**Legend for Aquatic Animal Antimicrobial Resistance Database**

Table, Excel

Description automatically generated

The following fields, adapted from *Resistancebank* (https://resistancebank.org), were used to populate the aquatic animal antimicrobial resistance database. Multiple lines in the database can correspond to the same publication: different combinations of the studied animals, sample types, coordinates, start and end dates and antibiotics studied. Where a publication contains multiple sources of data (e.g. from both ornamental fish and food fish; or from waters and aquatic animals) and that data is disaggregated and attributable to each source, only the eligible data within the parameters of the study inclusion/exclusion criteria were extracted. When the information corresponding to a field was not available, NA is used. In these cases, a request to the corresponding author was sent by e-mail and when appropriate a comment was added in the remark field based on the author’s response.

**DOI:** *Digital Object Identifier*

When not available, the PubMed identification number (PMID) or publication title was used.

**Author:** *Author’s last name and first initial*

**PubDate:** *Year the article was published*

**ISO3:** *Three-letter country codes.*

The full list is available at: https://en.wikipedia.org/wiki/ISO\_3166-1\_alpha-3

**YCoord/XCoord:** *Latitude/Longitude in decimal degree*

The X/Y-coordinates define the position of the area where the field sampling was performed. The method used to determine the coordinates is described under “GeoPosMethod.”

**PlaceName:** *Sampling location(s) named in publication*

**LocationType:** *Water type where samples were collected*

Seven categories were possible for assignment: inland freshwater; brackish water; coastal brackish water; marine; coastal marine; inland RAS (recirculating aquaculture system); and post-harvest.

**StartDate/EndDate:** *Start and end date of study, specified in the article*

This refers to the sampling dates. Following format was used: month/day/year (e.g., 09/25/2010). Sampling might span several time periods. When exact days of sampling were not mentioned, the 15th of each month was assumed. When only sampling year(s) were given, the first and the last day of the referred period was used (e.g., 2012-2013, 01/01/2012 for StartDate and 12/31/2013 for EndDate).

**Species:** *Animal species sampled*

For publications with samples originating from multiple animal species, each animal species sampled and its corresponding information was individually recorded when provided in the publication. Where samples originated from multiple animal species and could not be disaggregated, each species was individually recorded and the corresponding information for all of the animal species sampled as a group was recorded.

**HistoryAMU:** *Whether antimicrobials were used in sampled animals*

Yes/No. Only for publications specifically indicating antimicrobials were/were not applied to the sampled animals prior to sampling; otherwise, NA was entered.

**SampleOrigin:** *Status of animal or animal product sampled*

At time of sampling, animals sampled were recorded as living or killed, or, if animal product, as product.

**HealthStatus:** *Health status of animal sampled*

At time of sampling, animals sampled were recorded as healthy, diseased, or, for populations of animals containing both healthy and diseased individuals, as mixed.

**Method:** *Methodology used for antimicrobial susceptibility testing (AST)*

Methods were recorded as either disk diffusion (DD), agar dilution (AD), broth dilution (BD), Etest or the name of the automated system (e.g. VITEK). Disk diffusion method was assumed when PPS reported the potency of disks used for the AST. When more than one methodology was used, the acronyms of the methods are separated by an underscore (“\_”).

For further applications of the database, PPS performing molecular typing or population structure analysis were also recorded. For simplicity, “\_PCR” (Polymerase Chain Reaction) was added to all studies performing molecular typing (e.g., detection of antibiotic resistance genes, virulence determinants, mobile genetic elements and MLST) or fingerprinting methods (e.g. PFGE). For PPS reporting whole genome sequencing data, a “\_WGS” was added.

There are several AST possibilities but they can be grouped into diffusion or dilution methods. Guidelines for performing these tests are given by different societies and/or organizations (CLSI, EUCAST, French Society for Microbiology – SFM). Note: antibiotic concentrations are normally expressed in μg/mL and in μg for the disk content alone.

**Pathogen:** *Bacterial genera targeted for the study*

These were defined according to the review criteria as pathogens of production significance and/or bacteria of zoonotic potential. Forty-five bacterial genera were included in the database (Supplementary information).

**Strain:** *Bacterial species or subtype*

The species of focus for the study when presented in the publication. If there was no specification, NA is introduced. When multiple species were included and could not be disaggregated, each species is recorded in the strain column and the corresponding details of the study are reported for the entire group.

For PPS reporting on a single-species, the designation is included in the strain column (e.g., a study focusing only on *Vibrio parahaemolyticus* would list “*parahaemolyticus*” in the strain column)*.*

For PPS reporting on *Salmonella* spp., the serotype was reported in the strain column.

For PPS reporting on *E. coli* pathotypes and/or serotypes characterized, these pathotypes and/or serotypes were reported into the strain column (e.g., STEC, O157, ExPEC, etc).

For studies on the characterization of bacteria carrying specific genetic traits such as antibiotic resistance genes or virulence determinants, these are specified in the strain column.

**Nsamples:** *Number of samples collected*

The total number of samples obtained at the different sampling sites.

**Prev:** *Number of samples positive for a pathogen divided by the total number of samples collected*

In the absence of bacteria, Prevalence % = 0. The value is expressed in percentage and rounded to the nearest whole number.

**NIsolates:** *Number of isolates*

The total number of isolates used for AST. Normally this is equal to the number of positive samples (prevalence). Increased numbers in comparison to the samples can be due to recovery of more than one bacterium per sample, whereas lower numbers can be attributed to the use of a representative subset or loss of bacterial viability.

**Drug:** *Antibiotic Class*

The following broad antibiotic classes were included in the database: PEN (Penicillins), CEP (Cephalosporins), MON (Monobactams), CAR (Carbapenems), AMI (Aminoglycosides), QUI (Quinolones), AMP (Amphenicols), TET (Tetracyclines), SUL (Sulfonamides), MAC (Macrolides), GLY (Glycopeptides), POL (Polymixins), and OTH (Others).

**Compound and ATC-Code:** *Antimicrobial compounds used for susceptibility testing designated by a 3-letter code and its designation in the Anatomical Therapeutic Chemical (ATC) Classification.*

ATC-Code starting with J0 stand for antibiotics for human systemic use while QJ01for veterinary use. For additional information and ATC-Code searching, please refer to https://www.whocc.no/atc\_ddd\_index/ or https://www.whocc.no/atcvet/atcvet\_index/.

For antibiotics without attributed ATC codes, a pseudo code was constructed by using the ATC code of the molecular classification (5 or 6 characters for human and veterinary antibiotics, respectively) and adding the first character of the compound’s name separated by a - (e.g. Sarafloxacin – J01MA-S). Some ATC codes are provided for mixture of compounds (e.g. J01RA01 for penicillins in combination with other antibacterials). Active ingredients’ names were reported when commercial drugs were used.

The antibiotics found across all studies are the following (3 letter code, ATC-code): Amoxicillin-Clavulanic Acid (AMC, J01CR02); Ticarcillin-Clavulanic acid (TIM, J01CR03); Piperacillin-Tazobactam (PIT, J01CR05); Ampicillin-Sulbactam (SAM, J01CR01); Ampicillin (AMP, J01CA01); Amoxicillin (AMX, J01CA04); Amoxicillin-Sulbactam (AMS, J01CR02); Azlocillin (AZL, J01CA09); Ticarcillin (TIC, J01CA13); Cloxacillin (CLO, J01CF02); Oxacillin (OXA, J01CF04); Piperacillin (PIP, J01CA12); Flucloxacillin (FLU, J01CF05); Carbenicillin (CAR, J01CA03); Methicillin (MET, J01CF03); Penicillin (PEN, J01CE01); Mezocillin (MEZ, J01CA10); Ceftriaxone (CRO, J01DD04); Ceftazidime (CAZ, J01DD02); Cefalexin (CLX, J01DB01); Cefotaxime (CTX, J01DD01); Cefepime (FEP, J01DE01); Cefoxitin (FOX, J01DC01); Cefalotin (CFL, J01DB03); Ceftiofur (CFU, QJ01DD90); Cefuroxime (CXM, J01DC02); Cefpodoxime (CPD, J01DD13); Cefazolin (CFZ, J01DB04); Cefixime (CFM, J01DD08); Cefamandole (CMD, J01DC03); Cefoperazone (CFP, J01DD12); Moxalactam (MOX, J01DD06); Cefradine (CFR, J01DB09); Sulbactam-CFP (SFP, J01DD62); Ceftizoxime (CZM, J01DD07); Cephaloridine (CLD, J01DB02); CAZ-Clavulanic Acid (CAC, J01DD52); Cefotiam (CFT, ‎J01DC07); Cefpimizole (CPM, J01DC-C); Cefminox (CMX, J01DC12); Cefaclor (CFC, J01DC04); Cefadroxil (CFR, J01DB05); Aztreonam (ATM, J01DF01); Imipenem (IPM, J01DH51); Ertapenem (ERT, J01DH03); Meropenem (MEM, J01DH02); Kanamycin (KAN, J01GB04); Gentamicin (GEN, J01GB03 ); Neomycin (NEO, J01GB05); Streptomycin (STR, J01GA01); Amikacin (AMK, J01GB06); Tobramycin (TOB, J01GB01); Apramycin (APR, QA07AA92); Netilmicin (NET, J01GB07); Spectinomycin (SPT, J01XX04); Fleroxacin (FLR, J01MA08); Enoxacin (ENO, J01MA04); Ciprofloxacin (CIP, J01MA02); Nalidixic acid (NAL, J01MB02); Pipemidic acid (PIM, J01MB04); Enrofloxacin (ENR, QJ01MA90); Norfloxacin (NOR, J01MA06); Ofloxacin (OFX, J01MA01); Oxolinic Acid (OXO, J01MB05); Flumequine (FLQ, J01MB07); Moxifloxacin (MXF, J01MA14); Levofloxacin (LVX, J01MA12); Pefloxacin (PEF, J01MA03); Marbofloxacin (MRB, QJ01MA93); Gatifloxacin (GAT, S01AE0E); Lomefloxacin (LOM, J01MA07); Danofloxacin (DAN, QJ01MA92); Sarafloxacin (SAR, J01MA-S); Chloramphenicol (CHL, J01BA01); Florfenicol (FFC, QJ01BA90); Thiamphenicol (TFC, J01BA02); Tetracycline (TET, J01AA07); Oxytetracycline (OXT, J01AA06); Doxycycline (DOX, J01AA02); Minocycline (MIN, J01AA08); Chlortetracycline (CTE, J01AA03); Sulfamethoxazole-Trimethoprim (SXT, J01EE01); Sulfamethoxazole (SMZ, J01EC01); Sulfafurazole or Sulfisoxazole (SOX, J01EB05); Sulfadiazine (SUD, J01EE-S); Sulfonamides (SSS, J01E); Trimethoprim-Sulfadiazine (TDZ, QJ01EW10); Trimethoprim (TMP, J01EA01); Sulfamonomethoxine (SMN, QJ01EQ18); Kitasamycin (KIT, QJ01FA93); Erythromycin (ERY, J01FA01); Oleandomycin (OLD, J01FA05); Lincomycin (LIN, J01FF02); Clindamycin (CLI, J01FF01); Clarithromycin (CLR, J01FA09); Tylosin (TYL, QJ01FA90); Azithromycin (AZM, J01FA10); Spiramycin (SPI, J01FA02); Tilmicosin (TIL, QJ01FA91); Roxithromycin (ROX, J01FA06); Midecamycin (MID, J01FA03); Vancomycin (VAN, J01XA01); Teicoplanin (TEC, J01XA02); Polymixin B (PMB, J01XB02); Colistin (CST, J01XB01); Linezolid (LIZ, J01XX08); Nitrofurantoin (NIT, J01XE01); Nitrofurazone (NFZ, D08AF01); Bleomycin (BLM, L01DC01); Rifampicin (RIF, J04AB02); Bacitracin (BAC, J01XX10); Fosfomycin (FOF, J01XX01); Fusidic acid (FUS, J01XC01); Metronidazole (MTD, J01XD01); Pristinamycin (PRI, J01FG01); Furazolidone (FRZ, QJ01XE90); Novobiocin (NOV, QJ01XX95); Bicyclomycin (BCM, J01-B); Virginiamycin (VRG, D06AX10).

**Rescom:** *Percentage of isolates resistant to the relevant antimicrobial compound*

Intermediate-resistant isolates were considered susceptible. All values are rounded to the nearest whole number. Any value between 0% and 1% was rounded to 1%. When inconsistencies were noted between the resistance rates reported in the main text of a publication and the tables, the values reported in the latter were used. Where only raw data was presented (e.g. diameter zone of inhibition or MIC), standard guidelines (CLSI or EUCAST) and human clinical breakpoints for the year of publication were used as the interpretive criteria (see Guidelines).

**Concg:** *Concentration of antimicrobial used for susceptibility test*

For dilution methods, this is the concentration expressed in μg/mL. For diffusion methods, this is the potency of the drug expressed in μg. In the case of antimicrobial mixtures, the sum of both concentrations was taken.

**Guidelines:** *Category of guideline document used for performing AST*

Refers to the document and year used to compare AST results against clinical breakpoints to classify a pathogen as phenotypically resistant or susceptible to an antibiotic. Values correspond to the committee that developed the guidelines, including the CLSI, the EUCAST and the SFM. Since NCCLS was renamed to CLSI in 2005, all NCCLS documents were recorded as CLSI. When the year of the guidelines used was not reported, only the acronym of the committee was reported. Where interpretive criteria used were manufacturer’s guidelines or a specific literature reference, those are recorded.

**Breakpoint:** *Breakpoint used for assessing antimicrobial susceptibility testing*

As clinical breakpoints are nearly absent for bacterial pathogens in aquatic animal species, surveys most frequently use human clinical breakpoints (at the species, genera, or family level) when available. For diffusion methods, the breakpoint is expressed as <= the diameter value in mm of the growth inhibition zone. For dilution methods, the breakpoint is expressed as >= the value of the concentration in μg/mL of bacterial growth inhibition. When breakpoints were not yet established for certain antimicrobials, the breakpoint specified by the authors were recorded. These are typically derived from breakpoints of similar molecules or from the literature.

**Remark:** *Comments relative to the publication (first row) or for specific compounds (additional rows)*