

## D. Anderson - The Directive 2010/63 and a comparative overview of National Legislations related to Cephalopods

- 1.1 Identify and describe the national and EU laws and guidance which regulate the scientific use of animals and in particular the activities of those carrying out scientific procedures involving them.
- 1.2 Identify and describe related animal welfare legislation.
- 1.3 Describe the authorisation that is needed before acting as user, breeder or supplier of laboratory animals and especially the authorisation required for projects and where applicable individuals.
- 1.5 Describe the role of the personnel and their statutory duties and other responsibilities under the National Legislation.
- 1.6 Describe the roles and responsibilities of the local animal welfare bodies and the national committee for the protection of animals used for scientific purposes
- 1.7 Indicate who is responsible for compliance at an establishment and how this responsibility may be exercised.
- 1.8 Describe when a procedure becomes regulated under National legislation (minimum threshold of pain, suffering, distress or lasting harm).
- 1.9 Indicate who bears primary responsibility for the animals undergoing procedures.
- 1.10 List which species, including respective stages of development that are included in the scope of the Directive / National law.
- 1.12 Describe the legislative controls over the killing of animals bred or used for scientific procedures.
- 2.5 Describe how the law is based on an ethical framework which requires 1) weighing the harms and benefits of projects (the harm/benefit assessment) 2) applying the Three Rs to minimise the harm, maximise benefits and 3) promote good animal welfare practices.
- 2.10 Describe the regulations regarding re-use of animals.
- 23.28 Summarise the key aspects of the legislation protecting laboratory animals.
- 23.29 Discuss how the legislation controls the use of animals for scientific purposes.

## P. Vergara - Education & Training post implementation of Directive 2010/63/EU; requirements and needs for cephalopod 'workers'

- 1.1 Identify and describe the national and EU laws and guidance which regulate the scientific use of animals and in particular the activities of those carrying out scientific procedures involving them.
- 1.3 Describe the authorisation that is needed before acting as user, breeder or supplier of laboratory animals and especially the authorisation required for projects and where applicable individuals.
- 1.4 List sources of information and support that are available (regarding national legislation).
- 1.6 Describe the roles and responsibilities of the local animal welfare bodies and the national committee for the protection of animals used for scientific purposes
- 1.7 Indicate who is responsible for compliance at an establishment and how this responsibility may be exercised (e.g. through the local AWB).
- 1.10 List which species, including respective stages of development that are included in the scope of the Directive/National law.
- 1.12 Describe the legislative controls over the killing of animals bred or used for scientific procedures.
- 2.2 Describe the responsibility of humans when working with research animals and recognise the importance of having a respectful and humane attitude towards working with animals in research.



P. Vergara - Education & Training post implementation of Directive 2010/63/EU; requirements and needs for cephalopod 'workers'  
*continued*

- 2.3** Identify ethical and animal welfare issues in their own work and be aware and able to reflect on the consequences of their own actions.
- 2.12** Describe the need for a culture of care and the individual's role in contributing to this.

#### G. Fiorito - Guidelines for the Care and Welfare of Cephalopods: a short intro

- 4.1** Describe suitable routines and husbandry practices for the maintenance, care and welfare for a range of animals used in research, to include small laboratory species and large animal species where appropriate.
- 4.2** Describe suitable environmental and housing conditions for laboratory animals, how conditions are monitored and identify the consequences for the animal resulting from inappropriate environmental conditions.

#### R. Villanueva - Care and welfare of cephalopod egg masses

- 3.1.1** Describe basic anatomy, physiology, reproduction and behaviour of the relevant species.
- 3.1.3** Indicate how good welfare can promote good science: e.g. explain how the failure to attend to biological and behavioural needs may affect the outcome of procedures
- 23.7** Describe suitable routines and housing conditions or laboratory animals housed for different scientific purposes
- 23.8** Explain how routines and housing conditions may change given specified conditions

#### G. Fiorito - Cephalopod Biology: from form to function

- 3.1.1** Describe basic anatomy, physiology, reproduction and behaviour of the relevant species.
- 3.1.7** When relevant to the species, recognise that there are different strains, and that these can have different characteristics which can affect both welfare and science

#### J.-B. Prins - Ethics, the Three Rs and welfare considerations when using cephalopods

- 2.2** Describe the responsibility of humans when working with research animals and recognise the importance of having a respectful and humane attitude towards working with animals in research.
- 2.4** Recognise that compliance with ethical principles may contribute to the long-term trust and acceptance in scientific research from the general public
- 2.5** Describe how the law is based on an ethical framework which requires 1) weighing the harms and benefits of projects (the harm/benefit assessment) 2) applying the Three Rs to minimise the harm, maximise benefits and 3) promote good animal welfare practices
- 2.6** Describe and discuss the importance of the ThreeRs as a guiding principle in the use of animals in scientific procedures
- 2.7** Explain the Five Freedoms and how these apply to laboratory species
- 2.11** Describe the importance of good animal welfare including its effect on scientific outcomes as well as for societal and moral reasons.
- 2.12** Describe the need for a culture of care and the individual's role in contributing to this
- 2.13** Describe relevant sources of information relating to ethics, animal welfare and the implementation of the Three Rs.
- 2.14** Be aware of different search tools (e.g. EURL ECVAM Search Guide, Go3Rs) and methods of search (e.g. Systematic reviews, meta analysis).
- 7.8** Recognize that refinement is an on-going process and know where to find relevant, up-to-date, information.
- 23.4** Explain how the Three Rs contribute to the continuous improvement of welfare, husbandry and enrichment practices

J.-B. Prins - Ethics, the Three Rs and welfare considerations when using cephalopods - continued

- 51.1 Be aware/Explain [*adjust measurable verb according to the level*] how to use different search tools (e.g. EURL ECVAM Search Guide, Go3Rs) and methods of search (e.g. Systematic reviews, meta analysis).
- 51.2 Explain the importance of dissemination of study results irrespective of the outcome and describe the key issues to be reported when using live animals in research e.g. ARRIVE guidelines.

## P. Andrews - Severity of regulated procedures in cephalopods under Directive 2010/63/EU

- 2.8 Describe the concept of harms to animals including avoidable and unavoidable suffering, direct, contingent and cumulative suffering
- 2.9 Describe the severity classification system, and give examples of each category. Describe cumulative severity and the effect this may have on the severity classification.
- 3.1.3 Indicate how good welfare can promote good science: e.g. explain how the failure to attend to biological and behavioural needs may affect the outcome of procedures.
- 5.2 Recognise abnormal behaviour and signs of discomfort, pain, suffering, or distress, as well as signs of positive well-being and principles of how pain, suffering and distress can be managed
- 5.3 Discuss factors to be considered and methods available for assessing and recording the welfare of animals e.g. score sheets
- 5.4 Describe what a humane end point is. Identify criteria to be used to set humane endpoints. Define action to be taken when a humane endpoint is reached and consider possible options for refining methods to finish at an earlier endpoint.
- 5.5 Describe the severity classifications included in the Directive and give examples of each category; explain cumulative severity and the effect this may have on the severity classification.
- 5.6 Describe the circumstances when anaesthesia or analgesia may be necessary to minimise pain, suffering, distress or lasting harm
- 7.2 Describe the biological impact of procedures and restraint on physiology.
- 7.3 Describe refinement opportunities for procedures and restraint e.g. through training (using positive reinforcement), habituation and socialisation of animals
- 7.8 Recognize that refinement is an on-going process and know where to find relevant, up-to-date, information.

## P. Andrews - Procedures, their planning and Humane Endpoints

- 1.8 Describe when a procedure becomes regulated under National legislation (minimum threshold of pain, suffering, distress or lasting harm).
- 1.11 Indicate the circumstances in which animals under the scope of the Directive should be humanely killed or removed from the study to receive veterinary treatment
- 2.3 Identify ethical and animal welfare issues in their own work and be aware and able to reflect on the consequences of their own actions.
- 2.8 Describe the concept of harms to animals including avoidable and unavoidable suffering, direct, contingent and cumulative suffering
- 2.9 Describe the severity classification system, and give examples of each category. Describe cumulative severity and the effect this may have on the severity classification
- 2.11 Describe the importance of good animal welfare including its effect on scientific outcomes as well as for societal and moral reasons
- 5.1 Recognise normal or desirable behaviour and appearance of the individuals in the context of species, environment and physiological status.

P. Andrews - Procedures, their planning and Humane Endpoints - continued

- 5.2 Recognise abnormal behaviour and signs of discomfort, pain, suffering, or distress, as well as signs of positive well-being and principles of how pain, suffering and distress can be managed
- 5.3 Discuss factors to be considered and methods available for assessing and recording the welfare of animals e.g. score sheets.
- 5.4 Describe what a humane end point is. Identify criteria to be used to set humane endpoints. Define action to be taken when a humane endpoint is reached and consider possible options for refining methods to finish at an earlier endpoint.
- 5.5 Describe the severity classifications included in the Directive and give examples of each category; explain cumulative severity and the effect this may have on the severity classification
- 5.6 Describe the circumstances when anaesthesia or analgesia may be necessary to minimise pain, suffering, distress or lasting harm

### P. Andrews - Experimental procedures under Directive 2010/63/EU

- 1.7 Indicate who is responsible for compliance at an establishment and how this responsibility may be exercised (e.g. through the local AWB).
- 1.8 Describe when a procedure becomes regulated under National legislation (minimum threshold of pain, suffering, distress or lasting harm).
- 1.9 Indicate who bears primary responsibility for the animals undergoing procedures.
- 1.10 List which species, including respective stages of development that are included in the scope of the Directive / National law.
- 1.11 Indicate the circumstances in which animals under the scope of the Directive should be humanely killed or removed from the study to receive veterinary treatment
- 2.5 Describe how the law is based on an ethical framework which requires 1) weighing the harms and benefits of projects (the harm/benefit assessment) 2) applying the Three Rs to minimise the harm, maximise benefits and 3) promote good animal welfare practices
- 2.6 Describe and discuss the importance of the Three Rs as a guiding principle in the use of animals in scientific procedures
- 2.8 Describe the concept of harms to animals including avoidable and unavoidable suffering, direct, contingent and cumulative suffering
- 2.9 Describe the severity classification system, and give examples of each category. Describe cumulative severity and the effect this may have on the severity classification.
- 2.10 Describe the regulations regarding re-use of animals
- 2.12 Describe the need for a culture of care and the individual's role in contributing to this.

### P. Andrews - Minimally invasive procedures

- 7.1 Describe appropriate methods and principles to be followed when handling animals (including methods of manual restraint and use of restricted environments).
- 7.2 Describe the biological impact of procedures and restraint on physiology
- 7.3 Describe refinement opportunities for procedures and restraint e.g. through training (using positive reinforcement), habituation and socialisation of animals
- 7.4 Describe techniques/procedures including, for example, injection, sampling and dosing techniques (routes/volumes/frequency), dietary modification, gavage, tissue biopsy, behavioural tests, use of metabolic cages.
- 7.5 Describe how to perform minor techniques and relate appropriate sample volumes and sampling frequencies for the relevant species
- 7.6 Describe the need for rigour and consistency in conducting scientific procedures and the correct recording and handling of samples.



P. Andrews - Minimally invasive procedures - continued

- 7.7 Describe appropriate methods for the assessment of the welfare of animals with respect to the severity of procedures and know what appropriate action to take
- 7.8 Recognize that refinement is an on-going process and know where to find relevant, up-to-date, information.

**P. Andrews & G. Ponte - Procedures: case study (PBL)**

- 1.1 Identify and describe the national and EU laws and guidance which regulate the scientific use of animals and in particular the activities of those carrying out scientific procedures involving them
- 1.2 Identify and describe related animal welfare legislation
- 1.5 Describe the role of the personnel mentioned in Article 24, 25 and 26, and their statutory duties and other responsibilities under the National Legislation
- 1.6 Describe the roles and responsibilities of the local animal welfare bodies and the national committee for the protection of animals used for scientific purposes.
- 1.8 Describe when a procedure becomes regulated under National legislation (minimum threshold of pain, suffering, distress or lasting harm).
- 1.9 Indicate who bears primary responsibility for the animals undergoing procedures
- 1.10 List which species, including respective stages of development that are included in the scope of the Directive / National law.
- 1.11 Indicate the circumstances in which animals under the scope of the Directive should be humanely killed or removed from the study to receive veterinary treatment.
- 1.12 Describe the legislative controls over the killing of animals bred or used for scientific procedures
- 2.3 Identify ethical and animal welfare issues in their own work and be aware and able to reflect on the consequences of their own actions.
- 2.5 Describe how the law is based on an ethical framework which requires 1) weighing the harms and benefits of projects (the harm/benefit assessment) 2) applying the Three Rs to minimise the harm, maximise benefits and 3) promote good animal welfare practices.
- 2.6 Describe and discuss the importance of the ThreeRs as a guiding principle in the use of animals in scientific procedures.
- 2.8 Describe the concept of harms to animals including avoidable and unavoidable suffering, direct, contingent and cumulative suffering
- 2.10 Describe the regulations regarding re-use of animals
- 6.1 Humane methods of killing

**TBA - Catching cephalopods for scientific purposes and their transport**

- 3.1.2 Recognize and describe life events that have the potential to cause suffering including sourcing, transport, housing, husbandry, handling and procedures (on a basic level).
- 4.12 List the correct procedures for ensuring health, welfare and care of animals during their transport.
- 5.2 Recognise abnormal behaviour and signs of discomfort, pain, suffering, or distress, as well as signs of positive well-being and principles of how pain, suffering and distress can be managed
- 7.1 Describe appropriate methods and principles to be followed when handling animals (including methods of manual restraint and use of restricted environments).
- 7.3 Describe refinement opportunities for procedures and restraint e.g. through training (using positive reinforcement), habituation and socialisation of animals
- 7.9 Describe the biological consequences of transport, acclimatization, husbandry conditions and experimental procedures on the species concerned and describe how these can be minimised
- 23.25 Identify the key pieces of legislation controlling the transportation of animals.



**23.26** Describe the procedures, equipment, legislative responsibilities and responsible persons in transport of animals.

*TBA - Catching cephalopods for scientific purposes and their transport - continued*

**23.27** Explain how health status & animal welfare standards are maintained throughout the transport.

#### **TBA - Transporting cephalopods for scientific purposes**

- 4.1** Describe suitable routines and husbandry practices for the maintenance, care and welfare for a range of animals used in research, to include small laboratory species and large animal species where appropriate.
- 4.7** List the methods, and demonstrate an understanding of appropriate, safe and humane handling, sexing and restraint of one or more named species for common scientific procedures
- 7.1** Describe appropriate methods and principles to be followed when handling animals (including methods of manual restraint and use of restricted environments).
- 7.2** Describe the biological impact of procedures and restraint on physiology
- 7.9** Describe the biological consequences of transport, acclimatization, husbandry conditions and experimental procedures on the species concerned and describe how these can be minimised
- 23.25** Identify the key pieces of legislation controlling the transportation of animals
- 23.26** Describe the procedures, equipment, legislative responsibilities and responsible persons in transport of animals.
- 23.27** Explain how health status & animal welfare standards are maintained throughout the transport.

#### **G. Ponte - Humanely killing cephalopods and confirmation of death**

- 5.4** Describe what a humane end point is. Identify criteria to be used to set humane endpoints. Define action to be taken when a humane endpoint is reached and consider possible options for refining methods to finish at an earlier endpoint.
- 6.1.1** Describe the principles of humane killing (e.g. what constitutes 'a good death')
- 6.1.2** Describe the different methods by which the relevant animals are allowed to be killed, the influence different methods can have on scientific outcomes, and how to select the most appropriate method.
- 6.1.3** Explain why someone competent to kill animals should be available at all times (whether care staff or person carrying out procedures)

#### **V. Galligioni - Housing, Facility Management and Care of cephalopods**

- 3.1.2** Recognize and describe life events that have the potential to cause suffering including sourcing, transport, housing, husbandry, handling and procedures (on a basic level).
- 3.1.3** Indicate how good welfare can promote good science: e.g. explain how the failure to attend to biological and behavioural needs may affect the outcome of procedures
- 3.1.5** Describe the dietary requirements of the relevant animal species and explain how these can be met.
- 3.1.6** Describe the importance of providing an enriched environment (appropriate to both the species and the science) including social housing and opportunities for exercise, resting and sleeping.
- 3.1.9** Maintain and interpret accurate, comprehensive records of animals held in the animal facility, including the wellbeing of the animals
- 4.1** Describe suitable routines and husbandry practices for the maintenance, care and welfare for a range of animals used in research, to include small laboratory species and large animal species where appropriate.
- 4.2** Describe suitable environmental and housing conditions for laboratory animals, how conditions are monitored and identify the consequences for the animal resulting from inappropriate environmental conditions.
- 4.4** Describe the biological consequences of acclimatisation, habituation and training





- 4.5** Describe how the animal facility is organized to maintain an appropriate health status for the animals and the scientific procedures.

V. Galligioni - Housing, Facility Management and Care of cephalopods - continued

- 4.6** Describe how to provide water and an appropriate diet for laboratory animals including the sourcing, storage and presentation of suitable foodstuffs and water
- 4.13** List potential human health hazards associated with contact with laboratory animals (including allergy, injury, infection, zoonosis) and how these can be prevented
- 7.9** Describe the biological consequences of transport, acclimatization, husbandry conditions and experimental procedures on the species concerned and describe how these can be minimised.
- 23.1** Describe how environmental conditions may need to be varied according to the species, age, and life stage or specific care conditions (e.g. peri-operative care, immuno-deficient animals, genetically altered strains).
- 23.2** Discuss the possible effects of an uncontrolled environment on animal welfare and experimental results.
- 23.5** Describe suitable environmental conditions and enrichment for the relevant animal species and how these conditions are monitored.
- 23.6** Be able to use environmental measure equipment, read charts, graphs or tables generated by environmental monitoring equipment and evaluate potential problems
- 23.7** Describe suitable routines and housing conditions or laboratory animals housed for different scientific purposes.
- 23.8** Explain how routines and housing conditions may change given specified conditions
- 23.9** Evaluate the use of barriers in controlling the animals' health status.

**G. Fiorito - Cephalopod Welfare from hatchling to mature adult: life-cycle & implications for care and experimentation on captive animals**

- 2.3** Identify ethical and animal welfare issues in their own work and be aware and able to reflect on the consequences of their own actions
- 3.1.1** Describe basic anatomy, physiology, reproduction and behaviour of the relevant species.
- 3.1.3** Indicate how good welfare can promote good science: e.g. explain how the failure to attend to biological and behavioural needs may affect the outcome of procedures
- 23.5** Describe suitable environmental conditions and enrichment for the relevant animal species and how these conditions are monitored.
- 23.16** Summarise the basic breeding data of common laboratory animals
- 23.17** Describe in detail suitable breeding programmes for named species under specified conditions
- 23.19** List methods for determining oestrus, mating and confirming pregnancy in laboratory animals and evaluate their effectiveness.

**G. Fiorito - Cephalopod Biology: from form to function (part 2)**

- 3.1.1** Describe basic anatomy, physiology, reproduction and behaviour of the relevant species
- 3.1.3** Indicate how good welfare can promote good science: e.g. explain how the failure to attend to biological and behavioural needs may affect the outcome of procedures
- 3.1.6** Describe the importance of providing an enriched environment (appropriate to both the species and the science) including social housing and opportunities for exercise, resting and sleeping.
- 3.1.7** When relevant to the species, recognise that there are different strains, and that these can have different characteristics which can affect both welfare and science
- 3.1.8** When relevant to the species, recognise that alterations to the genome can affect the phenotype in unexpected and subtle ways, and the importance of monitoring such animals very carefully.



- 5.1 Recognise normal or desirable behaviour and appearance of the individuals in the context of species, environment and physiological status.
- 5.3 Discuss factors to be considered and methods available for assessing and recording the welfare of animals e.g. score sheets
- 23.3 Discuss how environmental enrichment is achieved
- 23.4 Explain how the Three Rs contribute to the continuous improvement of welfare, husbandry and enrichment practices

#### M. Solé - Sensory biology, sound perception and influence of noise in cephalopods (S/T)

- 3.1.1 Describe basic anatomy, physiology, reproduction and behaviour of the relevant species.

#### F. Fernández-Álvarez - Considerations for anaesthesia and humane killing of paralarval stages in cephalopods (S/T)

- 20.4 Relate why and when sedation or anaesthesia might be used for restraint.
- 20.6 Discuss the relative merits/drawbacks and principles of selection of different agents and their application, including calculation of doses, in relevant species, including injectable and volatile agents (or dissolved agents in the case of aquatic species), including local anaesthesia regimes
- 20.7 Indicate the importance of minimising stress prior to anaesthesia in reducing the likelihood of complications due to anaesthesia.
- 20.10 Evaluate and appreciate the different levels and planes of anaesthesia (voluntary excitement involuntary excitement, surgical anaesthesia (light, medium & deep), excessively deep).
- 20.11 List the factors indicating that an animal is suitably anaesthetized (stable and of appropriate depth) to enable procedures to be undertaken and what actions should be taken if an adverse event occurs. This will include basic “hands on” and “observational” anaesthetic monitoring techniques, including assessment of reflexes appropriate for species.

#### C. Balestrieri - Activity Cycles and their Disruption: the case of cephalopods

- 4.2 Describe suitable environmental and housing conditions for laboratory animals, how conditions are monitored and identify the consequences for the animal resulting from inappropriate environmental conditions.
- 4.3 Recognise that changes to or disruption of circadian or photoperiod can effect animals
- 4.4 Describe the biological consequences of acclimatisation, habituation and training

#### V. Galligioni - Health status and cephalopods diseases

- 4.9 List potential disease risks in the animal facility, including specific predisposing factors which may be relevant. Name methods available for maintaining appropriate health status (including use of barriers, different containment levels use of sentinels as relevant to the species).
- 4.12 List the correct procedures for ensuring health, welfare and care of animals during their transport.
- 4.13 List potential human health hazards associated with contact with laboratory animals (including allergy, injury, infection, zoonosis) and how these can be prevented.
- 5.3 Discuss factors to be considered and methods available for assessing and recording the welfare of animals e.g. score sheets
- 23.10 Describe a health-screening programme suitable for the animals in their care.
- 23.11 Discuss potential sources of disease in the animal facility
- 23.12 Recognise examples of laboratory animal parasites
- 23.13 Describe the life cycle of some common laboratory animal disease organisms
- 23.14 Explain methods for minimising the risk from disease organisms



**23.15** Apply suitable disease control methods under specified conditions

### G. Ponte - General Anesthesia: an introduction and considerations relevant to cephalopods; Local & General Anaesthesia in cephalopods

- 20.1** Define sedation, local and general anaesthesia
- 20.2** Identify the three components of the triad of anaesthesia and understand that different anaesthetic agents produce these to different degrees
- 20.3** Define balanced anaesthesia and indicate that this is best achieved by using drugs in combinations to achieve all components of the anaesthetic triad to an acceptable degree
- 20.4** Relate why and when sedation or anaesthesia might be used for restraint
- 20.5** List the factors to be considered in pre-anaesthetic evaluation of animals - how to perform a basic health check, consider physiological or pathological status of the model they are working with and how these may influence the choice of anaesthetic agent.
- 20.6** Discuss the relative merits / drawbacks and principles of selection of different agents and their application, including calculation of doses, in relevant species, including injectable and volatile agents (or dissolved agents in the case of aquatic species), including local anaesthesia regimes
- 20.7** Indicate the importance of minimising stress prior to anaesthesia in reducing the likelihood of complications due to anaesthesia
- 20.8** Recognise when premedication is beneficial to incorporate into an anaesthetic regime
- 20.9** Describe and demonstrate the correct set-up, operation and maintenance of anaesthetic equipment appropriate to the species concerned
- 20.10** Evaluate and appreciate the different levels and planes of anaesthesia (voluntary excitement, involuntary excitement, surgical anaesthesia (light, medium & deep), excessively deep).
- 20.11** List the factors indicating that an animal is suitably anaesthetized (stable and of appropriate depth) to enable procedures to be undertaken and what actions should be taken if an adverse event occurs. This will include basic “hands on” and “observational” anaesthetic monitoring techniques, including assessment of reflexes appropriate for species
- 20.12** Describe methods of optimising post anaesthetic recovery (e.g. heat blankets, analgesia, reversal agents, access to food and water, environmental conditions) to ensure a smooth and rapid recovery from anaesthesia.
- 20.13** Demonstrate an understanding of safe/good working practices with regard to use, storage and disposal of anaesthetic and analgesic agents.

### V. Galligioni - Basic principles of surgery for aquatic species; considerations to cephalopods

- 22.1** Explain the relevance and need for pre-operative assessment and, where appropriate, conditioning.
- 22.2** Identify sources of reference for good surgical practice
- 22.5** Describe in general terms how personnel, animals, instruments and equipment should be prepared for aseptic surgery
- 22.15** Describe particular aspects of care appropriate for animals before, during and after surgical or any other potentially painful intervention

### TBA – Nutrition and Feeding

- 3.1.5** Describe the dietary requirements of the relevant animal species and explain how these can be met.
- 4.6** Describe how to provide water and an appropriate diet for laboratory animals including the sourcing, storage and presentation of suitable foodstuffs and water

- 7.9** Describe the biological consequences of transport, acclimatization, husbandry conditions and experimental procedures on the species concerned and describe how these can be minimised.

#### **G. Ponte - Administration of substances. Theoretical considerations of practical methods**

- 7.4** Describe techniques/procedures including, for example, injection, sampling and dosing techniques (routes/volumes/frequency), dietary modification, gavage, tissue biopsy, behavioural tests, use of metabolic cages
- 7.5** Describe how to perform minor techniques and relate appropriate sample volumes and sampling frequencies for the relevant species
- 7.6** Describe the need for rigour and consistency in conducting scientific procedures and the correct recording and handling of samples
- 7.7** Describe appropriate methods for the assessment of the welfare of animals with respect to the severity of procedures and know what appropriate action to take

#### **G. Fiorito - Recognition of pain, suffering and distress**

- 2.8** Describe the concept of harms to animals including avoidable and unavoidable suffering, direct, contingent and cumulative suffering
- 5.1** Recognise normal or desirable behaviour and appearance of the individuals in the context of species, environment and physiological status
- 5.2** Recognise abnormal behaviour and signs of discomfort, pain, suffering, or distress, as well as signs of positive well-being and principles of how pain, suffering and distress can be managed
- 5.3** Discuss factors to be considered and methods available for assessing and recording the welfare of animals e.g. score sheets
- 5.5** Describe the severity classifications included in the Directive and give examples of each category; explain cumulative severity and the effect this may have on the severity classification
- 5.6** Describe the circumstances when anaesthesia or analgesia may be necessary to minimise pain, suffering, distress or lasting harm
- 6.1.3** Explain why someone competent to kill animals should be available at all times (whether care staff or person carrying out procedures)

## Other Training Events

### CBC Trainees and Faculty members - CBC2020 Trainees: Experiencing cephalopods

- 2.3** Identify ethical and animal welfare issues in their own work and be aware and able to reflect on the consequences of their own actions
- 7.7** Describe appropriate methods for the assessment of the welfare of animals with respect to the severity of procedures and know what appropriate action to take

### CBC Trainees and Faculty members – Practicals (I and II), including hands-on

*Module 3.2: Basic and appropriate biology – species specific (practical) [Function Specific for Functions A, C and D]*

- 3.2.1** Be able to approach, handle/pick up and restrain an animal and return it to its cage/pen in a calm, confident and empathetic manner such that the animal is not distressed or caused harm
- 8.1** Select and explain the best methods for common procedures (such as blood sampling and application of substances) including route/volume/ frequency as appropriate
- 8.2** Demonstrate that s/he can handle and restrain the animal in the best position for the technique.
- 8.3** Perform minor techniques under supervision, in a manner that does not inflict unnecessary pain, suffering, distress or lasting harm
- 6.2.1** Proficiently and humanely carry out euthanasia using appropriate techniques on relevant species of laboratory animals
- 6.2.2** Demonstrate how death is confirmed and how cadavers should be processed or otherwise disposed of.
- 20.6** Discuss the relative merits / drawbacks and principles of selection of different agents and their application, including calculation of doses, in relevant species, including injectable and volatile agents (or dissolved agents in the case of aquatic species), including local anaesthesia regimes
- 20.9** Describe and demonstrate the correct set-up, operation and maintenance of anaesthetic equipment appropriate to the species concerned
- 20.10** Evaluate and appreciate the different levels and planes of anaesthesia (voluntary excitement, involuntary excitement, surgical anaesthesia (light, medium & deep), excessively deep).
- 20.11** List the factors indicating that an animal is suitably anaesthetized (stable and of appropriate depth) to enable procedures to be undertaken and what actions should be taken if an adverse event occurs. This will include basic “hands on” and “observational” anaesthetic monitoring techniques, including assessment of reflexes appropriate for species
- 20.12** Describe methods of optimising post anaesthetic recovery (e.g. heat blankets, analgesia, reversal agents, access to food and water, environmental conditions) to ensure a smooth and rapid recovery from anaesthesia.
- 20.13** Demonstrate an understanding of safe/good working practices with regard to use, storage and disposal of anaesthetic and analgesic agents