreational water quality (beaches and pools)	Places of assembly (mass gatherings of people)
Notifiable disease investigation (salmonellosis, campylobacteriosis, gastroenteritis)	Emergency management (recovery and outbreaks)
Control of animals (bees, poultry)	Asbestos management
Statutory nuisance (unsightly)	Control of caravan habitation
Clandestine Laboratories	

FOOD SAFETY

(*Food Act 2003, National Food Safety Standards, Building Act 2016*)

Food business regulation, inspection and registration	Food business plans assessment and occupancy inspection
Mobile food business regulation	Food handler training / food recall
Food sampling – Tasmanian Food Safety Surveillance Program	Outbreak investigation – vulnerable institutions

ENVIRONMENTAL MANAGEMENT

(Environmental Management and Pollution Control Act 1994, Building Act 2016, Hobart Interim Planning Scheme 2015 and relevant Codes)

Regulation of small industries	Environmental nuisance
Investigation of pollution events	Air quality
Noise management	Potentially contaminated sites assessment
Onsite wastewater regulation (septics, AWTS)	

Summary of Authorisations

- *Public Health Act 1997* - Appointed under s.11 (being persons with approved qualifications as environmental health officers) and issued with a certificate of authority under s.31.
- *Food Act 2003* – Appointed under s.101 (being persons holding qualifications approved by the Director of Public Health) and issued with a certificate of authority under s.102.
- Council officer pursuant to s.21 of the *Environmental Management and Pollution Control Act 1994*
- Council delegation under s.64 of the *Local Government Act 1993* for the power to determine a nuisance.
- Power of entry under s.20A *Local Government Act 1993.*