

**Hylebos Waterway Fish Injury Studies
Individual Data and Quality Assurance Results
CASE NARRATIVE**

**Toxicopathic Conditions in Flatfish
and Reproductive Toxicology in Flatfish**

Liver and Kidney Histopathology

Histopathologist's qualifications

Histologic sections of liver, kidney and gonad from individual fish were examined by three histopathologists (Mark Myers, Carla Stehr, Paul Olson) with at least three years of experience in the histopathologic examination of English sole and rock sole. The latter two examiners have completed a one-year training program under the direction of the chief pathologist, Mark S. Myers. Each histopathologist examined approximately 33% of the total number of cases.

Diagnostic criteria

Criteria for microscopic lesion diagnosis were adopted from comparative pathology textbooks (Robbins, Cotran, and Kumar, 1984) and various publications in fish histopathology (Myers et al., 1987; Moore and Myers, 1994; Johnson et al., 1991; Hinton et al., 1992).

Histologic slide labeling

All histologic slides were labeled with a random number code so that the geographic site of capture was not known to the examiner.

Internal quality control procedures for histologic slide examination

Histologic slides of liver, kidney and gonad examined originally by Carla Stehr and Paul Olson, and affected with suspected or diagnosed toxicopathic lesion types or where lesion diagnosis was not obvious, were re-examined by the chief pathologist, Mark Myers. In this way, the vast majority of fish with significant toxicopathic hepatic lesions were re-examined by the chief histopathologist. In addition, histologic slides of liver, kidney and ovary from 20 female English sole were randomly selected for re-examination from the Reproductive Injury study. Twenty cases of English sole or rock sole from the Toxicopathic Injury study in which toxicopathic liver lesions had not been detected in the original histologic examination were also randomly selected for re-examination. Out of the approximately 2500 tissue sections of liver, kidney or gonad examined (from 808 individual English sole and rock sole actually examined histologically), 382 tissue sections of liver, kidney or gonad (-15.3%) from 128 individuals (15.8%) were re-examined by the chief pathologist. The original and final, resolved diagnoses for these re-examined individual cases are set forth in Table 1.

External quality control procedures

Only one problematic case was encountered during this study, involving a tumor in the testis in specimen #94-3593. The differential diagnosis for this case was a testicular seminoma/embryonal carcinoma. This lesion was coded into the database using the more conservative diagnosis of a benign seminoma. This case has been submitted for evaluation and confirmation to Dr. John Fournie of the U.S. Environmental Protective Agency in Gulf Breeze, FL.

Coding of diagnoses into database

Each final histopathologic diagnosis was entered into the database by the examining histopathologist, using a lesion coding system developed at the Northwest Fisheries Science Center. Individual toxicopathic lesions in liver and kidney were also grouped into broader categories of toxicopathic lesions. Lesion categories include the following:

Liver-

- neoplasms (including hepatocellular adenoma, cholangioma, hepatocellular carcinoma, cholangiocellular carcinoma, and mixed hepatobiliary carcinoma [epithelial neoplasms]; mesenchymal neoplasms; all neoplasms [including epithelial or mesenchymal neoplasms])
- foci of cellular alteration (basophilic focus, eosinophilic focus, clear cell focus)
- non-neoplastic proliferative lesions (hepatocellular regeneration, oval cell proliferation, cholangiofibrosis, increased parenchymal mitotic activity)
- specific degenerative /necrosis (including megalocytic hepatitis and hepatocellular nuclear pleomorphism)
- hydropic vacuolation of biliary epithelial cells/hepatocytes (including focal hydropic vacuolation)
- nonspecific necrotic lesions
- spongiosis hepatis
- any toxicopathic liver lesion (any of the above lesions, excluding spongiosis hepatis and nonspecific necrotic lesions)

Kidney-

- neoplasms
- proliferative lesions
- necrotic lesions
- fibrotic/sclerotic lesions
- any toxicopathic kidney lesion (any of the above)

Gonad-

gonad type (testis or ovary) and developmental stage are indicated in this case narrative; detailed data on ovarian lesions are used only for female English sole in the Reproductive Injury study, and are reported in a separate case narrative.

Missing data

Occasionally the cassette used to hold tissues from individual fish will open up in the fixative container, resulting in the loss of the tissue; also, in the necropsy procedure, occasionally tissues are inadvertently not collected. Infrequent labeling

errors may also occur during the handling of a large number of fish. If the tissue is lost, or there is a question about the labeling, lesion information is not used, and missing data for a particular tissue is indicated by a blank record. Specimens collected for these studies, but where histopathology data is not available are:

- 943231 - no data for liver
- 943037, 943051, 943084, 943374, 943486, 943531, 943532, 943562, 943699, 943732, 943742, 943806, 943812, 943843 - no data for liver, kidney or gonad
- 943702 - no liver or kidney
- 943061, 943146, 943171, 943191, 943206, 943221, 943224, 943487, 943662, 943829, 943585, 943662, 943757 - no data for kidney
- 943206, 943771, 943224, 943233, 943651, 943761 - no data for kidney or gonad
- 943162, 943169, 943212, 943214, 943216, 943281, 943293, 943296, 943334, 943338, 943339, 943342, 943343, 943344, 943346, 943349, 943351, 943353, 943354, 943356, 943379, 943390, 943445, 943482, 943572, 943390, 943445, 943572, 943706, 943712, 943799, 943800 - no data for gonad

Otoliths are sometimes lost or damaged during collection; therefore age data cannot be obtained. This missing data is indicated by a blank record. Fish where we were unable to obtain age data were specimens 943350, 943374 and 943649.

Sequential gaps in the specimen numbers do not represent missing fish, those specimen numbers not listed in Table 2 were assigned to projects other than Hylebos Waterway fish injury studies.

Revisions 2/20/97.

The primary difference between this case narrative and the version previously submitted on 5/30/96, is that the data presentation has been reorganized. All the specimens are now listed in sequential order, and three new columns have been added to indicate which data is included in one or more of the three data groupings presented in the Interpretive reports. In addition, since detailed data on the histopathology of ovarian lesions in English sole is only reported in the Reproductive Injury Interpretive Report, those were placed in a separate case narrative. Quality Assurance has been expanded. Additional slides of fish previously diagnosed to have no liver lesions were randomly selected and reread by the chief pathologist as a check for false negatives. Additional missing data was identified and is included in the list above.

Citations

Toxicopathic Conditions in Flatfish and Reproductive Toxicology in Flatfish

Liver and Kidney Histopathology

CASE NARRATIVE

- Hinton, D.E., P.C. Baumann, G.C. Gardner, W.E. Hawkins, J.D. Hendricks, R.A. Murchelano, and M.S. Okihiro. 1992. Histopathologic biomarkers. In R.J. Juggett, R.A. Kimerle, P.M. Mehrle, Jr., and H.L. Bergman (eds), *Biomarkers: Biochemical, Physiological and Histological Markers of Anthropogenic Stress*, p. 155-210. Society of Environmental Toxicology and Chemistry Special Publication Series, Lewis Publishers, Chelsea, MI.
- Johnson, L.L., E. Casillas, M.S. Myers, L.D. Rhodes, and O.P. Olson. 1991. Patterns of oocyte development and related changes in plasma 17- β estradiol, vitellogenin and plasma chemistry in English sole (*Parophrys vetulus*). *J. Exp. Mar. Biol. Ecol.* 152:161-185.
- Moore, M.J., and M.S. Myers. 1994. Pathobiology of chemical-associated neoplasia. in fish. In D.C. Malins, G.K. Ostrander (eds), *Aquatic Toxicology; Molecular, Biochemical and Cellular Perspectives*. p. 327-386. Lewis Publishers, CRC Press Boca Raton FL.
- Myers, M.S., L.D. Rhodes, and B.B. McCain. - 1987. Pathologic anatomy and patterns of occurrence of hepatic neoplasms, putative preneoplastic lesions and other idiopathic hepatic conditions in English sole (*Parophrys vetulus*) from Puget Sound, Washington. U.S.A. *J. Natl. Cancer Inst.* 78(2):333-363.
- Robbins, S.L., R. S. Cotran, and V. Kumar. 1984. *Pathologic Basis of Disease*, 3rd edition. Saunders, Philadelphia, PA, 1467 p

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3004	English sole	Olson	Liver: basophilic focus, biliary Myxidium (Myx.), hep. coccidia, lymphoid inflit. Kidney: no significant lesions Testis: stage 2, no significant lesions Liver: biliary Myxidium, hep. coccidia Kidney: interstitial helminth ovum, no significant lesions	Liver: basophilic focus, biliary Myxidium (Myx.), hep. coccidia, lymphoid inflit. Kidney: no significant lesions Testis: stage 2, no significant lesions Liver: biliary Myxidium, hep. coccidia Kidney: interstitial helminth ovum, no significant lesions
94-3006	English sole	Olson	Ovary: stage 3, stromal lymphoid infiltrate, atresia	Ovary: stage 3, stromal lymphoid infiltrate, atresia
94-3008	English sole	Stehr	Liver: hep. carcinoma, cholangiocellular carcinoma, nuclear pleomorphism, eosinophilic focus, hep. coagulation necrosis, biliary Myx.	Liver: hep. adenoma, cholangioma, eosinophilic focus, nuclear pleomorphism, biliary Myx.
94-3008	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3008	English sole	Stehr	Ovary: stage 2, no significant lesions	Ovary: stage 2, no significant lesions
94-3009	English sole	Olson	Liver: nuclear pleomorphism, megalocytic hepatosis	Liver: nuclear pleomorphism, megalocytic hepatosis, oval cell proliferation
94-3009	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3009	English sole	Olson	Testis: stage 2, no significant lesions	Testis: stage 2, no significant lesions
94-3021	English sole	Stehr	Liver: nuclear pleomorphism, megalocytic hepatosis, biliary Myx., hep. coccidia	Liver: nuclear pleomorphism, megalocytic hepatosis, biliary Myx., hep. coccidia
94-3021	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3021	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3041	English sole	Stehr	Liver: nuclear pleomorphism, megalocytic hepatosis	Liver: nuclear pleomorphism, megalocytic hepatosis
94-3041	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3041	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3042	English sole	Stehr	Liver: no significant lesions	Liver: no significant lesions
94-3042	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3055	English sole	Olson	Testis: stage 4, no significant lesions Liver: nuclear pleomorphism, biliary Myx., hep. coccidia	Testis: stage 4, no significant lesions Liver: nuclear pleomorphism, biliary Myx., hep. coccidia

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3055	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3055	English sole	Olson	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3056	English sole	Stehr	Liver: nuclear pleomorphism, biliary Myx.	Liver: nuclear pleomorphism, biliary Myx.
94-3056	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3056	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3066	English sole	Myers	Liver: biliary Myxidium, no significant lesions	Liver: biliary Myxidium, no significant lesions
94-3066	English sole	Myers	Kidney: no significant lesions	Kidney: no significant lesions
94-3066	English sole	Myers	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3072	English sole	Stehr	Liver: biliary Myxidium, no significant lesions	Liver: biliary Myxidium, no significant lesions
94-3072	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3072	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3073	English sole	Olson	Liver: hep. coccidia, biliary Myx., no significant lesions	Liver: hep. coccidia, biliary Myx., no significant lesions
94-3073	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3073	English sole	Olson	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3083	English sole	Myers	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3083	English sole	Myers	Kidney: no significant lesions	Kidney: no significant lesions
94-3083	English sole	Myers	Ovary: stage 2, no significant lesions	Ovary: stage 2, no significant lesions
94-3088	English sole	Stehr	Liver: hep. coagulation necrosis, biliary Myx.	Liver: hep. coagulation necrosis, biliary Myx., hep. coccidia
94-3088	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3088	English sole	Stehr	Ovary: stage 2, no significant lesions	Ovary: stage 2, no significant lesions
94-3092	English sole	Olson	Liver: nuclear pleomorphism, megalocytic hepatosis, basophilic focus	Liver: nuclear pleomorphism, megalocytic hepatosis, basophilic focus, eosinophilic focus
94-3092	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3092	English sole	Olson	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3101	English sole	Myers	Liver: no significant lesions	Liver: no significant lesions
94-3101	English sole	Myers	Kidney: interstitial helminth ovum, no significant lesions	Kidney: interstitial helminth ovum, no significant lesions
94-3101	English sole	Myers	Testis: stage 2, no significant lesions	Testis: stage 2, no significant lesions
94-3110	English sole	Olson	Liver: increased mitotic activity, parenchymal biliary Myx., hep. coccidia, par. nematode	Liver: increased mitotic activity, parenchymal biliary Myx., hep. coccidia, par. nematode

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3110	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3110	English sole	Olson	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3116	English sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions, hepatocellular coecidia
94-3116	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3116	English sole	Olson	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3122	English sole	Olson	Liver: hep. coecidia, serosal helminth, no significant lesions	Liver: hep. coecidia, serosal helminth, no significant lesions
94-3122	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3122	English sole	Olson	Ovary: stage 3, atresia, stromal granuloma	Ovary: stage 3, atresia, stromal granuloma
94-3122.1	English sole	Olson	Liver: basophilic focus	Liver: basophilic focus
94-3135	English sole	Olson	Liver: hep. adenoma, basophilic focus, eosinophilic focus, nuclear pleomorphism, biliary Myx.	Liver: hep. adenoma, basophilic focus, oval cell prolifer., eosinophilic focus, nuclear pleomorphism, hep. carcinoma, spongiosis hepatitis, biliary Myx.
94-3135	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3135	English sole	Olson	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions
94-3154	rock sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3154	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3154	rock sole	Olson	Ovary: stage 3, atresia	Ovary: stage 3, atresia
94-3156	rock sole	Stehr	Liver: peripancreatic fibrosis, biliary Myx., lymphoid infiltr., hydropic vacuolation	Liver: hydropic vacuolation, biliary Myx., lymphoid infiltr.
94-3156	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3156	rock sole	Stehr	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3161	rock sole	Stehr	Liver: no significant lesions	Liver: biliary Myx, hep. coecidia, no significant lesions
94-3161	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3161	rock sole	Stehr	Ovary: stage 3	Ovary: stage 3
94-3178	English sole	Olson	Liver: nuclear pleomorphism, biliary Myx., hep. coecidia	Liver: nuclear pleomorphism, biliary Myx., hep. coecidia
94-3178	English sole	Olson	Kidney: serosal helminth, no significant lesions	Kidney: serosal helminth, no significant lesions
94-3178	English sole	Olson	Ovary: stage 2, atresia	Ovary: stage 2, atresia

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3189	English sole	Olson	Liver: basophilic focus, biliary Myx.	Liver: basophilic focus, biliary Myx.
94-3189	English sole	Olson	Kidney: juxtaglomerular cell hypertrophy	Kidney: juxtaglomerular cell hypertrophy
94-3189	English sole	Olson	Ovary: stage 3	Ovary: stage 3
94-3196	English sole	Stehr	Liver: basophilic focus, biliary Myx., lymphoid Infiltr.	Liver: hep. adenoma, biliary Myx., lymphoid Infiltr.
94-3196	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3196	English sole	Stehr	Ovary: stage 3, no significant lesions	Ovary: stage 3, no significant lesions
94-3198	English sole	Stehr	Liver: chronic inflammation, hep. coccidia, serosal Philometra, no significant lesions	Liver: serosal Philometra, hep. coccidia no significant lesions
94-3198	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3198	English sole	Stehr	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3202	English sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3202	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3202	English sole	Olson	Ovary: stage 2, stromal macrophage aggrates, atresia	Ovary: stage 2, stromal macrophage aggrates, atresia
94-3203	English sole	Olson	Liver: clear cell focus, eosinophilic focus, peribiliary lymphoid infiltrate, serosal Philometra	Liver: clear cell focus, eosinophilic focus, bile ductule hyperplasia, serosal Philometra, peribiliary lymphoid infiltrate
94-3203	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3203	English sole	Olson	Testis: stage 3, no significant lesions	Testis: stage 3, no significant lesions
94-3209	rock sole	Stehr	Liver: clear cell focus, nuclear pleomorphism	Liver: clear cell focus, nuclear pleomorphism
94-3209	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3209	rock sole	Stehr	Ovary: stage 2, no significant lesions	Ovary: stage 2, no significant lesions
94-3214	rock sole	Myers	Liver: no significant lesions	Liver: no significant lesions
94-3214	rock sole	Myers	Kidney: no significant lesions	Kidney: no significant lesions
94-3218	rock sole	Stehr	Liver: nuclear pleomorphism	Liver: nuclear pleomorphism
94-3218	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3218	rock sole	Stehr	Ovary: stage 2, no significant lesions	Ovary: stage 2, no significant lesions
94-3224	rock sole	Stehr	Liver: biliary prolif., hep. hemosiderosis, eosinophilic focus, biliary Myx.	Liver: hep. hemosiderosis, eosinophilic focus, biliary Myx.
94-3230	rock sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3230	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3230	rock sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3240	rock sole	Olson	Liver: spongiosis hepatitis, biliary Myx., serosal nematode	Liver: spongiosis hepatitis, biliary Myx., serosal nematode
94-3240	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3240	rock sole	Olson	Testis: stage 1, no significant lesions	Testis: stage 1, no significant lesions
94-3263	English sole	Stehr	Liver: nuclear pleomorphism, hep. coagulation necrosis	Liver: nuclear pleomorphism, hep. coagulation necrosis, oval cell prolif.
94-3263	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3263	English sole	Stehr	Ovary: stage 2, no significant lesions	Ovary: stage 2, no significant lesions
94-3273	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3273	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3273	English sole	Stehr	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3280	English sole	Olson	Liver: hep. coccidia, no significant lesions	Liver: hep. coccidia, no significant lesions
94-3280	English sole	Olson	Kidney: mesangiolytic	Kidney: mesangiolytic
94-3280	English sole	Olson	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3281	English sole	Olson	Liver: nuclear pleomorphism, megalocytic hepatosis, basophilic focus	Liver: nuclear pleomorphism, megalocytic hepatosis, basophilic focus
94-3281	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3284	English sole	Stehr	Liver: hep. regeneration, biliary Myx., parenchymal lymphoid infiltrate	Liver: hep. regeneration, biliary Myx., parenchymal lymphoid infiltrate
94-3284	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3284	English sole	Stehr	Ovary: stage 3, stromal macrophage aggregates, atresia	Ovary: stage 3, stromal macrophage aggregates, atresia
94-3293	English sole	Olson	Liver: hep. adenoma, nuclear pleomorphism, eosinophilic focus, hypertrophy	Liver: nuclear pleomorphism, eosinophilic focus
94-3293	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3294	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3294	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3294	English sole	Stehr	Ovary: stage 3, stromal microsporidans, atresia	Ovary: stage 3, stromal microsporidans, atresia
94-3302	English sole	Stehr	Liver: megalocytic hepatitis, nuclear pleomorphism	Liver: megalocytic hepatitis, nuclear pleomorphism

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3302	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3302	English sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3303	English sole	Stehr	Liver: parenchymal chronic inflammation, fibrosis, biliary Myx., hep. coagulative necrosis	Liver: biliary Myx., no significant lesions
94-3303	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3303	English sole	Stehr	Ovary: stage 3, no significant lesions	Ovary: stage 3, no significant lesions
94-3306	English sole	Stehr	Liver: nuclear pleomorphism, eosinophilic focus	Liver: nuclear pleomorphism, eosinophilic focus
94-3306	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3306	English sole	Stehr	Ovary: stage 3, no significant lesions	Ovary: stage 3, no significant lesions
94-3325	English sole	Olson	Liver: par. lymphoid infiltrate, no sig. lesions	Liver: par. lymphoid infiltrate, no sig. lesions
94-3325	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3325	English sole	Olson	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3339	English sole	Olson	Liver: eosinophilic focus, biliary Myx.	Liver: eosinophilic focus, biliary Myx.
94-3339	English sole	Olson	Kidney: mesangiolytic	Kidney: mesangiolytic
94-3356	English sole	Olson	Liver: serosal nematode, no significant lesions	Liver: serosal nematode, no significant lesions
94-3356	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3366	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3366	English sole	Stehr	Kidney: interstitial "helminth ovum", no significant lesions	Kidney: interstitial "helminth ovum", no significant lesions
94-3366	English sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3369	English sole	Olson	Liver: hep. adenoma, eosinophilic focus, hep. coccidia, biliary Myx.	Liver: hep. adenoma, eosinophilic focus, basophilic focus, hep. coccidia, biliary Myx.
94-3369	English sole	Olson	Kidney: mesangiolytic	Kidney: mesangiolytic
94-3369	English sole	Olson	Ovary: stage 3, serosal larval trematodes, atresia	Ovary: stage 3, serosal larval trematodes, atresia
94-3383	English sole	Olson	Liver: increased mitotic activity, biliary Myx., hep. coccidia	Liver: increased mitotic activity, biliary Myx., hep. coccidia
94-3383	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3383	English sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3398	English sole	Olson	Liver: biliary Myx., hep. coccidia,	Liver: biliary Myx., hep. coccidia,

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3398	English sole	Olson	Liver, cont'd.: no significant lesions	Liver, cont'd.: no significant lesions
94-3398	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3398	English sole	Olson	Ovary: stage 3, stromal macrophage aggregates	Ovary: stage 3, stromal macrophage aggregates
94-3408	English sole	Olson	Liver: no significant lesions	Liver: no significant lesions
94-3408	English sole	Olson	Kidney: interstitial "helminth ovum", no significant lesions	Kidney: interstitial "helminth ovum", no significant lesions
94-3408	English sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3415	English sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3415	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3415	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3417	rock sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3417	rock sole	Olson	Kidney: tubular epithelial vacuolization	Kidney: tubular epithelial vacuolization
94-3417	rock sole	Olson	Testis: stage 2, no significant lesions	Testis: stage 2, no significant lesions
94-3424	rock sole	Myers	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3424	rock sole	Myers	Kidney: no significant lesions	Kidney: no significant lesions
94-3424	rock sole	Myers	Ovary: stage 2, stromal lymphoid infiltrate, atresia	Ovary: stage 2, stromal lymphoid infiltrate, atresia
94-3426	rock sole	Stehr	Liver: no significant lesions	Liver: no significant lesions
94-3426	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3426	rock sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3434	rock sole	Stehr	Liver: hydropic vacuolation, hep. pyknosis, lymphoid inflit., granuloma, biliary Myx.	Liver: hydropic vacuolation, hep. pyknosis, lymphoid inflit., granuloma, biliary Myx.
94-3434	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3434	rock sole	Stehr	Testis: stage 3, no significant lesions	Testis: stage 3, no significant lesions
94-3441	rock sole	Stehr	Liver: clear cell focus, hydropic vacuolation, biliary Myx.	Liver: hydropic vacuolation, biliary Myx.
94-3441	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3441	rock sole	Stehr	Testis: stage 3, no significant lesions	Testis: stage 3, no significant lesions
94-3443	rock sole	Stehr	Liver: nuclear pleomorphism	Liver: nuclear pleomorphism
94-3443	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3443	rock sole	Stehr	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3449	rock sole	Olson	Liver: venous dilation, biliary Myx.	Liver: lymphatic dilation, biliary Myx.

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3449	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3449	rock sole	Olson	Testis: stage 1, no significant lesions	Testis: stage 1, no significant lesions
94-3453	rock sole	Olson	Liver: venous dilation, biliary Myx.	Liver: lymphatic dilation, biliary Myx.
94-3453	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3453	rock sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3466	English sole	Stehr	Liver: biliary Myx., granuloma, no significant lesions	Liver: biliary Myx., par. nematode, no significant lesions
94-3466	English sole	Stehr	Kidney: interstitial "helminth ovum", no significant lesions	Kidney: interstitial "helminth ovum", no significant lesions
94-3466	English sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3476	rock sole	Myers	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3476	rock sole	Myers	Kidney: no significant lesions	Kidney: no significant lesions
94-3476	rock sole	Myers	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3480	rock sole	Stehr	Liver: no significant lesions	Liver: biliary Myx., par. lymphoid infiltrate, serosal Philometra, no significant lesions
94-3480	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3480	rock sole	Stehr	Ovary: stage 7, POFs, atresia	Ovary: stage 7, POFs, atresia
94-3481	rock sole	Olson	Liver: basophilic focus, biliary Myx.	Liver: eosinophilic focus, biliary Myx.
94-3481	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3481	rock sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3482	rock sole	Myers	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3482	rock sole	Myers	Kidney: no significant lesions	Kidney: no significant lesions
94-3495	English sole	Olson	Liver: basophilic focus, serosal larval nematodes, biliary Myx.	Liver: hep. adenoma, eosinophilic focus, serosal larval nematodes, biliary Myx.
94-3495	English sole	Olson	Kidney: chronic inflammation	Kidney: serosal Philometra, granulomatous host reaction
94-3495	English sole	Olson	Testis: stage 2, no significant lesions	Testis: stage 2, no significant lesions
94-3515	English sole	Stehr	Liver: no significant lesions	Liver: no significant lesions
94-3515	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3515	English sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3525	English sole	Olson	Liver: basophilic focus	Liver: hep. adenoma, nuclear pleomorphism
94-3525	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3525	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3535	English sole	Olson	Liver: par. nematodes, no significant lesions	Liver: par. nematodes, no significant lesions
94-3535	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3535	English sole	Olson	Ovary: stage 2, stromal macrophage aggregates atresia	Ovary: stage 2, stromal macrophage aggregates, atresia
94-3541	English sole	Olson	Liver: no significant lesions	Liver: no significant lesions
94-3541	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3541	English sole	Olson	Ovary: stage 3, stromal macrophage aggregates atresia	Ovary: stage 3, stromal macrophage aggregates, atresia
94-3553	rock sole	Olson	Liver: eosinophilic focus, biliary Myx.	Liver: eosinophilic focus, biliary Myx.
94-3553	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3553	rock sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3557	rock sole	Stehr	Liver: eosinophilic focus	Liver: no significant lesions
94-3557	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3557	rock sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3565	English sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3565	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3565	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3571	English sole	Stehr	Liver: hep. hyalinization, biliary Myx.	Liver: hep. hyalinization, biliary Myx.
94-3571	English sole	Stehr	Kidney: serosal Philometra	Kidney: serosal Philometra
94-3571	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3574	English sole	Stehr	Liver: eosinophilic focus	Liver: eosinophilic focus
94-3574	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3574	English sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3575	English sole	Olson	Liver: eosinophilic focus, nuclear pleomor- phism, biliary Myx.	Liver: eosinophilic focus, nuclear pleomor- phism, biliary Myx.
94-3575	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3575	English sole	Olson	Ovary: stage 3, atresia	Ovary: stage 3, atresia
94-3575.1	English sole	Olson	Liver: nuclear pleomorphism, eosinophilic focus	Liver: nuclear pleomorphism, eosinophilic focus, basophilic focus
94-3576	English sole	Olson	Liver: increased mitotic activity, parenchy- mal; biliary Myx.	Liver: increased mitotic activity, parenchy- mal; biliary Myx.

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3576	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3576	English sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3577	English sole	Olson	Liver: hep. coccidia, serosal nematode, no significant lesions	Liver: hep. coccidia, serosal nematode, no significant lesions
94-3577	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3577	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3579	rock sole	Stehr	Liver: hep. adenoma, basophilic focus, eosinophilic focus	Liver: hep. adenoma, basophilic focus, eosinophilic focus
94-3579	rock sole	Stehr	Kidney: interstitial "helminth ovum"	Kidney: interstitial "helminth ovum"
94-3579	rock sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3585	English sole	Stehr	Liver: nuclear pleomorphism, biliary Myx.	Liver: nuclear pleomorphism, biliary Myx.
94-3585	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3585	English sole	Stehr	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions
94-3585.1	English sole	Stehr	Liver: basophilic focus, hep. adenoma	Liver: hep. adenoma, hep. carcinoma
94-3586	English sole	Stehr	Liver: clear cell focus, biliary Myx., serosal acanthocephalan	Liver: clear cell focus, biliary Myx., serosal acanthocephalan
94-3586	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3586	English sole	Stehr	Ovary: stage 3, no significant lesions	Ovary: stage 3, no significant lesions
94-3588	English sole	Olson	Liver: basophilic focus; increased mitotic activity, parenchymal, biliary Myx.	Liver: basophilic focus; eosinophilic focus; increased mitotic activity, parenchymal; biliary Myx.
94-3588	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3588	English sole	Olson	Ovary: stage 3, atresia	Ovary: stage 3, atresia
94-3590	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3590	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3590	English sole	Stehr	Ovary: stage 4	Ovary: stage 4
94-3593	English sole	Olson	Liver: bile duct prolif., parench. fibrosis, metaplastic bile duct cells, clear cell focus, basophilic focus, biliary Myx.	Liver: cholangiofibrosis, clear cell focus, hep. adenoma, eosinophilic focus, serosal helminth, biliary Myx.
94-3593	English sole	Olson	Kidney: mesangiolysis; lymphoid infiltrates, glomerular tuft; interstitial "helminth ovum"	Kidney: mesangioproliferative glomerulonephritis, interstitial "helminth ovum"
94-3593	English sole	Olson	Testis: stage 1, stromal larval nematodes,	Testis: stage 1, stromal larval nematodes,

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3593	English sole	Olson	Testis, cont'd.: testicular tumor	Testis, cont'd.: seminoma
94-3599	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3599	English sole	Stehr	Kidney: tubular epithelial necrosis	Kidney: tubular epithelial necrosis
94-3599	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3609	rock sole	Stehr	Liver: hydropic vacuolation, eosinophilic focus, biliary Myx.	Liver: hydropic vacuolation, eosinophilic focus, biliary Myx.
94-3609	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3609	rock sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3612	rock sole	Stehr	Liver: hydropic vacuolation	Liver: hydropic vacuolation
94-3612	rock sole	Stehr	Kidney: mesangiolytic, mesangiosclerosis	Kidney: mesangiolytic, mesangiosclerosis
94-3612	rock sole	Stehr	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3613	rock sole	Olson	Liver: basophilic focus	Liver: eosinophilic focus
94-3613	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3613	rock sole	Olson	Ovary: stage 5, no significant lesions	Ovary: stage 5, no significant lesions
94-3617	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., hep. coccidia, no significant lesions
94-3617	English sole	Stehr	Kidney: interstitial "helminth ovum", no significant lesions	Kidney: interstitial "helminth ovum", no significant lesions
94-3617	English sole	Stehr	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3632	English sole	Stehr	Liver: hep. adenoma, eosinophilic focus	Liver: basophilic focus, eosinophilic focus
94-3632	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3632	English sole	Stehr	Ovary: stage 7, post ovulatory follicles (POFs), atresia	Ovary: stage 7, post ovulatory follicles (POFs), atresia
94-3632.1	English sole	Stehr	Liver: eosinophilic focus	Liver: eosinophilic focus
94-3636	English sole	Olson	Liver: basophilic focus, biliary Myx., hep. coccidia	Liver: basophilic focus, biliary Myx., hep. coccidia
94-3636	English sole	Olson	Kidney: interstitial "helminth ovum"	Kidney: interstitial "helminth ovum"
94-3636	English sole	Olson	no significant lesions	no significant lesions
94-3636	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3636.1	English sole	Olson	Liver: basophilic focus	Liver: basophilic focus, hep. carcinoma
94-3636.2	English sole	Olson	Liver: basophilic focus	Liver: basophilic focus
94-3643	rock sole	Olson	Liver: eosinophilic focus; increased mitotic act.,	Liver: eosinophilic focus; increased mitotic act.,

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3643	rock sole	Olson	Liver, cont'd: parenchymal; granuloma; biliary Myx.	Liver, cont'd: parenchymal; granuloma; biliary Myx.
94-3643	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3643	rock sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3646	English sole	Olson	Liver: cholangiocellular carcinoma, parench. granuloma, biliary Myx.	Liver: hep. adenoma, clear cell focus, biliary Myx. (with severe fibrotic host reaction), parenchymal granuloma
94-3646	English sole	Olson	Kidney: interstitial helminth, no significant lesions	Kidney: interstitial helminth, no significant lesions
94-3646	English sole	Olson	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions
94-3655	English sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3655	English sole	Olson	Kidney: hypertrophy of juxtaglomerular apparatus	Kidney: hypertrophy of juxtaglomerular apparatus
94-3655	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3668	English sole	Olson	Liver: eosinophilic focus, serosal helminth, biliary Myx.	Liver: eosinophilic focus, serosal helminth, biliary Myx.
94-3668	English sole	Olson	Kidney: interstitial "helminth ovum", no significant lesions	Kidney: interstitial "helminth ovum", no significant lesions
94-3668	English sole	Olson	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions
94-3675	rock sole	Olson	Liver: eosinophilic focus, hydropic vacuolation, biliary Myx.	Liver: eosinophilic focus, hydropic vacuolation, hep. adenoma, biliary Myx.
94-3675	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3675	rock sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3677	rock sole	Olson	Liver: basophilic focus, hydropic vacuolation	Liver: eosinophilic focus, hydropic vacuolation, variable hep. vacuolation
94-3677	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3677	rock sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3683	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., no significant lesions
94-3683	English sole	Stehr	Kidney: interstitial "helminth ovum", no significant lesions	Kidney: interstitial "helminth ovum", no significant lesions
94-3683	English sole	Stehr	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3698	rock sole	Stehr	Liver: hydropic vacuolation	Liver: hydropic vacuolation

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3698	rock sole	Stehr	Kidney: mesangiolysis	Kidney: mesangiolysis
94-3698	rock sole	Stehr	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3708	rock sole	Stehr	Liver: nuclear pleomorphism, megalocytic hepatitis, eosinophilic focus, biliary prolif., biliary Myx.	Liver: nuclear pleomorphism, megalocytic hepatitis, eosinophilic focus, biliary Myx.
94-3708	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3708	rock sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3720.1	English sole	Stehr	Liver: hep. adenoma	Liver: hep. adenoma
94-3722	English sole	Olson	Liver: hep. adenoma, megalocytic hepatitis, biliary Myx.	Liver: hep. adenoma, megalocytic hepatitis, hep. regeneration, nuclear pleomorphism, hep. hyalinization
94-3722	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3722	English sole	Olson	Ovary: stage 4, atresia	Ovary: stage 4, atresia
94-3722.1	English sole	Olson	Liver: megalocytic hepatitis, hep. adenoma, cholangiocellular carcinoma	Liver: megalocytic hepatitis, hep. adenoma, cholangiocellular carcinoma
94-3722.2	English sole	Olson	Liver: megalocytic hepatitis, hep. adenoma, cholangiocellular carcinoma, nuclear pleo- morphism, hep. regeneration	Liver: megalocytic hepatitis, hep. adenoma, cholangiocellular carcinoma, nuclear pleo- morphism, hep. regeneration
94-3724	English sole	Stehr	Liver: eosinophilic focus, biliary Myx.	Liver: eosinophilic focus, biliary Myx.
94-3724	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3724	English sole	Stehr	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3727	English sole	Stehr	Liver: eosinophilic focus, hep. adenoma, cholangiocellular carcinoma	Liver: eosinophilic focus, hep. adenoma, cholangiofibrosis
94-3727	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3727	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3727.1	English sole	Stehr	Liver: hep. adenoma	Liver: hep. adenoma
94-3727.2	English sole	Stehr	Liver: cholangiocellular carcinoma	Liver: cholangiocellular carcinoma
94-3729	English sole	Stehr	Liver: eosinophilic focus, congestion	Liver: eosinophilic focus, congestion
94-3729	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3729	English sole	Stehr	Testis: stage 4, no significant lesions	Testis: stage 4, no significant lesions
94-3730	English sole	Stehr	Liver: eosinophilic focus	Liver: eosinophilic focus
94-3730	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3730	English sole	Stehr	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions
94-3731	English sole	Stehr	Liver: cytoplasmic fibrils, hep. and biliary; biliary Myx.	Liver: cholesterol ester crystals, hep., biliary, and macrophages; hep. apoptosis; biliary Myx.
94-3731	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3731	English sole	Stehr	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions
94-3747	rock sole	Olson	Liver: hep. apoptosis, hydropic vacuolation, hep. hyalinization, nuclear pleomorphism, hep. hemosiderosis	Liver: hep. apoptosis, hydropic vacuolation, nuclear pleomorphism, hep. ceroidosis
94-3747	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3747	rock sole	Olson	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3748	rock sole	Stehr	Liver: hep. hyalinization, lymphoid inflit.	Liver: hep. hyalinization, hep. apoptosis lymphoid infiltrates
94-3748	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3748	rock sole	Stehr	Ovary: stage 7, POFs; no signif. lesions	Ovary: stage 7, POFs; no signif. lesions
94-3758	rock sole	Stehr	Liver: nuclear pleomorphism	Liver: nuclear pleomorphism
94-3758	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3758	rock sole	Stehr	Ovary: stage 3, atresia	Ovary: stage 3, atresia
94-3761	English sole	Olson	Liver: hep. hemosiderosis, biliary Myx.	Liver: hep. hemosiderosis, biliary Myx.
94-3761.1	English sole	Olson	Liver: hep. hemosiderosis, biliary Myx., hep. carcinoma, basophilic focus	Liver: hep. hemosiderosis, biliary Myx., hep. carcinoma, basophilic focus
94-3764	English sole	Stehr	Liver: basophilic focus, eosinophilic focus, hep. hemosiderosis, biliary Myx.	Liver: basophilic focus, eosinophilic focus, hep. hemosiderosis, biliary Myx.
94-3764	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3764	English sole	Stehr	Ovary: stage 7, POFs, atresia	Ovary: stage 7, POFs, atresia
94-3766	English sole	Stehr	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., par. lymphoid infiltrates, hep. coccidia, no significant lesions
94-3766	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3766	English sole	Stehr	Ovary: stage 7, POFs, atresia	Ovary: stage 7, POFs, atresia
94-3773	English sole	Olson	Liver: hep. adenoma, biliary Myx.	Liver: hep. adenoma, biliary Myx.
94-3773	English sole	Olson	Kidney: hypertrophy of juxtaglomerular cells	Kidney: hypertrophy of juxtaglomerular cells
94-3773	English sole	Olson	Testis: stage 6, no significant lesions	Testis: stage 6, no significant lesions

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

Spec. #	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3774	English sole	Olson	Liver: eosinophilic focus, sinusoidal congestion, basophilic focus, lymphoid infiltrates, biliary Myx.	Liver: eosinophilic focus, sinusoidal congestion, lymphoid infiltrates, biliary Myx.
94-3774	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3774	English sole	Olson	Ovary: stage 8, atresia	Ovary: stage 8, atresia
94-3784	rock sole	Stehr	Liver: hydropic vacuolation, biliary Myx., nuclear pleomorphism, hep. coagulation necrosis	Liver: hydropic vacuolation, biliary Myx., nuclear pleomorphism, hep. coagulation necrosis, focal hydropic vacuolation
94-3784	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3784	rock sole	Stehr	Ovary: stage 4, no significant lesions	Ovary: stage 4, no significant lesions
94-3800	rock sole	Olson	Liver: nuclear pleomorphism, basophilic focus	Liver: nuclear pleomorphism, eosinophilic focus
94-3800	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3802	rock sole	Stehr	Liver: hydropic vacuolation, biliary Myx., hep. hemosiderosis, hep. pyknosis, nuclear pleomorphism	Liver: hydropic vacuolation, biliary Myx., hep. hemosiderosis, nuclear pleomorphism
94-3802	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3802	rock sole	Stehr	Ovary: stage 7, POFs	Ovary: stage 7, POFs
94-3809	rock sole	Stehr	Liver: hydropic vacuolation, hep. adenoma, biliary Myx.	Liver: hydropic vacuolation, hep. adenoma, eosinophilic focus, biliary Myx.
94-3809	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3809	rock sole	Stehr	Ovary: stage 7, POFs	Ovary: stage 7, POFs
94-3811	rock sole	Olson	Liver: eosinophilic focus, biliary Myx.	Liver: eosinophilic focus, biliary Myx.
94-3811	rock sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3811	rock sole	Olson	Ovary: stage 7, POFs; no significant lesions	Ovary: stage 7, POFs; no significant lesions
94-3816	rock sole	Stehr	Liver: biliary Myx., chronic inflammation, granuloma, no significant lesions	Liver: biliary Myx., chronic inflammation, granuloma, no significant lesions
94-3816	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3816	rock sole	Stehr	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3823	rock sole	Stehr	Liver: clear cell focus, hydropic vacuolation	Liver: fatty change, hydropic vacuolation
94-3823	rock sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3823	rock sole	Stehr	Testis: stage 5, no significant lesions	Testis: stage 5, no significant lesions

Table 1. Histopathology Cases Subjected to Quality Assurance, Hylebos Damage Assessment

	Species	Reader	Original Diagnoses	Post QA Final Diagnoses
94-3829	English sole	Stehr	Liver: eosinophilic focus, basophilic focus, hep. hemosiderosis	Liver: eosinophilic focus, basophilic focus, hep. hemosiderosis
94-3829	English sole	Stehr	Ovary: stage 7, POFs, atresia	Ovary: stage 7, POFs, atresia
94-3830	English sole	Stehr	Liver: no significant lesions	Liver: no significant lesions
94-3830	English sole	Stehr	Kidney: no significant lesions	Kidney: no significant lesions
94-3830	English sole	Stehr	Ovary: stage 7, POFs, atresia	Ovary: stage 7, POFs, atresia
94-3841	English sole	Olson	Liver: biliary Myx., no significant lesions	Liver: biliary Myx., par. lymphoid infiltrates, no significant lesions
94-3841	English sole	Olson	Kidney: no significant lesions	Kidney: no significant lesions
94-3841	English sole	Olson	Ovary: stage 2, atresia	Ovary: stage 2, atresia
94-3849	English sole	Olson	Liver: basophilic focus, serosal helminth, biliary Myx.	Liver: eosinophilic focus, serosal helminth, biliary Myx.
94-3849	English sole	Olson	Kidney: serosal Philometra, no signif. lesions	Kidney: serosal Philometra, no signif. lesions
94-3849	English sole	Olson	Testis: stage 6, no significant lesions	Testis: stage 6, no significant lesions

**Documentation and Abbreviations for Table 2.
Liver and Kidney Histopathology Data
for Hylebos Fish Injury Studies**

This case narrative includes liver and kidney histopathology data for flatfish collected during the Toxicopathic and Reproductive Injury Studies of the Hylebos Fish Injury Studies, Phase I. Ovary lesion data is used only in the Reproductive Injury Study, and is included in a separate case narrative.

Studies:

The case narrative includes three columns to identify the study where the data is reported in the interpretive reports.

Study: Toxicopath column indicates data reported in the Toxicopathic Injury Interpretive report.

Study: Reprod. column indicates data reported in the Reproductive Injury Interpretive Report.

Study: Combined column indicates data reported in an additional section of the Toxicopathic Injury study, where data from both the Toxicopathic and Reproductive Injury Studies are combined. Please note that specimens used in the combined studies also include male English sole, and rock sole that were collected during the Reproductive Injury Study, but the data was not used in the Reproductive Injury report (which focused on female English sole)

Y= yes, data included in the indicated study

N= No, data not included in the indicated study

Date collected - Date fish were caught, and tissue samples collected.

Reader - indicates last name of the person who read the histopathology slides for that specimen number. A blank record occurs when no tissue sections were available to be read for that specimen.

Lesion abbreviations

Liver lesions

EPNEO = epithelial neoplasms (tumors of epithelial origin e.g. HEPARC, CHOLARC, MIXARC, HEPAD, CHOLAD as described below)

MESNEO = mesenchymal neoplasms (tumors not of epithelial origin, e.g. hemangiomas, hemangiopericytic sarcoma, fibromas)

ALLNEO = indicates that the fish has any one of several types of neoplasms including EPNEO and MESNEO

HEP.CARC = hepatocellular carcinoma

CHOLARC = cholangiocellular carcinoma

MIXCARC = mixed hepatobiliary carcinoma
 HEPAD = hepatocellular adenoma
 CHOLAD cholangiocellular adenoma
 HEPNEO indicates fish has any type of hepatocellular neoplasm including
 HEPCARC and HEPAD
 CHOLNEO = indicates fish has any type of cholangiocellular neoplasm including
 CHOLCARC and CHOLAD
 BF = basophilic focus
 EF = eosinophilic focus
 CCF = clear cell focus
 ALLFCA = indicates that fish has any one of several types of focal
 cellular alterations, including BF, EF, CCF
 MH = megalocytic hepatitis
 NP = hepatocellular nuclear pleomorphism.
 SDN = fish has any one of specific degenerative/necrotic lesions, including
 MH and NP.
 LIVPROL = liver proliferation; nonneoplastic proliferative lesions
 SPONGHEP = spongiosis hepatitis
 HYDVAC = hydropic vacuolation
 FOCAL HYDVAC = focal hydropic vacuolation
 NECROSIS= nonspecific necrotic lesions
 TOXLIV = indicates that fish has one or more lesions considered to be
 toxicopathic, including ALLNEO, ALLFCA, SDN, LIVPROL, and
 HYDVAC
 LIVER= 1, indicates liver was examined

Kidney lesions

KIDNEO = Kidney neoplasms
 NEPBPROL = proliferative lesions in elements of kidney nephrons
 NEPHNEC necrotic lesions in elements of kidney nephrons
 NEPHSCLR sclerotic lesions in elements of kidney nephrons
 TOXKID = indicates fish has one or more of kidney lesions considered to be
 toxicopathic, including NEPBPROL, NEPHNEC, NEPHSCLR (none of
 the fish had MDNE0).
 KIDNEY = 1, indicates kidney was examined

Gonad stages

OVSTAGE = stage of maturation of the ovary
 OVARY = 1, indicates ovary was examined
 TESTAGE = stage of maturation of the testes
 TESTIS = 1, indicates testis was examined.

Sex:

1 = male
 2 = female

Length: total length (head to tail) reported in millimeters.

Weight: actual weight reported in grams.

Age:

Actual years of age as indicated by growth rings on otoliths.

Blank records indicate no age data available; otoliths lost or damaged.

Explanation of codes

Presence or absence of lesions:

0= tissue examined, no lesion observed

1= tissue examined, lesion observed

blank = tissue not examined

Gonad Stages

Female

1= regressed; oogonia and primary oocytes

2= late regressed; secondary oocytes

3= previtellogenic; vacuolated secondary oocytes

4= vitellogenic

5= some hydrated oocytes; no post-ovulatory follicles (POFs)

6= spawning; hydrated oocytes with POFs

7= spawned out

Male

1= regressed; spermatogonia and primary spermatocytes

2= early recrudescence; secondary spermatocytes

3= late recrudescence; secondary spermatocytes, to spermatids,

4= early spermiogenesis or sperm production

5= late spermiogenesis; spawning

6= spawned out; few mature sperm remaining.

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEQ	MESNEQ	ALLNEQ	HEPCARC	CHOLCARC
943001	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943002	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943003	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943004	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943005	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943006	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943007	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943008	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	1	0	1	0	0
943009	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943010	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943011	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943012	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943013	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943014	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943015	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943016	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943017	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943018	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943019	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943020	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943021	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943022	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943023	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943024	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943025	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943026	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943027	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943028	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943029	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943030	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943031	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943032	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943033	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943034	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943035	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943036	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943037	Y	N	Y	7/21/94		Hylebos Upper TB					
943038	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943039	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943040	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	KIDNEO	NEPHPROL	NEPHNEC	NEPHSCLR	TOXKID	KIDNEY	OVSTAGE	OVARY	TESTAGE	TESTS	Sex	Length (mm)	Weight (g)	Age	Species Name
943001	0	0	0	0	0	1	2	1			2	290	226	4	English sole
943002	0	0	0	0	0	1	2	1			2	308	271	4	English sole
943003	0	0	0	0	0	1			5	1	1	316	185	14	English sole
943004	0	0	0	0	0	1			2	1	1	298	223	9	English sole
943005	0	0	0	0	0	1			4	1	1	270	163	6	English sole
943006	0	0	0	0	0	1	3	1			2	352	457	6	English sole
943007	0	0	0	0	0	1			5	1	1	306	233	10	English sole
943008	0	0	0	0	0	1	2	1			2	278	209	8	English sole
943009	0	0	0	0	0	1			2	1	1	275	198	5	English sole
943010	0	0	0	0	0	1			2	1	1	242	129	4	English sole
943011	0	0	0	0	0	1			6	1	1	255	150	5	English sole
943012	0	0	0	0	0	1			4	1	1	243	128	5	English sole
943013	0	0	0	0	0	1	2	1			2	307	248	5	English sole
943014	0	0	0	0	0	1			5	1	1	243	130	3	English sole
943015	0	0	0	0	0	1	3	1			2	288	220	3	English sole
943016	0	0	0	0	0	1			3	1	1	317	285	12	English sole
943017	0	0	0	0	0	1			4	1	1	278	150	6	English sole
943018	0	0	0	0	0	1			6	1	1	274	171	5	English sole
943019	0	0	0	0	0	1			1	1	1	267	155	6	English sole
943020	0	0	0	0	0	1	2	1			2	263	129	2	English sole
943021	0	0	0	0	0	1			4	1	1	266	166	5	English sole
943022	0	0	0	0	0	1			4	1	1	258	127	4	English sole
943023	0	0	0	0	0	1			4	1	1	235	105	3	English sole
943024	0	0	0	0	0	1	2	1			2	242	142	2	English sole
943025	0	0	0	0	0	1	2	1			2	265	172	4	English sole
943026	0	0	0	0	0	1			5	1	1	258	158	5	English sole
943027	0	0	0	0	0	1			4	1	1	245	152	3	English sole
943028	0	0	0	0	0	1	2	1			2	246	141	2	English sole
943029	0	0	0	0	0	1			4	1	1	227	70	5	English sole
943030	0	0	0	0	0	1			4	1	1	235	123	3	English sole
943031	0	0	0	0	0	1	2	1			2	236	145	2	English sole
943032	0	0	0	0	0	1			4	1	1	220	81	3	English sole
943033	0	0	0	0	0	1			3	1	1	223	96	3	English sole
943034	0	0	0	0	0	1	2	1			2	243	149	3	English sole
943035	0	0	0	0	0	1			3	1	1	252	138	5	English sole
943036	0	0	0	0	0	1	2	1			2	262	162	4	English sole
943037												250	183	3	English sole
943038	0	0	0	0	0	1	2	1			2	245	129	4	English sole
943039	0	0	0	0	0	1			1	1	1	252	160	6	English sole
943040	0	0	0	0	0	1	2	1			2	248	159	3	English sole

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEO	MESNEO	ALLNEO	HEPCARC	CHOLCARC
943041	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943042	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943043	Y	N	Y	7/21/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943044	Y	N	Y	7/21/94	Olson	Hylebos Upper TB	0	0	0	0	0
943045	Y	N	Y	7/21/94	Myers	Hylebos Upper TB	0	0	0	0	0
943046	Y	N	Y	7/22/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943047	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943048	Y	N	Y	7/22/94	Myers	Hylebos Upper TB	0	0	0	0	0
943049	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943050	Y	N	Y	7/22/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943051	Y	N	Y	7/22/94		Hylebos Upper TB					
943052	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943053	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943054	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943055	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943056	Y	N	Y	7/22/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943057	Y	N	Y	7/22/94	Stehr	Hylebos Upper TB	0	0	0	0	0
943058	Y	N	Y	7/22/94	Olson	Hylebos Upper TB	0	0	0	0	0
943059	Y	N	Y	7/22/94	Myers	Hylebos Upper TB	0	0	0	0	0
943060	Y	N	Y	7/22/94	Myers	Hylebos Upper TB	0	0	0	0	0
943061	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943062	Y	N	Y	7/22/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943063	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943064	Y	N	Y	7/22/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943065	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943066	Y	N	Y	7/22/94	Myers	Hylebos Lower TB	0	0	0	0	0
943067	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943068	Y	N	Y	7/22/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943069	Y	N	Y	7/22/94	Myers	Hylebos Lower TB	0	0	0	0	0
943070	Y	N	Y	7/22/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943071	Y	N	Y	7/22/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943072	Y	N	Y	7/22/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943073	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943074	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943075	Y	N	Y	7/22/94	Olson	Hylebos Lower TB	0	0	0	0	0
943076	Y	N	Y	7/22/94	Myers	Hylebos Lower TB	0	0	0	0	0
943077	Y	N	Y	7/22/94	Myers	Hylebos Lower TB	0	0	0	0	0
943078	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943079	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943080	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	KIDNEO	NEPHPROL	NEPHNEC	NEPHSCLR	TOXKID	KIDNEY	OYSTAGE	OVARY	TESTAGE	TESTIS	Sex	Length (mm)	Weight (g)	Age	Species Name
943041	0	0	0	0	0	1			4	1	1	250	128	6	English sole
943042	0	0	0	0	0	1			4	1	1	232	103	3	English sole
943043	0	0	0	0	0	1			4	1	1	240	120	4	English sole
943044	0	0	0	0	0	1	2	1		6	2	236	124	2	English sole
943045	0	0	1	0	1	1				1	1	324	270	16	English sole
943046	0	0	0	0	0	1	2	1			2	313	240	4	English sole
943047	0	0	0	0	0	1	2	1			2	298	244	4	English sole
943048	0	0	0	0	0	1			2	1	1	302	225	13	English sole
943049	0	0	0	0	0	1	2	1			2	314	263	5	English sole
943050	0	0	0	0	0	1			4	1	1	293	204	6	English sole
943051											2	314	285	6	English sole
943052	0	0	0	0	0	1			2	1	1	273	199	10	English sole
943053	0	0	0	0	0	1			1	1	1	273	171	7	English sole
943054	0	0	0	0	0	1			5	1	1	266	172	5	English sole
943055	0	0	0	0	0	1	2	1			2	268	180	2	English sole
943056	0	0	0	0	0	1			4	1	1	260	140	7	English sole
943057	0	0	0	0	0	1			4	1	1	241	136	3	English sole
943058	0	0	0	0	0	1			3	1	1	244	128	3	English sole
943059	0	0	0	0	0	1			4	1	1	236	126	2	English sole
943060	0	0	0	0	0	1			1	1	1	240	124	4	English sole
943061							2	1			2	343	387	10	English sole
943062	0	0	0	0	0	1	2	1			2	303	249	4	English sole
943063	0	0	0	0	0	1			3	1	1	288	227	7	English sole
943064	0	0	0	0	0	1			4	1	1	298	211	13	English sole
943065	0	0	0	0	0	1			3	1	1	252	163	5	English sole
943066	0	0	0	0	0	1			4	1	1	275	176	6	English sole
943067	0	0	0	0	0	1			4	1	1	263	160	5	English sole
943068	0	0	0	0	0	1	2	1			2	273	207	3	English sole
943069	0	0	0	0	0	1			4	1	1	265	157	5	English sole
943070	0	0	0	0	0	1			2	1	1	253	147	3	English sole
943071	0	0	0	0	0	1			4	1	1	256	162	3	English sole
943072	0	0	0	0	0	1			4	1	1	243	138	4	English sole
943073	0	0	0	0	0	1			4	1	1	253	143	5	English sole
943074	0	0	0	0	0	1	2	1			2	234	128	2	English sole
943075	0	0	0	0	0	1	2	1			2	234	114	3	English sole
943076	0	0	0	0	0	1			4	1	1	237	118	3	English sole
943077	0	0	0	0	0	1			4	1	1	237	121	5	English sole
943078	0	0	0	0	0	1			4	1	1	303	238	14	English sole
943079	0	0	0	0	0	1			4	1	1	247	132	2	English sole
943080	0	0	0	0	0	1			4	1	1	285	230	6	English sole

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEO	MESNEO	ALLNEQ	HEPCARC	CHOLCARC
943081	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943082	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943083	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943084	Y	N	Y	7/25/94	Olson	Hylebos Lower TB					
943085	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943086	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943087	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943088	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943089	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943090	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943091	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943092	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943093	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943094	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943095	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943096	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943097	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943098	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943099	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943100	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943101	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943102	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943103	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943104	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943105	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943106	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943107	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943108	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943109	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943110	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943111	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943112	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943113	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943114	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943115	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943116	Y	N	Y	7/25/94	Olson	Hylebos Lower TB	0	0	0	0	0
943117	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943118	Y	N	Y	7/25/94	Stehr	Hylebos Lower TB	0	0	0	0	0
943119	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0
943120	Y	N	Y	7/25/94	Myers	Hylebos Lower TB	0	0	0	0	0

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	KIDNEO	NEPHPROL	NEPHNEC	NEPHSCLR	TOXKID	KIDNEY	OVSTAGE	OVARY	TESTAGE	TESTIS	Sex	Length (mm)	Weight (g)	Age	Species Name
943081	0	0	0	0	0	0	1		4	1	1	246	124	5	English sole
943082	0	0	0	0	0	0	1		4	1	1	242	134	3	English sole
943083	0	0	0	0	0	0	1	2	1		2	240	120	2	English sole
943084											1	275	180	7	English sole
943085	0	0	0	0	0	0	1		4	1	1	230	104	3	English sole
943086	0	0	0	0	0	0	1		4	1	1	265	170	6	English sole
943087	0	0	0	0	0	0	1		1	1	1	278	207	7	English sole
943088	0	0	0	0	0	0	1	2	1	4	2	288	135	3	English sole
943089	0	0	0	0	0	0	1		4	1	1	227	106	3	English sole
943090	0	0	0	0	0	0	1		4	1	1	246	135	5	English sole
943091	0	0	0	0	0	0	1		4	1	1	256	144	3	English sole
943092	0	0	0	0	0	0	1		4	1	1	278	197	9	English sole
943093	0	0	0	0	0	0	1		4	1	1	253	140	5	English sole
943094	0	0	0	0	0	0	1	2	1		2	244	136	3	English sole
943095	0	0	0	0	0	0	1	2	1		2	306	285	5	English sole
943096	0	0	0	0	0	0	1	4	1		2	291	243	3	English sole
943097	0	0	0	0	0	0	1		4	1	1	330	299	19	English sole
943098	0	0	0	0	0	0	1		3	1	1	235	124	4	English sole
943099	0	0	0	0	0	0	1		4	1	1	230	102	5	English sole
943100	0	0	0	0	0	0	1		4	1	1	239	150	4	English sole
943101	0	0	0	0	0	0	1		2	1	1	275	193	6	English sole
943102	0	0	0	0	0	0	1		3	1	1	307	238	11	English sole
943103	0	0	0	0	0	0	1		4	1	1	285	199	9	English sole
943104	0	0	0	0	0	0	1		4	1	1	250	148	5	English sole
943105	0	0	0	1	1	1	1		4	1	1	246	144	3	English sole
943106	0	0	0	0	0	0	1		4	1	1	262	136	5	English sole
943107	0	0	0	0	0	0	1		4	1	1	238	114	3	English sole
943108	0	0	0	0	0	0	1		4	1	1	234	107	3	English sole
943109	0	0	0	0	0	0	1		4	1	1	222	95	3	English sole
943110	0	0	0	0	0	0	1		4	1	1	236	135	2	English sole
943111	0	0	0	0	0	0	1		5	1	1	246	110	6	English sole
943112	0	0	0	0	0	0	1		4	1	1	229	98	3	English sole
943113	0	0	0	0	0	0	1		1	1	1	229	98	4	English sole
943114	0	0	0	0	0	0	1		3	1	1	223	97	2	English sole
943115	0	0	0	0	0	0	1		2	1	1	248	133	5	English sole
943116	0	0	0	0	0	0	1		4	1	1	236	115	3	English sole
943117	0	0	0	0	0	0	1		4	1	1	230	113	3	English sole
943118	0	0	0	0	0	0	1		4	1	1	225	101	2	English sole
943119	0	0	0	0	0	0	1		4	1	1	232	110	3	English sole
943120	0	0	0	0	0	0	1		4	1	1	225	100	3	English sole

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEQ	MESNEQ	ALLNEQ	HEPCARC	CHOLCARC
943121	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943122	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943123	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943124	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943125	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943126	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943127	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943128	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943129	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943130	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943131	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943132	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943133	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943134	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943135	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943136	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	1	0	1	0	0
943137	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943138	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943139	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943140	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943141	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943142	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943143	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943144	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943145	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943146	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943147	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943148	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943149	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943150	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943151	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943152	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943153	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943154	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943155	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943156	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943157	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943158	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943159	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943160	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	MIXCARC	HEPAD	CHOLAD	HEPNEO	CHOLNEO	BE	EF	OCF	ALLFCA	MH	NP	SDN	LVPROL	SPONGHEP	HYDVAC	FOCALHYDVAI	NECROSIS	TOXLIV	LIVER
943121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943122	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
943123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943124	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
943125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943135	0	1	0	1	0	1	1	0	1	0	1	1	1	1	0	0	0	0	1
943136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943143	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
943144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943145	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
943146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
943152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
943154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
943157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943160	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	MIXCARC	HEPAD	CHOLAD	HEPNEO	CHOLNEO	BE EF	CCF	ALLFCA	MH	NP	SDN	LIVPROL	SPONGHER	HYDVAC	FOCALHYDVA	NECROSS	TOXLIV	LIVER
943121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943122	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
943123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943124	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
943125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943135	0	1	0	1	0	1	0	1	0	1	1	1	1	0	0	0	1	1
943136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943143	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
943144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943145	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
943146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943151	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
943152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943153	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
943154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943156	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
943157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943160	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEQ	MESNEQ	ALLNEQ	HEPCARC	CHOLCARC
943161	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943162	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943163	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943164	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943165	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943166	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943167	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943168	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943169	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943170	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943171	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943172	Y	N	Y	7/26/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943173	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943174	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943175	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943176	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943177	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943178	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943179	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943180	Y	N	Y	7/26/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943181	Y	N	Y	7/26/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943182	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943183	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943184	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943185	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943186	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943187	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943188	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943189	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943190	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943191	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	1	0	1	0	0
943192	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943193	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943194	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943195	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943196	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	1	0	1	0	0
943197	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943198	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943199	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943200	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	KIDNEO	NEPHPROL	NEPHNEC	NEPHSCLR	TOXKID	KIDNEY	OVSTAGE	Ovary	TESTAGE	TESTIS	Sex	Length (mm)	Weight (g)	Age	Species Name
943161	0	0	0	0	0	0	1	3	1			252	201	7	rock sole
943162	0	0	0	0	0	0	1					248	176	6	rock sole
943163	0	0	0	0	0	0	1		1		1	239	132	8	rock sole
943164	0	0	0	0	0	0	1	3	1		2	245	196	5	rock sole
943165	0	0	0	0	0	0	1	2	1		2	241	172	4	rock sole
943166	0	0	0	0	0	0	1	2	1		2	234	173	7	rock sole
943167	0	0	0	0	0	0	1	2	1		2	225	148	9	rock sole
943168	0	0	0	0	0	0	1	2	1		2	214	105	5	rock sole
943169	0	0	0	0	0	0	1				1	222	125	6	rock sole
943170	0	0	0	0	0	0	1	2	1		2	125	106	4	rock sole
943171								6	1		2	221	138	6	rock sole
943172	0	0	0	0	0	0	1	2	1		2	215	115	5	rock sole
943173	0	0	0	0	0	0	1	2	1		2	221	123	5	rock sole
943174	0	0	0	0	0	0	1			6	1	213	120	3	rock sole
943175	0	0	0	0	0	0	1			4	1	238	126	3	English sole
943176	0	0	0	0	0	0	1			5	1	236	118	4	English sole
943177	0	0	0	0	0	0	1			3	1	218	73	3	English sole
943178	0	0	0	0	0	0	1	2	1		2	237	116	4	English sole
943179	0	0	0	0	0	0	1	4	1		2	229	121	3	English sole
943180	0	0	0	0	0	0	1	2	1		2	221	97	1	English sole
943181	0	0	0	0	0	0	1			3	1	232	109	5	English sole
943182	0	0	0	0	0	0	1	2	1		2	231	116	2	English sole
943183	0	0	0	0	0	0	1			4	1	257	144	5	English sole
943184	0	0	0	0	0	0	1			4	1	285	192	11	English sole
943185	0	0	0	0	0	0	1	3	1		2	331	326	6	English sole
943186	0	0	0	0	0	0	1	4	1		2	260	190	3	English sole
943187	0	0	0	0	0	0	1			4	1	266	158	5	English sole
943188	0	0	0	0	0	0	1			1	1	278	169	11	English sole
943189	0	0	0	0	0	0	1	3	1		2	324	330	5	English sole
943190	0	0	1	0	0	1	1			4	1	275	193	10	English sole
943191								3	1		2	267	169	5	English sole
943192	0	0	0	0	0	0	1			2	1	304	270	12	English sole
943193	0	0	0	0	0	0	1			4	1	278	190	9	English sole
943194	0	0	0	0	0	0	1			4	1	244	139	6	English sole
943195	0	0	0	0	0	0	1	2	1		2	137	289	3	English sole
943196	0	0	0	0	0	0	1	3	1		2	321	296	10	English sole
943197	0	0	0	0	0	0	1			2	1	245	143	4	English sole
943198	0	0	0	0	0	0	1	2	1		2	252	141	3	English sole
943199	0	0	0	0	0	0	1			6	1	295	210	14	English sole
943200	0	0	0	0	0	0	1			4	1	272	192	9	English sole

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEO	MESNEO	ALLNEO	HEPCARC	CHOLCARC
943201	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943202	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943203	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943204	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943205	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943206	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943207	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943208	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943209	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943210	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943211	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943212	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943213	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943214	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943215	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943216	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943217	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943218	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943219	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943220	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943221	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943222	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943223	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943224	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943225	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943226	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943227	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943228	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943229	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943230	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943231	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bridge	0	0	0	0	0
943232	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943233	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943234	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943235	Y	N	Y	7/28/94	Stehr	Hylebos-11th St Bri	0	0	0	0	0
943236	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943237	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943238	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0
943239	Y	N	Y	7/28/94	Myers	Hylebos-11th St Bri	0	0	0	0	0
943240	Y	N	Y	7/28/94	Olson	Hylebos-11th St Bri	0	0	0	0	0

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	MIXCARC	HEPAD	CHOLAD	HEPNEO	CHOLNEO	BE	EF	OCF	ALLFCA	MH	NP	SDN	LIVPROL	SPONGHEP	HYDVAC	FOCALHYDVA	NECROSS	TOXLIV	LIVER
943201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943203	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	1	1
943204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943205	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	1
943206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943209	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	1	1
943210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943218	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1
943219	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943221	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
943222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943223	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1
943224	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
943225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943226	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943231																			
943232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943234	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943236	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
943239	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
943240	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	KIDNEO	NEPHPROL	NEPHNEC	NEPHSCLR	TOXKID	KIDNEY	OVSTAGE	OVARY	TESTAGE	TESTIS	Sex	Length (mm)	Weight (g)	Age	Species Name
943201	0	0	0	0	0	1			2	1	1	260	150	5	English sole
943202	0	0	0	0	0	1	2	1			2	299	232	5	English sole
943203	0	0	0	0	0	1			3	1	1	261	159	7	English sole
943204	0	0	0	0	0	1			4	1	1	252	133	5	English sole
943205	0	0	0	0	0	1	2	1			2	236	140	7	rock sole
943206											2	315	319	11	rock sole
943207	0	0	0	0	0	1	4	1			2	298	373	6	rock sole
943208	0	0	0	0	0	1	3	1			2	273	210	7	rock sole
943209	0	0	0	0	0	1	2	1			2	226	124	5	rock sole
943210	0	0	0	0	0	1	3	1			2	256	175	5	rock sole
943211	0	0	0	0	0	1			3	1	1	227	136	5	rock sole
943212	0	0	0	0	0	1					2	303	362	6	rock sole
943213	0	0	0	0	0	1	3	1			2	258	208	5	rock sole
943214	0	0	0	0	0	1					2	306	282	8	rock sole
943215	0	0	0	0	0	1	3	1			2	260	228	7	rock sole
943216	0	0	0	0	0	1					2	307	347	8	rock sole
943217	0	0	0	0	0	1	7	1			2	300	301	6	rock sole
943218	0	0	0	0	0	1	2	1			2	241	164	5	rock sole
943219	0	0	0	0	0	1			1	1	1	219	99	4	rock sole
943220	0	0	0	0	0	1			4	1	1	250	162	5	rock sole
943221											2	316	292	9	rock sole
943222	0	0	0	0	0	1	7	1			2	267	221	6	rock sole
943223	0	0	0	0	0	1	3	1			2	260	235	6	rock sole
943224											2	291	296	11	rock sole
943225	0	0	0	0	0	1	3	1			2	312	326	8	rock sole
943226	0	0	0	0	0	1	3	1			2	298	275	8	rock sole
943227	0	0	0	0	0	1	7	1			2	257	178	3	rock sole
943228	0	0	0	0	0	1	3	1			2	301	318	8	rock sole
943229	0	0	0	0	0	1	4	1			2	315	416	8	rock sole
943230	0	0	0	0	0	1	4	1			2	265	232	7	rock sole
943231	0	0	0	0	0	1			1	1	1	214	113	6	rock sole
943232	0	0	0	0	0	1			4	1	1	264	214	4	rock sole
943233	0	0	0	0	0	1					2	294	310	6	rock sole
943234	0	0	0	0	0	1	4	1			2	290	279	8	rock sole
943235	0	0	0	0	0	1			2	1	1	226	102	2	rock sole
943236	0	0	0	0	0	1			1	1	1	211	85	6	rock sole
943237	0	0	0	0	0	1	3	1			2	220	134	5	rock sole
943238	0	0	0	0	0	1			1	1	1	230	151	6	rock sole
943239	0	0	0	0	0	1	2	1			2	231	138	5	rock sole
943240	0	0	0	0	0	1			1	1	1	234	141	5	rock sole

Table 2. Liver and Kidney Histopathology for Hylebos Fish Injury Studies

Specimen #	Study: Toxicopath.	Study: Reproduct.	Study: Combined	Date	Reader	Site Name	EPNEQ	MESNEQ	ALLNEQ	HEPCARC	CHOLCARC
943271	N	Y	Y	9/20/94	Myers	Hylebos	0	0	0	0	0
943272	N	N	Y	9/20/94	Olson	Hylebos	0	0	0	0	0
943273	N	Y	Y	9/20/94	Stehr	Hylebos	0	0	0	0	0
943274	N	N	Y	9/20/94	Olson	Hylebos	0	0	0	0	0
943275	N	N	Y	9/20/94	Myers	Hylebos	0	0	0	0	0
943276	N	Y	Y	9/20/94	Stehr	Hylebos	0	0	0	0	0
943277	N	N	Y	9/20/94	Stehr	Hylebos	0	0	0	0	0
943278	N	N	Y	9/20/94	Olson	Hylebos	0	0	0	0	0
943279	N	N	Y	9/20/94	Myers	Hylebos	0	0	0	0	0
943280	N	N	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943281	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943282	N	N	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943283	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943284	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943285	N	N	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943286	N	N	Y	9/21/94	Myers	Hylebos	1	0	1	0	0
943287	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943288	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943289	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943290	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943291	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943292	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943293	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943294	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943295	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943296	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943297	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943298	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943299	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943300	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943301	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943302	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943303	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943304	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943305	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943306	N	Y	Y	9/21/94	Stehr	Hylebos	0	0	0	0	0
943307	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943308	N	Y	Y	9/21/94	Myers	Hylebos	0	0	0	0	0
943309	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0
943310	N	Y	Y	9/21/94	Olson	Hylebos	0	0	0	0	0

