



THE KENNEL CLUB  
DOG HEALTH

# Breed Health and Conservation Plan

## Chesapeake Bay Retriever Evidence Base

## CONTENTS

<b>INTRODUCTION.....</b>	<b>3</b>
<b>DEMOGRAPHICS.....</b>	<b>3</b>
<b>BREED HEALTH CO-ORDINATOR ANNUAL HEALTH REPORT.....</b>	<b>4</b>
<b>BREED SPECIFIC HEALTH SURVEYS.....</b>	<b>5</b>
<b>INSURANCE DATA.....</b>	<b>7</b>
<b>BREED WATCH.....</b>	<b>8</b>
<b>UK LITERATURE REVIEW.....</b>	<b>8</b>
<b>ASSURED BREEDER SCHEME.....</b>	<b>9</b>
<b>BREED CLUB BREEDING RECOMMENDATIONS.....</b>	<b>9</b>
<b>DNA TEST RESULTS.....</b>	<b>9</b>
<b>CANINE HEALTH SCHEMES AND ESTIMATED BREEDING VALUES.....</b>	<b>9</b>
<b>REPORTED CAESAREAN SECTIONS.....</b>	<b>13</b>
<b>GENETIC DIVERSITY MEASURES.....</b>	<b>14</b>
<b>CURRENT RESEARCH.....</b>	<b>15</b>
<b>PRIORITIES.....</b>	<b>17</b>
<b>ACTION PLAN.....</b>	<b>19</b>
<b>REFERENCES.....</b>	<b>20</b>

## INTRODUCTION

The Kennel Club launched a dynamic new resource for breed clubs and individual breeders – the Breed Health and Conservation Plans (BHCP) project – in September 2016. The purpose of the project is to ensure that all health concerns for a breed are identified through evidence-based criteria, and that breeders are provided with useful information and resources to support them in making balanced breeding decisions that make health a priority.

The Breed Health and Conservation Plans take a complete view of breed health with consideration to the following issues: known inherited conditions, complex conditions (i.e. those involving many genes and environmental effects such as nutrition or exercise levels, for example hip dysplasia), conformational concerns and population genetics.

Sources of evidence and data have been collated into an evidence base which gives clear indications of the most significant health conditions in each breed, in terms of prevalence and impact. Once the evidence base document has been produced it is discussed with the relevant Breed Health Co-ordinator and breed health committee or representatives if applicable. Priorities are agreed based on this data and incorporated into a list of actions between the Kennel Club and the breed to tackle these health concerns. These actions are then monitored and reviewed on a regular basis.

## DEMOGRAPHICS

The number of new registrations of Chesapeake per year are shown in Figure 1.

The trend of registrations over year of birth (1980-2018) was 2.39 per year (with a 95% confidence interval of 1.39 to 3.39), reflecting the slight increase in trend of registrations for the breed. Numbers for the breed have fluctuated throughout this period but have always been numerically small.

[Put simply, 95% confidence intervals (C.I.s) indicate that we are 95% confident that the true estimate of a parameter lies between the lower and upper number stated.]

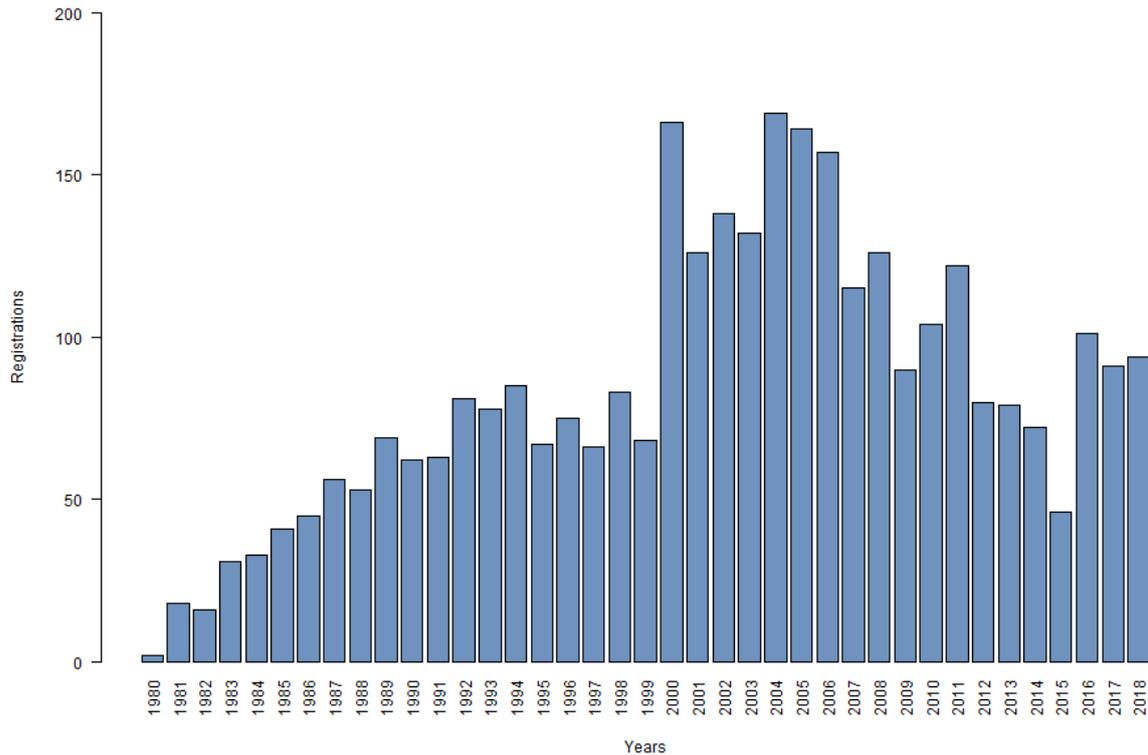


Figure 1: Number of registrations of Chesapeakes per year of birth, 1980 – 2018

## BREED HEALTH CO-ORDINATOR ANNUAL HEALTH REPORT

Breed Health Co-ordinators (BHCs) are volunteers nominated by their breed to act as a vital conduit between the Kennel Club and the breed clubs with all matters relating to health.

In the 2018 Annual Health Report the BHC listed the three main health and welfare conditions in the Chesapeake Bay Retriever as:

1. Degenerative myelopathy
2. Hip dysplasia
3. Elbow dysplasia

With regard to these concerns the breed have continued to encourage owners to test dogs prior to breeding and puppy buyers to ensure a puppy's parents are health tested prior to buying, run a breed health survey and added a list of health tested stud dogs and litters on the breed club website.

In the 2017 Annual Health Report the BHC listed the three main health and welfare conditions in the Chesapeake Bay Retriever as:

1. Degenerative myelopathy (DM)
2. Hip dysplasia

### 3. Elbow dysplasia

With regard to these concerns the breed have been in conversation with the Animal Health Trust (AHT) for a DM affected dog to be included under the Give a Dog a Genome project, as well as encouraging owners to send samples of affected dogs to the trust. Breeders are also encouraged to hip and elbow score breeding stock under the Kennel Club (KC)/ British Veterinary Association (BVA) schemes prior to breeding, and encouraging puppy buyers to source puppies responsibly.

## **BREED SPECIFIC HEALTH SURVEYS**

### Kennel Club Pedigree Breed and Purebred Dog Health Survey Results

The below surveys were disseminated in 2004 and 2014 by the Kennel Club Health Team, to decipher current health and welfare concerns across all registered breeds.

**2004 Morbidity results:** Health information was collected for 120 live Chesapeakes. The most frequently reported specific conditions were pyometra (5.56%, 4 of 72 reported conditions), lipoma (5.56%, 4 of 72 reported conditions), undiagnosed skin irritation/ scratching/ itchy skin (5.56%, 4 of 72 reported conditions) and cruciate ligament rupture (5.56%, 4 of 72 reported conditions).

**2004 Mortality results:** A total of 45 deaths were reported for the breed. The median age at death for Chesapeakes was 10 years and 9 months (min = 9 months, max = 15 years and 8 months). The most frequently reported causes of death were old age (unspecified) (22.2%, 10 of 45 deaths), cancer (13.3%, 6 deaths), trauma (11.1%, 5 deaths), cerebral vascular (8.9%, 4 deaths) and behaviour (6.7%, 3 deaths).

**2014 Morbidity results:** Health information was collected for 54 live Chesapeakes of which 29 (53.7%) had no reported conditions and 25 (42.3%) were reported to be affected by at least one condition. The most commonly reported specific conditions were alopecia/baldness (proportion of 5.56%, 3 cases), arthritis (proportion 5.56%, 3 cases), hip dysplasia (5.56%, 3 cases), unspecified tumours/cancer (5.56%, 3 cases), and cruciate disease (3.77%, 2 cases).

**2014 Mortality results:** Eight deaths were reported in the breed, with a range of longevity of 2 years to 14 years. Reasons for cause of death were old age (50.0%, 4 cases), bone cancer (1 case), gastric tumour (1 case), pancreatitis (1 case) and unknown (1 case).

### Breed-specific health survey 2018

A 2018 breed health survey was conducted by the Chesapeake Bay Retriever Club and the Kennel Club Health Team with a report provided below.

Overall, 98 owners responded to the survey, representing 162 dogs, of which 100 were females and 62 males. Of these 102 were entire and 60 neutered, and 34 had been bred from.

Eighteen owners reported that their dog(s) had been affected by a musculoskeletal condition, with the most commonly condition being arthritis (n=12, 7.4%), elbow dysplasia (n=4, 2.5%), cruciate ligament rupture (n=4, 2.5%), hip dysplasia (n=3, 1.9%) and one case for the following: lameness, spondylitis and other. One owner provided further information with regard to their dog affected by elbow dysplasia, with the dog diagnosed at 10 years of age as a result of lameness. Similarly, four owners gave more information for their dog(s) affected by cruciate disease, with the range of age from 14 months to 4 years, and the median age 3 years 6 months. Clinical signs associated with the condition were reduced activity, lameness, decreased motion, abnormal gait and difficulty in jumping.

Five owners reported that their dog(s) had been affected by a breathing condition, with the most common disorder being Kennel cough (n=3, 1.9%), and one case for muscle collapse around the larynx/ laryngeal collapse, lung cancer and laryngeal paralysis.

Fifteen owners reported an ear, skin or coat condition affecting their dog(s), with the most common condition being dermatitis (n=5, 3.1%), not known (n=4, 2.5%), and excessive ear wax (n=3, 1.9%).

Fourteen owners reported a gastrointestinal condition, with the most commonly reported condition being gastric dilatation volvulus/bloat (n=4, 2.4%), food allergies or intolerance (n=4, 2.5%), and umbilical hernia (n=3, 1.9%).

Twenty owners reported witnessing cancers/lumps in their dog(s), with the most commonly reported condition being lipoma/fatty lump (n=10, 6.2%), skin lump (not cancerous) (n=4, 2.5%), not known (n=3, 1.9%).

Six owners reported an eye condition affecting their dog(s), with two reports of entropion, and discharge, and one for progressive retinal atrophy, epiphora, and cataracts respectively.

Seven owners reported a reproductive condition, with the most commonly reported being pseudopregnancy (n=8, 4.9%), foetal death/ natal abortion (n=4, 2.4%), and three reports for dystocia, mastitis, and pyometra.

Another condition reported with a case of more than one in the 'other' category was arrhythmia, which affected three dogs and degenerative myelopathy which affected one dog.

Another survey was disseminated in 2014 for the breed with results totalling 141 dogs. Of these 48% were found to be free from any conditions, with the remaining dogs affected by one or more condition(s). The top five most common specific health concerns were Kennel Cough (16 cases, 11.3% affected), arthritis (9 cases, 6.4%), dermatitis (8 cases, 5.7%), lameness (7 cases, 5.0%), and cruciate ligament rupture (7 cases, 5.0%).

Prevalence of health conditions by category were also recorded, with musculoskeletal the most commonly affected system (35 reported conditions, 18% of dogs), followed by respiratory conditions (16 reported, 11% of dogs), dermatological (16 reported, 9% of dogs), gastrointestinal (16 reported, 9%), and cancers (16 reported, 9%). A detailed report can be found on the breed club website at: <http://www.chesapeakebayretrieverclub.co.uk/health.html>.

## INSURANCE DATA

There are some important limitations to consider for insurance data:

- Accuracy of diagnosis varies between disorders depending on the ease of clinical diagnosis, clinical acumen of the veterinarian and facilities available at the veterinary practice.
- Younger animals tend to be overrepresented in the UK insured population.
- Only clinical events that are not excluded and where the cost exceeds the deductible excess are included (O'Neill et al, 2014)

However, insurance databases are too useful a resource to ignore as they fill certain gaps left by other types of research; in particular they can highlight common, expensive and severe conditions, especially in breeds of small population sizes, that may not be evident from teaching hospital caseloads (Egenvall et al, 2009).

### UK Agria data

Insurance data were available for Chesapeakes insured with Agria UK. 'Exposures' are equivalent to one full policy year; in 2017 there were 53 free exposures, 22 full exposures and 30 claims, in 2018 these figures were 35, 25 and 36 respectively. Full policies are available to dogs of any age. Free policies are available to breeders of Kennel Club registered puppies and cover starts from the time the puppy is collected by the new owner; cover under free policies lasts for five weeks from this time. It is possible that one dog could have more than one settlement for a condition within the 12-month period shown.

Conditions by number of settlements, for authorised claims where treatments started between July 2017 and June 2018, are shown in Table 1 below. 'Benefit other than vet fees' refers most commonly to a claim for death of the dog but can also cover travel costs, boarding fees and advertising for lost dogs. There were a low number of claims for any specific disorder.

Table 1: Conditions and number of settlements for each condition between July 2017 and June 2018 for Chesapeakes insured with Agria UK shown.

Condition	Number of settlements
Carcinoma - prostatic	10
Cruciate ligament rupture - cranial	5
Elbow dysplasia (canine)	4
Gastrointestinal disorder finding	2
Lethargy finding	2
Intoxication (poisoning) plant – grape/raisin	2
Prostatitis	1
Melanocytic neoplasm - benign melanoma (site unspecified)	1
Bite injury	1
Adenocarcinoma - prostatic	1

## BREED WATCH

The Chesapeake is currently a category 1 breed, meaning that judges are not required to complete mandatory breed health monitoring forms following judging this breed. Optional reports are available for judges when judging category 1 breeds should they find any health or welfare concerns, however no optional forms have been received for this breed.

## UK LITERATURE REVIEW

The literature review lays out the current scientific knowledge relating to the health of the breed. We have attempted to refer primarily to research which has been published in peer-reviewed scientific journals. We have also incorporated literature that includes dogs residing within the UK primarily, and literature that was released relatively recently to try to reflect current publications and research relating to the breed. As the Chesapeake is an American breed it is worth noting that there may be publications available for the America based population of the breed.

*Cranial cruciate ligament disease:* Whilst no prevalence data was provided or odds ratios for the breed, a paper of UK dogs affected by cruciate disease established the Chesapeake Bay Retriever as being predisposed to the condition (Adams et al, 2011).

### VetCompass

There are no VetCompass papers currently relevant to the Chesapeake.

## ASSURED BREEDER SCHEME

Currently it is required that all breeding stock are:

- Hip scored under the BVA/KC Hip Dysplasia Scheme
- Eye tested annually under the BVA/KC/International Sheepdog Society (ISDS)

Assured Breeders are also recommended to:

- DNA test for prcd-PRA

## BREED CLUB BREEDING RECOMMENDATIONS

There are no breed club breeding recommendations currently included under the Assured Breeder Scheme.

## DNA TEST RESULTS

DNA tests are available and accepted by the Kennel Club for:

- Progressive retinal atrophy prcd (prcd-PRA)
- prcd- PRA (linkage)
- Degenerative myelopathy (DM)

A list of all available laboratories and details of testing can be found through:

<https://www.thekennelclub.org.uk/health/for-breeders/dna-testing-simple-inherited-disorders/worldwide-dna-tests/>

Table 2: DNA Test Results and the Genetic Status for Chesapeakes tested to date (18/07/2019)

DNA Test	High Risk	Reduced Risk	Significantly Reduced Risk	Hereditarily Carrier	Hereditarily Clear	Total Tested
DM	4 (0.6%)	32 (4.9%)	82 (12.6%)	0 (0.0%)	532 (81.8%)	650
prcd-PRA	0 (0.0%)	5 (0.79%)	34 (5.4%)	0 (0.0%)	591 (93.8%)	630

## CANINE HEALTH SCHEMES AND ESTIMATED BREEDING VALUES

All of the BVA/KC Health Schemes are open to dogs of any breed, and the results for Chesapeakes which have been presented for assessment under the BVA/KC Elbow Dysplasia Scheme and BVA/KC/ISDS Eye Scheme are also shown below.

## HIPS

Up to the 18<sup>th</sup> July 2019 536 Chesapeakes have been hip tested under the BVA/KC Hip Dysplasia Scheme, with the scores ranging from 0 to 61, and a five year and 15 year median of 9 for the breed.

Hip score categories received by Chesapeakes which participated in the BVA/KC Hip Dysplasia Scheme between 1990 and 2016 are shown in five year blocks (which can be considered to approximate to a generation) in Figure 2 below. The categories correspond to those assigned under the FCI (Europe)'s hip grading scheme; for one hip, a 'normal' hip scores 0-3, borderline scores 4-8, mild HD scores 9-18, moderate HD scores 19-30 and severe HD represents a score greater than 30. Further information on these categories can be found here: [https://www.bva.co.uk/uploadedFiles/Content/Canine Health Schemes/chs-comparison-of-hd-schemes.pdf](https://www.bva.co.uk/uploadedFiles/Content/Canine_Health_Schemes/chs-comparison-of-hd-schemes.pdf).

Over this time period there is a reduction in the proportion of Chesapeakes with moderate to severe hip dysplasia, with normal and borderline scores appearing to be stable.

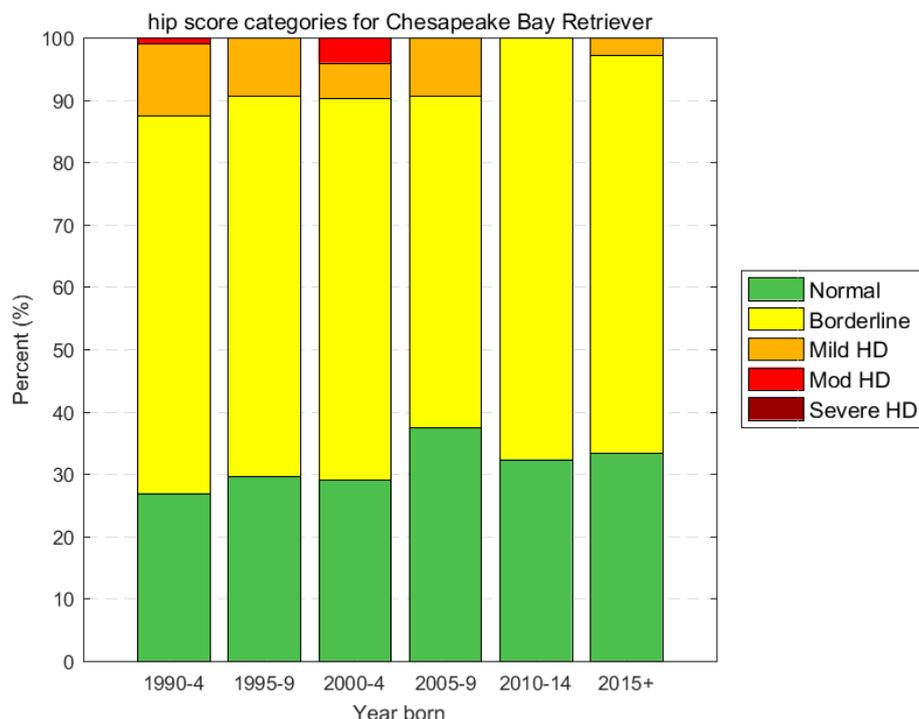


Figure 2 – Hip score categories for Chesapeakes which participated in the BVA/KC Hip Dysplasia Scheme between 1990 and 2016, in 5-year blocks.

## ELBOWS

To date 70 Chesapeakes have been scored under the BVA/KC Elbow Dysplasia scheme, with the results shown in Table 3 below.

Table 3: Elbow Score Results for Chesapeakes tested to date under the BVA/KC Elbow Dysplasia Scheme (18/07/2019)

<b>Elbow score</b>	<b>Number of dogs</b>	<b>Percentage</b>
0	59	84.3%
1	6	8.6%
2	4	5.7%
3	1	1.4%

Estimated breeding values (EBVs) are not yet available for the breed due to the small number of dogs that have been tested to date.

## EYES

Schedule A of the BVA/KC/ISDS eye scheme lists the known inherited eye conditions in breeds where there is enough scientific information to show that the condition is inherited in that breed, often including the actual mode of inheritance and in some cases even a DNA test. Schedule B lists those breeds in which the conditions are, at this stage, only suspected of being inherited. However, the BVA still records the results of dogs of other breeds which have participated in the scheme.

The Chesapeake is currently on Schedule A for generalised progressive retinal atrophy (GPRA) and hereditary cataracts (HC) under the BVA/KC/ISDS Eye Scheme. In total 841 Chesapeakes have been examined under the scheme to date (18/07/2019) with the results from these dogs shown in Table 4 below.

Table 4: The results of Chesapeake Bay Retrievers tested under the BVA/KC/ISDS Eye Scheme to date (18/07/2019)

<b>Eye Result</b>	<b>Number Seen</b>
Affected GRPA	2 (0.2%)
Affected GPRA and HC	1 (0.1%)
Affected HC	17 (2.0%)
Unaffected	821 (97.6%)

The BVA also records any other conditions identified during examination that are not currently listed on Schedule A or B, these are summarised in sightings reports which are shown in Table 5 below.

Table 5: Sighting reports on dogs of the breed which have participated in the BVA/KC/ISDS Eye Scheme since 2012-2018

Year	Number Seen	Comments
2012	29 adults 1 litter	No comments
2013	34 adults 0 litters	3 – Persistent pupillary membranes (PPM) 5 – Persistent hyperplastic primary vitreous (PHPV)
2014	27 adults 0 litters	1 – Hereditary cataracts (HC) 1 – PPM
2015	31 adults 0 litters	2 – other cataract
2016	28 adults 0 litters	No comments
2017	28 adults No litters	No comments
2018	36 adults 0 litters	Not yet released

### AMERICAN COLLEGE OF VETERINARY OPHTHALMOLOGISTS (ACVO)

The American College of Veterinary Ophthalmologists (ACVO) consider the Chesapeake to be at risk of entropion, distichiasis, persistent pupillary membranes (iris to iris and lens pigment foci/no strands), retinal atrophy – generalised, retinal dysplasia – folds and geographic/detached, in addition to cataracts (Genetics Committee of the ACVO, 2017).

In 2018, 228 dogs of the breed were examined by the ACVO in America and prevalence data are shown in Table 6 alongside data from previous years. Overall, 75.9% (173 of 228) of dogs of the breed examined in 2018 had healthy eyes unaffected by any disease conditions.

Table 6: ACVO examination results for Chesapeakes, 1991 - 2018

Disease Category/Name	Percentage of Dogs Affected			
	1991-1999 (n=4494)	2000-2009 (n=5655)	2010-2017 (n=3360)	2018 (n=228)
<b>Eyelids</b>				
Distichiasis	7.1%	6.9%	8.5%	6.1%
<b>Uvea</b>				
Persistent pupillary membranes – iris to iris	1.4%	1.7%	2.5%	2.6%
Persistent pupillary membranes – lens pigment foci/no strands	0.0%	0.0%	1.7%	2.6%
<b>Lens</b>				
Cataract (significant)	7.8%	5.6%	5.6%	10.1%
<b>Vitreous</b>				
Vitreous degeneration	0.4%	0.7%	1.4%	1.8%
<b>Retina</b>				
Generalised progressive retinal atrophy	0.9%	0.7%	0.4%	0.9%

Adapted from: <https://www.ofa.org/diseases/eye-certification/blue-book>

## REPORTED CAESAREAN SECTIONS

When breeders register a litter of puppies, they are asked to indicate whether the litter was delivered (in whole or in part) by caesarean section. In addition, veterinary surgeons are asked to report caesarean sections they perform on Kennel Club registered bitches. The consent of the Kennel Club registered dog owner releases the veterinary surgeon from the professional obligation to maintain confidentiality (vide the Kennel Club General Code of Ethics (2)).

There are some caveats to the associated data;

- It is doubtful that all caesarean sections are reported, so the number reported each year may be an underrepresentation of the true proportion of caesarean sections undertaken in each breed
- It is accepted that the practise of reporting has generally increased in awareness since 2012, which correlates with the rise in caesarean sections across all breeds
- These data do not indicate whether the caesarean sections were emergency or elective

The number of litters registered per year for the Chesapeakes and the number and percentage of reported caesarean sections in the breed for the past 10 years are shown in Table 7.

Table 7: Number and percentage of litters of Chesapeakes registered per year and number of caesarean sections reported per year, 2008 to 2018.

Year	Number of Litters Registered	Number of C-sections	Percentage of C-sections	Percentage of C-sections out of all KC registered litters (all breeds)
2008	17	0	0.00%	0.05%
2009	14	0	0.00%	0.15%
2010	14	0	0.00%	0.35%
2011	16	0	0.00%	1.64%
2012	12	0	0.00%	8.69%
2013	12	3	25.00%	9.96%
2014	9	0	0.00%	10.63%
2015	6	1	16.67%	11.68%
2016	14	4	28.57%	13.89%
2017	12	1	8.33%	15.00%
2018	14	1	7.14%	17.21%

## GENETIC DIVERSITY MEASURES

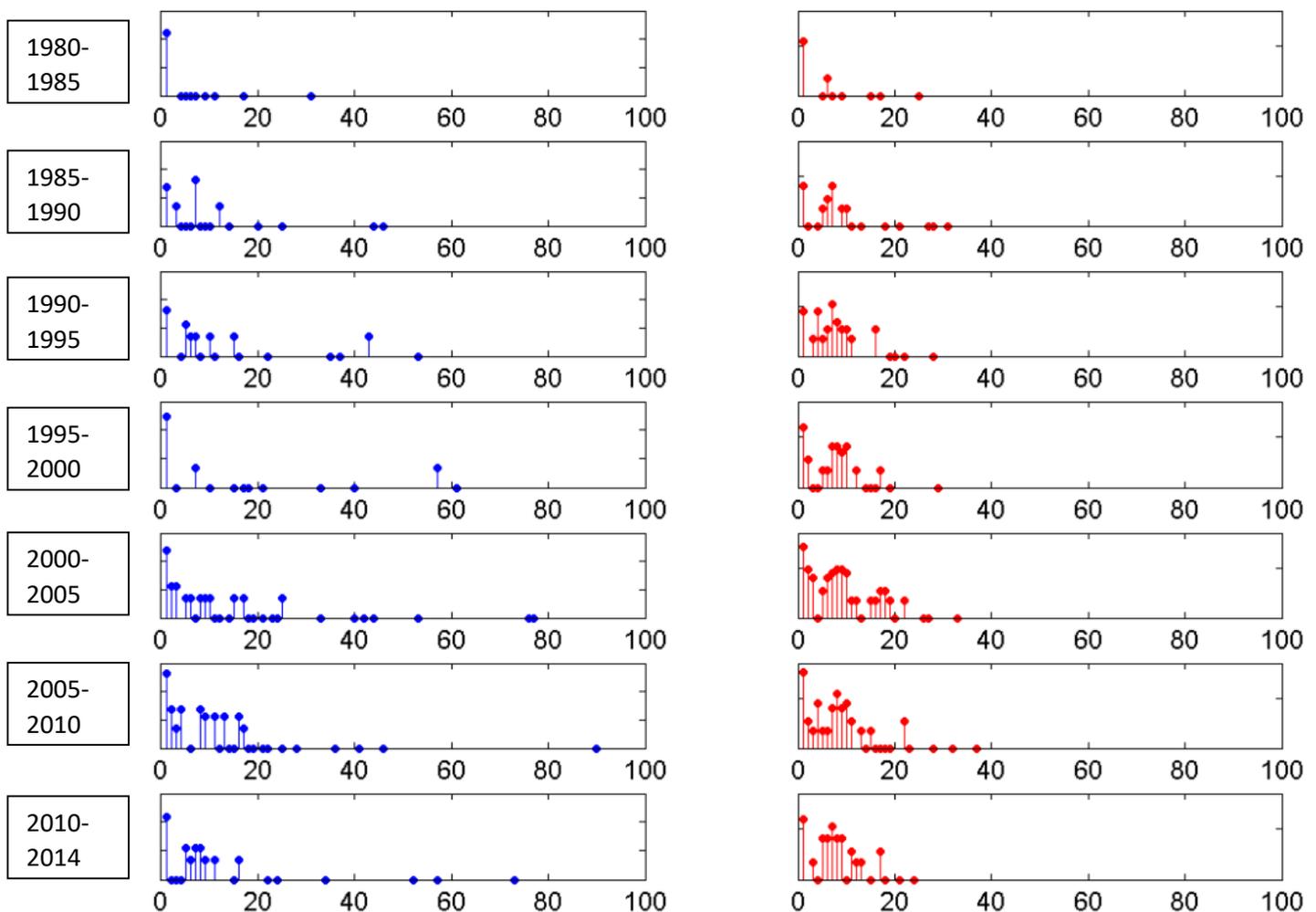
The effective population size is the number of breeding animals in an idealised, hypothetical population that would be expected to show the same rate of loss of genetic diversity (rate of inbreeding) as the population in question; it can be thought of as the size of the 'gene pool' of the breed. In the population analysis undertaken by the Kennel Club in 2015, an estimated effective population size of 96.5 was reported (estimated using the rate of inbreeding over the period 1980-2014).

Below an effective population size of 100 (inbreeding rate of 0.50% per generation) the rate of loss of genetic diversity in a breed/population increases dramatically (Food & Agriculture Organisation of the United Nations, "Monitoring animal genetic resources and criteria for prioritisation of breeds", 1992). An effective population size of below 50 (inbreeding rate of 1.0% per generation) indicates the future of the breed may be considered to be at risk (Food & Agriculture Organisation of the United Nations, "Breeding strategies for sustainable management of animal genetic

resources”, 2010). For full interpretation see Lewis et al, 2015  
<https://cgejournal.biomedcentral.com/articles/10.1186/s40575-015-0027-4>.

The current breed average inbreeding coefficient is 5.3%.

Below is a histogram (‘tally’ distribution) of the number of progeny per sire and dam over each of seven five-year blocks (Figure 3). A longer ‘tail’ on the distribution of progeny per sire is indicative of ‘popular sires’ (few sires with a very large number of offspring, known to be a major contributor to a high rate of inbreeding). There appears to be extensive use of popular dogs as sires in this breed (the ‘tail’ of the *blue distribution in figure 3*). Figure 3: Distribution of progeny per sire (blue) and per dam (red) over 5-year blocks (1980-4 top, 2010-14 bottom). Vertical axis is a logarithmic scale.



## CURRENT RESEARCH

The Breed Club has contributed to the Animal Health Trust’s Give a Dog a Genome Project. A Chesapeake with Hereditary Cataracts (HC) was selected for whole genome sequencing. The Animal Health Trust also have older DNA samples from other Chesapeakes that had HC in the past, and it is hoped that in the future, it may

be possible to use all these data to reduce the incidence of HC in the breed. It should be noted that HC occurs occasionally in Chesapeakes, but is not common.

The American Chesapeake Club is supporting Degenerative Myelopathy (DM) research at the University of Missouri, USA, where the SOD1 gene mutation was discovered. More than half the Chesapeakes tested for SOD1 carry this gene mutation. Ongoing research continues to look genetic modifier genes that may influence a dog's susceptibility to developing the disease, i.e. what additional genetic factors may determine whether an animal will get DM, and the age of onset, using genome sequencing.

In addition, the University of Missouri is also conducting clinical trials open to all breeds of dog with early signs of DM, to evaluate drugs that may slow down disease progression. Participation in the clinical trials requires travel to the University of Missouri so it is not possible for UK Chesapeake owners.

A DNA test for chondrodystrophy (CDDY) and chondrodysplasia (CDPA) has been developed – and consequential disc calcification and herniation is also being investigating for the breed at University of California Davis.

## PRIORITIES

A meeting was held with the Chesapeake Bay Retriever breed representatives on 16th July 2019 to discuss Section 1 of the BHCP and to discuss the priority health concerns and ongoing actions for the health of the breed.

The group discussed the KC Purebred and Pedigree Health Survey, noting the high incidence of alopecia/baldness. The breed representatives noted reports of hair loss in the show ring, however, pointed out that they were only aware of very few anecdotal reports and no optional judges' health monitoring forms had been submitted regarding the situation. Additionally, the breed asked in their newsletter if any dogs had suffered from hair loss, but no responses were received. The group discussed the possibility of the hair loss being associated with atopy, however, the breed was unaware of atopy concerns in the UK population. The Office raised the ongoing 'Itchy Dog Survey' which is part of an atopy study with the University of Nottingham, and the group agreed that if additional cases are reported, it would be beneficial for the breed to participate in the survey.

The group reviewed the insurance data provided and noted the reoccurrence of prostate conditions, however, the Office highlighted that care should be taken when drawing conclusions from these data as one dog could be associated with more than one settlement and that many of the conditions were reported in a statistically low number of dogs. The breed raised that they were unaware of any prostate concerns. The group also highlighted the reoccurrence of cruciate ligament rupture and noted the potential tendency for the breed due to their working lifestyle. Potential research opportunities were discussed, and the Office updated the group to an upcoming study with the University of Surrey, and it was agreed that updates would be provided when available.

The prevalence of gastric dilatation-volvulus (GDV)/ bloat was discussed, however, from anecdotal reports, the incidence appears low. The breed club has previously published an article written by a general practice veterinarian in their newsletter to help increase awareness of the condition and to advise owners on general management techniques. The group raised the current lack of GDV/ bloat research and the Office updated the group to the ongoing development of a disease priority index for all registered breeds and noted that it is hoped the KC will be directing further research into bloat in the future for all affected breeds.

Concerning the Assured Breeder Scheme (ABS) requirements and recommendations, the breed updated the group to their current breed club puppy buyer guidance which advises buying a puppy from parents which are hip and elbow scored, PRA and DM screened and have a clear annual eye test certificate. The Office highlighted that the KC try to mirror the breed clubs guidelines under the ABS, and emphasised that as a minimum, these recommendations will make breeders and puppy buyers mindful. It was suggested for the breed club to consider submitting an application to the ABS for the addition of these recommendations.

With regard to DM, the breed representatives noted the condition as a main concern for the breed and expressed their apprehension for the condition particularly due to the significant percentage of carriers in the breed population and the distressing presentation of the condition. The American Chesapeake Club are currently engaging with the University of Missouri regarding a potential DM study, and the Office reminded the group of the development of the disease priority index as discussed previously. It was agreed that both the breed clubs and the Office would provide updates to the group when available.

Canine Health Schemes data were discussed, and the group highlighted the positive hip score trend evidenced. With regard to the elbow scheme, although only 15.7% of the tested population were affected by some degree of elbow dysplasia, further data is required for conclusions to be drawn and the group discussed the potential benefit of adding the BVA/KC elbow scheme to the ABS to increase data collection and facilitate significant analysis. The group agreed that the CHS data will be continually monitored and the breed will continue to encourage participation.

The genetic diversity measures from Dr Lewis' 2015 study were discussed, with the Chesapeake Bay Retriever having an effective population size of 96.5, which is within the region where there could be associated risk with reduced diversity. Additionally, the consistent use of popular sires was highlighted, and it was raised that this will highly contribute to an increased rate of inbreeding. The group noted that the situation should continue to be closely monitored, to try and preserve the breed genetic diversity.

With regard to current research, the breed have been involved with the AHT Give a Dog a Genome project, however, no further updates have been provided to the breed club on the project as of yet. Additionally, the American breed club have been proactive with research regarding DM at the University of Missouri, as discussed above, and chondrodysplasia. Furthermore, the Office agreed to keep the breed updated on opportunities for GDV/ bloat and cruciate ligament research.

The group agreed from the evidence base and their own experience that the priorities for the Chesapeake Bay Retriever are:

- Degenerative myelopathy
- Eye concerns
- Hip dysplasia
- Elbow dysplasia.

In addition, it was decided that cruciate ligament concerns would be closely monitored.

## ACTION PLAN

The following actions were decided between the breed clubs and the Kennel Club to tackle the priorities agreed (see page 22).

Breed club actions include:

- The breed club to consider making a proposal for testing under the BVA/KC Elbow Dysplasia Scheme as a recommendation on the Assured Breeder Scheme
- The breed club to consider making a proposal for DNA testing for degenerative myelopathy as a recommendation on the Assured Breeder Scheme
- The breed club to encourage uptake of the BVA/KC Hip Dysplasia Scheme
- The breed club and the Kennel Club to monitor research outcomes into degenerative myelopathy at the University of Missouri

Kennel Club actions include:

- The Kennel Club to keep the breed updated on any progress with a cruciate ligament study, which will most probably be held with the University of Surrey
- The Kennel Club to investigate an update of the Give a Dog a Genome project at the Animal Health Trust
- A review to be held to review progress with the breed representatives in July 2021

## REFERENCES

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